

SEM/PLS Application for Analysis of Factors Affecting Customer's Decision in Using Mobile Banking at Bank Mandiri Medan Gunung Karakatau Sub-Branch

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ABSTRACT

This study aims to examine the effect of perceived convenience, perceived usefulness, knowledge, risk perception, security and customer trust on the use of mobile banking at Bank Mandiri Medan Gunung Krakatau Sub-Branch. The number of respondents examined in this study were 150 respondents. All respondents are customers of Bank Mandiri Medan Gunung Krakatau Sub-Branch. This research uses a quantitative approach. The data in this study were obtained from the results of distributing questionnaires that had previously been through the trial phase and proved to be valid and reliable in measuring each research variable. The data in this study were analyzed using the Partial Least Square (PLS) analysis technique with the help of the Smartpls program. Based on the results of the analysis in this study, the results show that: (1) Perceptions of convenience, perceived benefits, perceived risk and trust can directly influence a customer's decision to use mobile banking, (2) Knowledge and security cannot directly influence the decision to use mobile banking; (3) knowledge can directly influence the decision to use mobile banking mediated by the perspective of benefits; (4) security may affect indirectly the decision to use mobile banking mediated by customer trust. The analysis also shows that 51.7% of decisions to use mobile banking for customers of Bank Mandiri Medan Gunung Krakatau Sub-Branch are influenced by perceptions of convenience, perceived benefits, knowledge, perceptions of risk, security and customer trust; 49.2%

variance of customer perceptions of the benefits of mobile banking is influenced by perceptions of convenience and customer knowledge; 46.9% of customer confidence in mobile banking applications is influenced by customer risk perceptions of the use of mobile banking and where the system is in the mobile banking application.

Keywords: perceived ease, perceived benefits, knowledge, perceived risk, security, trust, use of mobile banking, Partial Least Square.

BACKGROUND

In the current era of globalization, business competition between companies is increasing both in the domestic and international markets. Companies that want to develop will try to create excellence both in the field of products, services and in the field of technology. In the current era, banking companies are moving more aggressively in an effort to improve and make it easier for everyone to make transactions. This causes companies in other service sectors to create corporate strategies so that they can be superior to their competitors. One of the strategies carried out is the revolution in the development of information and communication technology. The revolution in information and communication technology has made it easier for people to obtain information quickly and practically. According to Nasir

and Yuslinaini (2017: 12) Information and communication technology that is developing rapidly has blurred regional boundaries because one region can be connected to other regions at the same time.

Rema and Setyohadi (2016) explain that the rapid development of information technology has a global impact on banking. One of the impacts is the introduction of mobile banking which is part of electronic commerce as the newest wireless banking information service offered by banks using technology found on smartphones to support the smoothness and ease of banking activities (Sulistiyarini, 2013). Through mobile banking, banks try to provide fast, easy, convenient, accessible services anywhere and anytime. With mobile banking services, checking account balances, monitoring deposit terms, checking credit card status and credit card payments, paying electricity bills, telephone and other transactions will be easier to do (Pratiwi, 2012).

Based on the Transaction Volume and Total Transactions of Mobile Banking Nationally, it can be seen that the Retail segment product that experienced the most significant growth in transaction volume was Livin by Mandiri at 43.24% in 2020. Although the volume of transactions using mobile banking in Indonesia as a whole has increased, the number of customers who have activated mobile banking at Medan GunungKarakatau Sub-branch has experienced fluctuations. In June there were 112 people activated, in July there were 117 people, in August there were 96 people, in September there were 109 people, in October 81 people, in November 74 people and in December 87 people. The number of users of mobile banking should continue to increase every month. Especially considering the many benefits that customers get. One of them in terms of time and energy saved, mobile banking can be used anywhere and anytime as long as it is connected to a good internet network. But in fact this is not in line with the development of mobile banking users. This facility is not

fully utilized by the Indonesian people (Tjini and Baridwan 2013:3).

There are several factors that must be considered by customers when they want to use mobile banking services or what is known as m-banking. The factors that influence the use of m-banking services such as perceptions of ease of use, perceptions of benefits, perceptions of risk, knowledge, trust and security. According to Nasri and Charfeddine (2012) explains that Perception of Ease of Use (Perception of ease of use) is a person's belief in which the use of a new system can be easily used and understood. The perception of ease of use is believed to have a strong influence on the formation of an individual's attitude in accepting a technology. The easier it is to learn and use it will increase customer interest in using mobile banking.

The results of research conducted by Amijaya (2010), Yanuardinda (2014) and Susanto (2013) proves that perceived ease of use has a significant effect on customer re-interest in using mobile banking. However, the results of this study are not consistent with research conducted by Habibi and Zaky (2015: 20) which shows that perceived ease of use has no effect on interest in using Islamic mobile banking.

According to Desmayanti (2012) in the research of Ni Putu Bella Novindra and Ni KetutRasmini (2017: 1123) explains that Benefit Perception is defined how the use of a new system can provide usefulness to its users. Perceived benefits, mobile banking services will be useful if the service is easy to understand and able to interact with users. The bank provides services such as checking balances, transfers between accounts, exchange rate information and so on in mobile banking with the aim of making transactions easier for customers. Benefits for customers include making work easier, increasing productivity, increasing effectiveness and improving job performance.

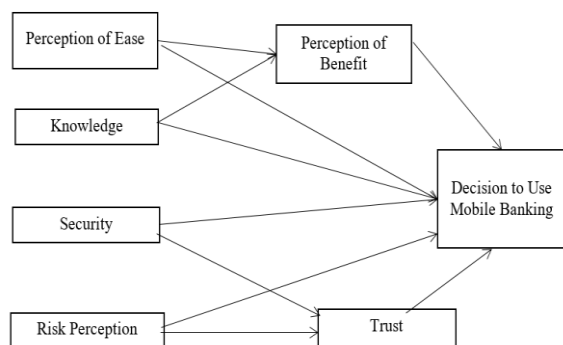


Figure 1

Conceptual Framework

Hypotheses

H1: Perception of ease to use has a positive and significant effect on perception of benefits

H2: Perception of ease to use has a positive and significant effect on decisions to use mobile banking

H3: Knowledge has a positive and significant effect on perception of benefits

H4: Knowledge has a positive and significant effect on decisions to use mobile banking

H5: Perception of benefit has a positive and significant effect on decisions to use mobile banking

H6: Risk perception has a negative and significant effect on decisions to use mobile banking

H7: Risk perception has a negative and significant effect on trust

H8: Security has a positive and significant effect on decisions to use mobile banking

H9: Security has a positive and significant effect on trust

H10: Trust has a positive and significant effect on decisions to use mobile banking

RESEARCH METHOD

This research conducted by field data research. Therefore, data collection from customers was carried out directly in the field by distributing questionnaires. This study discusses the factors that influence customer decisions in using mobile banking at Medan GunungKarakatau Sub-branch. The type of research used in this study is quantitative research. The population in this study is 10,000 customers at Bank Mandiri

Medan GunungKarakatau Sub-branch until 2021. Based on the population with an error rate that researchers use is 10%, according to Bawono (2006: 29) the formula used to determine the number of samples is the formula from Slovin or as many as 150 people or with an error rate or error that is believed to be 8.1% of customers at PT Bank Mandiri in Karakatau Sub-branch. The data analysis technique in this study used Partial Least Square (PLS). PLS is a Structural Equation Modeling (SEM) equation model with an approach based on variance or component-based structural equation modeling, in data analysis using SmartPLS software.

RESULT AND DISCUSSION

Inner Model Test

At the structural model testing stage, before testing the structural model, the feasibility of the model is first tested by looking at the R square value and the Q square model value.

Table 1: R Square

	R Square	R Square Adjusted
X2	0.498	0.492
X5	0.476	0.469
Y	0.536	0.517

Based on the results of the analysis in the table above, the R square value of the perceived benefit variable (X2) is 0.498, the R square value of the trust construct (X5) is 0.476 and the R square value of the decision to use mobile banking (Y) is 0.536, because the R square value is all endogenous variables have exceeded 0.33 then it can be stated that the model is in the moderate category when used to predict perceived benefits, customer trust and customer decisions to use mobile banking.

Table 2: Q Square

	SSO	SSE	Q ² (=1-SSE/SSO)
X1	600.000	600.000	
X2	750.000	462.941	0.383
X3	450.000	450.000	
X4	450.000	450.000	
X5	750.000	443.892	0.408
X6	450.000	450.000	
Y	600.000	321.596	0.464

The value of Q square is categorized into 3 categories, namely small, medium and large, the value of Q square of 0.02 is declared small, the value of Q square of 0.15 is declared moderate and the value of Q square of 0.35 is declared large.

The calculation of Q square in the table above shows that the value of Q square of the construct of perceived benefits (X2) is 0.383, the value of Q square of the trust construct (X5) is 0.408 and the Q square value of the decision construct to use mobile banking (Y) is 0.464, because the value of Q square of both endogenous constructs has exceeded 0.35, it can be concluded that the PLS model has high predictive relevance.

Based on the results of the evaluation of the feasibility of the model by looking at the values of R square and Q square of the model, it can be concluded that the structural model is suitable to be used to test the research hypothesis.

Path Coefficient Evaluation and Direct Effect Test

Table 3: Partial Effect Test Results

	Original Sample (O)	Sample Mean (M)	Standard Deviation (STDEV)	T Statistics (O/STDEV)	P Values
X1 -> X2	0.402	0.404	0.064	6.303	0.000
X1 -> Y	0.208	0.217	0.086	2.433	0.008
X2 -> Y	0.273	0.275	0.095	2.887	0.002
X3 -> X2	0.394	0.393	0.065	6.083	0.000
X3 -> Y	0.068	0.069	0.094	0.730	0.233
X4 -> X5	-0.174	-0.175	0.078	2.220	0.013
X4 -> Y	-0.215	-0.221	0.069	3.113	0.001
X5 -> Y	0.197	0.192	0.108	1.826	0.034
X6 -> X5	0.697	0.694	0.038	18.302	0.000
X6 -> Y	0.081	0.080	0.104	0.781	0.218

Based on the results of testing the hypothesis above, the following test results are obtained:

1) Line X1 → X2

In the path that shows the relationship between perceived convenience and perceived benefits (X1 X2), the p value obtained is 0.000 with a T statistic of 6.303 and a positive path coefficient of 0.402. Because the path p value < 0.05, T statistic > 1.65 and the path coefficient is positive, it can be concluded that the perception of

convenience has a positive and significant effect on the perception of benefits, this indicates that the higher the customer's perception of the ease of using mobile banking, the higher the customer's perception of the benefits of using mobile banking.

2) Line X1 → Y

In the path that shows the relationship between the perception of convenience and the decision to use mobile banking (X1 Y), the p value obtained is 0.008 with a T statistic of 2.433 and a positive path coefficient of 0.208. Because the path p value < 0.05, T statistic > 1.65 and the path coefficient is positive, it can be concluded that customer perceptions of the ease of use of mobile banking applications have a positive and significant effect on customer decisions to use mobile banking. The higher the customer's perception of the ease of use of the mobile banking application, the higher the customer's decision to use mobile banking.

3) Line X3 → X2

In the path that shows the relationship between the influence of knowledge on perceived benefits (X3 X2), the p value obtained is 0.000 with a T statistic of 6.083 and a positive path coefficient of 0.394. Because the path p value < 0.05, T statistic > 1.65 and the path coefficient is positive, it can be concluded that customer knowledge about mobile banking applications has a positive and significant impact on perceived benefits, this indicates that the higher customer knowledge about the application mobile banking, the higher the customer's perception of the benefits of using mobile banking.

4) Line X3 → Y

In the path that shows the relationship of the influence of knowledge on decisions to use mobile banking (X3 Y), the p value obtained is 0.233 with a T statistic of 0.730. Due to the path p value > 0.05, T statistic < 1.65, it can be concluded that customer knowledge of mobile banking

applications has no significant effect on customer decisions to use mobile banking, this indicates that customers with a lot of knowledge about mobile banking applications not necessarily decide to use a mobile banking application.

5) Line X2 → Y

In the path that shows the effect of perceived benefits on decisions to use mobile banking (X2 → Y), the p value obtained is 0.002 with a T statistic of 2.887 and a positive path coefficient of 0.273. Because the path p value < 0.05, T statistic > 1.65 and the path coefficient is positive, it can be concluded that customer perceptions of the benefits of mobile banking applications have a positive and significant impact on customer decisions to use mobile banking, this indicates that the higher customer perceptions of the benefits of mobile banking applications, the higher the customer's decision to use mobile banking.

6) Line X4 → X5

In the path that shows the relationship between risk perception and customer trust (X4 → X5), the p value obtained is 0.013 with a T statistic of 2.220 and a negative path coefficient of -0.174. Because the path p value < 0.05, T statistic > 1.65 and the path coefficient is negative, it can be concluded that risk perception has a negative and significant effect on customer trust, this indicates that the higher customer perceptions of the risk of using mobile banking, it will reduce customer confidence in the mobile banking application

7) Line X4 → Y

In the path that shows the relationship between risk perception and the decision to use mobile banking (X4 → Y), the p value obtained is 0.001 with a T statistic of 3.113 and a negative path coefficient of -0.215. Because the path p value < 0.05, T statistic > 1.65 and the path coefficient is negative, it can be concluded that customer perceptions of the risk of using mobile banking applications have a negative and

significant effect on customer decisions to use mobile banking. The higher the customer's perception that the use of mobile banking has a high risk, the lower the customer's decision to use mobile banking.

8) Line X6 → X5

In the path that shows the relationship between security perceptions and customer trust (X6 → X5), the p value obtained is 0.000 with a T statistic of 18.302 and a positive path coefficient of 0.697. Because the path p value < 0.05, T statistic > 1.65 and the path coefficient is positive, it can be concluded that the security of using mobile banking has a positive and significant effect on customer trust, this indicates that the higher the security of the mobile banking application, the higher the security of the mobile banking application. the higher the customer trust in the mobile banking application

9) Line X6 → Y

In the path that shows the relationship between the influence of security on the decision to use mobile banking (X6 → Y), the p value obtained is 0.218 with a T statistic of 0.781. Due to the path p value > 0.05, T statistic < 1.65, it can be concluded that security has no significant effect on customer decisions to use mobile banking, this indicates that customers who judge that this application is safe do not necessarily decide to use mobile banking. .

10) Line X5 → Y

In the path that shows the relationship between perceived benefits of using mobile banking (X5 → Y), the p value obtained is 0.034 with a T statistic of 1.826 and a positive path coefficient of 0.197. Because the path p value < 0.05, T statistic > 1.65 and the path coefficient is positive, it can be concluded that customer trust in mobile banking applications has a positive and significant effect on customer decisions to use mobile banking, this indicates that the higher the trust customers towards mobile

banking applications, the higher the customer's decision to use mobile banking.

Coefficient of Determination

Table 4: R Square

	R Square	R Square Adjusted
X2	0.498	0.492
X5	0.476	0.469
Y	0.536	0.517

The results of the analysis show that the adjusted R square value of the perceived benefit variable (X2) is 0.492, this shows that 49.2% of customers' perceptions of the benefits of mobile banking are influenced by perceptions of convenience and customer knowledge about mobile banking applications, while there are still 50.8 % of customers' perceptions of the ease of use of mobile banking are influenced by other factors other than these two factors.

Furthermore, on the trust construct, the adjusted R square value of the trust construct model is 0.469, this shows that

46.9% of customer trust in the lobby banking application is influenced by customer perceptions of the risks of using mobile banking and customer perceptions of security using mobile banking, while there are still as many as 53.1% of customers' trust in using mobile banking is influenced by other factors other than these two factors.

Furthermore, in the decision construct to use mobile banking, the R square value obtained is 0.517, this shows that 51.7% of customers' decisions to use mobile banking are influenced by customer perceptions of the ease of mobile banking applications, application benefits, customer knowledge about mobile banking applications, customer perceptions of the risks of using mobile banking, customer trust in mobile banking applications and customer perceptions of the security of using mobile banking, while the remaining 48.3% of customers' decisions to use mobile banking are influenced by other factors other than these six factors.

Indirect Influence

Table 5: Indirect Test Result

	Original Sample (O)	Sample Mean (M)	Standard Deviation (STDEV)	T Statistics (O/STDEV)	P Values
X3 → X2 → Y	0.107	0.107	0.040	2.699	0.004
X4 → X5 → Y	-0.034	-0.034	0.027	1.264	0.103
X6 → X5 → Y	0.137	0.132	0.074	1.857	0.032
X1 → X2 → Y	0.110	0.110	0.041	2.702	0.004

1. X1→X2→Y | P value < 0.05 and T statistic > 1.65: Perception of benefits can mediate the indirect effect of Perception of Ease to use on decisions to use mobile banking. This means that the higher the customer's perception of the ease of using mobile banking, the higher the customer's perception of the benefits of using the mobile banking application, which in turn will increase the customer's decision to use mobile banking.
2. X3 → X2 → Y| P value < 0.05 and T statistic > 1.65: Perception of benefits can mediate the indirect effect of customer knowledge on decisions to use

mobile banking. This means that the higher the customer's knowledge of the mobile banking application, the higher the customer's perception of the benefits of using the mobile banking application, which in turn will increase the customer's decision to use mobile banking.

3. X4→ X5→ Y| P value < 0.05 and T statistic > 1.65:Trust is not influenced by the perception of risk on the customer's decision to use mobile banking. This is because the influence of risk perception on customer decisions to use mobile banking is very strong so that without being mediated by customer

trust, risk perception will definitely reduce customer decisions to use mobile banking applications.

4. $X_6 \rightarrow X_5 \rightarrow Y$ | P value < 0.05 and T statistic > 1.65: Customer trust can mediate the indirect effect of customer perceptions of security of use on decisions to use mobile banking. This means that the higher the customer's perception of the security of mobile banking, the higher the customer's trust in the mobile banking application, which in turn will increase the customer's decision to use mobile banking.

Hypotheses Testing

Table 6: Hypotheses Result

Hypothesis	Original Sample (O)	Conclusion
(1) Perception of Ease to use has a positive effect on perception of benefits	<ul style="list-style-type: none"> • Path Coef = 0,402 • T Statistics = 6,303 • P value = 0,000 	(accepted)
(2) Perception of ease to use has a positive and significant effect on decisions to use mobile banking	<ul style="list-style-type: none"> • Path Coef = 0,208 • T Statistics = 2,433 • P value = 0,008 	(accepted)
(3) Knowledge has a positive and significant effect on perception of benefits	<ul style="list-style-type: none"> • Path Coef = 0,394 • T Statistics = 6,083 • P Value = 0,000 	(accepted)
(4) Knowledge has a positive and significant effect on decisions to use mobile banking	<ul style="list-style-type: none"> • Path Coef = 0,068 • T Statistics = 0,730 • P Value = 0,233 	(rejected)
(5) Perception of benefit has a positive and significant effect on decisions to use mobile banking	<ul style="list-style-type: none"> • Path Coef = 0,273 • T Statistics = 2,887 • P Value = 0,002 	(accepted)
(6) Risk perception has a negatif and significant effect on decisions to use mobile banking	<ul style="list-style-type: none"> • Path Coef = -0,174 • T Statistics = 2,220 • P Value = 0,013 	(accepted)
(7) Risk perception has a negatif and significant effect on trust	<ul style="list-style-type: none"> • Path Coef = -0,215 • T Statistics = 3,113 • P Value = 0,001 	(accepted)
(8) Security has a positive and significant effect on decisions to use mobile banking	<ul style="list-style-type: none"> • Path Coef = 0,697 • T Statistics = 18302 • P Value = 0,000 	(accepted)
(9) Security has a positive and significant effect on trust	<ul style="list-style-type: none"> • Path Coef = 0,081 • T Statistics = 0,781 • P Value = 0,218 	(rejected)
(10) Trust has a positive and significant effect on decisions to use mobile banking	<ul style="list-style-type: none"> • Path Coef = 0,197 • T Statistics = 1,826 • P Value = 0,034 	(accepted)

CONCLUSION

1. Perception of ease of use has a positive and significant effect on perception of benefits, this indicates that the higher the customer's perception of the ease of using mobile banking, the higher the customer's perception of the benefits of using mobile banking.
2. Customer perceptions of the ease of use of mobile banking applications have a positive and significant effect on customer decisions to use mobile banking, this shows that the higher the

customer's perception of the ease of use of the mobile banking application, the higher the customer's decision to use mobile banking.

3. Customer knowledge about mobile banking applications has a positive and significant effect on perceptions of benefits, this shows that the higher customer knowledge about mobile banking applications, the higher customer perceptions of the benefits of using mobile banking.
4. Customer knowledge of mobile banking applications does not have a significant effect on customer decisions to use mobile banking, this shows that customers with a lot of knowledge about mobile banking applications do not necessarily decide to use mobile banking applications.
5. Customer perceptions of the benefits of mobile banking applications have a positive and significant impact on customer decisions to use mobile banking, this shows that the higher the customer's perception of the benefits of mobile banking applications, the higher the customer's decision to use mobile banking.
6. Risk perception has a negative and significant effect on customer trust, this indicates that the higher the customer's perception of the risk of using mobile banking, the lower the customer's trust in the mobile banking application.
7. Customer perception of the risk of using mobile banking applications has a negative and significant effect on customer decisions to use mobile banking, this shows that the higher the customer's perception that the use of mobile banking has a high risk, the lower the customer's decision to use mobile banking.
8. The security of using mobile banking has a positive and significant effect on customer trust, this shows that the higher the security of the mobile banking application, the higher the

customer trust in the mobile banking application.

9. Security does not have a significant effect on customer decisions to use mobile banking, this shows that customers who judge that this application is safe do not necessarily decide to use mobile banking.
10. Customer trust in mobile banking applications has a positive and significant effect on customer decisions to use mobile banking, this shows that the higher customer trust in mobile banking applications, the higher customer decisions in using mobile banking.

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