Explaining Behavioral Intention on Information Technology: A Case Study of CIMB Niaga Internet Banking in Surabaya

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Abstract - Information technology development is a great opportunity for companies to creatively innovate their product in order to develop their business. One of the information technology-based products that grow quite rapidly at this time is Internet banking. Internet banking is one of the information technology that give option to their customers for bypassing the time-consuming, paper-based aspects of traditional banking in order to manage their finances more quickly and efficiently. This opportunity has been seen by CIMB Niaga as one of the largest bank in Indonesia. Our study is to analyze the effect of perceived credibility, perceived usefulness, and perceived ease of use on behavioral intention to use as the propose of an extended framework to re-examine behavioral intention of technology. This study uses a quantitative approach using regression techniques (multiple regression) through the program SPSS 16. The samples were 150 respondents with non-probability sampling technique. The sampling method was purposive sampling.

Keywords: Behavioral Intention to Use, Perceived Credibility, Perceived Usefulness, Perceived Ease of Use, Internet Banking

I. INTRODUCTION

Rapid progress of information technology provides opportunity for business for continual innovation. This opportunity can be captured well by business. Banking is one of the sectors which is attractive to be developed using information technology. Banking, as one of the sector with large market from various level of society has launched various information technology based product. Currently one of the fast developing information technology is internet banking. Internet banking is banking service by internet, that enable customer to execute transaction without neccessary to go to bank or ATM (www.bank.web.id). CIMB Niaga Bank is one the banks that has great attention to development of information technology and is proven by providing internet banking to its customer.

Bank CIMB Niaga was incorporated on 26 September 1955 under the name of Bank Niaga. During the initial decades of its operations, the Bank’s focus was on building core values and developing professionalism in banking. As a result, Bank CIMB Niaga soon came to be recognized as a trusted provider of quality products and services. Lippo Bank officially merged into Bank CIMB Niaga on November 1, 2008 (www.cimbniaga.com). The merger makes Bank CIMB Niaga the 5th largest bank in Indonesia in terms of assets, deposits, lending and branch distribution network on 2011 (http://bisnis.vivanews.com).

From the phenomenon, we can see that there is a need, therefore, to understand users’ acceptance of internet banking and to identify the factors affecting behavioral intention internet banking in Surabaya. This information can assists developers in preparing internet banking systems that consumers want to use. Our study is to analyze the effect of perceived credibility, perceived usefulness, and perceived ease of use on behavioral intention of technology.

Behavioral Intention

The Technology Acceptance Model is very useful model for research about consumer acceptance of information technology. Kuo and Yen (2009: 104) viewed that TAM is:

“Intended to provide a conceptual model featuring a theoretic foundation and parsimony, to explain and predict the behavioral intention and practical behaviors of information technology users, based on the acceptance and use of information technology.”

According to Azjen and Fishbein (1980), TAM is ‘concerned with the determinants of consciously intended behaviors.’ Pikkarainen et al. (2004)
concluded that ‘according to the TAM these two beliefs are significance for computer acceptance.’ Namkung dan Jang (2007), define that behavioral intention refers ‘to people’s belief about what they intend to do in a certain situation.’ Zeithaml dan Bitner (1996, p.146)

**Perceived Usefulness**

Perceived usefulness is the first belief, which is significance for computer acceptance. Davis (1989) defined perceived usefulness as ‘the degree to which a person believes that using a particular system would enhance his or her job performance.’ Tan dan Teo (2000) stated that perceived usefulness is an ‘an important factor in determining the adaptation of innovations.’ Similarly, Guriting and Ndubisi explain perceived usefulness as ‘strongly associated with productivity. It suggests that using computer in the workplace would increase user’s productivity, improve job performance, enhance job effectiveness, and be useful in the job.’ Also, Ndubisi and Jantan (2003) define perceived usefulness as ‘a construct tied to an assessment of the benefits that accrue to an individual or firm by using the technology.’

Moon and Kim (2001), Luarn and Lin (2005), Shen and Chen (2008) concluded that ‘perceived usefulness has significantly positive effects on behavioral intention.’ Lu et al., (2009) conclude that ‘perceived usefulness was positively related to a user’s behavioral intention.’ Wang et al., explain that ‘perceived usefulness had a significant positive effect on behavioral intention.’ Similarly, Venkatesh and Morris (2000) proved that there is a ‘significant effect of perceived usefulness on usage intention.’ Also, Guriting and Ndubisi (2006) conclude that ‘perceived usefulness significantly determine behavioral intention.’ Thus, we tested the following hypothesis:

H1: Perceived of usefulness has a positive effect on behavioral intention of internet banking

**Perceived Ease of Use**

The second belief is perceived ease of use. Davis (1989) defined that perceived ease of usefulness is ‘the degree to which a person believes that using a particular system would be free of effort.’ Davis (1989) also defined that perceived ease of usefulness is ‘a major factor that affects acceptance of information system.’ Davis (1989) stated that ‘an application that easier to use that another is more likely to be accepted by users.’ Venkatesh & Morris (2000) claimed ‘perceived ease of use has significant effects on usage intention.’ Similarly, Agarwal and Prasad (1999) also proved that ‘perceived ease of use has the significant effect on usage intention, whether affecting perceived usefulness directly or not.’ Liao et al. (2007) found that ‘a user who perceives a higher ease of use of mobile commerce also has a stronger attitude for adoption.’ Shen and Chen (2008) claimed that ‘perceived ease of use had positive effects on consumers’ use intention.’ Luarn and Lin (2005), Wang et al. (2003) also state that ‘perceived ease of use had positive effects on behavioral intention’.

There are some evidences that perceived ease of use and behavioral intention have a strong relationship. According to Venkatesh and Morris (2000), ‘perceived ease of usage has significant effect on usage intention.’ From these statements, we can make hypotheses that:

H2: Perceived ease of use has a positive effect on behavioral intention of internet banking

**Perceived Credibility**

Another belief that affects computer acceptance is perceived credibility. According to Ganesan (1994), perceived credibility is ‘the extent to which one partner believes that other partner has the required expertise to perform the job effectively and reliably.’ Wang et al. (2003) defined perceived credibility as ‘the extent to which a person believes that the use of mobile banking will have no security or privacy threats.’ Lu et al. (2003) stated that ‘there are two key elements in perceived credibility; namely, security and privacy.’ Wang et al. (2003) found that ‘perceived credibility had a significant positive influence on the behavioral intention to use Internet banking.’ Amin (2008) also concluded that ‘perceived credibility is important determinant in predicting the intentions of Malaysian customers to use mobile phone credit cards.’ Lu and Wang (2009) also found that ‘there is a significant direct relationship between perceived credibility and behavioral intention.’ According to Gefen et al. (2003), in relation to Web systems, perceived credibility ‘has a striking influence on their willingness to engage in online shopping, banking and the exchange of money and sensitive personal information.’ Luarn and Lin (2005) also found that perceived credibility was found to have a significant effect on behavioral intention in mobile banking. Thus, the following hypothesis is proposed:

H3: Perceived credibility has a positive effect on behavioral intention of internet banking

## II. RESEARCH METHODOLOGY

### Research Issue

In this study the target of population were consumers who use CIMB Niaga Internet Banking in Surabaya with characteristics as follow: men and women, residing in Surabaya, well educated and has used or is using CIMB Niaga Internet Banking. This research uses primary data that is the data obtained from the distribution of questionnaires to the respondents in accordance with the characteristics of populations. Questionnaire distribution was
conducted in front of supermarket, department store, and shopping center in Surabaya. From 165 questionnaires distributed, 150 questionnaires were returned and can be use for data formulation.

From the questionnaire completed by respondents, the indicators to measure were built from previous researches. For perceived usefulness, perceived credibility, personal innovativeness and compatibility from researches by Luarn and Lin (2005), Lin (2007), Jayasingh and Eze (2009), Kuo and Yen (2009), and Schierz et al. (2010) and. There were 20 indicators for 5 variables tested, and these can be seen from the following research model:

![Research Model](image)

**Methodology**

Aras which was used within this research were interval level measurement. Type of scale used was Summated Likert, a statement which has a range from 1 = disagree to 7 = agree, the scale represent the respondents opinion for the questions regarding the objects being studied. In which the highest the score or number selected indicated the higher of ratings, and vice versa.

**III. FINDINGS AND DISCUSSION**

**Findings**

This study used Multiple Regression in testing between the variables. Statistical analysis tool used to answer the problem formulation of this research is SPSS 16. Once the questionnaires were returned, the next step that must be conducted is descriptive statistic analysis.

**TABLE 1. Descriptive Statistic**

<table>
<thead>
<tr>
<th>Variable</th>
<th>Mean</th>
<th>Standard Deviation</th>
</tr>
</thead>
<tbody>
<tr>
<td>Perceived Usefulness</td>
<td>4.828</td>
<td>0.815</td>
</tr>
<tr>
<td>Perceived Ease of Use</td>
<td>5.20</td>
<td>0.636</td>
</tr>
<tr>
<td>Perceived Credibility</td>
<td>5.051</td>
<td>0.673</td>
</tr>
<tr>
<td>Behavioral Intention</td>
<td>5.063</td>
<td>0.801</td>
</tr>
</tbody>
</table>

Source: data, compiled by researcher

It is known that the highest mean average is perceived ease of use, that is 5.20. This may indicate that the indicators of perceived ease of use are best perceived by the respondents than other variables. Perceived usefulness has the highest score for standard deviation that is 0.815. This may indicate that the respondents give answers for perceived usefulness least homogeneous compared with other variables.

Before going for Multiple Regression testing, first steps that must be conducted is the testing of the validity and reliability to prove that the data from the questionnaire is valid, reliable and able to be used for the next analysis.

**Validity Test**

The criteria is if the value of the factor loading is higher than 0.40, then the statement is considered valid, however, if the value of the factor loading is less than the 0.40, then the statement is considered invalid or failed. Based on the test of the data validity, it is prove that all indicators used to estimate each variable is valid, since the value of the factor loading for every questions are more than 0.40.

**TABLE 2. Validity Test**

<table>
<thead>
<tr>
<th>Indicator</th>
<th>Factor Loading</th>
</tr>
</thead>
<tbody>
<tr>
<td>Perceived Usefulness:</td>
<td></td>
</tr>
<tr>
<td>V1</td>
<td>.841</td>
</tr>
<tr>
<td>V2</td>
<td>.849</td>
</tr>
<tr>
<td>V3</td>
<td>.889</td>
</tr>
<tr>
<td>V4</td>
<td>.876</td>
</tr>
<tr>
<td>Perceived Ease of Use:</td>
<td></td>
</tr>
<tr>
<td>V6</td>
<td>.683</td>
</tr>
<tr>
<td>V7</td>
<td>.708</td>
</tr>
<tr>
<td>V8</td>
<td>.749</td>
</tr>
<tr>
<td>V9</td>
<td>.785</td>
</tr>
<tr>
<td>V10</td>
<td>.741</td>
</tr>
<tr>
<td>Perceived Credibility:</td>
<td></td>
</tr>
<tr>
<td>V12</td>
<td>.639</td>
</tr>
<tr>
<td>V13</td>
<td>.830</td>
</tr>
<tr>
<td>V14</td>
<td>.851</td>
</tr>
<tr>
<td>V15</td>
<td>.782</td>
</tr>
<tr>
<td>Behavioral Intention:</td>
<td></td>
</tr>
<tr>
<td>V17</td>
<td>.825</td>
</tr>
<tr>
<td>V18</td>
<td>.816</td>
</tr>
<tr>
<td>V19</td>
<td>.888</td>
</tr>
<tr>
<td>V20</td>
<td>.785</td>
</tr>
</tbody>
</table>

Source: data, compiled by researcher

**Reliability Test**

Reliability test is do by comparing cronbach’s alpha value, if the value is higher than 0.6, then the statement is considered reliable.
From the table 3, it is proved that the variable of perceived usefulness, perceived ease of use, perceived credibility, and behavioral intention are all resulting the value of cronbach alpha higher than 0.60. So, it can be concluded that the statements develop the variables can be said to be consistent/reliable and can be used for further analysis.

**Results of Coefficient Determination**

From table 4, determinant coefficient/R-square (R²) for model 1 generated is as much as 0.659 which means that the variations of variables of perceived usefulness, perceived ease of use, and perceived credibility together can explain the variation of variable of behavioral intention by 65.9%, while the rest 34.1% explained for other variables beyond the model which is not yet observed.

**Table 4: Coefficient Determination 1**

<table>
<thead>
<tr>
<th>Model</th>
<th>R</th>
<th>R Square</th>
<th>Adjusted R Square</th>
<th>Std. Error of the Estimate</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>.815</td>
<td>.665</td>
<td>.659</td>
<td>1.883</td>
</tr>
</tbody>
</table>

a. Predictors: (Constant), PC, PU, PE
Source: data, compiled by researcher

**Results of Multiple Regression**

The results of multiple regression are as follows:

**Table 5: Coefficient Regression 1**

<table>
<thead>
<tr>
<th>Model</th>
<th>Unstandardized Coefficients</th>
<th>Standardized Coefficients</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>B</td>
<td>Std. Error</td>
</tr>
<tr>
<td>1 (Constant)</td>
<td>-2.326</td>
<td>1.227</td>
</tr>
<tr>
<td>PU</td>
<td>.224</td>
<td>.052</td>
</tr>
<tr>
<td>PE</td>
<td>.503</td>
<td>.054</td>
</tr>
<tr>
<td>PC</td>
<td>.267</td>
<td>.061</td>
</tr>
</tbody>
</table>

a. Dependent Variable: BI
Source: data, compiled by researcher

From table 6, the regression equation can be written as follows:

\[ BI = b_1PU + b_2PE + b_3PC \]

Based on table 6, all the independent variables have positively influence towards dependent variable. Perceived ease of use has the greatest regression coefficient compare to other variables, that is 0.525. Perceived credibility has the smallest influence on behavioral intention, it is because personal innovativeness has the lowest regression coefficient compared to other variables, which is equal to 0.210.

**F-test**

Based on the calculation of SPSS from table 8, the significance of F test value is 0.000, this mean H0 is rejected, so it can be concluded perceived usefulness, perceived ease of use, and perceived credibility together influencing behavioral intention significantly. This mean, the hypothesis which declared that perceived usefulness, perceived ease of use, and perceived credibility are jointly influence behavioral intention is accepted.

**Table 6: Result of F-test**

<table>
<thead>
<tr>
<th>Model</th>
<th>Sum of Squares</th>
<th>df</th>
<th>Mean Square</th>
<th>F</th>
<th>Sig.</th>
</tr>
</thead>
<tbody>
<tr>
<td>1 Regression</td>
<td>1376.668</td>
<td>3</td>
<td>458.889</td>
<td>129.445</td>
<td>.000*</td>
</tr>
<tr>
<td>Residual</td>
<td>694.832</td>
<td>196</td>
<td>3.545</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Total</td>
<td>2071.50</td>
<td>199</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

a. Predictors: (Constant), PC, PU, PE
b. Dependent Variable: BI
Source: data, compiled by researcher

**T-test**

The t test used to determine whether the independent variables of perceived usefulness, perceived ease of use, and perceived credibility partially (independently) have significance influence on behavioral intention. If the value of t test is below 0.05, than it can be stated that the variable is significantly influenced by partially.

From Table 9 it can be explained that the variables of perceived usefulness, perceived ease of use, and perceived credibility has a significant influence towards behavioral intention because it has a significance value below 0.05.

**Table 7: Result of t-test**

<table>
<thead>
<tr>
<th>Model</th>
<th>Unstandardized Coefficients</th>
<th>Standardized Coefficients</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>B</td>
<td>Std. Error</td>
</tr>
<tr>
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<tr>
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<td>.052</td>
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<td>PE</td>
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<td>PC</td>
<td>.267</td>
<td>.061</td>
</tr>
</tbody>
</table>

a. Dependent Variable: BI
Source: data, compiled by researcher
Discussion

The results of previous studies showed that the three variables which consist of perceived usefulness, perceived ease of use, and perceived credibility have positive and significant effect towards behavioral intention of CIMB Niaga Internet Banking’s consumer. So, it can be conclude that from three proposed hypotheses, all the hypotheses are supported.

The first hypothesis stating that perceived usefulness has a positive effect on behavioral intention of CIMB Niaga Internet Banking’s consumer is supported. This shows the consistency results of this study with research Moon and Kim (2001), Luarn and Lin (2005), Shen and Chen (2008), and Venkatesh and Morris who explained that perceived of usefulness has positive effects on behavioral intention. The second hypothesis stating that perceived usefulness has a positive effect on behavioral intention is supported because the t test value is 0.000, below 0.05 and the coefficient regression is 0.226.

The second hypothesis stating that perceived ease of use has a positive effect on behavioral intention of CIMB Niaga Internet Banking’s consumer is supported because the t test value is 0.000, below 0.05 and the coefficient regression is 0.525. This shows a consistency of the results with previous research by Venkatesh & Morris (2000), Agarwal and Prasad, Liao et al. (2007), Shen and Chen (2008), Luarn and Lin (2005), and Wang et al. (2003) who explained that perceived ease of use had positive effects on behavioral intention.

The third hypothesis stating that perceived credibility has a positive effect on behavioral intention of CIMB Niaga Internet Banking’s consumer is supported because the t test value is 0.000, below 0.05 and the coefficient regression is 0.210. This shows a consistency of the results with previous researches by Wang et al. (2003), Amin (2008), Lu and Wang (2009), Luarn and Lin (2005) who explained that perceived credibility was found to have a positive and significant effect on behavioral intention.

IV. CONCLUSION

From the research and discussion that have been done, this study successfully extends three variables perceived usefulness, perceived ease of use, and perceived credibility that influence behavioral intention.

As the result of this study, it can be concluded that perceived usefulness, perceived credibility, personal innovativeness, and compatibility have positive and significant influences towards behavioral intention of CIMB Niaga internet banking’s consumer in Surabaya.

In addition, the result of this study also shows that the perceived ease of use is the most positive variable that influence behavioral intention. The second most significant effective variable is perceived usefulness. While the variable that has the lowest positive influence is perceived credibility.

Behavioral intention is important because it influences the actual usage CIMB Niaga Internet Banking. Therefore, CIMB Niaga should increase consumer’s behavioral intention to maintain the use of CIMB Niaga Internet Banking and to improve the development of the CIMB Niaga Internet Banking.

Perceived ease of use is the biggest variable that affecting consumer’s behavioral intention to use CIMB Niaga Internet Banking. Talking about internet banking, user friendliness is very important, specially due to lack of internet use in certain level of society in Indonesia. CIMB Niaga is able to see limitation of Indonesians society, and able to provide internet banking that is easy to use and thus is well received by customers. Ease of use of CIMB Niaga internet banking can be seen from average point of variable perceived ease of use with high point of 5.20. CIMB Niaga internet banking provide convenience in online transaction, this can be seen from the use of handphone in verifying transaction. When customer do online transaction, they need to input verification code that is sent to handphone number that is registered to the CIMB Niaga. This is very different from other internet banking where customer need to purchase token that is additional tool with small size that must be purchased from respective bank. From this token, bank will send verification code for the transaction. This is troublesome because probably customer does not bring the token when performing internet banking. Although CIMB Niaga has provided various facilities for the customer in internet banking usage, the bank still need to improve the facilities due to improved competition in banking sectors.

CIMB Niaga also must increase perceived usefulness that has significant effect to behavioral intention. Consumer will buy and use a product that has many uses that match with their needs. CIMB Niaga can improve the usefulness of CIMB Niaga Internet Banking by increasing promotions, for examples by internet banking the consumer can be used to pay toll road’s tariff, pay parking’s fee, to buy gasoline, etc. That promos can attract consumers to use CIMB Niaga internet banking.

The reason for perceived credibility become the third variable that significantly influence the behavioral intention of using CIMB Niaga internet bank because credibility is not a major thing for consumers in Indonesia. The important thing for consumers in Indonesia is ease of use. Majority of Indonesian citizen has low level of technological knowledge, and thus ease of use is the main factor compared to perceived credibility. But it does not mean CIMB Niaga does not need to give attention to perceived credibility. One way to increase perceived credibility of CIMB Niaga internet banking is...
updating data of the website routinely and always solve consumers problems quickly. Further more, CIMB Niaga must always provide reliable and clear information.

CIMB Niaga must do and improve the ways that explained above consistently to increase behavioral intention. The information technology market is a highly potential market, therefore there will be many competitors in the future. If CIMB Niaga does not do that ways consistently, CIMB Niaga will be out-competed by its competitors. So, CIMB Niaga must be prepare from now to maintain and increase the development of CIMB Niaga internet banking by improving the variables above consistently.

There are several limitations within this research, first this research only use limited sample in Surabaya. It also can be concluded that researchers and strategists need to consider other issues relating to perceived usefulness, perceived ease of use, and perceived credibility to maintain as well as improve behavioral intention. In further research, it is expected to increase the sample used in order for the data to be more generalized. Secondly, the intervening such as sociodemographics factors in the relationship between TAM and behavioral intention.

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