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Reducing the Chaotic Non-Performing Loans' Permata Bank - Indonesia in 2016: The Case of Unintentionally Using TRA and TRIZ

1st Sumiyana Sumiyana, &2ndMaria Regina Nansi

[1]*Professor in Accounting and Information Systems, Faculty of Economics and Business, University of Gadjah Mada.ORCID: 0000-0002-1518-9681*
[2]*Master of Business Administration graduate, Faculty of Economics and Business, University of Gadjah Mada, Yogyakarta, Indonesia. Email: mariareginanansi@gmail.com*

Corresponding author: sumiyana@ugm.ac.id

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Abstract: This study investigates the strategic solution implemented by Permata Bank to reduce its high non-performing loan (NPL) ratio. The recorded NPL gross was 8.83%, and the NPL net was 2.24% in 2016. This study elaborates on the tactical strategy used by Permata Bank to lower its loan risk and why it decided to select the method it chose rather than the general system employed by the banking industry. This study identifies the main factors using RCA (root-cause analysis) and TRIZ (theory of solving inventive problems). Especially for RCA, the main reason for the high NPL ratio at Permata Bank was loan failures. The TRIZ concept then identified solutions to the problem and the appropriateness of those solutions. The research result shows that the NPL reduction strategy implemented by Permata Bank during the Chaos in 2016 was unquestionably valuable. Furthermore, this study infers that Permata Bank's CEO conducted what an academic called the theories of RCA and TRIZ to accelerate the solution to the bank's problem.

Keywords: non-performing loan; root-cause analysis; inventive problem solving; account strategy; recovery; restructuring; factoring;

JEL: G24: Investment Banking; Venture Capital; Brokerage; Ratings and Rating Agencies; F65: Economic Impacts of Globalization; L2: Firm Objectives, Organization, and Behaviour.

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1. Introduction

This study investigates the problems caused by the increase in non-performing loans (NPLs) at Permata Bank. By the end of 2016, the number of NPLs issued by Permata Bank had increased to 8.83% (exceeding the maximum required standard of 5.00% laid down by Bank Indonesia, the Central Bank of Indonesia) from the previous year's figure of 2.74%, and it recorded a loss of 6.53 trillion IDR or 484 million USD. After the monetary crisis in 1998, this loss was the second largest experienced by banks in Indonesia, after the Bank Century, which lost 7.28 trillion IDR or 539 million USD in 2008. This increase in NPLs had an impact on diluting the bank's assets due to operating losses. Moreover, it decreased earnings per share from 21.07 IDR in 2015 to -368.78 (loss) IDR in 2016. Therefore, Permata Bank had to increase its new outstanding share volume due to the internal crisis's impact. Consequently, the chaotic NPL of Permata Bank was a hot issue in international banking (Scardovi, 2015). This case presents Figure 1, which discloses the escalation in Bank Permata's NPLs.

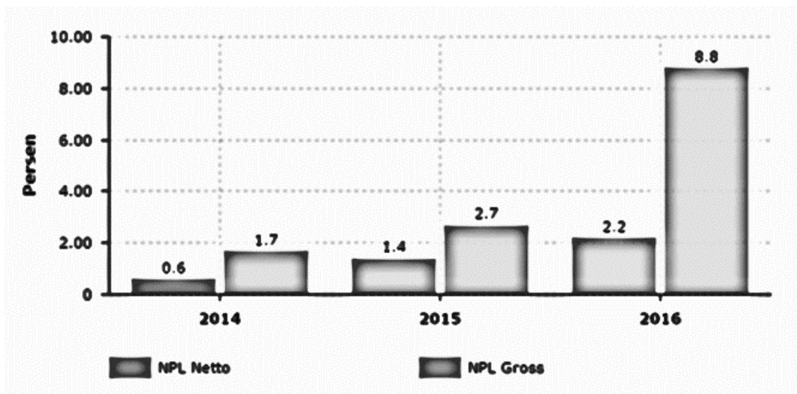

Figure 1. The NPL of Bank Permata in the Years from2014 to 2016

This study suggests that Permata Bank's large NPLs put the bank in a technical default position (bankruptcy). Non-performing loans (NPLs) usually are a related problem caused by debtors' bankruptcy and are considered as "financial pollution" due to their negative impacts on economic growth (Barseghyan, 2010; Espinoza & Prasad, 2010; González-Hermosillo, 1999; Nkusu, 2011; Zeng, 2012). The NPL ratio describes the position of the due loans and how many are at risk of default. It also signifies that the bank will incur a loss if the loan receivable settlement problem is incorrect. If the number of non-performing loans exceeds the earning power, it becomes a threat to the bank because both profitability and liquidity are disrupted, and the worst possibility is that the bank becomes bankrupt. Cai & Huang (2014) suggested that a significant amount of NPLs in a bank can cause low profitability. Therefore, the banks must pay more attention to controlling their NPL ratios to positively affect and increase their profitability. Some other studies use the loan growth rate to measure bank risk (Berger & Udell, 1994; Foos et al., 2010; Koudstaal & van Wijnbergen, 2012; Shrieves & Dahl, 2003; Zhang et al., 2016). However, Permata Bank was able to dismiss the problems in 2016 with simultaneous tactical strategies. Consecutively, the steps were: a comprehensive screening review of all the loan accounts, competitive restructuring programs, strengthening risk management, a new right's issue of shareholders' equity, and management's reformation. This study, therefore, investigates "How Permata Bank formulated the tactical strategies?" Furthermore, this study finds out "Why Permata Bank could solve its problems in 2016?"

This study is an idea unique for the following reasons. **First**, this study discloses the strategic solution used by Permata Bank, which the Government of Indonesia (GoI) had not considered. The problems experienced by Permata Bank in 2016 were solved through an internal settlement between the owners and management, using various steps, methods, and strategies. It meant that this settlement did not involve Bank Indonesia in the rescue process, unlike Century' Bank's bailout by the GoI. This study noted that these financial losses of Permata Bank are the second most significant losses occurring in Indonesia. **Second**, the two largest owners -Standard Chartered Bank and Astra International - chose tactical strategies in their policy bundle, as stated above. These two owners chose strategic steps that were very accurate and resolved the problems in a short time.**Third**, this study suggests that both the largest owners and the bank's CEO used two combinations of problem-solving approaches, namely root-cause analysis (RCA) and the concept of TRIZ. This study highlighted that the bank's CEO and owners did not take into account both approaches. Conversely, it believes that the solution to the problem used both concepts and combinations of them. The quick, precise outputs became the critical markers for the RCA's necessary reasoning and the ultimate ideal results indicated by TRIZ.

This case was analyzed by using two fundamental concepts: RCA and TRIZ. Wilson (1993) and Wang et al. (2017) suggested that problem-solving is based on the root causes of the problem, while other things that are not considered to be the causal factors are eliminated. Meanwhile, Chechurin & Borgianni (2016), Vidal et al. (2015), and Hsieh et al. (2015) suggested that problem-solving can be done using an algorithmic approach that has been previously deterministic. These concepts also stated that the new algorithm helps determine new system inventions and repair old systems running or causing damage. This case study uses the two basic concepts to analyze and investigate the problem-solving process when Permata Bank suffered financial losses in 2016.

This case study identified and analyzed that the CEO and Permata Bank's two largest owners solved the problem using two basic concepts. The solution was in the form of tactical strategies. This study expected to conclude that it could identify the final ideal outputs and fundamental principles. This case study found that the two majority owners were obliged to solve 2016 using RCA and TRIZ. These two concepts were constructed with a bundle of problem-solving packages. They included a comprehensive review of all loan accounts, implementing an aggressive and comprehensive restructuring program for all debtors, strengthening the risk management with new rights issues, and reforming the bank's controls.

2. Company Background

Permata Bank, Co. Ltd. (formerly known as Bank Bali, Co. Ltd.) was founded in Indonesia by Establishment Deed No. 228, dated 17th December 1954. Eliza Pondaag, S.H., a successor to Raden Mas Soerojo, S.H., a public notary in Jakarta, signed this deed. Permata Bank, Co. Ltd. was formed as a result of five banks that merged under the supervision of the Indonesian Bank Restructuring Agency (IBRA), which were Bank Bali Co. Ltd., Bank Universal Co. Ltd., Bank Prima Express, Co. Ltd., Bank Artamedia, Co. Ltd., and Bank Patriot, Co. Ltd., in 2002. The ultimate shareholders of the new bank's parent companies are as follows:

1. Standard Chartered Bank is a subsidiary owned by Standard Chartered Holdings Limited. Standard Chartered Holdings Limited's shareholders are Standard Chartered PLC.
2. Astra International Co. Ltd. (AI) shareholders are Jardine Cycle and Carriage Limited-Singapore (JCCL). The ultimate shareholder of JCCL is Jardine Matheson Holdings, Co. Ltd., a public company with premium listings on the London Stock Exchange and incorporated in Bermuda.

Permata Bank's head office is located in the World Trade Center II, Jalan Jenderal Sudirman Kavling 29-31, Jakarta. Permata Bank Co. Ltd. recently employed 7,499 staff (31st December 2017) and had 634 branch offices. In addition, distribution channels include more than 1,000 ATMs with an additional 20 mobile payment points. In detail, this study investigates the emergence of the problem and decisions about how to solve the problem using tactical strategies. This formulation of the problem and its solution into tactical strategy mainly focused on how Permata Bank owners and CEO handled the issue and how they came up with the tactical steps.

3. Critical Perspective

TRIZ initially starts with a problem's definition in which it is arranged structurally. Before collecting the data, the second step decomposes the complex problem with a structured set of analyses. This set contained an innovative inquiry, problem formulator; function analysis; substance-field investigation, and anticipatory failure analysis. In comparison, RCA is used to identify the root cause of this complex problem. However, the RCA cannot systematically capture information, unlike TRIZ (Cai & Huang, 2014).

The authors consider Sutrisno et al. (2016), who suggested the corrective improvement conducted by RCA. The remedial progress of a complex problem is rooted in the application of failure mode and effect analysis (FMEA). Chiarini (2015) also demonstrated the improved performance of a maintenance system based on the combination of RCA and the Lean Six Sigma approach. Latino et al. (2019) investigated how using RCA could produce a bottom-line solution. It posits Sutrisno et al. (2016), Chiarini (2015), Latino et al. (2019) and explains the underlying key to the problem of Permata Bank's NPLs. Using the RCA, this article could explain what Permata Bank owners and CEOs did to solve their problem with NPLs in 2016. It demonstrates stepped solutions, although the CEO of Permata Bank was not aware of what they did. However, RCA could map what the CEO did.

TRIZ contains the tools and work developed by G.S. Altshuller (the father of TRIZ), well-known as the classic TRIZ (Litvin et al., 2007). It had been modified to become modern TRIZ (Ikovenko, 2008). The classical TRIZ contained tools such as trends of engineering system evolution (TESE), matrix, function-oriented search (FOS), and an algorithm for inventive problem solving (ARIZ). All the appliances are used to analyze the initial problem and find the root cause (Altshuller & Altov, 1996; Fey & Rivin, 2005; Litvin et al., 2007; Savransky, 2000; Savransky & Stephan, 1996; Terninko et al., 1998). They also help to increase the value of a product's innovation. Finally, modern TRIZ focuses on improving the classic one's weaknesses, enhancing the chosen solution's effect. Litvin et al. (2007) and M. Li et al. (2013) used the concept of TRIZ to investigate the design process of innovation for a complicated product. In this case, TRIZ was used to find an innovative solution through a combined patent circumvention. The usual stages of design are initiation, identification, problem-solving, and specific resolution. Litvin et al. (2007) and M. Li et al. (2013) argued that TRIZ could recommend an alternative framework for innovation's complex problems.

4. Research Method

This research was undertaken using a case study method to understand the process behind the financial losses in 2016 and the solution to prevent further injuries. In addition, this study explores the interactions between the failure causes, problem-solving, and strategy selection in an organizational context (Yin, 2009).

This study was carried out in four stages, accompanied by specific methods to investigate the phenomena of Permata Bank's losses. Along with the strategic formulation of Permata Bank's problems, this study was conducted by collecting and analyzing the data and information, and synthesizing the analysis and reporting the results (Eisenhardt, 1989; Singleton Jr et al., 1988; Yin, 2009).

Two methods can be used to carry out case studies: using exploratory or critical instances (Eisenhardt, 1989; Singleton Jr et al., 1988; Yin, 2009). The first method was used in this study since it allows for an investigation process based on two established concepts: RCA and TRIZ. RCA is a structured approach to recognizing the real cause of a problem and identifying actions resulting in a permanent solution. The principles of RCA underpin many quality control methods such as failure analysis (Liang et al., 2006), problem investigations (De Grave et al., 1996), continuous improvement process, accident analysis, change management (Aladwani, 2001), failure mode and effects analysis (Senders, 2004), and risk management (Rasmussen, 1997).

TRIZ is a systematic problem-solving methodology; this study proposes closing the gaps in its knowledge. TRIZ was first developed by Genrich Altshuller and his colleagues in the former USSR, starting in 1946. TRIZ's research hypothesis is that universal principles are the basis for creative innovation. If these principles could be identified and codified, they could be taught to make the invention more predictable. By analyzing more than two million patents, the TRIZ could identify many innovation patterns ideally. Furthermore, the TRIZ could reveal the following: repeated problem-solving across industries and sciences, technical evolution practices, and innovations that used scientific effects outside the field (Chai et al., 2005).

Data Collection

This study collected its data using semi-structured interviews. We used semi-structured interviews because we wanted to search for the essential points that indicate the main problems that caused the high number of NPLs at Permata Bank. The semi-structured questions are attached in Appendix A. We utilized an in-depth interview method because it could provide detailed information from experienced and competent individuals. Furthermore, this method takes advantage of face-to-face interviews between the authors and the interviewees. It means that whenever this study cannot gain precise information from one informant, the author raised the issues with other respondents until the details can be understood without any doubts.

This study performed seven times of face-to-face interviews. Each interview lasted for about 45 to 135 minutes. In addition, this author interviewed seven managers from marketing, collection, the bank's head office, and a branch office. We noted that three directors were interviewed together, and their answers are similar to what Infobank published. These semi-structured interviews were carried out in-depth to gather information on granting loans and how to settle them. Table 1 shows research respondents for its data collection.

Table 1: Informants

No	Name	Role	Duration
1	Informant1	Former Independent Commissioner	135 minutes
2	Informant 2	President Director	Infobank
3	Informant 3	Finance Director	File Infobank
4	Informant 4	Branch Manager	75 minutes
5	Informant 5	Relationship Manager	45 minutes

6	Informant 6	Field Collector Specialist	60 minutes
7	Informant 7	Desk Collector	75 minutes

The data used in this study were primary and secondary. This primary data refer to the researchers' first-hand information and variables, following Creswell's research objectives (Creswell & Creswell, 2017). This study used the data from the interviews as primary data. Creswell & Creswell (2017) also stated that secondary data refer to existing sources such as company records or archives, government publications, industry analysis by the media, websites, the Internet, etc. Quantitative variables and qualitative variables in this study are the numbers of NPLs (both gross NPL and net NPL) and the strategy for reducing the numbers of NPLs. The variable number of NPLs is quantitative data, while the strategy variable decreases the amount of NPLs is qualitative data.

In this study, the secondary data used were three annual data sets from Bank Indonesia and the Indonesian Financial Services Authority. Other data sources were obtained from Permata Bank, the Central Bureau of Statistics, and the monthly Infobank Magazine. Creswell & Creswell (2017) recommended that case studies take the form of documents, archival records, interviews, observations, and physical devices. Therefore, the research is categorized as field research and library research based on its data collection techniques. Quantitative data collected on the numbers of NPLs or qualitative data regarding the strategy to reduce the numbers of NPLs was carried out in the field by studying various media publications, direct observations by the researchers, and studies of the relevant documents. The researchers could not act as participants in this study, so they collected and analyzed it instead.

Data Analysis

This study has four steps: investigating the phenomenon of the decline in Permata Bank's financial performance by collecting data, analyzing data, synthesizing the analysis results and reporting the results (Eisenhardt, 1989; Singleton Jr et al., 1988; Yin, 2009). The data analysis started with coding and then searching for its meaning (Miles & Huberman, 1984). The initial phase of coding recorded and categorized the relevant themes from the reference framework. Later in the second stage, this study interpreted compositions' acquisition based on the RCA concept and TRIZ. The final step was to anticipate the interpretations' results to avoid bias when checking the data's collection methods and sources.

In the interview inquiry analysis, the data analysis used a qualitative method to inspect the data to identify strategies for reducing the number of NPLs at Permata Bank. Discussion of the qualitative data on decreasing the number of NPLs in this study was directed toward nonstatistical conclusions. The debate was about comparing the normative standard that the researchers had established. Therefore, the form of the findings will be either appropriate, inappropriate, or not of the expected standards.

5. Lessons Learned

This study investigated the problem with the NPLs and the solution to this problem using tactical strategies. The tactical strategy focused on how and why the problem-solving policy used these tactical strategy steps.

The Problem (RCA) or Problem Analysis (TRIZ)

First of all, Permata Bank's CEO solved the bank's high ratio of NPLs by using RCA and TRIZ. RCA is a collective term that describes various approaches, tools, and methods that branch out to expose a problem's root cause. It examines the chain of events and the conditions that allow the situation to exist by identifying and analyzing the sequence of other events that occurred before the first one, using a compiled term that describes a wide area of approaches, tools, and methods that branch out to expose the root cause (Rosenfeld, 2013). In contrast, TRIZ is a problem-solving approach firmly based on the concept of "contradiction," using specific techniques for problem-solving (Fiorineschi et al., 2018).

The problem of Permata Bank's NPLs emerged in 2016 when the NPL-gross increased to 8.83% from the previous year's 2.74%, and the bank recorded a net income loss of 6.53 trillion IDR or 484 million USD; whereas during 2015, the bank successfully booked accounting earnings of 250 billion IDR or 18.544 million USD. This problem needed to be explored further since Permata Bank was well known as Indonesia's tenth biggest private bank. Furthermore, Permata Bank was owned by the two largest business groups: Astra International and Standard Chartered Bank. Table 2 shows the financial performance of Permata Bank before the strategy was decided.

Table 2 Financial Performance of Permata Bank
(in a million IDR)

Information	2015	2016
Cash	2,012,662	2,070,557
Loans	117,001,562	93,816,494
NPL-*Gross* (%)	2.74	8.83
NPL-*Net*(%)	1.40	2.24
Loans' growth (%)	-	(19.82)
Total Assets	182,411,535	165,239,816
Earnings After Taxes	250,338	(6,495,521)
CAR (%)	15.00%	15.64%
ROA (%)	0.16%	(4.89%)
ROE (%)	1.80%	(38.33%)
OE-OR (%)	98.86%	150.77%
LDR (%)	87.84%	80.45%
NIM (%)	3.96%	3.93%

Source: prepared by PT Permata Bank, Co. Ltd., 2016

Permata Bank had to bear this large number of non-performing loans due to the low quality of decision-making regarding loans to people/businesses. This study collected a note from many informants. Under the interview results, which were strengthened by financial data, it can be concluded that non-performing loans were due to a faulty financing decision in the form of over-financing, where Permata Bank loaned more than the applicants' needed and side streaming. It seems most of the loans the bank made were used for other things and not what the bank had been told in the loan application. This error in financing leverage endangered the bank because its purpose was not achieved, and financial business risk impacted the loss and the drop in Permata Bank's stock price.

Definition of Goals and Search Field (TRIZ)

TRIZ covers a practical methodology, tool sets, a knowledge base, and model-based technology to create innovative solutions. It is advantageous to solve problems, analyze a system, its failures, and its evolution patterns. TRIZ produces three main findings: problem identification, solutions repeated across industries and sciences, and the innovations that use scientific effects from other areas (Livotov, 2008). The supervision and control system related to the progress reports on handling each debtor went well. Although the physical evidence was available, the author cannot present primary data from each debtor's development due to confidentiality and ethics.

Failure (RCA)

Kwansa & Parsa (1990); H. Li et al. (2013); Li & Sun (2012, 2013); (Olsen et al., 1983); Youn & Gu (2010) suggested that economic or financial failure takes place when a firm's costs of doing business exceed its income. This kind of loss is considered chiefly temporary since it does not signify any immediate dissolution. Whereas bankruptcy shows that a firm's liabilities surpass the assets (Barreda et al., 2017; Fernández-Gámez et al., 2016; Kim, 2011; Park & Hancer, 2012; Vivel-Búa et al., 2016; Youn & Gu, 2010), and refers to a legal process which the debtors in bankruptcy courts mostly start. Failure analysis is the activity method to collect and analyze data, determine the cause of a failure, and discover corrective actions or hold liability (Jenkins, 2013). Failure analysis can help save money, lives, and resources if it is done and implemented correctly. The failure analysis process depends on compiling the failed aspects to examine the cause or study the failure using diverse methods.

Initial predictions of Permata Bank's economic failure presented a valuable window of opportunity for the firm to look for an extension and composition of its liabilities, reorganize its assets and debts, redirect its focus onto a different product concept, reassess possible expansion plans, or vary its portfolios to extend its survival. It is also helpful for corporations to measure the near-economic failure of Permata Bank, as delisting delivers significant losses to a firm's stakeholders, creditors, and the local economy, including via a societal imbalance because of mass unemployment for the firm's workers. This study collected a note from a respondent, as stated below.

> "OE-ORratio is high because of two problems. The first is the altitude provision because it gets ugly. Second, cost efficiency must be increased. However, the biggest problem is because of the height provision." (Informant, 2).

> "There is no dominant segment. The biggest loan is trading, buying, and selling wholesale, such as a luxurious car wholesaler. The second biggest is coal mining. Finally, it is distributed lossesin this coal mining." (Informant, 2 and 1).

Root Causes (RCA)

The root cause is a tool to detect a failure that provides an in-depth analysis of system unreliability aspects through extensive categorization of causes. As a short-term problem, this definition of failure suggests that a firm's downturn is often related to business success as measured by the return rate on sales (Abubakar et al., 2016). For some years, root-cause analysis (RCA) was used when an adverse event occurred. It is generally seen that such events have caused. Thus, a thorough review of the person and the system will reveal the causal agents. To solve the problems, it is then essential to select the most reasonable factors. RCA is a reactive process that happens after harmful effects. RCA, challenged by an unacceptable malfunction, asks: "What aspect caused this malfunction?" A careful, thorough RCA would analyze all the antecedent factors and recognize the set of causal events (Senders, 2004). Luo & Ying (2014) examined if listed companies' political connections helped them gain bank loans. They utilized the data of listed Chinese companies from 2004 to 2009. They also found that political connections help firms achieve a credit line for bank loans, especially public banks. They also found that political connections have a more influential impact on obtaining bank loans when they have financial constraints. Another reason is that the firms do not want to be owned by governments and forced to locate in regions without political hegemony.

In Permata Bank's case, RCA was used to ascertain the primary cause of the high ratio of NPLs that endangered its financial performance. By knowing this concept, the leading cause can be resolved and prevented from reoccurring. The NPLs were mostly fictitious loans by corporate debtors, who used the loans for purposes that they did not state on their applications. However, Saha et al. (2016) suggested that banks would like to process the debtors' loans, even though their debt was high risk. This study found that Permata Bank's loans committee knew at the beginning that some loans would be diverted for other uses. It is somehow due to negligence by the bank in their analysis of the loan applicants deviating away from the 5C credit principles. However, the internal pressure from certain people in Permata Bank exacerbated the decisions to approve these loans. This study concluded that these fictitious loans had already been approved. Consequently, it became a problem.

This case highlighted that the high number of NPLs was due to the CEO's political will. It meant that management fraud occurred. In other words, this study proposes that Permata Bank's management decided to make loans unobjectively because of pressure from several groups. The biggest debtor, who was in default, was Garansindo (the luxury car industry). Permata Bank's CEO recognized this problematic debtor because of the loan's analysis errors and external pressures that influenced the loan decision. This study took note of what some respondents said, as stated below.

> "Because the loans for corporate debtors are large, and there is negligence in the loans' decision-making process. According to regulation, the loan policy is strict, but there is negligence in its implementation so that the loan becomes problematic." (Informant 1 and 2).

This study inferred that, on the inside, Permata Bank's management had a weakness in their implementation of prudential banking, and they caved in to political pressure and Fraud, which were the sources of the bank's losses. The debtors took the loan funding from international finance due to a national agenda and political hegemony. It means that this debtor side streamed the loan. In addition, many non-performing loans with large ceilings were guaranteed a personal guarantee from a general for specific political interests.

Causal Factor (RCA)

The causal factor was an external factor that caused an increase in the number of NPLs. Beck et al. (2015) studied the macroeconomic determinants of NPLs across 75 countries during the past decade. They found that certain variables significantly affect the NPL ratios, i.e., real GDP growth, share prices, currency depreciation (the exchange rate), and the lending interest rate (Espinoza & Prasad, 2010; Ghosh, 2015; Klein, 2013; Louzis et al., 2012; Nkusu, 2011; Škarica, 2014; Tanasković & Jandrić, 2015).Berger &

DeYoung (1997) investigated how NPLs are influenced by poor management, such as having a negative relationship between return on assets (ROA) and the number of corporate loans. Salas & Saurina (2002), Louzis et al. (2012), Kauko (2012), and Erdinç & Abazi (2014) discovered a strong relationship between NPLs and macroeconomic variables. Other authors like Louzis et al. (2012), Makri et al. (2014), and Ghosh (2015) showed that there is a negative relationship between NPLs and distinct capital ratios, efficiency ratios, or market power.

Permata Bank's management found the causal factor challenging to predict and control, considering that the trigger scope was extensive and there was no management authority. As stated in the RCA, Permata Bank's internal errors were purely banking mistakes that should have been prevented or minimally mitigated. Meanwhile, the causal factor was the external cause of Permata Bank's problems, which automatically contributed to the increase in its NPLs because Permata Bank is part of the country's and the world's financial systems. This study took into account the interview data from respondents, as stated below.

> "The macroeconomic conditions, both nationally and internationally, are not too good. The debtors in 2015 who have been "coughing" are increasingly unable to maintain their business continuity, so they were stuck in 2016." (Informant 6).

> "The increase in NPLs that occurred in 2016 was unexpected. It increased due to the deteriorating macroeconomic conditions of Indonesia and the world as a whole." (Informant 4).

This study argues that most banks in Indonesia have experienced national economic pressure. The pressure was from an economic downturn, making it difficult for most borrowers to repay their creditors. Besides, the global economy fluctuated, with the US dollar strengthening against all world currencies throughout 2016. Economic growth in 2016 was slowing down, with the growth rate being only 5.3% compared to the previous year. Consequently, banks tightened up their operating costs, higher than the modest increase in operating incomes. The weakening performance of Permata Bank was linear with the national banking industry; most banks had suffered losses. However, banks whose performances have slowed from 2014 to 2015 managed to recover in 2016 despite firing thousands of employees. Meanwhile, Permata Bank also faced a more severe problem, a significant increase in its NPLs. This study took into account an excerpt from a respondent, as follows.

> "The possible trigger can be coal when the coal industry borrowed around 2010, and this became a problem in 2016 because world oil prices fell to USD 27 per barrel, meaning coal was not selling because consumers prefer to buy oil." (Informant 1).

In reality, Indonesia's economy grew moderately amid the global economic turmoil, with inflation maintained at around 3.02% from 3.35% a year earlier. Figures 2, 3, and 4 show the evidence.

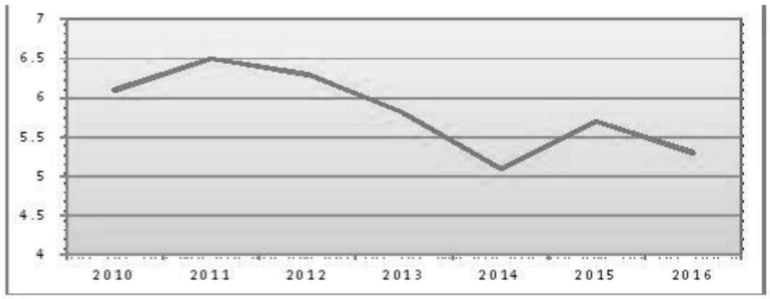

Figure 2. Indonesia Economic Growth 2010-2016
Source: Bank Indonesia 2016

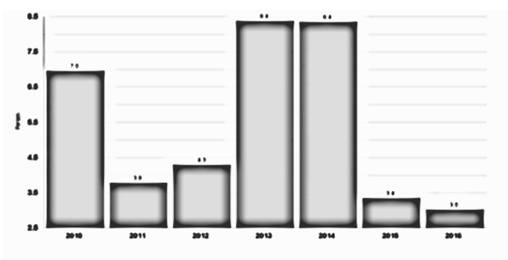

Figure 3. Rupiah Inflation Chart 2010-2016
Source: prepared by Bank Indonesia 2016

Figure 4. Rupiah Exchange Rate Chart 2015-2016
Source: Bank Indonesia, 2016

The IDR's exchange rate strengthened to 13,436 per USD from 13,795 per USD at the end of 2015. However, the increase in economic conditions still had no positive impact on the national banking system's health. In 2016 the overall quality of bank loans was under pressure. The risk of worsening banking performance, in turn, could disrupt the effectiveness of the monetary policy's transmission, both through interest rates and loan lines. Increased loan risk affected how the banks determined their interest rates, especially lending rates. Lending rates became less elastic to Bank Indonesia's policy rate changes when, at the same time, loan risk increased. Figure 5 shows evidence of the increased loan risk that could hamper the banks' lending rates.

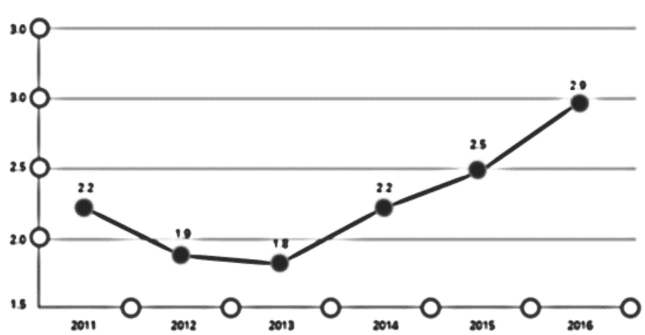

Figure 5. National Banking NPL Trend Chart 2011-2016
Source: Bank Indonesia 2016

Nationally, bank loans' growth slowed from 10.5% in 2015 to 7.9% in 2016, the lowest since 2002. Because of the loan to deposit slowdown, the NPLs of Permata Bank increased throughout 2016, although they were still far enough below the limit of 5%. As a result, the NPL-gross ratio of banks in 2016 increased to 2.9% from 2.5% in 2015. The increased number of NPLs occurred in almost all economic sectors. Significant increases occurred in the trade, processing, mining, and transportation sectors. However, the Central Bureau of Statistics data showed the mining, processing, and trade sectors experiencing a contraction in growth in 2016. Compared to the peer group countries, the increased number of NPLs in the Indonesian banking industry was relatively similar to the ASEAN region and peer countries. Therefore, we considered that Permata Bank performance in 2016 was not generally affected by the global economic slowdown.The weight of the macroeconomic conditions in 2016 also resulted in a decrease in Permata Bank's asset quality, so that the principal amount of NPLs increased. Viewed from the economic sector, Permata Bank's NPLs increased because the bank made loans to the manufacturing, large and small trading, transportation, mining, drilling, and real estate sectors. This study presents an excerpt from an interviewee below.

> "In general, what can be concluded to be one of the causes of the increase in NPL levels at Permata Bank is the macro conditions. It is especially seen in the coal industry and its impacts on the others." (Informant 4).

Implementation Prediction (RCA)

Implementation prediction is a strategy taken by management to solve NPL problems. Systems-based RCA results from the previous schools' amalgam, incorporating aspects from other fields like management change, risk management, and systems analysis(Wilson, 1993). This study argues that the CEO should establish, implement, and maintain a quality policy. Moreover, the CEO has to establish relevant objectives identified in functions, levels, and processes. Finally, the management system needs all these corresponding values.

The main issue of this research is the motivation of the CEO to reduce Permata Bank's NPLs. Such research specified in this topic mainly had examined the effects of creative regulatory solutions or management programs to control NPLs. For example, Stijepović (2014) suggested a project called the Podgorica Approach. This approach is used for quantitative assessment of the recovery of NPLs. It enabled their return to performing status through a restructuring process. Other studies look for solutions to reduce the number of NPLs by finding the determinants, e.g., Louzis et al. (2012), Ghosh (2015), and Vithessonthi (2016). This study found that Bank Permata's management developed the strategies in Table 3 below.

Table 3 Strategies

Steps	Strategies
1st	Management conducted a comprehensive review of all the accounts for their process, products, and dedicated staff.The most reviewed and monitored was wholesale banking, which was used to implement the right account strategy.
2nd	Management improved the non-performing loan portfolio by maintaining asset quality, maximizing the recovery, and reducing NPLs. This improvement was conducted by restructuring and selling troubled

	assets through factoring and strengthening loan discipline and cost management.
3th	Management strengthened risk management.
4th	Management demanded the two majority shareholders carried out a capital injection in the form of a rights issue of 5.5 trillion IDR (407 million USD) in June 2016.They also invested in new capital deposit funds worth 1.5 trillion IDR (111 million USD) in December 2016. These capital injections achieved a capital adequacy ratio (CAR)level of 15.64% in December 2016. In addition, the CEO planned to conduct another rights issue to improve the quality of the bank's capital adequacy.
5th	Management reorganized its president director, risk director, finance director, and wholesale banking director. Changes were also made to the board of commissioners.

This study presents excerpts from our interviewees below.

> "Permata Bank has two strategies to reduce the ratio of non-performing loans or NPLs in 2017: loans' restructuring and selling troubled assets. Related to asset sales, in March 2017, Permata Bank sold 1.12 trillion IDR to its subsidiary company named SRIL." (Informant 3 and 2).

Table 4 shows Permata Bank's performance after the equity capital injections. At the end of 2017, the level of NPL-gross had dropped by 4.60%. It was pretty significant in comparison with the 2016 position of 8.83%. Meanwhile, the NPL-net rate had fallen from 2.24% on 31st December 2016 to 1.67% on 31st December 2017. Outstanding NPLs on 31st December 2017 amounted to 7.08 trillion IDR (524 million USD). This outstanding amount had gone through a drastic decline compared to the position of 31st December 2016, with 16.29 trillion IDR (1.207 billion USD). The NPL-gross's significant decrease was due to the successful implementation of the NPL reduction strategy with the receipt of debtors' payments, improved collectability, restructuring, and loan settlements, the sale of collateral, factoring, and writing-off some loans. This study concluded that Permata Bank's solution was to reorganize its loans at the right time internally. It took into account that the success of the loans' restructuring and factoring became a critical factor in the decline of Permata Bank's NPL gross. This study presents the results of interviews as follows.

> "For the restructuring strategy, Permata Bank will analyze debtors who still have prospects. Whereas the last option, if it cannot be restructured, is by selling assets." (Informant 3).

Table 4. Financial Performance of PT Permata Bank, Tbk. 2016; 2017; 2018 (in a million IDR)

Detail	2016	2017	2018
Cash	2,070,557	1,940,485	2,185,074
Loans	93,816,494	83,575,281	98,912,371
NPL-*Gross* (%)	8.83	4.60	4.40
NPL-*Net*(%)	2.24	1.67	1.70
Credit Growth (%)	(19.82)	(5.02)	18.35
TotalAssets	165,239,816	148,328,370	152,892,866
After Tax Profit	(6,495,521)	738,212	901,252
CAR (%)	15.64	18.12	19.40
ROA (%)	(4.89)	0.61	0.80
ROE (%)	(38.33)	4.83	5.00
OE-OR (%)	150.77%	94.83%	93.40%

LDR (%)	80.45%	87.54%	90.10%
NIM (%)	3.93	4.83	4.10

Source: Annual Reports of PT Permata Bank, Tbk., 2017; 2018 (Permata Bank 2017; 2018)

Function Analysis (TRIZ)

Permata Bank's CEO took strategic steps to decrease the number of NPLs. This study highlights that it succeeded in reducing its NPLs in 2017. The authors noted that the new rights issue was a peaceful tactical step. Then, we concluded that additional funds positively impact the bank's future performance. With this rights issue, Permata Bank's equity capital strengthened and caused its financial ratios to improve. Meanwhile, the first strategic step supported the four following steps. Table 4 shows Permata Bank's performance after the injected funds from the owners.

If the rights issue did not support the NPLs, it was probable that the bank's recovery would not succeed. Therefore, it was concluded that the stocks' rights issue was the primary key to cure Permata Bank's problematic NPLs. It meant that the peaceful tactical step was necessary for the bank to recover its NPLs' failures. Moreover, the four remaining strategies were sufficient to support the NPLs' performance. Without performing the first strategy, the four remaining ones have no meaning.

Conflict Analysis (TRIZ)

Conflict analysis is an initial stage of contravention resolution in which parties and firms seek to enhance their understanding of their relationships' dynamics. The expected result aims to decrease or even eliminate alarming tendencies and negative features. The expected result is that all the positive and beneficial factors can be kept and intensified (Livotov, 2008). For example, the strategies implemented by Permata Bank to reduce its number of NPLs worked very well. However, implementing all the strategies would cause conflict, even though the output produced was generally very satisfying. The conflict occurred during the second strategy: Permata Bank recovered those loans that could still be saved. Meanwhile, the bank had three choices about its troubled loans; they could be restructured, written off, or sold through loans' factoring.

The conflict occurred over the two options for rescuing the non-performing loans. To meet the management of Permata Bank's target, the choice to sell non-performing loans through factoring was the most comfortable and quickest step, even though the level of loss to be borne by the bank would be substantial. However, Bank Indonesia regulations specify that saving non-performing loans must be through a restructuring scheme, especially if the debtor's business is solvent. Whether debts follow it or not, restructuring would take a long time to impact, and any improvement in the NPLs would not immediately be seen. Therefore, Permata Bank also had to make more significant efforts to monitor the restructured debtor's business continuity and risk unexpected results. As Permata Bank did, the most natural step was to carry out loan factoring, which significantly helped decrease 10 trillion IDR in its NPLs in 2017. This study presents some excerpts, as shown below.

> "Permata Bank's performance improved through restructuring and rehabilitation and accelerating loan recovery and selling part of the NPL portfolio." (Informant 3).

Mobilising Resources (TRIZ)

Resource mobilization is the process of getting financing liabilities and equity capital from suppliers and using different mechanisms to implement an organization's pre-determined goals (Villanueva et al., 2012).

It manages the acquisition of the required resources in a cost-effective manner and at the right time. Resource mobilization encourages the correct type of resources at the right time and price. It is acquired through the proper use of resources to assure optimum mobilization. Permata Bank improved its asset quality by restructuring, restoring, selling part of its NPL portfolio and a rights issue funded by the two principal shareholders, Astra International and Standard Chartered Bank. Permata Bank also carried out changes to its management and its board of commissioners. In addition, assets were improved by changing processes, infrastructure, systems, and channels towards digital banking realization.

Strategic recovery was inseparable from the bank's capital issues, so Astra International and Standard Chartered Bank had a high commitment to revive Permata Bank. If not, they would not have given a massive amount of equity capital to the bank. Compared to the funds invested in Bank Central Asia, it was less than those given to Permata Bank by Astra International and Standard Chartered Bank. It also dismissed the rumours that Permata Bank would be sold to Tahir businesspeople acquiring or merging it with Bank Mayapada. Permata Bank is currently in Book-3 with a total capital of 20 trillion IDR. If Permata Bank wants to become Book-4, it must have at least 30 trillion IDR capital. To reach Book-4, Permata Bank has two ways: inject additional shareholder capital or increased its net income.

After restructuring and reforming its management, Permata Bank's profitability performance got back on track. The profit was due to a decline in the impaired-asset allowance and increased interest income and fee-based income. Both significantly contributed to Permata Bank's profits, which came from loans to new borrowers a year later. This financial position in 2017 caused Permata Bank's equity capital and its liquidity to be considered sound. This study presents some excerpts as below

> "As a result, we saw positive changes in financial performance in January 2017 by posting a net profit after tax of 136 billion IDR." (Informant 3).

Generating Ideas (TRIZ)

Generating ideas is creating, developing, and communicating ideas, abstract, concrete, or visual. The method includes constructing the concept from the management and owners, innovating the concept, developing the process, and bringing the idea to reality. Thus, it is the innovation of a specific concept, the development of a process, and its realization. To maintain and develop the quality of its assets, Permata Bank made breakthroughs so that the business was on track and able to produce profits. This study extracted an excerpt from an informant as follows.

> "The company applies three strategic steps. The first strategy is to fix its income. The second step is to optimize the role of shareholders. For the third step, Permata Bank will form a strategic partnership." (Informant 3).

Permata Bank constructed three business pillars, namely retail banking, wholesale banking, and sharia banking. This study noted that Permata Bank enhanced its retail banking growth through loan products, low-cost funds and fee-based income, and e-channel innovation. Then Permata Bank developed a synergy with Astra International in the wholesale banking segment through value-chain financing, supplier financing, auto dealers, and joint financing. Subsequently, it formed a partnership with PT Indosat Ooredoo, Co. Ltd. Two excerpts collected by this study are as follows.

> "Astra continues to give our full commitment to Permata Bank's rights issue in 2017 to support its business in the future." (Director of Astra International: Gunawan Geniusahardja).
>
> "We continue to work with Astra International in carrying out a series of steps needed to improve the performance of Standard Chartered Regional Head, Retail Banking, ASEAN and South Asia, Sebastian Arcuri Ank, and support the upcoming rights issue." (Standard Chartered Regional Head of Retail Banking, ASEAN and South Asia: Sebastian Arcuri).

The implementation results of the strategic steps chosen by Permata Bank's management proved to turn back the bank's actual performance effectively. The CEO of Permata Bank believed in these steps, followed by innovations and optimizing its role. Both Astra International and Standard Chartered are institutions with a considerable business scope to achieve appropriate profits.

Anticipatory Risk Analysis (TRIZ)

This stage is a series of information communication systems and sensors, event detection, and decision sub-systems. They collaborate to forecast and signal any disturbances, which may negatively affect the physical world's stability. They also allow the response system to prepare for an unexpected event and minimize its impact (Waidyanatha, 2010). Credit risk is defined as the risk that debtors will fail to pay their loan obligations. Permata Bank identifies and analyzes all the factors to decide whether or not to offer loans to their customers, and the scoring system for the primary model was presented based on previous research into the 5C principles. They are the loan applicant's collateral, debtors' characteristic, capital, capacity, and financial condition (Abdelmoula, 2015). The weak implementation of these principles in the bank's lending decisions had a terrible impact on Permata Bank in 2016. The CEO of Permata Bank set in place strategies that have been proven successful. However, improvements alone were not enough; prudent steps and subsequent risk management were more critical and had to be immediately executed. Erdinç & Gurov (2016) studied whether the implementation of advanced risk management was in line with internal ratings in the Basel Capital Accord and reduced the number of NPLs.

Risk management by Permata Bank included front-end (guarantees and stipulation of loan interest), middle-end (loan monitoring and review), and back-end (NPL management and collection). The risk management culture was built through four processes; they are:

(1) Communication and up-skilling: compulsory training for all employees related to the risk management framework and credit process,
(2) Policy and process: reviewing the maximum loan limit, tightening policies in wholesale banking, change the list of KAP (public accounting firm) and credit risk controls,
(3) People and structure: creating positions for risk business planners,
(4) Review and monitor loan portfolios to identify potential risks.

The awareness of risk management and its relationship with business partnerships should become the primary function. It is also connected with achieving the business targets that become increasingly important when the bank runs in a controlled risk corridor. Risk management provides an overview for bank managers about the debtors' potential losses in the future. Furthermore, it should be supported by reliable and valid information to make the right decisions to help bank managers improve Permata Bank's competitiveness.

6. Findings and Discussions

The authors noted that Permata Bank's CEOs solved this chaotic problem with many repetitive meetings without methods, concepts, and theories. They, however, had a strong motivation to solve this problem. They unintentionally conducted what RCA and TRIZ recommended. This study found that what the CEO of Permata Bank did was use the RCA and TRIZ academically. It appreciates that Permata Bank's CEO saw a way to solve the bank's problem. The authors then explain that the CEO unintentionally used RCA and TRIZ, which means that, without either a good education or suitable training, the CEO had the skills and competencies to employ RCA and TRIZ, which are used to solve business problems (Wilson, 1993). We also noted that the CEO of Permata Bank was under both internal and external pressures. The internal forces were the wrong credit decisions before, and a lousy macroeconomy caused the external influences. These pressures forced Permata Bank's CEO to use a tool to solve the bank's business downturn. The CEO used logical reasoning to solve the bank's problem. The logical rationale selected is an academic discipline called RCA (Rosenfeld, 2013) and TRIZ (Livotov, 2008), although the CEO did not know these names. We took note that the CEO accelerated the problem-solving. We inferred that people working in the banking business have implicit cognition of RCA and TRIZ.

The CEO identified and analyzed complex problems and then solved them using TRIZ (Livotov, 2008). In other words, the bank's CEO learned how to identify the core root causes and to address the complex problem. The identification process and solution are what RCA and TRIZ recommend to get to the root cause of a complicated issue (Rosenfeld, 2013). However, the use of RCA and TRIZ depends on the CEO's expertise and competency. Therefore, this study concludes that increasing bank CEOs' knowledge and skills will implement a learning curriculum containing RCA and TRIZ. In other words, the authors found that the RCA and TRIZ problem-solving methods can make the CEOs of banks successful. This study argues that the crucial need for the RCA and TRIZ curriculum is supported by all aspects of a bank's operations and procedures, complex and inter-related.

7. Conclusion

This case study refers to innovative policies. First, it accentuates the management's needs for the systematic method that formulate effective solutions to a business problem, such as high NPLs. This method replaces the traditional practices with a modern one that is used to solve banking problems. In other words, banking management needs to enhance its knowledge capacity to solve business problems. Moreover, by having a robust knowledge base that consists of methodological innovation, RCA and TRIZ can help bankers develop new alternative solutions. With the implementation of RCA and TRIZ by the banking industry, it is thus possible for less experienced managers to think innovatively and generate creative solutions. Finally, this study demonstrates that the Indonesian banking industry should include RCA and TRIZ in its curriculum. Therefore, this curriculum could enhance the bankers' knowledge base when they face a chaotic problem.

Second, this case study had economic consequences in which the banks' CEO and BOD had to solve their business problems first. In other words, the CEO and BOD did not need to involve the government in solving their business problems. They could solve their business problems using foreign direct investment, such as Permata Bank, to solve global financing problems. The latest implication, the solution to Permata Bank's case, had an impact on Indonesian regulators. Indonesia's Central Bank and Financial Service Authority have decided that a private bank must internally solve its NPL without government involvement. In other words, the Indonesian government is forbidden from bailing out banks if they find themselves in a similar state to that which Permata Bank experienced. Indonesian regulators should have fixed the cut-off for the NPL problem, for example, at above 5.00%, so the bank's management must solve it. It means that Indonesian regulators now insist all the private banks operate with high accountability and responsibility.

Limitations & Future Research

This study has some limitations. First, this case did not collect its data from the regulator. Permata Bank solved its problem by itself, without the involvement of regulators and the GoI. Second, this study could not conduct interviews with the parent company of Permata Bank and all its business partners, especially those in related businesses. Then, this study offers potential future research that could be conducted to improve these results. Future research could first concentrate on transformations in human resources management, operations management, and detailed strategies. Second, the Indonesian banking industry frequently faces technical bankruptcy. Future research could identify and analyze what the Indonesian regulators require in terms of the banks' managers. In Permata Bank's case, the Indonesian regulator did nothing.

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