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ABSTRACT

This study aims to explore the implementation pattern of credit risk management at Bank X by analyzing the practices encountered in the field compared to the evaluation framework and relevant literature to find out the factors that cause the decline in credit collectability using the Basel II framework. This research is descriptive qualitative research using a case study method by exploring and analyzing credit risk management practices through distributing questionnaires and interviews with key personnel of Bank X. According to the evaluation result, it can be concluded that the implementation of Bank X's credit risk management still needs improvement. The main weakness was found in the absence of an internal credit risk rating mechanism and an inadequate credit risk management information system.

Keywords: banking; basel ii; credit risk management; risk, risk management

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1. INTRODUCTION

The banking industry is one of the financial sectors that significantly influence the people's economy. The public's need for capital, both productive and consumptive, has prompted banks to produce many financial products for various debtor segments. But on the other hand, it also increases stronger competition because each bank tries its best to get as many prospective debtors who will increase the risk of loans at the bank.

The most common credit risk and correlated closely with the banking sector is the risk of bad credit. Bad credit risk can be defined as the failure of the debtor to fulfil his obligations to pay the loans to the bank or the failure of a third party (counterparty) who has a responsibility to deliver cash and financial instruments to the bank related to the agreement.

Based on POJK Number 18/POJK.03/2016 concerning the Implementation of Risk Management for Commercial Banks, the regulation emphasizes that each bank needs to implement risk management effectively. Bank X, as one of the commercial banks belonging to Province X Government, is also asked to apply risk management according to the regulation in the POJK. Banks must increase accuracy in operational activities according to objectives, business complexity, and resources owned and integrate with risk management which is accurate and comprehensive.

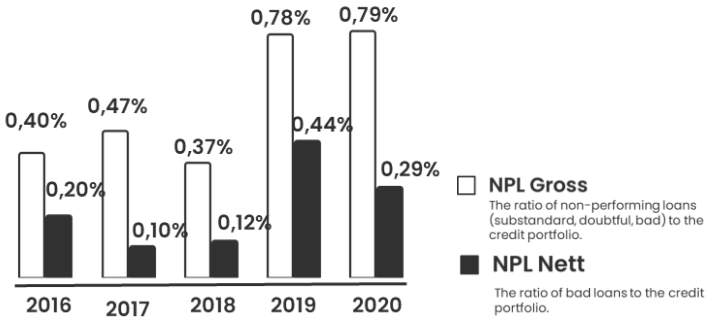

Figure 1. Five Years NPL Trend of Bank X

In general, during the 2016-2020 period, Bank X's Gross NPL and Nett NPL showed an increasing trend. In 2020 Bank X's Gross NPL reached 0.79% or an increase 0.41% compared to 2016 Gross NPL 0.37%. Meanwhile, Bank X's Net NPL in 2019 reached 0.44% or 0.32% higher than the 2018 Net NPL 0.12% (see figure 1). The increase in NPL indicates that the ratio of non-performing loans has increased compared to the previous period. The implementation of credit risk management that is not in line with the standards can cause an increase in the ratio of non-performing loans.

The obligation to implement risk management and the increasing NPL ratio at Bank X is the reason for the researchers to conduct research related to evaluating the implementation of credit risk management at Bank X using the Basel II framework, which means a banking sector risk management framework developed by the Basel

Committee on Banking Supervision (BSCS), an institution consisting of 45 central banks and 29 bank supervisory authorities of which Indonesia is one of the members. Another reason that underlies the selection of Bank X as the object of this research is that Bank X is one of a handful of local government-owned banks that are classified in the BUKU II category (Assets above 10 trillion) and have obtained the status of "Healthy" or in other words can implement good risk management comprehensively.

Earlier research was conducted to see the correlation between the application of ERM and a decrease in the NPL ratio (Claudia, 2011); Rajagukguk (2015) evaluated the application of risk management in general at a bank using the ISO 31000:2009 framework; then Afriyie et al. (2018) focused on analyzing the factors that influence the credit risk management process. Other research conducted by Konovalova et al. (2018) focuses on analyzing the most critical variables in the credit approval process. Meanwhile, this research was conducted to assess risk management, especially credit risk, which is the main risk in the banking sector, using a standard risk management framework made explicitly for the banking industry. This has not been done in previous studies, which tend to assess the application of general risk management, which is not specifically designed for the banking sector.

The objective of this study is to find out information regarding the pattern of credit risk management implementation at Bank X by analyzing the practices encountered in the field compared to the evaluation framework and relevant literature so that the factors that cause the decline in the collectability of Bank X's credit can be found out. The final result of this research is expected to help the management at Bank X to formulate a better action to improve credit risk management, become an alternative credit risk management assessment framework for external evaluators, and become one of the references for the next similar research.

2. LITERATURE REVIEW

2.1. RISK AND CREDIT RISK

According to the American Risk and Insurance Association (1966), the risk is uncertainty over the result of an activity when two or more possibilities could happen in the future. Risks faced in the banking sector can be classified as speculative risks because they are entirely the result of bank financial activities that have the potential to increase income or even cause losses (Bojinov, 2016). Generally, there are two risk categories in the banking sector, namely internal risk and external risk. External risk consists of country risk (related to the country's economic conditions), legal risk, market risk, and economic cycle risk. Meanwhile, internal risk consists of credit risk, portfolio risk, interest rate risk, currency risk, liquidity risk, operational risk, strategic risk, guarantee risk, and regulatory risk. Of these risks, the inherent risks in the company's core business are credit risk and liquidity risk.

According to Karafolas (2017), credit risk is a potential risk where the debtor (debtor/counterparty) fails to fulfill its obligations as stated in the agreement contract between the two parties. Credit risk is measured for loans, guarantees, securities such as corporate bonds, hedging purposes (such as swaps and options), and other off-

balance transactions. Credit risk occupies the first position when viewed from the level of its influence on operational activities in the banking industry (Kessey, 2015). The main activity in obtaining bank income is carrying out loans to debtors, but improper credit risk management will lead to a big problem in the future. In short, banks with high credit risk will also have a high risk of bankruptcy.

Many factors have an impact on the increasing credit risk. According to Han (2015) and Basel (2000), credit distribution focused only on certain categories can cause the credit structure to be unreasonable and easily influenced by policies, economic cycles, industrial life cycles, and other factors. And when credit risk occurs, the bank will face a significant loss. Konovalova et al. (2016) stated that the poor credit rating system was carried out through weak qualitative and quantitative analysis, caused by banks not being able to objectively obtain complete information about the debtor's financial condition. After the credit is distributed, the bank is unable to assess the use of funds and ensure that payments can be made on time by the debtor. Thereby, it can increase the number of bad loans. Basel (2000) also states that weaknesses in implementing credit processes are also the cause of increased credit risk, including limited information used in credit analysis, lack of testing of new techniques in credit management, the subjectivity of credit approvals by authorized personnel, neglect of some standard procedures in reviewing creditworthiness, weak monitoring of debtors and the inability of banks to link credit risk with prices or interest rates charged to debtors as a mitigation measure.

OJK (2016) has set a number of credit risk indicators that must be met by the banking sector, including minimum capital adequacy of 8% (Common Equity Tier 1 of 4.5% of RWA/Risk-Weighted Assets, Additional Tier 1 of the remainder), additional capital provision (Capital Conservation Buffer of 2.5% of RWA, Countercyclical Buffer of 0% to 2.5% of RWA, Capital Surcharge of 1% to 2.5% of RWA), Liquidity Coverage Ratio (LCR) of 100% and High-Quality Liquid Assets (HQLA) with standard values starting from 15% according to the level of the HQLA. Capital Conservation Buffer, Countercyclical Buffer, LCR, and HQLA are only required for BUKU 3 and 4 banks, while Capital Surcharge is only required for banks with systemic risk.

2.2. RISK MANAGEMENT AND CREDIT RISK MANAGEMENT

Risk Management is a process of identifying potential events that can affect the entity, aligning risk management with the entity's risk appetite, and providing sufficient confidence that the entity's objectives can be achieved, which process requires the active involvement of the Board of Directors, management and other personnel (Moeller, 2011). In the banking sector, risk management is a complex and structured action to optimize risk management practice, not only as an option to minimize the potential for risk to arise but also as a mechanism that is integrated with business processes (Bojinov, 2016). Furthermore, according to Greuning and Bratanovic (2020),

carrying out effective risk management in the banking sector it can be done by: 1) Clear division of tasks and responsibilities in the implementation of risk management; 2) a clearly defined risk management strategy; 3) Coordination and formalization in decision making; 4) Qualitative and quantitative analysis; 5) Complete, timely, and consistent data collection in a systematic manner; and 6) Quantitative models to analyze changes in economic and business indicators.

One of the most significant risk management in the banking sector is credit risk management. According to Brown and Moles (2016), Credit Risk Management is a series of processes to control the potential impact of credit risk by identifying the causes of risk, evaluating the level of risk faced, and determining the right decisions to manage credit risk. According to Sookye and Mohamudally-Boolaky (2019), Credit risk management is the most important risk management strategy in the banking industry. In line with this, Kiseľáková and Kiseľák (2013) stated that credit risk management plays an important role in maintaining financial liquidity and stability in the banking sector due to the increased sensitivity of banks to credit risk and changes in the price development of financial instruments. To conduct credit risk management, there are 5 phases those are; Rating Phase, Costing Phase, Pricing Phase, Monitoring Phase, and Workout Phase (Weber et al., 2008).

Credit risk management is aimed to ensure that credit risk exposure is always at an acceptable level so that the rate of return can be obtained optimally (Basel, 2004). Other objectives are to identify general patterns of debtor economic behavior, formulate customized terms and conditions for debtors in each category according to their specificity, and determine the risk appetite of decision-makers regarding the nominal amount, loan tenor to be granted bank interest rate. (Konovalova et al., 2016).

Credit risk management cannot be separated from policies and strategy of credit risk, which is the basic instructions regarding which areas and under what conditions banks may and may not distribute credit. The relationship between the two is that credit risk policies and strategies are the core of implementing credit risk management and must be consistent with the company's general credit plan. The credit policy and strategy provide a regulation form and a framework for implementing effective credit risk management. Establishing an effective credit policy will encourage banks to maintain good credit guarantee standards. In addition, an effective credit policy also increases the ability of banks to conduct an assessment, monitor, and control credit risk (Kessey, 2015).

Bank failure in implementing credit risk management is one of the main factors that cause bad loans. This can be seen in the research of Kumar and Kanchu (2013) regarding the debtor monitoring process, which is one of the elements in credit risk management. When monitoring of debtors is not carried out properly, banks will not obtain information as early as possible regarding debtors who have the potential to default so that anticipatory action cannot be carried out faster and finally have an impact on increasing non-performing loans and bad loans. Many studies have proven that banks with bad credit have the same characteristics of credit risk management. Those are they do not conduct monitoring, guarantee, and control credit (Berger and

De Young, 1997). This may be started from a lack of competence and portfolio quality assessment but can be because the bank does not develop adequate policies, systems, and procedures related to monitoring, guaranteeing, and controlling credit.

The implementation of effective credit risk management also cannot be separated from efforts to assess the quality of the credit portfolio. According to Greuning and Bratanovic (2020), portfolio quality assessment is one of the main tools in credit risk management. The asset portfolio will be classified at the origin of time and reclassified periodically according to the level of credit risk. The reclassification process also considers payment performance, debtor's financial capacity, economic trends, and market conditions changes. Konovalova et al. (2016) add that the assessment of portfolio risk factors that accompanies the provision of certain loans involves a series of comprehensive and systematic analyzes, enabling banks to prevent repeated and adverse impacts from these risks on bank operations in the future. Banks must pay attention to the principle of transparency in applying the method of assessing credit risk factors. The principle of transparency is a principle that prioritizes the accuracy of the use of mathematical methods; reduces bias and subjectivity in credit analyst assessments; the existence of clear, measurable, and comparable results of risk assessment and analysis; there is a thorough understanding of bank employees on the results of the risk assessment as evidence that the assessment guidelines are well communicated; and providing adequate access for regulators and debtors to the methods used (Afriyie et al., 2018).

2.3. EVALUATION PARAMETERS

The evaluation parameters used following the Basel II framework consist of 17 key principles to assess the effectiveness of risk management implementation, including 1) Responsibility for approving and reviewing credit risk management strategies and policies; 2) Responsibility for implementing credit risk strategies and policies; 3) Identification and management of credit risk for all products and activities. 4) Have defined credit approval criteria; 5) The existence of a credit limit determination at the level of individual and corporate debtors; 6) Clarity of credit approval process; 7) Every credit extension must be carried out fairly and carefully monitored; 8) Have a credit risk administration system for their various portfolios; 9) Have a system to monitor individual credit conditions; 10) Ownership of an internal risk rating system; 11) Ownership of information systems and credit risk measurement methods; 12) Ownership of portfolio proportion and quality monitoring system; 13) Analysis of macroeconomic conditions and measurement of risk exposure with critical scenarios; 14) The credit risk management process is assessed continuously and independently; 15) Risk exposure is in line with the company's prudential standards and good management of the lending function; 16) The existence of a first aid mechanism to deal with non-performing loans; 17) There is a separate evaluation of the strategy, policy, procedure and practice of lending by the party appointed by the commissioner.

3. RESEARCH METHODS

3.1. RESEARCH DESIGN

This study is descriptive qualitative using a case study approach with Bank X as the object of study. The case study design used is the distribution of questionnaires and interviews with senior employees and key officials of Bank X, which are directly related to credit risk management practices. The questionnaire respondents selected were 15 senior employees from the Compliance and Risk Management Division, the Internal Audit Unit, the Credit Unit, and the Credit Rescue and Remedial Unit. The selection of the 15 employees was carried out through discussions with the Compliance and Risk Management Division Head so that the selected respondents really had the capability to answer the questions given. At the same time, the informants consisted of 4 officials, namely the Compliance and Risk Management Division Head, the Internal Audit Unit Head, the Credit Unit Head, and the Credit Rescue and Remedial Unit Head. The selection of these four informants took into account the four main areas of credit risk management assessed according to the Basel II framework.

Questionnaire respondents will receive 125 closed questions containing Yes and No answers to determine their perceptions, knowledge, and understanding regarding credit risk management practices implemented at Bank X. Meanwhile, informants will receive 191 questions to dig deeper into risk management practices at Bank X. Things obtained during interviews and questionnaires were based on 17 principles of Basel II Credit Risk Management which were elaborated into 191 questions (125 closed questions and 66 open questions) that could answer the maturity level of credit risk management at the bank. These questions have been explicitly described in the detailed explanation of the 17 principles of Basel II, so the researchers only need to sort out and convert these explanations into specific active questions. The answers obtained will be tabulated and given a score based on their compliance with the credit risk management practice standards set out in Basel II.

3.2. DATA ANALYSIS

The analytical method used in this research is Content Analysis, which is the method used to identify patterns in recorded or documented communication (Luo, 2021). Steps to carry out the analysis include: 1) Collecting information through secondary data analysis to find out an overview of the application of credit risk management at Bank X, then conducting interviews and distributing questionnaires to selected informants and respondents to confirm and dig deeper information; 2) Tabulate the results of interviews and questionnaires into tabular form; 3) Give a score for each answer to the question that has been tabulated. The answers to the questionnaires will be checked for consistency with the interview results. The explanations obtained from the interviews are used as a final judgment of whether the answers to the questions are in accordance with the evaluation standards. The scoring method will be explained separately in the section below; 4) Analyzing the scoring

results to find out the weaknesses and causes for the emergence of weaknesses in the application of credit risk management 5) Providing recommendations for improvements to the weaknesses encountered and minimizing the causes.

3.3. SCORING METHOD

Scoring is used to provide a score for the suitability of credit risk management practices against the standards set by Basel II. The explanation of the 17 principles of credit risk management in the Basel II document has clearly stated what must be fulfilled and what must be done by banks in carrying out credit risk management effectively, so the researchers only need to sort out and turn the explanations into specific active questions. These questions are asked in the interview session, and the questionnaire is then given a score according to the level of conformity to the standard. The scoring provisions include: (1) Each question whose answers are fully based on Basel II standards is given a score of 1, while completely unsuitable questions are given a score of 0; (2) Questions whose answers are only partially based on Basel II standard are given a score of 0.75, 0.50 or 0.25; (3) Questionnaire answers are compared with detailed answers obtained from interviews. A detailed explanation of the results of the interview will be the basis for judgment to provide a score of practice conformity to the standard; (4) Questions are categorized based on sub-discussions, and the sub-discussion scores are obtained from the average score of the questions; (5) Sub-discussions are categorized into principles, and the score for each principle is obtained from the average score of the sub-discussions in it; (6) The overall score is obtained from the average score of each principle.

To make the process of analyzing problems easier, the scoring results are classified into a number of categories adapted from the Risk Maturity Model of RIMS (Risk and Insurance Management Society). The consideration of using the RIMS RMM category is the pattern of categorizing the maturity level of RIMS risk management can be applied to see the effectiveness of credit risk management. RMM RIMS categorizes the application of risk management into 5 maturity levels, while for this study, the 5 levels were simplified into 3 levels, namely the lowest 2 levels as Weak Category, 1 middle level as Category Need Improvement, and the top 2 levels as Good Category (details can be seen in table 1).

Table 1. Classification of Credit Risk Management Implementation

RIMS Version	Score	Classification
Ad Hoc	0,00 – 0,25	Weak
Initial	> 0,25 – 0,50	
Repeatable	> 0,50 – 0,75	Need Improvement
Managed	> 0,75 – 0,90	Good
Leadership	> 0,90	

Source : RMM RIMS

This assessment process is carried out considering that Bank X has never conducted a special assessment for applying credit risk management, either carried out independently or facilitated by the OJK. The assessment process that has been carried out at Bank X is related to risk management in general, which includes not only credit risk management but also the management of other banking risks, so that the results cannot be used as a reference to see the implementation of credit risk management specifically.

4. ORGANIZATION PROFILE

Bank X is a local government-owned bank in one of the provinces in Indonesia. Bank X's capital is wholly owned by the Province X Government, district government, and city government in the administrative area of Province X. Bank X's Branch offices, sub-branches, cash offices, and ATM facilities are spread throughout the Province X, and one branch office is located in Jakarta. Bank X offers several financing products such as multipurpose loans, mortgages, motor vehicle loans, cash collateral, productive loans, MSME loans, construction loans, and developer loans. For the savings category, the products offered are savings, current accounts, and time deposits.

Bank X has implemented credit risk management by referring to the credit risk management rules designed by the OJK and reduced to internal technical rules as a reference for bank personnel to implement the provisions required by the regulator. Several implementation forms of credit risk management that have been applied by Bank X include ensuring the capital adequacy ratio by 23,90%, which has reached far above the minimum requirement of 8%. Bank X has also carried out stress testing procedures once every three months to estimate potential losses due to critical conditions using three scenarios consisting of massive withdrawals of funds from third parties, failure of the banking system, and downgrading of bank ratings..

5. RESULT AND DISCUSSION

5.1. CREDIT RISK MANAGEMENT IMPLEMENTATION SCORE

Based on the data tabulation collected through distributing questionnaires to 15 senior employees and conducting interviews to 4 division heads/unit heads of Bank X, the score for implementing credit risk management at Bank X is as:

Table 2. Scoring Results of Credit Risk Management Implementation

Principles	Score
Principle 1 : Board of Directors Approval on Credit Policies and Strategies	0,784
Principle 2 : Responsibilities of Senior Management in the Application of Credit Policies and Strategies	0,818
Principle 3 : Identification and Management of Credit Risk at the Product and Activity Level	0,563
Principle 4 : Good and Defined Credit Approval Criteria	0,867

Principles	Score
Principle 5 : Determination of Credit Limits for Various Levels of Debtors	0,833
Principle 6 : Clear Mechanisms for Credit Approval	0,889
Principle 7 : Every Credit Extension must be done fairly	0,556
Principle 8 : The existence of a Credit Administration System	0,567
Principle 9 : Debtor Credit Condition Monitoring System	0,722
Principle 10 : Utilization of Internal Credit Risk Ratings	0,100
Principle 11 : Information Systems and Credit Risk Analysis Techniques	0,135
Principle 12 : Information Systems for Quality and Portfolio Composition	0,813
Principle 13 : Considering Potential Future Economic Changes	0,864
Principle 14 : Independent and Continuous Assessment of Credit Risk Management	0,625
Principle 15 : Credit Provisions are Well Managed and Credit Risk Exposure is Consistent with Prudential Standards	1,000
Principle 16 : Early Remedy of Bad Credit	0,850
Principle 17 : The Supervisory Role of the Board of Commissioners on the Credit Risk Management Process	0,722
Average Score	**0,689**

Source: interviews and questionnaires (processed data)

According to the results above, it can generally be concluded that the application of credit risk management at Bank X has not been effective, which is still in the category of Need Improvement. In other words, Bank X already has the basic principles, framework, and procedures for credit risk management; most business units have implemented credit risk management regularly, but not consistently enough; it has appointed some personnel dedicated to each function involved in the credit risk management process, but some other functions are still carried out by personnel who hold concurrent positions; as well as infrastructure to support the implementation of effective credit risk management is still not available.

Of the 17 principles that become the assessment parameters, the parameters that have been implemented are good or get a score above 0.75. Those are Principle 1, Principle 2, Principle 4, Principle 5, Principle 6, Principle 12, Principle 13, Principle 15, and Principle 16. Meanwhile, the principles of credit risk management that still need to be improved or scored between 0.5 – 0.75 are Principle 3, Principle 7, Principle 8, Principle 9, Principle 14, and Principle 17. Meanwhile, the principles of credit risk management that are still weak in the application or score less than 0.5 are Principle 10 and Principle 11..

5.2. WEAKNESSES OF APPLICATION OF CREDIT RISK

Referring to the scoring results of the implementation of credit risk management above, it can be seen that two weaknesses that affect the ineffectiveness of the implementation of Bank X's credit risk management are:

a. Utilization of Internal Credit Risk Rating (Principle 10)

The results of interviews and questionnaires showed that Bank X did not yet have an internal credit risk rating mechanism for credit approval purposes but still uses a traditional credit analysis approach which involves a lot of judgment from credit analysts. The internal credit risk rating is a mechanism that combines a qualitative model and a statistical model that is built using a large amount of data from current and non-performing credit contracts to analyze the eligibility of credit applications (Brown and Moles, 2016). This rating can be used by banks to assess the credit risk inherent in each prospective debtor before approving or rejecting an incoming credit application. In other words, the absence of an internal credit risk rating at Bank X will result in the bank not being able to obtain complete information regarding the condition of the prospective debtor so that the decision to approve the granting of credit to potential debtors with the potential for default or default may occur. This is in line with the results of research by Konovalova et al. (2016) that a poor credit rating system due to weak qualitative and quantitative analysis can result in banks not being able to objectively obtain a complete picture of the debtor's financial condition and unable to assess the intended use of the funds and gain confidence in the debtor's ability to repay the loan on time. In the absence of a credit rating system, Bank X is likely to approve applications for poor quality debtors who have the potential to suffer losses in the future so that the NPL value can increase.

There are a number of reasons why Bank X does not yet have an internal credit risk rating. First, the management of Bank X feels that the current credit approval mechanism is sufficient, so that the need for additional mechanisms has not become a priority for now. This is as conveyed by the Head of the Credit Unit:

"We have not implemented an internal credit risk rating because the current risk assessment mechanism is considered good enough to assess risk, and we have been running this for quite a while. We ask for complete information on prospective debtors. We conduct surveys at their homes and places of business or offices, and the credit analysis team analyzes the eligibility of prospective debtors."

The Compliance and Risk Management Division Head, said the same thing:

"Our target market is mostly ASN (state civil apparatus) and employees with a fixed monthly salary pattern. This category of customers tends to have a low risk of default, so the current credit approval procedure is sufficient."

Bank X's confidence in the current credit approval procedure is based on Bank X's NPL performance, which is still below the maximum NPL limit set by the OJK, which is 5%. This can actually be a trap for Bank X because, based on historical NPL data from 2016 to 2020, it shows an increasing trend, so it can be predicted that the NPL ratio in the coming years can continue to increase if Bank X does not immediately revamp its credit approval mechanism. Although Bank X relies heavily on debtors who have certainty of receiving monthly salaries, the debtor's financial capacity can still fluctuate, which of course, will have an impact on the debtor's ability to pay off its obligations. Fluctuations can be caused by a decrease in the attractiveness of the industry where the debtor works so that there

is a potential for a decrease in income or termination of employment. In addition, Bank X still has quite a number of other debtor segments that must also be developed. If Bank X is unable to anticipate losses due to the default of debtors from the "non-priority" segment, then Bank X will forever depend on the ASN and employee segments so that the growth of Bank X's portfolio will also not be significant, considering the large banks in Indonesia and abroad have the majority of credit portfolio in productive sectors with a higher total interest income than individual debtors.

Second is the absence of competent human resources to develop an internal credit risk rating. This is, as stated by the Head of the Credit Unit:

"State-owned banks or large private banks can usually develop the credit rating system because they have many human resources and already have various kinds of certifications. While our personnel who have the ability to develop the credit rating system do not yet exist."

Third, the investment required for development is also not small, especially for personnel training, because it needs experts from external institutions. This is stated by the Head of the Compliance and Risk Management Division:

"To develop a new system like that, of course, requires a large budget, both for training and building the system. We must budget such expenditures in the RKAP before they can be authorized by the BOD and BOC. But for now, we still focus on the construction of the new head office building, which is still in progress."

Fourth, Bank X has a regular monitoring procedure for debtor credit risk so that the weaknesses in credit approval can be backed up with further mitigation. This is stated by the Head of Credit Rescue and Remedial Unit:

"We conduct regular monitoring of debtor credit risk every three months. If a debtor has a bad credit risk level, for example, due to a decrease in financial capacity, we immediately take mitigation steps, visiting the debtor and making the debtor in a monthly monitoring list that is evaluated regularly."

Periodic and continuous monitoring are good risk mitigation steps to take because Bank X can obtain information on potential debtor risk continuously so that it can immediately determine the necessary corrective steps. However, when credit risk occurs, the losses experienced by the bank will still be greater than if Bank X had been able to identify credit risk from the start before the approval process through the application of an internal credit risk rating.

Based on the condition and obstacles above, Bank X should be able to develop a priority scale to start adopting an internal credit risk rating system. After all, to implement effective credit risk management, banks still need an adequate internal credit risk rating. Bank X can allocate a budget to provide some employees to take part in internal credit risk rating training in the first year. Employees who have attended the training are encouraged to provide retraining to other employees so that more employees understand the principles, benefits, and

how the internal credit risk rating works. In the same year, Bank X should also begin to identify the data needed and the key variables that will be used to develop an internal credit risk rating. Meanwhile, for the second year, Bank X can allocate a budget to develop an internal credit risk rating information system, whether developed by involving internal IT personnel or using third-party services. This is because the internal credit risk rating function will be more optimal if it has been developed into an integrated information system.

b. Credit Risk Information System (Principle 11)

According to Basel (2000), banks must have a set of information systems that can support the application of credit risk management, which includes a MIS (management information system), an information system for monitoring credit risk exposure limits, and an information system for monitoring credit concentrations. These three information systems play an important role in facilitating the process of monitoring the credit risk management process by managing and automating the calculation process to minimize the potential for errors if you still rely on manual procedures. Weak management and monitoring of the application of credit risk management due to the absence of an adequate information system is in line with the statement by Berger and De Young (1997) that banks with non-performing loans generally have the same characteristics of credit risk management, namely not conducting adequate monitoring, guaranteeing and controlling credit.

The results of interviews and questionnaires showed that Bank X had not adopted any of the three information systems as required by Basel II. The information system owned by Bank X is still limited to the debtor's personal data storage system and payment history data for each debtor. This is based on information obtained from the Compliance and Risk Management Division Head: “We already have a Credit SIM (credit management information system) to accommodate debtor data and their payment data. Later, a portfolio quality report per bucket can also be issued. Every month we prepare a management information system, in the form of a printed report, that the contents of the report are in accordance with OJK's request that we send every month.”

From the statement above, it can be seen that Bank X has a slightly wrong understanding of the meaning of a management information system where the monthly risk report sent by the Compliance and Risk Management Division to the BOD (Board of Directors) is considered a MIS (management information system). This is clearly contrary to the notion of a management information system, according to Berisha-Shaqiri (2014). It states that the flow of processing a procedure integrated with other procedures uses computerized mechanisms to provide on-time and effective information to support decision making and other management functions. From this understanding, it is clear that a management information system is a tool or mechanism that utilizes a computerized system as a medium for distributing information to management. When Bank X only has monthly reports as a medium for conveying credit risk information to management, the goal of the management information system becomes difficult

to achieve both in providing on-time and effective information for decision making. Credit-related issues such as a decrease in credit collectability can only be identified by management at the beginning of each month so that corrective instructions for credit problems that arise cannot be carried out as early as possible in order to minimize the impact of these problems. This condition has an impact on the increase in the value of NPL, which should have been anticipated immediately. Still, it has already increased because management missed the right time for prevention.

Regarding these weaknesses, the Compliance and Risk Management Division Head gave a rebuttal:

"Our team has full access to SIM Credit data and features, so whenever the Board of Directors requests information about the portfolio and credit risk, our team is always ready to provide the information needed quickly."

The ability of the Compliance and Risk Management Division team to present requested data from the Board of Directors on time needs to be appreciated, even though these conditions still have weaknesses. Although the Board of Directors may ask the team under it to provide the latest information regarding the company's credit risk, the process is no more flexible than if the Board of Directors can directly access the information system containing the latest pre-credit conditions at any time. The current manual mechanism still requires waiting time to process data before it is presented to the BOD, and the risk of human error during data processing may occur, which results in less accurate information received by management. On the other hand, if Bank X already has a computerized management information system, in addition to minimizing misstatement of information, the Board of Directors or other senior management levels can also monitor and access credit risk conditions at any time, even when not at the office location, such as meeting with the DPRD, regional heads or other stakeholders. This, of course, will greatly assist in faster decision-making.

According to Han (2015), credit distribution focused (concentrated) only in certain areas can result in the credit structure becoming sensitive and easily influenced by policies, economic cycles, industrial life cycles, and other factors. To prevent banks from facing losses due to the concentration of credit distribution, an information system is needed, and it can help banks monitor the concentration of credit distribution. Unfortunately, based on the results of interviews and questionnaires, it is known that Bank X has not utilized the information system to monitor credit concentration and still relies on manual procedures for each credit approval. This is stated by the Head of the Credit Unit:

"Our team does not have a special system to monitor credit concentration, but at the beginning of the year, we collaborated with the risk management team to plan the nominal loan portfolio for each category of debtors. We prepare a budget in excel and use it as a reference every time we do credit approval. If the accumulated nominal credit distributed has reached or is approaching the limit of a category of the debtor, then the application for new credit in the category of the debtor will

not be processed, or we must seek approval from the BOD (Board of Directors) and the BOC (Board of Commissioners)."

The use of manual mechanisms is very dependent on the individual's accuracy in monitoring the figures presented in the budget form. When the assigned Bank X personnel are less careful in using the budget form, the concentration of credit distribution in certain debtor categories is very likely to occur. Another weakness is that the Board of Directors and Commissioners cannot monitor credit concentrations in real-time because credit concentrations cannot be accessed through an information system connected to the internet or the company's local network, so that decision cannot be made immediately. The informant stated that the reason why Bank did not have the information system was because Bank X should postpone investment expenditures that are not yet urgent because of the target for depositing PAD (regional original income) to the regional government. Bank X can also gain more benefits by integrating the credit concentration monitoring information system with the internal credit risk rating information system to minimize subjective judgments in making decisions to approve or reject new credit applications, especially when credit accumulation almost reaches the targeted concentration limit.

The same thing applies to the credit risk exposure limit monitoring information system. From the results of questionnaires and interviews, it is known that Bank X has not implemented an information system to monitor credit risk exposure limits. The monitoring process still relies on manual processes by processing data taken from the debtor database. The appointed personnel take credit portfolio data according to a certain time span through the Credit SIM application and then performs a series of calculations to generate a credit risk exposure value by considering the debtor's payment history, collateral value, remaining principal, and interest, and remaining tenor. This is stated by the Compliance and Risk Management Division Head:

"Debtor data are processed by the team. The data are taken from our system and analyzed, and the results of the calculation of credit risk exposure are presented in the form of a report. We routinely issue the report every month, but we can still present it if at any time requested by the leadership."

This statement is also in line with what was conveyed by the Head of Credit Rescue and Remedial Unit:

"We get a risk exposure report once a month from SKMR (Risk Management Unit). We discussed the results internally, and we were also invited to a meeting by SKMR with the board of directors, credit, and SKAI… We don't have a system dashboard yet, so the process still uses regular reports."

The disadvantage of using this manual system is that the monitoring process cannot be carried out continuously either by the commissioners, directors, or other senior management. If the risk exposure has been presented in a special system, by integrating the available data, of course, the commissioners, directors,s and senior management of Bank X can monitor the condition of the risk exposure in real-time so that when the credit risk exposure exceeds the risk limit, decisions can be taken immediately. If Bank X is able to adopt a more sophisticated system,

it is also possible for the system to provide advice to the leadership of Bank X regarding what corrective steps can be taken when credit risk exposure is close to or has passed the set limit.

Another weakness that tends to always arise from manual procedures is the possibility of errors when calculating credit risk exposure. The calculation process that is still done manually with the help of excel plus the use of a number of criteria makes the calculations quite complex and leads to miscalculations. If Bank X utilizes a monitoring information system, the manual calculation process does not need to be carried out because it will be directly calculated by the system in order to minimize human error.

Similar to the reason for the absence of the previous two information systems, according to informants, the problem of Bank X not having an application to monitor credit risk exposure limits is the lack of budget for the procurement of information systems. So that an alternative that may be taken by Bank X is to look for a vendor who is able to develop a single system that can accommodate the three systems above. Logically, developing one system, even though it is quite complex, it will still be cheaper than developing three separated systems. However, the careful selection of vendors needs to be a concern considering that the data which will be involved in the system is confidential data so the risk of data leakage needs to be reviewed by Bank X.

6. CONCLUSION

This study is based on the unique insights obtained from the management and senior employees to observe how the pattern of application of credit risk management at Bank X is. The results of the content analysis in this study reveal that the basic credit risk management framework is already in place, credit risk management practices have been carried out routinely but not consistently enough, and dedicated personnel in the credit risk management process have been appointed but not yet fully adequate, and there is still a lack of infrastructure to support the implementation of credit risk management. In other words, the application of credit risk management at Bank X is still not effective, so it still needs improvement. The two main weaknesses that have resulted in the ineffectiveness of credit risk management practices at Bank X are the not yet implemented internal credit risk rating mechanism and the unavailability of an adequate credit risk management information system. It is because Bank X feels sufficiently protected by the current credit procedures so that the adoption of a new, more standardized mechanism is not needed. The supporting information system is considered not urgent and can still be scheduled for the next period considering that the investment required is also quite large and the lack of competent personnel for the development of credit risk management systems and infrastructure. Things that are recommended for the management of Bank X to improve these weaknesses include

preparing a plan to develop an internal credit risk rating mechanism in stages starting from HR training with external vendors who are experts in the application of banking credit risk management (stage 1), identification and development of variables required (stage 2) and the development of a computerized rating system (stage 3). Another recommendation is that Bank X should develop an information system that can accommodate the three functions of the Management Information System, the Credit Concentration Monitoring Information System, and the Credit Risk Exposure Monitoring Information System instead of developing three separate information systems, which are much more expensive. These two recommendations were made by considering the limited resources owned by Bank X.

With a number of weaknesses in this study related to the method of collecting sensitive data and the limited openness of the object of research in providing these data, we encourage further research to expand data collection methods such as FGD or observation. By conducting FGDs in which several people meet at once, it creates trust from the object of study that the information extracted solely for academic purposes will be relatively easier to obtain when compared to relying solely on interviews and questionnaires. The process of getting a mutual understanding will be easier to achieve because the informant can not only interact with the interviewer if he finds things that are doubtful but also can interact with each other to share understanding. When a common understanding has been achieved, the process of extracting information can be carried out more openly and in detail. When the trust of the object of the case has increased, observations to see the real conditions in the field will also be conducted, thereby increasing the acquisition of accurate information to draw research conclusions.

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