

Factors of Acceptance of Mobile Banking in Malaysia

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Abstract—As of now in the advanced world, mobile application and web-based computerized are quickly evolving. One of developing financial innovation is financial technology, especially in mobile banking. One emerging financial innovation is mobile banking service. The mobile banking services of Malaysia are now very much concerned with the importance of client perception and acceptance. This research aimed to study the determinants of customer acceptance towards using mobile banking services in Malaysia. There are five research objectives identified which were to analyze the influence of perceived usefulness, to examine the influence of perceived ease of use, to determine the influence of perceived cost and to identify the influence of security on customer acceptance towards using mobile banking service in Malaysia. To study the determinants of customer acceptance towards using mobile banking service, the researcher selects the 384 customers as our sample framework. The researcher used correlation analysis and multiple regression analysis to analyses the data. The results depict that there is a significant relationship between perceived usefulness, perceived ease of use, security and perceived cost (independent variable) and the Customer Acceptance (dependent variable). The researcher recommended that future research could cover other areas in Malaysia and cover more specific customer acceptance and perception in mobile banking to provide more useful and accurate data for financial industries.

Keywords—*mobile banking; acceptance; ease of use; cost; usefulness*

I. INTRODUCTION

According to [1], technology is available for everything and turns the world into a global village. The development of information technology become more obvious in the banking industry [2]. The adoption of latest technology has enabled banks to extend their customer base especially their satisfaction, where financial technology in the mobile banking is considered advanced in the financial world. Electronic banking such as mobile banking can be classified as the latest advancement which has given customers' choice to access bank accounts convenience through wireless channels or online [3].

Regardless of the facts that there has been much paper conducted on the topic of Mobile Banking abroad, unfortunately only a few studies were carried out locally. This is due to the fact that Mobile Banking is to some extent in their early stage, leaving a great deal for development in Malaysia [4]. There is a need, therefore, to understand the acceptance of mobile banking and identify determinants influencing to using mobile banking [5]. Hence, the lack of information on this topic resulted in insufficient knowledge and literature on the key determinants in Mobile Banking of customer acceptance within Malaysia [6]. Evidence and conclusions studies in oversea could bring some insight into this study but not accurately so. Given the justification above, more research on this topic should be covered to validate whether the results from these studies would be reliable to Malaysia. To defeat this issue, analysts need to have further exploration of this region depends on the Malaysia setting.

This paper endeavoured to help the improvement of versatile financial

administrations through examining the client reception. Moreover, this paper found the connection between a few factors, for example, seen handiness, seen convenience, seen cost and security. Model, for example, the Technology Acceptance Model (TAM) was utilized and embraced to help examination the factors that will impact the client's goal to receive versatile banking.

Currently, banks have created and reinforced the data framework and offered a more extensive scope of services with an end goal to build productivity and client acceptance [7]. In this way, banking administrations are being offered through electronic channels. Financial mobile gives banking services up to date service to be offered.

The importance of the subject of portable financial assistance and the significance of concentrating on the services given by the banks received, utilizes four factors that are imperative to offer this support and they are ease of use, usefulness, security, perceived cost, where the point of this investigation is to gauge the determinant of utilizing versatile financial services on client acceptance.

A. *Perceived Usefulness*

According to [9], they expressed that apparent handiness has a huge impact on the advancement of starting availability to utilize mobile banking. These examinations demonstrate the huge impact of apparent helpfulness in singular responses to data innovation. Consequently, it is very expected that the motivation behind why individuals utilize mobile banking is because they think that its helpful and connection with client acknowledgement and their desire.

B. *Perceived Ease of Use*

Seen convenience alludes to how much an individual accepts that utilizing a specific framework would be straightforward and without any problem. In a mobile setting, seen convenience like how much people relate the opportunity of trouble with the utilization of mobile innovation and services in everyday use [10].

C. *Security*

Security is a cross-cutting issue that includes the presentation of trust as a factor in the investigation of mobile banking and portable instalments use.[11] According to [12], security assumes a trusted job being used on early proof and organization. In numerous past investigations, the security of money related exchanges [13] and individual information has been recognized as determinants of client acceptance utilizing mobile financial assistance [14]. In the Mobile financial condition, clients everywhere on over the world are permitted to get to the significant documents on PCs and data moved using the Internet or mobile applications.

D. *Perceived Cost*

Cost is characterized as the degree to which an individual accepts that utilizing mobile banking would cost cash [15]. The expense of utilizing portable banking may incorporate the conditional expense as bank charges, versatile system charges for sending correspondence traffic (counting SMS or information), cell phone cost and service charges or duty. As per [16], and [17] are of the view that membership and administration charges for getting to mobile services, for example, banking, special offers, shopping impact client acceptance, and subsequently, it is reasoned that cost positively affects client acceptance of portable financial administrations. [18]

The theoretical framework is required in examination to show conceivable strategy or introducing a favoured way to deal with a thoughtful idea. In this investigation manages the apparent convenience, seen handiness, security and saw cost, eventually, the entirety of this factor chosen dependent on the two explores by [19] was lead to their choice determinants of client acceptance utilizing mobile banking [20].

E. *Hypothesis Testing*

Perceived of Usefulness

H0: There is no significant relationship between perceived usefulness and customer acceptance using mobile banking services.

H1: There is a significant relationship between perceived usefulness and customer acceptance using mobile banking services.

Perceived of Ease of Use

H0: There is no significant relationship between perceived ease of use and customer acceptance using mobile banking services.

H2: There is a significant relationship between perceived ease of use and customer acceptance using mobile banking services.

Security

H0: There is no significant relationship between security and customer acceptance using mobile banking services.

H3: There is a significant relationship between security and customer acceptance using mobile Perceived banking services.

Perceived Cost

H0: There is no significant relationship between perceived cost and customer acceptance using mobile banking services.

H4: There is a significant relationship between perceived cost and customer acceptance using mobile banking services.

II. METHODOLOGY

The research was a process of gathering, analyzing and explaining information to solve problems and achieve the aims. According to [21], there were assorted procedures, schemes, algorithms and so on used in the research methods. It contained every method used by the researcher in the study. They were virtually scientific, planned and value-neutral. Research methods consisted of theoretical procedures, experimental studies, numerical schemes, statistical approaches, etc. it helped the researcher to collect data, samples and search for a solution to a problem. It consists of research design, research strategy and time horizontal. According to [22] Khaniwale (2015), integrating research methods had become more and more important in particular recently when practising the goal of obtaining rich theoretical insights. Review centric research approach was

one form of developing new theoretical insights. Review centric research approach was one form of developing new theoretical insights in which the researcher could review existing theory and research. In the research presented in this chapter was focused on combining the most critical previously established studies and concepts that were identified in the academic literature based on the advances of understanding. The most important success factors in this study that helped in the current business or organizational situation were to build the goal and accomplish a competitive advantage to show the differences in the market.

This research aimed to study the determinants of customer acceptance using a mobile banking service in Malaysia. The research design was the general plan of how the researcher answered the research questions with clear research objectives. According to [23], it specified the sources where the researcher planned to collect data, analyze the data, discuss the ethical issues and the constraints faced such as access to data, time, location and money.

The descriptive research design was used to describe and measure the marketing phenomena while causal research applied when researcher know the problem and searching for causal relationships among the variables concerning with the problems and research objectives.

For this research, the method which had been used was quantitative and it had been made throughout the research process. Explanatory research was used to determine the determinants of customer acceptance using mobile banking services in Malaysia. Quantitative method dealt with the quantity of the target population that had contributed numerical data for the researcher to analyze. The survey research and questionnaires related to customer acceptance using mobile banking had been provided to the target group of people. This method was to ensure that the data was successfully collected and the results were understood.

The target of this survey research is people who are mobile banking subscribers and live in Malaysia. According Bank Negara Malaysia official website, the population of

mobile subscribers in Malaysia was 7,299,000 in 2015 with penetration rate to the population of 23.4%. According to [24] if the population is 1,000,000 peoples and the sample size as are 384. On this study, the researcher had selected 384 respondents as the sample size who is using mobile banking service as the source of investigation and evaluation to answer the questionnaires.

The focused on respondents of this study research were individuals in Malaysia to consider the determinants of client acceptance utilizing mobile banking. The objective respondents were the individuals who can impart in English, as the survey will be built utilizing English as the medium. Target respondents were individuals who own and utilize mobile specialized gadgets, for example, cell phones and tablet. The examination will be shrouded in Malaysia, which will incorporate the respondents who are utilizing versatile financial help and age between 20 - 50. During the examination, a basic irregular testing technique was utilized. The kind of surveys was close finished inquiries and conveyed technique utilized for this investigation was through the online polls.

III. RESULT AND DISCUSSION

A. Descriptive Analysis

In this study, a pilot test was conducted by using an online questionnaire, Google form distributed to 30 respondents before the actual questionnaire was distributed. The purpose of the pilot test is to ensure whether the respondents understand the questions given in the questionnaire. Besides, the data collected were also used to check whether the questions are valid by using validity and reliability test.

TABLE I: VALIDITY TEST FOR PILOT TEST RESULT

Independent Variables	Value	Critical Value	Validity
Perceived Usefulness	0.469	0.361	Valid
Perceived Ease of Use	0.581	0.361	Valid
Security	0.407	0.361	Valid
Perceived Cost	0.468	0.361	Valid

Table I shows the validity test result collected from 30 respondents that did the pilot test. As shown in the table, all the independent variables are valid. According to the r table product-moment below, the value of each item is greater than the critical value for N=30 sample, which is 0.361.

B. Reliability Test

Cronbach's alpha reliability coefficient normally ranges between 0 and 1. The closer the Cronbach's alpha coefficient to 1.0, this is means that the greater of the internal consistency of the items in the scale. By following the rules of thumb from [25], if the Cronbach's Alpha value is higher than 0.7, which mean the test is Acceptable. Since the validity and reliability are valid, hence, it depicts that these independent variables can be used in the actual survey questionnaire

TABLE II: CRONBACH'S ALPHA TEST OF RELIABILITY

Cronbach's Alpha	N of Items
0.926	30

Sources: Develop for the Research

Table III shows the descriptive statistics of perceived usefulness, perceived ease of use, security and perceived cost towards customer acceptance during using mobile banking. Perceived Ease of use has the highest mean of 4.4578. Subsequently, it followed by perceived usefulness effect to customer acceptance and perceived cost which is 4.3990 and 4.3297 respectively. However, security has the lowest mean which is 4.2797. Table II indicates that majority of the respondents agreed that perceived ease of use has the most influence customer acceptance towards using mobile banking. Besides, the standard deviation indicates how close the data is to the mean. In this case, the perceived cost has the highest standard deviation which is 0.61023, followed by security which is 0.47891. Next, the standard deviation for perceived usefulness is 0.46898. Lastly, perceived ease of use influence customer acceptance has the lowest standard deviation which is only 0.41195.

TABLE III: DESCRIPTIVE STATISTICS ON EACH VARIABLE

	N	Minimum	Maximum	Mean	Standard Deviation	Ranking
Perceived Usefulness	384	3.00	5.0	4.3990	0.46898	2
Perceived Ease of Use	384	3.40	5.0	4.4578	0.41195	1
Security	384	3.00	5.0	4.2797	0.47891	4
Perceived Cost	384	2.40	5.0	4.3297	0.61023	3
Valid N (listwise)	384		5.0			

Inferential statistics are used to reach conclusions that extend beyond the immediate data alone. Inferential statistics infer from the sample data on what the population might think. Or, it is used to make judgements of the probability that an observed difference between groups is a dependable one or one that might have happened by chance in this study. Hence, inferential statistics are used to make inferences from this research data to more general conditions. Therefore, descriptive statistics are used simply to describe what is going on the data in this research.

C. Regression Analysis

Tables IV and V show the correlation between the four independent variables which are perceived usefulness, perceived ease of use, security and perceived cost and dependent variable which is customer acceptance towards using mobile banking in Malaysia. From the Table V it indicates that the correlation of perceived usefulness, perceived ease of use, security and perceived cost were categorized as moderate positive relation as the correlate values are 0.457, 0.584, 0.407 and 0.454. This is because these variables fall into the range of correlation coefficient of 0.35 to 0.6 and both are significant (2-tailed) with (p=0.000) which were both lower than 0.05 in table 4.6. In a conclusion, the strength of association for all independent variables are considered as moderate of a positive linear relationship insignificant (2 tailed) with the customer acceptance toward using mobile banking.

Since this study includes more than one independent variable, the researchers developed a joint hypothesis and use multiple regression analysis to study the overall effect of all independent variables (perceived usefulness, perceived ease of use, security and perceived cost) on dependent variables (customer acceptance towards using mobile banking service).

TABLE IV. PEARSON CORRELATION ANALYSIS

	Perceived Usefulness	Perceived Ease of Use	Security	Perceived Cost	Customer Acceptance
Perceived Usefulness	1	.800**	.150**	.912**	.457**
	384	.000384	.003384	.000384	.000384
Perceived Ease of Use	.800**	1	.283**	.872**	.584**
	.000384	.000384	.000384	.000384	.000384
Security	.150**	.283**	1	.119*	.407**
	.003384	.000384	.000384	.020384	.000384
Perceived Cost	.912**	.872**	.119*	1	.454**
	.000384	.000384	.020384	.000384	.000384
Customer Acceptance	.457**	.584**	.407**	.454**	1
	.000384	.000384	.000384	.000384	.000384

** Correlation is significant at the 0.01 level (2-tailed).

* Correlation is significant at the 0.05 level (2-tailed).

TABLE V. STRENGTH OF PEARSON CORRELATION COEFFICIENT

Independent Variables	Pearson Correlation	Association Strength
Perceived Usefulness	0.457	Moderate
Perceived Ease of Use	0.584	Moderate
Security	0.407	Moderate
Perceived Cost	0.454	Moderate

TABLE VI MODEL SUMMARY OF MULTIPLE REGRESSION

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.878a	.765	.514	.33349

a. Predictors: (Constant), Perceived Cost, Security, Perceived Ease of Use, Perceived Usefulness

By referring to the Table above, R multiple represented by $R=.878^a$ indicates that the four independent variables (perceived usefulness, perceived ease of use, security and perceived cost) are highly correlated to consumers' acceptance to use mobile banking. The coefficient of determination, R square of 0.765 represents that a total variation of 76.5% in customer acceptance to use mobile banking can be explained by all four independent variables. The remaining 23.5% of the variation is unexplained. In other words, there are other significant factors affecting customer acceptance to use mobile banking not included in this study.

TABLE VII: ANOVA OF MULTIPLE REGRESSION

Model	Sum of Squares	df	Mean Square	F	Sig.
Regression	24.365	4	6.091	66.134	.000 ^b
Residual	34.908	379	.092		
Total	59.272	383			

a. Dependent Variable: Customer Acceptance

b. Predictors: (Constant), Perceived Cost, Security, Perceived Ease of Use, Perceived Usefulness

From the table above, the p-value of 0.00 is less than the alpha value of 0.005. F-value of 66.134 is significant. The alternative hypothesis is accepted at $\alpha = 0.05$. This indicates that the overall multiple regressions model is significant at the 5% level of significance and the regression model is the relationship between customer acceptance towards using mobile banking with perceived usefulness, perceived ease of use, security and perceived cost.

According to Table VIII, each of the independent variables in this study provides a contribution which is used to predict customer acceptance towards using mobile banking. First, the strongest and sole predictor is perceived ease of use, $\beta=.57$, $t(384)=6.893$, $p<0.05$. This is because the unstandardized beta, β of perceived ease of use is the highest positive value compared with other independent variables. From this result, we can know that perceived ease of use has the highest influence on the positive relationship with customer acceptance towards using mobile banking service. Then, the second strongest predictor is security, $\beta=.199$, $t(384)=5.637$,

$p<0.05$. This is because the unstandardized beta, β of security is the second-highest positive value compared with other independent variables. From this result, we can know that security has the second-highest influence the positive relationship with customer acceptance towards using mobile banking service. Next, following by the third strongest predictor is perceived usefulness, $\beta=.193$, $t(384)=3.362$, $p<0.05$. This is because the unstandardized beta, β of perceived usefulness is the third-highest positive value compared with other independent variables. From this result, we can know that perceived usefulness has ranked the third-highest influence the positive relationship with the customer acceptance towards using mobile banking service.

TABLE VIII. COEFFICIENTS OF MULTIPLE REGRESSION

Model	Unstandardized Coefficients		Standardized Coefficients	t	Sig.
	B	Std. Error	Beta		
(Constant)	1.264	.223		5.667	.000
Perceived Usefulness	.193	.098	.361	3.362	.001
Perceived Ease f Use	.570	.083	.597	6.893	.000
Security	.199	.035	.242	5.637	.000
Perceived Cost	-.163	.078	-.254	-2.084	.038

a. Dependent Variable: Customer Acceptance

Subsequently, following by the second-lowest predictor is perceived cost, $\beta=.163$, $t(384)=2.084$, $p<0.05$. This is because the unstandardized beta, β of perceived cost is the second-lowest positive value compared with other independent variables. From this result, we can know that perceived cost has ranked the second-lowest influence the positive relationship with the customer acceptance towards using mobile banking service.

Lastly, the lowest predictor goes to perceived usefulness, $\beta=.11$, $t(384)=2.68$, $p<0.05$. This is because the unstandardized beta, β of perceived usefulness is the lowest positive value compared with other independent variables. From this result, we can know that perceived usefulness has ranked the lowest influence

the positive relationship with the customer acceptance towards using mobile banking service.

From results above, although each of the independent variables has different value and rank of influence towards the dependent variable, each of them has developed different contribution and provide a significant prediction towards the prediction of the customer acceptance towards using mobile banking service. Based on the result of multiple regression, the relationship between the dependent variable and 4 different independent variables can be determined based on the following multiple regression equation. The multiple regression of this study is shown below:

Where:

y: Value of dependent variable (the customer acceptance towards using mobile banking service.)

a: constant

b, c, d, e, : Coefficient

1: Independent variable (perceived usefulness)

2: Independent variable (perceived ease of use)

3: Independent variable (security)

4: Independent variable (perceived cost)

D. Hypothesis Testing

TABLE IX. HYPOTHESIS TESTING RESULT

Independent Variables	P value	Result
Perceived Usefulness	0.001	Accepted H ₁
Perceived Ease of Use	0.000	Accepted H ₂
Security	0.000	Accepted H ₃
Perceived Cost	0.0038	Accepted H ₄

Source: Developed for the research.

From Table IX Hypothesis Testing Results illustrate that there is a significant, moderate and positive relationship between all of the independent variables with dependent variable based on the result that considered significant where $p < 0.05$. Therefore, it can be considered that each of the independent variables has a significant, moderate and positive relationship

with customer acceptance towards using mobile banking service. As a result, the null hypothesis (H₀) of each independent variable is rejected whereas the alternative hypothesis(H₁) of each independent variable is accepted.

IV. CONCLUSION

The result from descriptive statistical analysis methods indicates that in overall, respondent agreed that four of the independent variable which is perceived usefulness, perceived ease of use, security and perceived cost are shown important determinants that can impact to the dependent variable which is customer acceptance towards using mobile banking service.

The result from analysis strategies demonstrates that in, generally speaking, the respondents concurred that four of the autonomous variable which is perceived usefulness, perceived ease of use, security and perceived cost are indicated significant determinants can affect on the needy variable which is client acceptance towards utilizing mobile financial assistance. This investigation was directed to have a better comprehension of client acceptance towards utilizing mobile financial help explaining the determinants of perceived usefulness, perceived ease of use, security and perceived cost. This study has accomplished its destinations to distinguish the most impact determinants and the relationship between the four factors worried on client acknowledgement towards utilizing mobile financial help.

In the wake of testing the Pearson Correlation Analysis, Descriptive Analysis, and Multiple Regression Analysis results demonstrated that all of the four independent variables include perceived usefulness, perceived ease of use, security and perceived cost have moderate correlation relationship with customer acceptance towards using mobile banking service.

Finally, in the subsequent test, various relapse utilized that demonstrate that apparent convenience and security is the most significant factor affecting client acceptance

towards utilizing mobile financial assistance. Furthermore, this study has given a few impediments that have been met and proposals for future investigation. Along these lines, this study gives data to the individuals who might need to research more on the determinants impacting client acceptance towards utilizing mobile financial services.

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