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ANALYSIS OF FACTORS THAT INFLUENCE THE POTENTIAL OF NON-PERFORMING LOAN

Rachmat Makkasau[1], Windy Martaputri[2], Tengku Mohd. Khairal Abdullah[*3]

[1,2,*3]Business Management, Binus Business School, Jakarta
E-mail: [*3]tabdullah@binus.edu

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Abstract
Banks are financial service providers, raising funds from the public and redistribute them in the form of loans. The loan expansion carried out by banks have resulted risks that need to be managed properly. Non-performing loans (NPL) have the potential to cause substantial losses for the banks, thus managing credit risk efficiently is vital in reducing the number of NPL. This research examines the level of significance of Total Loan (LOAN) on Potential NPL (PNPL), and studies the role of credit quality indicators reflected in Credit Rating (CR) in moderating the effect of LOAN on PNPL of a bank. This research was conducted on one Indonesia's private banks in 2018 and 2019, and base on the results of this study, LOAN has a significant positive effect on PNPL. Whereas, CR moderated the effect of LOAN on PNPL. Since CR reporting is subjective based on analysts' considerations, it may not be in line with the actual condition of debtor' credit quality, due to internal considerations of creditors both in terms of risk and business..

Keywords -- Bad Debt, Bank, Credit, Credit Rating, Credit Quality Indicator, Non-Performing Loan (NPL), Loan.

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INTRODUCTION

Research Background

BANKS are business entities that play an important role in driving the economy of a country, by being an intermediary between parties who have excess funds (Funding) with those who need funds in the form of loans (Lending). Both of these activities are the core in banking, and act as the main source of revenue, which usually comes from interest, loan disbursement or fee-based income.

Providing credit in the form of loans is one of bank's main business activity and having grown tremendously over the past few years, culminating in 2018 by 11.75%, significantly higher than in 2017 (8.24%). As the amount of credits grow higher, banks need to manage their credit risk properly in order to reduce Non-Performing Loans (NPL) and need to put some allocation for Credit Loss Impairment (CKPN), which in turn can significantly influence profitability.

There are several factors causing the NPL, namely: changes in global economic conditions/government policies, high levels of competition, uncooperative debtors, abuse of credit facilities, inadequate analysis and monitoring of credit, fraud, and many other factors [1]. As higher level of NPL might contribute to bank's profitability, it is therefore imperative for banks to manage their credit wisely.

During the last several years, the average level of NPL of national banks has been showing a steady pattern, from 2.93% (2016) 2.59% (2017), and 2.37% (2018). However, this decline was reasoned to be the increase/ expansion in the number/ amount of loans provided, which was arguably quite large, as the level of credit growth reached 11.75% in 2018. Indeed, these loan expansions need to be managed properly, as it carries its own risk of default, usually being mitigated by increasing the level of Credit Loss Impairment (CKPN) which ultimately will enhance bank's capital structure. Therefore, we also see the increase of CKPN's allocation from IDR 150,765 billion in 2017 to IDR 156,963 billion by 2018.

The management of Non-Performing Loan is not only important towards the bank, but also important to the nation as well. Data showed that as much as 20% of banking loans contributed towards economic growth, hence an increase of NPL would have a severe negative impact on the economy especially on GDP. It is therefore imperative for any bank to have a good credit quality rating towards its creditors in order to secure all of its loans and keep the level of NPL at minimum level. A mishap in the evaluation of bank's credit quality rating might influence its profitability in the long run and also impact the economy as a whole. It is the focus of this paper to investigate further the influence of CKPN and credit quality rating and their effects towards Non-Performing Loans.

Research Problem

Every credit has its own risks. Therefore, banks are required to pay attention to sound credit principles, by making written credit policies as guidelines for granting loans and managing its level of NPL. It is very common for banks to use certain indicators of credit ratings to evaluate the capability of its creditors in repaying their loans.

An increase in the level of NPL will affect bank liquidity and profitability, which in turn will force misalignment of bank assets and liabilities and definitely will increase liquidity risk and might affect the overall image & credit rating of the bank. This is the underlying reason why banks are needed to manage credit risk & mitigate potential future losses due to unproductive credit, and one of the way to mitigate credit risk can be done by forming the CKPN on productive assets.

Research on Non-Performing Loans was conducted quite frequently in the literatures. Several studies analyzed the influencing factors of banking NPLs in Europe, such as a study conducted by such as by Makri, Tsagkanos & Bellas [2], which proved that there was a significant effect between bank specific variables (CAP, LTD, ROA, ROE), and macroeconomic variables (DEBT, fiscal, GDP, unemployment rate inflation) on bank NPLs in 14 Eurozone countries between the period of 2000-2008.

A study led by Mingaleva, Zhumabayeva & Karimbayeva, in 10 European countries using secondary data between 2006-2012, concluded several conditions leading to high NPL growth, such as: fluctuations in interest rates, exchange rate fluctuations, capital market conditions, credit policies from related banks, high consumer credit amid stagnant market conditions, as well as other specific causes in certain cases, such as: "toxic loan" financing [3].

There are also studies on NPL in Asian countries. For example, Nayake & Azeez studied on 24 banks in Sri Lanka [4], which was further supported by a study performed by Anjom & Karim on 10 banks in Bangladesh in the 2010-2014 period [5]. Both studies showed that macroeconomic & bank specific factors had a significant effect on NPL, including public debt (macroeconomics) and loan's growth, ROE, ROA, loan-to-asset ratio, capital-to-asset ratio (bank specific factors).

A similar study conducted in Indonesia by Barus & Erick on 94 banks which registered in Bank Indonesia (2010-2013) and the result showed that macroeconomic factors consist of: SBI (bank of Indonesia) interest rates, inflation and size of the company with bank internal factors consist of: CAR, Loan to Deposit Ratio (LDR), Net Interest Margin (NIM), Operational Costs Operating Income (BOPO) have a significant effect both simultaneously on NPL [6].

The results of those studies were also strengthened by the Rahman, Hossin & Asaduzzaman, concluded that credit-deposit ratio, ratio of unsecured loans to total loans, ratio of sensitive sector's loan to total loan, capital adequacy ratio, and investment-deposit ratio had a significant impact on banks' NPLs in Bangladesh (using data between the period of 2010-2015) [7]. However, this particular study also found that net interest margin & return on equity had no significant effect on NPLs.

As we are all aware, the bigger amount of credit distributed by the bank; the greater the risk exposure, hence the higher potential problematic loans that must be mitigated by the bank in requirement for good credit management. However, according to Novianto, Suharti & Yidhawati, their study showed that no significant positive correlation between the level of credit growth with the amount of non-performing loans (NPL) [8]. The study argued that the external/ macroeconomic factors, (such as: business environment conditions, disasters, business failures experienced by debtors, competition between banks); as well as the influence of internal factors, (such as the weakness of the internal banking system, policies, systems and procedures, credit supervision, poor character of bank decision makers and employees) played major influence towards the statistic.

However, this finding contradicted with the research conducted by Kusuma & Heryanto, which indicated that the level of credit growth has an insignificant but negative effect on NPLs [9]. Accordingly, sample selection seemed to play a bigger role in explaining the phenomena. Most of the sample were found to practice good management of credit rating and careful selective lending which successfully reduce the risk of default from actual debtors who are not eligible to receive credit, which in a way reducing the level of the bank's problematic loans.

Limited research has been done in investigating the role of credit rating and the level of outstanding loan towards NPL. Contradictions shown in previous literature as argued above, added to the necessity of such research to be performed. Moreover, due to the confidentiality of data provided, specific research investigating the level of outstanding loan and credit rating towards NPL on specific bank were very scarce and possibly none. It is essentially for researcher to investigate this phenomenon at a micro level, especially at the company level since it would assist banks in determining their credit rating policy as well as their CKPN policy in order to make it more effective in handling 'real' NPL cases.

It is therefore, the objective of this research to (1) investigate the effect of the level of outstanding LOAN on potential NPL, and (2) to investigate the role of Credit Rating as the moderating variable towards the relationship between the effect of outstanding loan towards NPL.

LITERATURE REVIEW

Potential Non Performing Loan (PNPL)

Loan is the provision of money or bills based on an agreement between the bank and another party that requires the borrower to pay off the debt after a certain period of time with interest (Law No. 10/1998 on banking).

Loans are usually the largest asset owned by banks, which has the risk of uncollectible/default. Credit risk is reflected in the PNPL, where the NPL is a condition that the debtor is not able to fulfill most/all liabilities to the bank as it has been promised. Under the Bank Indonesia's regulation, the NPL is a credit with the collectability of Substandard, Doubtful, or Loss.

According to Ugani, NPL is an indication of the total quality of the portfolio and credit decision making from a bank [10]. Some factors cause a reduction in the quality of the credit portfolio, this is basically due to the bank's poor decision making during the assessment of credit application. This condition might happen because various other reasons such as inappropriate management style or unsupportive company culture.

NPL definition according to Rahman, et al. (2017) is a loan that has been experiencing a decrease in credit quality so that the loan repayment of principal, as well as the interest was due more than 90 consecutive days after the payment schedule was taking place.

Total Loan (LOAN)

Credit is defined as the provision of money/linked bills, based on loan/loan agreement between bank and other party, stating the specific time for borrower to repay the debt inclusive the interest of the loan (LAW No. 10/1998 on Banking system) [11].

The main activity of the bank focuses on providing credit concerning risks that might affect the survivability of the bank. The total loans with different levels of credit quality can affect the bank's liquidity, solvency, and profitability. The loan given to debtors is the biggest part of a bank's assets and is the main source of income for banks, which usually comes from interest revenues, commissions, and provisions.

Several aspects & criteria are needed to be analyzed by the bank, both internal and external, before such loans are provided to the creditors. These criteria usually assess the ability and willingness of debtors to repay loans, which includes the internal as well as external factors (Figure 1).

Table 1. Five CS of Credit

Aspect of Analysis	5C's	Influencing Factors
Internal	Character	Character of the Debtors
	Capacity	Capacity to borrow Ability to create incomes
	Capital	Condition of producing facilities
	Collateral	Condition and Value of collateral
External	Condition	Development of general economy and business field for operation

Loans disbursed by banks carry risks that must be managed properly, so that in their implementation, banks must pay attention to sound credit principles. Each bank is required to make a "Credit Manual", which is a written policy as a guideline in granting loans, which regulates various provisions and limits in processing and assessing the creditworthiness of (prospective) debtors, as well as regulations concerning managing non-performing loans. It is some sort of SOPs for evaluating and assessing loans proposals. According to Akter & Roy, a bank's credit policy has a significant effect on the level of NPL, which considers investment portfolio factors in terms of cost (risk) and benefit (profit) in considering their creditworthiness [12].

Even though the bank credit risk analysis team has considered the 5C's factors and implemented the provisions & procedures in the Credit Manual at the beginning of the loan application, during the loan agreement tenure the conditions of these factors can change, which can affect the ability and willingness of the debtor to fulfill obligations to the bank. If the change is negative, it has the potential to disrupt the company's (debtors') financial condition and it will affect its capability to repay loans, which might increase the bank's level of NPL.

Credit management in a Bank has their own policy in managing NPL by putting adequate amount of CKPN to mitigate the credit risk identified. Several researches investigating the influence of NPL towards CKPN, were done by Prihartini & Pramesti, Fitriana & Arfianto, Syahid, Maulidiyah, Suluki and also Lubis, Meutia & Ardila, in which many of them studied the relationship in different settings [13][14][15][16][17][18].

All the result of the studies indicated that the NPL variable has a significant influence on CKPN, because the banks tend to form adequate reserves/CKPN to the debtor with high NPL, in order to manage potential credit risk in the future, which might influence the profitability of the bank. It has become crucial for the bank to know how they can mitigate the potential NPL.

The higher the amount of loan extended by the bank to the debtor, the greater the uncertainty risk associated with 5C's affecting the potential default risk. In order to mitigate this risk, banks must increase the allocation of CKPN, as its face increasing credit risk from debtors. Hence, the following hypothesis is suggested.

H_1 : LOAN has significant positive effect on PNPL.

Credit Rating (CR)

One of the usual indicator being used in assessing credit quality as a basis for categorizing the non-performing loans is Credit Rating (CR). CR is an instrument that is useful in managing credit risk from a loan portfolio that has been disbursed by the bank, as well as being an instrument that supports the process of credit analysis and approval.

Each debtor must have a CR that reflects the debtor's credit quality. CR is the basis for portfolio management, risk cost calculation and credit monitoring procedures. CR can help banks mitigate risks early and manage loan portfolios properly, which can affect the business continuity of the banks. Banks can also use ratings from third/independent party (for example: Moodys, Fitch, S&P) as data support.

According to Tohir, good and correct implementation of credit rating can provide benefits for the bank [19], therefore it is important for the bank management to put attention on:

1. Standardize credit risk measurement methods for each debtor.
2. Control amount of NPL reserve and mitigate potential losses as early as possible.
3. Identify debtors credit portfolio and profile based on the level of credit, and
4. Manage and standardize credit portfolio risk based on economic sectors and business groups of The debtors.

In general, CR is divided into 2 main components, namely: Debtor Risk and Credit Facility Risk Factors. The definition of each component are as follow:

- Credit Rating (CR) is the level of net risk of all credit portfolio exposures held by the debtor, which already takes into account the Debtor Risk Factor (DRF) and Credit Facility Risk Factor (CFRF), by summing these two factors in a weighted average.
- DRF is a measure of the debtor's ability to fulfill the credit obligations, which reflects the risk factors related to the debtor which are assessed based on the creditworthiness of the debtor and/or guarantor. DRF rating is based on the creditworthiness of debtor which focuses on the financial, management, and industry conditions of the (prospective) debtor.
- CFRF reflects risk factors related to credit facilities provided, as well as calculations related to credit facilities (such as type & structure, tenure, value of loan) and collateral provided (type & value of market).

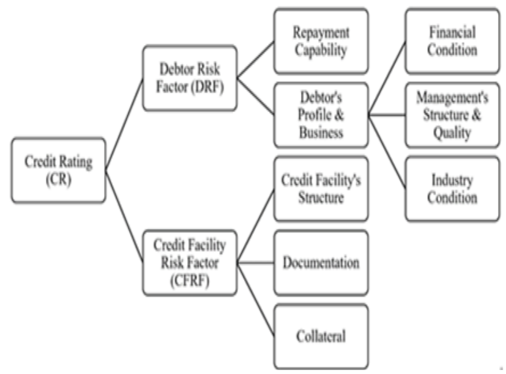

Figure 1. Credit Rating's Components

Several considerations usually are put into consideration in determining the credit quality/credit rating, such as based on materiality concern, the significance of the valuation factors, and the relevance of these components to the characteristics of the debtor concerned. However, in practice, credit ratings entered in the system by analysts, which are subjective in nature and based on internal judgment of the bank. Thus, the CR score can be different from real performance because of these considerations in terms of risk and business that can have a significant impact on CR data reporting.

Referring to previous research conducted by Savitri showed that by implementing credit quality monitoring process, it would have some effect to the level of NPL at the bank [20].

A study performed by Budiasih & Dewi on 307 LPD in Tabanan district in the period of 2010 to 2014, also showed that credit quality factors contribute a significant point in giving a lending decision, and poor credit quality weakens the lending rate, as it indicates potential NPL [21]. High NPL will increase the reserve that must be formed by the banks, so the banks will pay more attention to the debtors in that category.

Another study performed by Oka, Purnamawati & Sinarwati at PT Bank Pembangunan Daerah Bali branch Singaraja in the period of 2012 to 2014, also showed similar conclusion with the study done by Budiasih & Dewi [22]. The result of the study indicated that the credit quality factors, represented by credit collectability variable has a significant effect on lending decision with a Sig. 0,000. A much better level of credit collectability would make it easier for the banks to work with as it will reduce the risk for the banks.

However, in general, the worse the credit quality, the higher the CR score of the debtor which reflects higher credit risk, which in turn force banks to be more careful in conducting credit monitoring. Hence, the following hypothesis is suggested.

H_2 : CR moderates the effect of LOAN towards PNPL.

Hypothesis Development

Referring to the framework above, two hypotheses are suggested below:

H_1 : LOAN has significant positive effect on PNPL.

H_2 : CR moderates the effect of LOAN on PNPL.

Theoretical Framework

The theoretical framework of the research based on the research topics and hypotheses developed above is illustrated below.

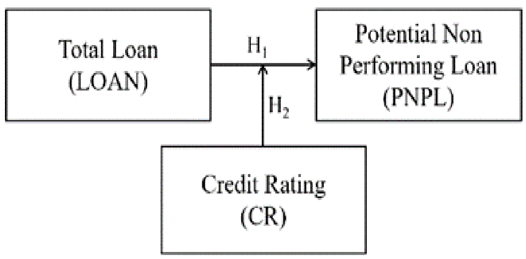

Figure 2. Theoretical Framework

RESEARCH METHOD

The design of this study is quantitative, focusing on collecting secondary data of performance related credit quality indicators, which are CR, LOAN, and PNPL within the period of 2018-2019. This study aims to determine whether (1) the level of outstanding loan might influence the NPL, and (2) the lever of Credit Rating might moderate the relationship between the level of Outstanding Loan towards NPL.

The target population in this study is all debtors of various levels of credit, from consumer credit to corporate credit, obtained from a specific case of bank under study. However, for the purposed of this study, the sample was targeted towards all of the debtors who fall under the 'watchlist' category. These debtors were chosen due to their significant contributions towards the bank's CKPN allocation within the period of 2018 to 2019. Total number of 175 companies of debtors were selected for this study.

Due to the nature of the data, the analysis of logistic regression was used in this study to test the significance of the effect of LOAN on PNPL, as well as to test the role of the credit rating in moderating the effect of LOAN towards PNPL.

DATA ANALYSIS AND DISCUSSION

Descriptive Analysis

The descriptive analysis on the sample of this study was taken from a list of debtors in a specific case of an Indonesian private bank between the period of 2018 to 2019, consisting of secondary data of CR, LOAN, and PNPL.

Table 2. Descriptive Analysis Summary

Variable (n = 175)	Min.	Max.	Mean	Standard Deviation
CR	31	91	58	14
LOAN (IDR Mio)	500	882.105	93.597	167.261
PNPL (IDR Mio)	126	580.057	64.248	104.033

CR variability is low with a mean value of 57.95 and standard deviation of 14.27. While the LOAN variable has a high variability of data with a range between IDR 500 million to IDR 882.1 billion, with a mean of IDR 93.6 billion and high standard deviations reaching IDR 167.3 billion. Likewise, the PNPL variable also has quite a high variability, with a range between IDR 126 million to IDR 580.1 billion, an average of IDR 64.2 billion and a standard deviation of IDR 104 billion. These data have such characteristic due to the LOAN and PNPL data, which consist of various types of credit facilities, ranging from consumer loans with credit exposures under IDR 100 Million to corporate loans with credit exposures above IDR 500 billion.

Analysis of Logistic Regression

The logistic regression analysis developed in this study is aimed to analyze the significance of the effect of the independent variable, total LOAN, on the dependent variable, PNPL, and to examine the role of moderating variable of CR, in moderating the effect of LOAN towards PNPL.

Table 3. Result of Logistic Regression

Regression Model	Dependent Variable	Independent Variable	CI For Exp (B) 95%			
			Sig.	β	R^2	R^2 Change
Model I	LOGPNPL	LOAN	0,000	0,000	20,7 %	20,7 %
Model II		LOAN CR	0,000 0,001	0,000 0,067	32,6 %	11,9 %
Model III		LOAN CR LOAN x CR	0,000 0,004 0,000	0,000 -0,212 0,000	79,9 %	47,3 %

Based on the logistic regression test results above, it shows that the independent variable LOAN has a significant effect on the variable of PNPL, with a Sig value of 0.000 (Sig. < 0.05). Thus, based on the statistical test's results above, it can be concluded that H_1 is accepted.

The statistical test related to the role of CR in moderating the effect of LOAN towards PNPL also shows that this relationship is significant with a Sig value of 0.000 (Sig. < 0.05). Based on the results of the statistical test, it can be concluded that H_2 is also accepted.

Table 4. Conclusion of Hypothesis Test

Conclusion of Hypothesis Test

Hypothesis 1 (H_1)

Dependent Variable	Independent Variable	Sig.	Expected Sign	Result Found	Accepted / Rejected
LOGPNPL	LOAN	Yes	(+)	(+)	Accepted

Hypothesis 2 (H_2)

Dependent Variable	Independent Variable	Moderating Variable	Sig.	Moderation Effect	Accepted / Rejected
LOGPNPL	LOAN	CR	Yes	(+)	Accepted

DISCUSSIONS AND CONCLUSIONS

This study aimed to examine the level of significance of the effect of the Outstanding Loan variable (OSLOAN) on NPL (PNPL) variable, as well as the role of the Credit Rating (CR) variable in moderating the effect of Outstanding Loan towards NPL.

The high level of significance of OSLOAN on PNPL requires banks to be more careful in extending or expanding the loan, and also be more selective on loan application process. As extension of outstanding loan will also increase bank's credit risk, which means an increase in the possibility of NPL. The Risk management for NPL can be carried out by establishing an adequate level of CKPN as a counter measure for potential losses of NPL. However, the amount resorted at CKPN will also affect the level of profitability of the banks, consequently, banks are required to manage NPL during the first phase.

The findings of this study somehow contradict with the results of Novianto, Suharti & Yudhawati, and also the findings of Kusuma & Haryanto, as those studies found no significant influence between credit growth on NPL [8][9]. One possible explanation is perhaps the nature of the sample, that focused on the banks and not the creditors, which is the main subject of this research.

Additionally, this study found that the credit quality indicator represented by CR moderated the effect of the OSLOAN on the PNPL. And also showed that the subjective evaluation provided by the bank's analyst as represented by CR did play an important part in the relationship between OSLOAN towards PNPL. This subjective evaluation was performed by adjusting the debtor's rating base on existing negative issues related to debtors in the CR system, even though all obligations to the bank are fulfill by the debtor, because of that then the CR number may not be in line with the real condition of the debtor, due to internal adjustment and consideration of the bank, both in terms of risk and business. Because of CR adjustments, a credit facility could potentially become NPL even though should be non-NPL. Of course specific explanation was needed to be presented when these differences were found to be quite significant to evaluate the credit rating of any prospective creditors.

However, it should be noted that this study recorded a multicollinearity in the analysis of Model III. Allison (2012) argued that the element of multicollinearity especially when the variable is a product of an interaction effect is quite safe to be ignored in regression model, as the multicollinearity was found to be quite common in such research [23]. Nonetheless, cautions should be put in reading the results.

The research of this study is limited to the data from an Indonesian private bank for the period of two years, between 2018 – 2019. It is expected for future research, that this kind of study can expand beyond the current scope of samples both in terms of bank types and different types of industries of creditors.

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