

## Research Article

# The Determining Factors Affecting Digital Banking Adoption in City of Banda Aceh, Indonesia

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**Abstract:** Banking industry is changing rapidly. With the development of international economy and competitive markets, also banks are affected, the main force in this environment is technological that case to break barrier of legal, geographic and industry and has create new products and services. The primary purpose of this research is to investigate the influence of trust, security, and perceived risk on digital banking adoption in Banda Aceh. The data used in this study is the primary data by spreading the online questionnaire by google form. The population in this study were the customers who used digital banking in Banda Aceh. Purposive Sampling had been used for sampling technique in this study. The amount of questionnaires that had been analyzed were 103 questionnaires. The testing of the influences of independent variables toward dependent variables was done by using multiple regressions model with SPSS (Statistical Package for Social Science). The results of this research showed that both trust and security have positively effect on digital banking adoption. Otherwise perceived risk has negatively effect on digital banking adoption.

**Keywords:** Digital Banking, Digital Banking Adoption, Trust, Security, and Perceived Risk.

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## INTRODUCTION

Along with the development of increasingly advanced technology, all business devices are required to keep abreast of developments. In carrying out all types of business activities, business devices are required to improve business performance in the use of technology and information. Information technology has become a basic need for companies in carrying out their business activities, because they are considered to provide competitive advantages for individuals and companies, including banking.

With the potential of using such a large technology, banks are expanding the reach of services by presenting e-banking and mobile banking. Customers can make payments, transfer funds to withdraw cash easily through the touch of a finger, optimize the internet network and handheld devices. It got a positive response from the community. The Financial Services Authority (OJK) reported the number of e-banking user customers increased 270% from 13.6 million customers in 2012 to 50.4 million in 2016. Meanwhile, in terms of transaction frequency, the value grew 169% from 150.8 million transactions in 2012 were 405.4 million transactions in 2016.

These conditions lead to changes in consumer expectations for the company, so that banking services themselves are considered insufficient only with mobile banking and e-banking services. Banks need to implement new business strategies for the quality of bank services to their customers and improve the efficiency of operational activities. The development of banking has evolved leading to digital banking services. The adoption of digital banking itself is based on President Joko Widodo's policies that encourage the existence of a digital economy in Indonesia.

The Association of National Commercial Banks (Perbanas) encourages its members to implement digital banking because it is considered capable of improving banking performance. According to Kartika Wirjoatmodjo as chairman of Perbanas, the implementation of digital banking can increase fee-based income and return on equity (ROE) of banks by 18% in the long run. In terms of accounting, the greater the ROE of an entity, the greater the effectiveness of an entity in managing its capital. This is because the ROE function is to provide an overview of the company's profitability to the amount of its equity. The greater the ROE, the more effective a company is.

With the presence of digital banking, the banking industry is moving forward to improve systems, strategies and functions to prove to the public that the use of technology will make it easier for customers to transact. It aims to improve customer transaction behavior. However, not always the application of the system will always succeed. Santoso (2004) states that there are 4 factors to measure the success of information systems. These four measures include: user behavior, system usage, decision performance, and organizational performance. Measuring the success of system implementation through user behavior can be assessed through the customer. In this study user behavior factors and the use of information systems are used to measure the success of digital banking systems.

The problem that arises is that up to now digital banking services have not been widely used by the public. Some of the banking customers still do not believe and judge that the use of digital banking is not safe. The phenomenon in this study is that in the ease of transactions provided by digital banking, it is still very minimal for the public. Data from financial institutions states that only about 35% of people use digital banking services and the rest have not used it.

This study uses parameters of trust, security, and risk perception in digital banking adoption. The trust factor is one of the most decisive things an individual uses in a system. When customers believe in the performance of the digital banking service system, customers will continue to use it and will move on to system adoption. People who already believe in digital banking services will continue to see the security provided by banks in the provision of digital banking services. Security is also a benchmark for customers in terms of digital transactions. In the present, the main problem in making transactions in digital banking services is the security of the system itself. This is because the development of digital banking services is accompanied by increased fraud. The next factor that becomes a problem is the perception that comes from the public about the risks that can arise when conducting transactions with digital banking services, will be a concern for the community. For this reason, researchers want to assess whether trust, security, and risk perception affect digital banking adoption in banking customers in the city of Banda Aceh. According to researchers, these three factors are the basic factors for customers to use and continue to adopt digital banking.

Several previous studies that have been carried out in different areas and show different results. In the research Yudha & Isgiyarta (2015) states that in Surakarta trust has a positive and significant influence on the acceptance of internet banking. This is similar to research by Sohrabi et al., (2012) which identifies the factors that influence online banking adoption in

Malaysia stating that the level of trust influences the use of online banking adoption.

The research conducted by Supriyadi (2014) in Purworejo obtained the results that the perception of risk of internet banking transactions had a positive and significant influence on the customer's repeated interest in using internet banking. Similar to the research of Kallanmarthodi and Vaithyanathan (2012) obtaining the results of risk perception has a positive and significant effect on the intention to use electronic banking adoption. This result is different from the research of Yudha & Isgyarta which states that there is no positive influence on the acceptance of internet banking, but rather negatively affects the use of internet banking.

This study aims to examine and assess the influence of trust, security, and risk perception on digital banking adoption in the city of Banda Aceh.

## LITERATURE REVIEW

### Digital Banking

The definition of digital banking refers to the definition issued by OJK, namely banking services/activities through bank offices using electronic/digital facilities owned by banks and/or through digital media carried out independently by customers that allows prospective customers and/or bank customers to obtain information, conduct communication, registration, account opening (www.ojk.ac.id, 2016).

### Digital Banking Adoption

The application of an information system is inseparable from behavioral aspects because the development of information systems is related to the individual and organizational problems of the users of the system, so the system used must be user-oriented (Irmadhani, 2012). That way the information system can meet the needs and desires of its users, and can solve existing problems.

Digital banking adoption is a real condition for the use of digital banking services by customers. There are several conditions for a technology to be adopted, namely: first, offering services that support banking activities for its customers. Second, can access services and offer markets that are relevant, easily obtained, and have benefits for customers (Walker & Johnson, 2007).

**H<sub>1</sub>:** Trust, Security, and Risk Perception jointly influence Digital Banking Adoption

### Trust

Trust is the biggest asset owned by banks, because the higher the customer trust in the bank, the higher the intensity of the use of banking services by customers. According to Amelia (2017), Trust in a banking service shows that there is an acknowledgment of the credibility of the bank. If the credibility of the bank is low, it is possible to increase customer trust in

the bank. In banking, trust is an individual's belief that the use of the system can transact safely. Trust can be measured with a level of reliability, concern, and credibility.

**H<sub>2</sub>:** Trust has a partially effect on Digital Banking Adoption.

### Security

Security is a very important factor in determining customer decisions to adopt digital banking. In the United States, Thorton Consulting conducted a bank-focused survey and concluded that 67% of banks felt that security issues were the main obstacle to the implementation of digital banking services (GM, ZH, A, & Shaikh, 2015). Despite various technical advances in internet security such as cryptography, digital signatures and certificates, and authentication, customers are still worried about the security of transactions when using the internet. Monetary transactions via the internet are the main role of digital banking, therefore, if digital banking security concerns are removed, customer satisfaction with digital banking can increase (Yoon, 2010). Security can be measured by

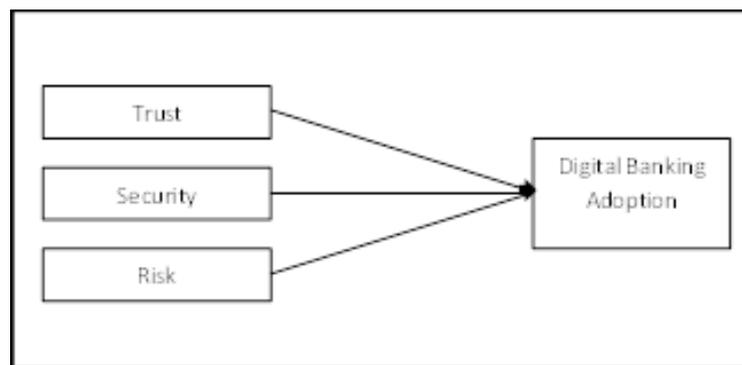
bank confidentiality indicators and the level of supervision from banks.

**H<sub>3</sub>:** Security has a partially effect on Digital Banking Adoption.

### Perceived Risk

According to Supriyadi (2014) risk is a subjective estimate of the individual in accepting an uncertain situation to experience loss in receiving the results obtained, because it is considered to contain many elements of risk. This is an individual's consideration in deciding whether or not to make an online transaction. The intangible nature of internet transactions tends to increase consumer perceptions of risk. The use of internet banking involves many types of risks. This risk includes financial risk, performance risk, physical risk, social risk, psychological risk, and time risk (Hojjati, Monavvarian, & Roozbahani, 2015). Perception Risk can be measured by an indicator of the amount of risk, transaction needs and guarantees from the bank.

**H<sub>4</sub>:** Perceived risk partially influence on Digital Banking Adoption



**Figure 1:** Research Framework

## RESEARCH METHOD

This study aims to test the hypothesis. The type of investigation in this study uses a causal study type where the level of intervention in this study is minimal intervention. The situation of this research is not regulated. The unit of analysis in this study is individuals who are active banking customers who have used digital banking and the data collected is in the form of primary data from online questionnaires distributed to active banking customers who have used digital banking in Banda Aceh. This research is cross-sectional studies.

This study uses primary data sources in the form of questionnaires. Questionnaires are data collection techniques that are carried out by giving written questions to respondents in the study to be answered. Primary data taken in this study by submitting a written statement through a questionnaire with respondents who are customers of active banking customers who have used digital banking in Banda Aceh. The questionnaire in this study was to measure

the effect on Digital Banking Adoption. Measurement of dimensions and indicators or elements of this study using an interval scale (interval scale) that allows it to be carried out arithmetic operations on data collected from respondents.

### Operationalization of Variables

#### Digital Banking Adoption

Adoption in terms of digital banking adoption can mean the extent to which customers can accept and are willing to continue to use digital banking services that can affect the level of digital banking adoption. Intention to continue to use digital banking arises when a customer has a positive nature in the form of acceptance of the application of digital banking. Adoption of digital banking can be measured by several indicators, namely: intention to use, intensity, willingness, and usage usage.

#### Trust

Trust is an important factor in encouraging the interest of customers to adopt digital banking services,

because the customer's attitude in adopting digital banking is driven by a sense of trust in the technology used. Every customer uses digital banking services because he believes that the system used will be useful as expected. According to Amelia (2017) the perception of trust is the extent to which the application of digital banking adoption to bank reliability in maintaining and guaranteeing the confidentiality of customer account data. Trust variables can be measured by reliability, concern and credibility.

**Security**

According to Amelia (2017) security is the customer's perception of the extent to which digital banking services can protect personal data and customer information in order to remain safe, protected from theft or any other form of abuse, and also does not allow the disclosure of information to unauthorized parties. Security variables can be measured by bank confidentiality system indicators and bank supervision systems.

**Perceived Risk**

Risk is an uncertain condition where individuals will consider the decision to use digital banking. The Bank is expected to minimize the risks of using digital banking, so that it will have a positive impact on the use of technology offered. Indicators of perceived risk according to Hidayanti (2014), namely the amount of

risk, transaction security, transaction needs, and security guarantees from banks.

**RESULTS AND DISCUSSIONS**

Questionnaires were distributed online using Google Forms to active banking customers with a total of 103 respondents. Respondents in this study have different characteristics.

Based on the results of questionnaires distributed to 103 respondents, the number of female respondents was more than that of male respondents, with a total of 69 female respondents and 34 male respondents. For the age range, 10 people under the age of 20, who were aged 20-29 years were 89 people, 1 person for 30-39 years old, 3 people over 40 years old.

Based on job characteristics, students dominated more than others, as many as 58 people. Furthermore, respondents with the status of private employees were 13 people, civil servants were 8 people, entrepreneurs were 11, students were 2 people and apart from 5 were 11 people. Based on income more dominated by the amount of income below Rp. 500,000 and Rp. 500,000 - Rp. 1,500,000 which is 35 people and 36 people. This is because most respondents are students who generally do not work. Revenue ranges from Rp. 1,500,000 - Rp. 3,500,000 as many as 18 people followed by Rp. 3,500,000 - Rp. 6,000,000 as many as 14 people.

**Multiple Linear Regression Test Results**

**Table 1.** Multiple Linear Regression Test Results

Coefficients <sup>a</sup>						
Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	4.771	1.079		4.423	.000
	Kepercayaan	.880	.085	.815	10.355	.000
	Keamanan	.264	.096	.259	2.735	.008
	Persepsi Risiko	-.186	.086	-.148	-2.174	.033
Model	R	R Square	Adjusted R Square	Std. Error of the Estimate		
1	.939 <sup>b</sup>	.882	.877	1.54911		
ANOVA <sup>a</sup>						
Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	1625.853	3	541.951	110.664	.000 <sup>b</sup>
	Residual	484.827	99	4.897		
	Total	2110.680	102			

a. Dependent Variable: Adopsi Digital Banking  
 b. Predictors: (Constant), Persepsi Risiko, Kepercayaan, Keamanan

Sources: Primary Data Processed (2018)

The output of SPSS (coefficients), can be obtained by multiple regression equation as follows:

$$Y = 4,771 + 0,880X1 + 0,264X2 - 0,186X3 + e$$

From the regression equation can be known the results of the study of each coefficient is for the constant (a = 4.771), meaning that if the trust factors

(X1), security (X2), and risk perception (X3) are considered constant, then the amount of digital banking adoption in the city of Banda Aceh is 4,771.

The trust regression coefficient (X1) is 0.880. This means that every time there is an increase of one in the trust variable, it will relatively increase 88% of digital banking adoption in the city of Banda Aceh.

Thus the better the trust gained, it will relatively increase the adoption of digital banking in the city of Banda Aceh.

The security regression coefficient (X2) is 0.264. This means that every time there is an increase of one in the security variable, it will relatively increase the use of digital banking in Banda Aceh by 26.4%. Thus, the safer perceived use of digital banking will relatively increase the adoption of digital banking in the city of Banda Aceh.

The risk perception regression coefficient (X3) is -0.186. This means that every time there is an increase of one in the risk perception variable, it will relatively reduce the use of digital banking in the city of Banda Aceh by 18.6%. Thus the smaller the risk that arises, it will relatively increase the adoption of digital banking in the city of Banda Aceh.

Correlation coefficient (R) of 0.939 indicates that the degree of relationship (correlation) between the independent variable and the dependent variable is 93.9%. This means that digital banking adoption in the city of Banda Aceh has something to do with trust factors (X1), security (X2), and risk perception (X3).

The coefficient of determination (R<sup>2</sup>) is 0.882, which means that 88.2% of changes in digital banking adoption are influenced by trust variables (X1), security (X2), and risk perception (X3) while the remaining 11.8% is influenced by variables - Other variables not used in this study.

Based on the results of the analysis described previously it can be seen that trust (X1), security (X2), and risk perception (X3) have an influence on the adoption of digital banking in the city of Banda Aceh with a coefficient of each variable of 0.880; 0,264; and 0.186.

### **Influence of Trust, Security, and Perceived Risk on Digital Banking Adoption**

From the test results for trust (X1), security (X2), and risk perception (X3) shows the F-count value is 110.664. While the F-table value is 2.70. This shows that  $F\text{-count} > F\text{-table}$  so that the variables of trust (X1), security (X2), and risk perception (X3) simultaneously influence significantly the adoption of digital banking (Y) in the City of Banda Aceh.

### **Influence of Trust in Digital Banking Adoption**

Based on the results of multiple regression, regression coefficient values indicate that trust influences the adoption of digital banking in the city of Banda Aceh. This is in accordance with the hypothesis that has been made, namely trust positively influences the adoption of digital banking in the city of Banda Aceh. The results of this study are consistent or in accordance with all the results of previous studies that

are used as references in this study, such as research conducted by Amelia (2017), Yudha & Isgiyarta (2015), and Sohrabi, et al (2012). If a customer believes in a digital banking service system, then it can encourage customers to continue to use this service, so digital banking adoption in the city of Banda Aceh will increase.

### **Influence of Security in Digital Banking Adoption**

Based on the results of multiple regression, regression coefficient values indicate that security influences the adoption of digital banking in the city of Banda Aceh. This is in accordance with the hypothesis that has been made, namely security has a positive influence on digital banking adoption in the city of Banda Aceh. The results of this study are supported by previous research conducted by Sihotang (2016). The results of research conducted by Sihotang concluded that security has a positive effect on the use of internet banking services.

The higher the level of security of digital banking services, the customer is willing to use the service. This is because the security of using a product is also a consideration for someone in use. If the use of digital banking services is safe enough, the customer will be more confident to use it and adopt it.

### **Influence of Perceived Risk on Digital Banking Adoption**

Based on the results of multiple regression, regression coefficient values indicate that risk perception negatively affects digital banking adoption in the city of Banda Aceh. This is not in accordance with the hypothesis that has been made, namely the perception of risk has a positive effect on digital banking adoption in the city of Banda Aceh. The results of this study are not in accordance with previous research, but the results of this study are in accordance with the research conducted by Yudha & Isgiyarta (2015). In a study conducted by Yudha & Isgiyarta concluded that risk perception has a significant negative effect on the acceptance of internet banking adoption services.

Perception about the risk of using digital banking can affect someone to use it, the more risk is obtained, the less desire someone uses digital banking. On the contrary, the more users feel that using digital banking does not have a risk, which means having a guarantee provided by the bank, the greater the desire of users to use it.

## **CONCLUSIONS AND RECOMMENDATIONS**

### **Conclusions**

1. Trust has a significant positive effect on digital banking adoption in the city of Banda Aceh. This means that the customer's trust in the use of digital

banking is good enough to influence someone to believe in continuing to use it.

2. Security has a significant positive effect on digital banking adoption in the city of Banda Aceh. This means that good security influences people so that they are encouraged to use digital banking.
3. Perception of risk has a significant negative effect on digital banking adoption in the city of Banda Aceh. This means that customers are still very concerned about the risks of using the service. The less risk gained when using digital banking, it will encourage someone to use digital banking.
4. Based on simultaneous testing (Test-F) shows the trust, security, and risk perception jointly have a significant effect on digital banking adoption in the City of Banda Aceh.
5. Based on the determination coefficient obtained, it can be explained that the variables of trust, security, and risk perception of contributing to the adoption of digital banking are 88.2%. While the rest of 11.8% is influenced by other factors outside the variables that are used as indicators in this study.

#### Limitations of Research

1. This study uses only three variables for customers in the use of digital banking, namely trust, security, and risk perception. Many other variables that might influence the adoption of digital banking were not included in this study.
2. This study covers a very broad population and the object is still very general, so the results cannot provide details about digital banking service products from each bank.
3. This study only uses questionnaires to obtain data, does not rule out the possibility that the respondent's perception is different from the actual situation.

#### Recommendations

##### Academic Recommendations

1. For research to be more representative, it is hoped that further research can increase the number of respondents, expand the area and enlarge the scope of the research so that future research has a wider scope and produce better research results.
2. This study uses an online questionnaire to obtain data, if possible further research can conduct direct interviews with banking customers in order to obtain more accurate results.
3. Subsequent research is suggested to add a variety of other independent variables that can influence the adoption of digital banking, so that it can be seen that the adoption of digital banking is also influenced by variables other than those described in this study with the aim of providing better results.
4. Further research is recommended to change the object of research by directly examining the banking sector. This was done in order to see

clearly the influence of digital banking on increasing income.

#### Practical Recommendations

1. Banks are expected to continue to develop and innovate to continue to maintain the trust and security of customers, as this will encourage the decision to adopt digital banking services so that it will increase banking revenues annually. In addition, it is expected to minimize the risks that might occur from the system.
2. Banking customers who have adopted digital banking, especially in the Banda Aceh City region, are always selective in using digital banking facilities.

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