The Effect of Customer Relationship Management (CRM) on Bank Customer Loyalty through Satisfaction as Mediating Variable:
Evidence in Batam, Indonesia

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Abstract—This study examines the effect of Customer Relationship Management (CRM) on banking customer loyalty in Batam city of Indonesia through customer satisfaction as a mediating variable. The respondents of this study are the customers of commercial banking in Batam collected by using purposive sampling method. This study took 500 respondents as sample those are registered as customers at 155 commercial bank offices based on data from Indonesia Central Bank in 2016. The model developed aims to measure customer loyalty through the implementation of customer relationship management (CRM) strategy of banking services industry in Batam. The result of this study indicate that CRM has a positive impact on loyalty through satisfaction as a mediating variable. The conclusion of customer loyalty research could be recommended for bank management in implementing the proper CRM strategy and maintaining the longtime relationship with the prime customers.

Keywords—customer relationship management; customer satisfaction; customer loyalty; Batam city

I. INTRODUCTION

Anticipating the rapid and dynamic changes in the financial services market, banking companies are encouraged to further strengthen their strategy base on concepts such as customer focused or market-oriented culture to continue the access of their profitable market and ensure sustainable growth.

Banking service companies are encouraged to be more concerned to the customer satisfaction and loyalty, the rapid technology adaptation and the challenges of global competition which is requiring the effectiveness of marketing strategies for maintaining and developing a company's competitive advantage.

In the midst of intense competition, the entire player in the banking industry should be more creative to increase customer loyalty and their trust to the bank as partner institution for business expansion. Moreover, the behavior of bank customers is increasingly unpredictable. Some customers want low-interest rate (for loan), high-interest rate (for saving, demand deposits), and low administration cos.

In contrast, some other customers want fast financial transaction, efficiency, comfortable, and easily access anytime and anywhere without high cost consideration.

Financial institutions must develop customer focus and service-oriented strategies to ensure customers achieve optimal satisfaction with high retention [1]. Maintaining relationships with customers and offering them absolute satisfaction has become the main agenda of industry players today [2].

The concept of customer relationship management (CRM) offers more strategies and solutions to keep customers smiling satisfied and to connect them to the company for a long time. Some studies concluded that CRM is a concept to manage interactions with customers, clients, and sales prospects that can achieve customer satisfaction and loyalty [3,4].

The purpose of CRM is to increase profit, income, and customer satisfaction. In order to implement the CRM strategy, many organizations use several methods, technologies, and procedures to support the relationship between the company and its consumers to increase sales. However, CRM is a strategic business process rather than a technical policy [5].

This study was conducted to investigate the relationship between Customer Relationship Management (CRM) variables and the achievement of customer loyalty. Also, to fill the gap emerged from the previous research to explore the relationship between of these factors.

Some previous studies confirm the Customer Relationship Management (CRM) influences to the customer loyalty [4,6-8].

The formulation of the problem and research questions are based on previous research, whether there is an effect of the application of Customer Relationship Management (CRM) on the loyalty of banking customers in Batam through satisfaction as mediating variables?

This study is expected to implicate in improving the performance of the banking industry in Batam as the way to achieve competitive advantage in interbank competition. In addition, this research can be used as a basis for compiling and
evaluating programs towards customer relations that are targeted, especially in maintaining a stronger relationship to maintain existing customers.

The concept of customer relationship management (CRM) was first introduced by Berry in 1983. However, the relationship marketing ideology has begun to be analyzed in various sectors since the 1920s. The concept of CRM was begun to be recognized since 1990s.

CRM is fundamentally an attempt to maintain consumers through various programs those can establish relationships between customers and companies in the long run [9].

The study finds the impact of customer relationship management on customer satisfaction and loyalty. It shows that employee behavior is significantly relating and contributing to consumer loyalty. It also can be seen from CRM sub-elements, namely interaction management, relationship management, and service quality [5].

A positive relationship is also found between CRM and marketing performance that can be seen from the aspects of customer satisfaction and loyalty. The three main variables in CRM tested are focuses on the main customers, efficient organizations, and customer knowledge management. The research concludes that all elements in CRM have a positive effect on customer satisfaction and loyalty [10].

Another study found that CRM is applied in companies to reduce costs and improve company performance, which means generating profits through customer satisfaction and loyalty. Of course, to achieve the successful implementation of CRM, it needs to collect data from internal and external sources such as sales departments, customer service, marketing, after-sales services, and purchases. Therefore, the result will show the clearly picture of consumers in a real-time system. This information can help employees make quick decisions when dealing with their customers [11].

The conceptual framework developed by researchers explained that CRM strengthens the relationship of consumers and competitors in a company to increase market share by applying integration of technology, procedures, and people. The purpose of CRM itself is to increase satisfaction and loyalty, and company profits [12].

A. CRM in the Banking Industry

Benefits of products produced by the company from the form, time, and place means that it can satisfy consumers through goods and services. Forming and marketing goods and services that satisfy consumers is the basis for producing goals. Whether consumers are satisfied or not, it depends on the comparison what they receive and what they expect.

If they receive more than expectation, consumers will be very satisfied and vice versa. Kotler & Armstrong 2004 in [13], explained that if the real appearance of a product or service in a bank is below expectations, it can lead to dissatisfaction. In contrast, if the service provided is the same or more than standards, satisfaction can be achieved.

Presently, competition in the banking industry is sharply increasing. Customer satisfaction is a target that must be achieved by the company because it will be very easy for other banks to embrace disappointed customers. To increase customer satisfaction to the highest level and to maintain it, banking does CRM. The advantage for banks by implementing CRM is to get clear customers in the long run. It also helps building more effective relationships and encourage bank management implementing customer-based strategies [13-15].

B. The relationship between CRM, Satisfaction, and Customer Loyalty

There are many studies those have been conducted to examine the relationship between CRM, satisfaction, and customer loyalty, especially in the banking sector, mainly the relationship between CRM forming factors e.g. trust, commitment, and satisfaction [16-19].

Some studies also found that the influence of commitment, communication, and conflict handling on loyalty [4,6,8].

Loyalty is an important factor that must be considered by bank leaders, especially focusing on how to establish communication and conflict management. It really needs if they want to increase customer loyalty. Thus, the competitiveness of the organization will also increase in line with the customer market share increasing [6].

CRM practices have proven significantly influenced on achieving loyalty levels in Tehran. The evidence shows that the organizations practicing CRM are able to build trust the customers, provide commitment and establish effective communication in solving problems arising between banks and customers [8].

The study result indicate that the effectiveness of CRM has a positive impact on satisfaction and loyalty. Satisfaction has a positive effect on loyalty [16,20,21].

C. Research Hypothesis

According to the previous study conducted by several researchers, this research hypothesis can be formulated as follow:

- Customer Relationship Management has positive effect on satisfaction.
- Customer satisfaction has positive effect on customer loyalty.
- Customer Relationship Management has direct positive effect on customer loyalty.
- Customer satisfaction mediates relationship between CRM and customer loyalty.

![Fig. 1. Research model (Source: Source: Developed for this study (2018).]
II. RESEARCH METHODS

This study includes causal-comparative research which aims to see the characteristics of the problem in the form of causality between two variables or more, there are three variables examined in this study including Customer Relationship Management (CRM), satisfaction, and customer loyalty.

The populations used in this study were debtors in 39 commercial banks with 155 offices spread in Batam. The total populations are 2,011,250 accounts. Data was collected from Indonesia Central Bank in 2016.

Measurement of the sample is using the Slovin formula with 5 percent inaccuracy tolerance of 500 samples. Based on the 1: 5 ratio adopted from Hair et al. [22], which each variable question represents 5 respondents. Therefore, for a total question of four variables is 20 questions. The minimum number of sample subjects needed in this study were 100 respondents [22].

However, to avoid inaccurate sample data, the study uses a number of samples resulted from the calculation of the Slovin formula. It is 400 plus 100 samples. The total respondents in this study is 500 respondents.

The data that will be used in this study is primary data collected using survey methods by distributing questionnaires directly to the respondents. Another reason for choosing primary data as the data source in this study is that the data shows opinion, attitude, and experience from the respondents.

A. Data Quality Test

The data collected in this study were analyzed using the Statistical Package for the Social Sciences (SPSS) 21st version for Windows. It includes outlier test, validity test, reliability test, multicollinearity test, normality test, and heteroscedasticity test.

B. Hypothesis Testing

Hypothesis testing is carried out using ordinal data which has a higher data sequence and lower order. It cannot be performed mathematical operations. Testing of hypothesis 1 through hypothesis 4 uses multiple regression analysis.

The reason is the hypothesis test conducted is only on 1 dependent metric variable and more than 1 independent metric variable [22]. Decision criteria determined can be seen from the information on the results of the regression test: F test, t-test, and R2 test.

III. RESULTS AND DISCUSSION

A. Respondent Demographic Analysis

The results of the descriptive analysis of respondents shows the age of respondents ranged from 16 to more than 60 years. Most respondents are range of 16-30 years with a percentage of 55.29%, followed by respondents’ range of 31 - 40 years at 33.90%. The number of male and female respondents are 239 (51,62%) male and 221 (47,73%) female.

The sample size was also reviewed from the level of education. Most respondents came from the elementary-junior-high school level of education were 203 people (43.84%). Then followed by respondents from bachelor level 156 people (33.69%) and diplomas as many as 92 people (19.87%). The rest are from undergraduate and postgraduate levels.

Based on the profession, the respondents indicate that the majority of respondents were 225 private employees (48.60%) and 120 entrepreneurs (25.92%). While the majority of respondents who deals with banks every month are 267 respondents (57.67%).

B. Variable Characteristics

The highest average value in commitment variable is question 5 which is the Bank is committed to reviewing customer behavior and continuously understanding customer needs. However, question 2 is a bank committed to provide banking services on time to meet the needs of banking customers in the Batam having lowest average value of 3,535. Overall, the commitment variable has an average value ranging from 3,535 - 3,714.

Communication variable indicates highest average value in Question 9. The point is 3,740 which the customer believe that the bank always provides accurate information. Also, the Conflict Handling variable has the highest average value of 3,698 in question 11, that is the customers believe that the bank is trying to resolve the conflict before it becomes a problem.

Customer Satisfaction Variable has the minimum value of 1 and maximum 5 with the highest average value in question 16 is 3,718. That is the respondent assesses the bank provides quality banking services at competitive costs.

Banking customer loyalty variables in Batam city also tend to be high with an average value of 3.736 in question 23, respondents will advise others to save in the Batam city banking. The lowest average value in this variable is in question 16 of 3.333, which is difficult for respondents to replace another bank. The examining result didn't show any outliers. It also found that all variables in this study were reliable.

C. Hypothesis Test

The effect of Customer Relationship Management (CRM) variables which consist of three supporting variables commitment, communication, and conflict handling on customer satisfaction in this study was examined using multiple regression analysis.

The F-test results show the regression model of CRM variables can be used to predict customer satisfaction. The results of the t-test from multiple regressions between CRM variables to satisfaction are presented in table1 below.

The test results show that the relationship between CRM through commitment, communication, and conflict handling on customer satisfaction has a coefficient value of 0.116, 0.173 and 0.557, respectively at a significance level of 0.000.
These results indicate the influence between CRM and banking customer satisfaction (H1 accepted). The results of this study are consistent with previous research which concluded that CRM policies affect the satisfaction of banking customers [1,13,16,19,23].

TABLE I. T-TEST: THE EFFECT OF COMMITMENT, COMMUNICATION, AND CONFLICT HANDLING ON SATISFACTION

<table>
<thead>
<tr>
<th>Model</th>
<th>Unstandardized Coefficients</th>
<th>Standardized Coefficients</th>
<th>Sig.</th>
<th>Result</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>B (Std. Error)</td>
<td>Beta</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Commitment</td>
<td>0.116 (0.042)</td>
<td>0.138</td>
<td>0.000</td>
<td>Significant</td>
</tr>
<tr>
<td>Communication</td>
<td>0.173 (0.050)</td>
<td>0.173</td>
<td>0.000</td>
<td>Significant</td>
</tr>
<tr>
<td>Conflict Handling</td>
<td>0.557 (0.059)</td>
<td>0.446</td>
<td>0.000</td>
<td>Significant</td>
</tr>
</tbody>
</table>

Dependent Variable: Satisfaction

The results of the coefficient of determination presented in Table 2 show that R2 has a value of 0.452, which means that customer satisfaction can be explained by CRM variables consisting of commitment, communication, and conflict handling by 45.2% while the remaining 54.8% is influenced by other factors.

TABLE II. COEFFICIENT DETERMINATION RESULT: THE EFFECT OF COMMITMENT, COMMUNICATION, AND CONFLICT HANDLING ON SATISFACTION

<table>
<thead>
<tr>
<th>Model</th>
<th>R</th>
<th>R2</th>
<th>R2 Adjusted</th>
<th>Estimation Std. Error</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>0.672*</td>
<td>0.452</td>
<td>0.448</td>
<td>1.73423</td>
</tr>
</tbody>
</table>

* Sources: Primary data (2018).

This study also examines the effect of customer satisfaction on banking customer loyalty in Batam city. The F test results show that the regression model of satisfaction variables can be used to predict customer loyalty. The results of the t-test between satisfaction variables and loyalty are presented in table5 below.

The t-test results in Table 3 indicated the relationship between satisfaction and customer loyalty has a coefficient of 1.235 at a significance level of 0.000. These results show the strong influence of satisfaction and loyalty of banking customers (H2 accepted). The study is consistent with research that proved the satisfaction is a critical factor for customer loyalty [24-26].

TABLE III. T-TEST RESULT: THE EFFECT OF SATISFACTION ON LOYALTY

<table>
<thead>
<tr>
<th>Model</th>
<th>Unstandardized Coefficients</th>
<th>Standardized Coefficients</th>
<th>Sig.</th>
<th>Result</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>B (Std. Error)</td>
<td>Beta</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Satisfaction</td>
<td>1.235 (0.049)</td>
<td>0.761</td>
<td>0.000</td>
<td>Significant</td>
</tr>
</tbody>
</table>

Dependent Variable: Loyalty

The results of the coefficient of determination presented in Table 4 show that R2 has a value of 0.580, which means that customer loyalty can be explained by CRM variables consisting of commitment, communication, and conflict handling by 45.2% while the remaining 54.8% is influenced by other factors.

TABLE IV. COEFFICIENT DETERMINATION RESULT: THE EFFECT OF SATISFACTION ON LOYALTY

<table>
<thead>
<tr>
<th>Model</th>
<th>R</th>
<th>R2</th>
<th>R2 Adjusted</th>
<th>Estimation Std. Error</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>0.761</td>
<td>0.580</td>
<td>0.579</td>
<td>2,45769</td>
</tr>
</tbody>
</table>

The test results of the coefficient of determination presented in Table 4 shows that the R2 has a value of 0.580, which means customer loyalty can be explained by the satisfaction variable about 58% while the remaining 42% is influenced by other factors.

This study finds out the signification of customer relationship management (CRM) variables which consist of commitment, communication, and conflict handling on customer loyalty.

The test results in table 5 show the relationship between commitment, communication, and handling of conflicts on customer loyalty has a coefficient value of 0.210, 0.601, and 0.627, respectively at a significance level of 0.000 (H3 accepted). It can be explained in the table below.

TABLE V. T-TEST: THE EFFECT OF COMMITMENT, COMMUNICATION, AND CONFLICT HANDLING ON SATISFACTION

<table>
<thead>
<tr>
<th>Model</th>
<th>Unstandardized Coefficients</th>
<th>Standardized Coefficients</th>
<th>Sig.</th>
<th>Result</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>B (Std. Error)</td>
<td>Beta</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Commitment</td>
<td>0.210 (0.868)</td>
<td>0.153</td>
<td>0.000</td>
<td>Significant</td>
</tr>
<tr>
<td>Communication</td>
<td>0.601 (0.062)</td>
<td>0.369</td>
<td>0.000</td>
<td>Significant</td>
</tr>
<tr>
<td>Conflict Handling</td>
<td>0.627(0.075)</td>
<td>0.310</td>
<td>0.000</td>
<td>Significant</td>
</tr>
</tbody>
</table>

Dependent Variable: Loyalty

The results of this study are consistent with some of the previous research which states that CRM policies affect the loyalty of banking customers [2,4,6,8,27].

The t-test results of the coefficient of determination show that the coefficient of determination (R2) has a value of 0.533, which means the variation in customer loyalty can be explained by the CRM variable consisting of commitment, communication, and conflict handling by 53.3% while the remaining 46.7% is influenced by other factors.

TABLE VI. COEFFICIENT DETERMINATION RESULT: THE EFFECT OF COMMITMENT, COMMUNICATION, AND CONFLICT HANDLING ON LOYALTY

<table>
<thead>
<tr>
<th>Model</th>
<th>R</th>
<th>R2</th>
<th>R2 Adjusted</th>
<th>Estimation Std. Error</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>0.730</td>
<td>0.533</td>
<td>0.530</td>
<td>2.59516</td>
</tr>
</tbody>
</table>

The results of regression examine the effect of CRM on loyalty through satisfaction as a mediator as suggested by [28], presented in the following table VII.
TABLE VII. THE REGRESSION RESULT: THE EFFECT OF CRM ON LOYALTY THROUGH SATISFACTION AS MEDIATOR

<table>
<thead>
<tr>
<th>Regression</th>
<th>Independent var.</th>
<th>Dependent var.</th>
<th>Unstained Coef.</th>
<th>Stand. Coef.</th>
<th>Beta</th>
<th>Sig.</th>
</tr>
</thead>
<tbody>
<tr>
<td>First</td>
<td>CRM</td>
<td>Loyalty</td>
<td>0.448</td>
<td>0.020</td>
<td>0.719</td>
<td>0.000</td>
</tr>
<tr>
<td>Second</td>
<td>CRM</td>
<td>Satisfaction</td>
<td>0.248</td>
<td>0.014</td>
<td>0.645</td>
<td>0.000</td>
</tr>
<tr>
<td>Third</td>
<td>CRM</td>
<td>Loyalty</td>
<td>0.243</td>
<td>0.022</td>
<td>0.590</td>
<td>0.000</td>
</tr>
<tr>
<td></td>
<td>Satisfaction</td>
<td></td>
<td>0.827</td>
<td>0.057</td>
<td>0.510</td>
<td>0.000</td>
</tr>
</tbody>
</table>

Sources: Primary data (2018)

This table shows that all regressions are a fit and have significant relationship between variables in accordance with the requirements of Panjaitan and Laely [28]. However, it can be concluded that customer satisfaction can play as mediating role between CRM and loyalty.

This study supports the previous research which found that CRM variables are the determining factors for increasing loyalty and through achieving banking customer satisfaction as a mediating variable (H4 accepted) [15,29-31].

However, any other study found the different result that no role for customer satisfaction as mediating in enhancing the impact of CRM on long-term customer loyalty in Palestinian local bank [32].

IV. CONCLUSION

A. Conclusion

The purpose of this study is to find the answers of problems proposed in the research. The result of this research finds and concluded that the Customer Relationship Management (CRM) which consist of commitment, communication, and conflict handling has relationship on the loyalty of banking customers in Batam through customer satisfaction as mediation.

Based on the results of this study, it can be concluded that CRM is the most important element for improving customer satisfaction which predominantly affects the realization of customer loyalty through customer satisfaction. Bank commitment, established communication, and speed in conflict handling in the banking industry underlie the reasons for customers to be satisfied and then more loyal to the bank.

In this study, the influence of CRM on banking customer loyalty in Batam city through satisfaction variables as mediation can be realized with priority on improvement commitment, communication, and speed of conflict handling, and customer satisfaction.

B. Limitation

Some limitations of the research obtained from this study is it only uses sample of 463 respondents from a large banking customer population in Batam city.

This research has not yet reached all bank offices in Batam city due to short distance and time of the study. This study uses only three variables in Customer Relationship Management (CRM) consist of commitment, communication, conflict handling, and customer satisfaction and customer loyalty.

C. Future Research

Future research should include other variables that will be tested for their effect on customer loyalty. In addition, this study is also expanded by looking at the influence of loyalty to competitive advantage and changes of behavior patterns of banking customers in the Riau Islands.

Currently, the concept of loyalty is a very important issue and can be examined in a variety of different aspects in various situations. This study tries to investigate more factors those have a relationship with customer loyalty in the banking industry by comparing it with previous research.

The findings in this study are expected to stimulate further research in other regions of Indonesia, especially regions those have different characteristics from Batam city. The model developed in this study could be analyzed and tested with more factors and variables depending on the environment. It also can be applied in other industrial sectors to expand the existing customer loyalty theory.

Suggestions that can be given to improve the quality of CRM research in the future should be adds other variables. Those can be tested for the effects on customer loyalty, as follow, quality of service, trust, and company performance [29,30,33-36].

D. Implication

This study provides a better understanding of the factors that influence the bank customers loyalty in Batam. This study succeeded in obtaining empirical evidence that Customer Relationship Management (CRM) through its three parameters (commitment, communication, and conflict handling) determines the level of satisfaction and loyalty of banking customers in Batam.

Management and banking employees need to understand what customers need and how to increase commitment, communication, and conflict handling to the customers continuously.

The research findings indicate that CRM has a strong direct effect on increasing customer loyalty rather than through customer satisfaction as mediation. It is very important for bank managers to understand the relevance of the CRM dimension in the banking industry which will encourage customer loyalty. Management needs to develop a CRM program that can systematically monitor customer satisfaction and loyalty continuously.

In order to achieve customer satisfaction, banks in Batam city need to optimize conflict resolution between banks and customers to maintain continuity in the use of banking services. This study confirms that the ability of the banks to find solutions of the customer problems is an important factor to improve customer satisfaction. Banks in Batam not only consider to improve customer satisfaction but also improve customer perceptions of the CRM programs when using banking services.

Furthermore, when the degree of customer loyalty is higher, the bank manager must make a series of programs those are able to maintain the loyalty. For example, by giving gifts and...
benefits to customers periodically, maintaining personal good relations between employees and customers, and responsive to technological developments in the banking industry. Therefore, managers can estimate needs in the future, and effectively and efficiently addressed to the customer complaints

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