



**AN EMPIRICAL INVESTIGATION ON CONSUMER  
ACCEPTANCE OF INTERNET BANKING IN AN ISLAMIC  
BANK**

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**Abstract**

The purpose of this study is to investigate the determinants that influence Internet banking acceptance among the Islamic bank's customers. Technology acceptance model (TAM) is utilised as a point of departure. In this study, perceived credibility, amount of information on Internet banking, perceived enjoyment, and social norm are added to the model, in addition to perceived usefulness, perceived ease of use. More importantly, the estimated linear regression model suggests that perceived credibility and social norm are significant determinants of Internet banking acceptance among Muslims. In contrast, the estimated linear regression model suggests that perceived usefulness, perceived ease of use, perceived enjoyment and social norm are significant determinants of Internet banking acceptance among non-Muslims. Taken as a whole, the estimated linear regression model suggests that perceived credibility and social norm are significant determinants of Internet banking acceptance among the bank's customers. Overall, the results of this study are valuable to both researchers and practitioners in providing new insights about the Internet banking from Islamic banking institution point of view.

**JEL Classifications:** M15; c42; C52

**Keywords:** Islamic bank; Internet banking; Technology acceptance model (TAM); Being Islam or not.

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## 1. Introduction

Recently the Islamic bank in Malaysia is actively involved in promoting the usage of electronic banking among its customers. One of the electronic banking services offered is referred to Internet banking. What is Internet banking? Internet banking is a system used for performing financial transactions such as bills payment and account balance request over the internet through a bank's secure website. Evidently, the introduction of Internet banking in Islamic bank has commenced by the end of 2001 (Vijayan and Shanmugam, 2003). In general, Internet banking is firmly important for an Islamic bank because Internet banking provides a new opportunity to the bank to extend its services to customers and improve its competitiveness. Evidently, Internet banking offers an interactive banking transaction for customers, more value-added services and more flexible. Consequently, Internet banking allows individuals to manage their banking transaction from home, work or from just about anywhere in the world. Currently, Internet banking in Islamic bank enables the following transactions:

- [1] Make fund transfers (i.e. between accounts);
- [2] Make payment (i.e. online bills to service providers);
- [3] Manage customer investment (i.e. general investment account);
- [4] Manage customer financing accounts (i.e. payment facility);
- [5] Manage a credit card account;
- [6] Manage cheques (i.e. status inquiry, and check book request); and
- [7] Current account statement request.

In Malaysia, the empirical study on consumer acceptance on Internet banking in Islamic bank is limited. There are many studies have conducted in the field of Internet banking in conventional banks, but none of the studies interested to explore the consumer acceptance on Internet banking from the Islamic banking institution point of view (for example, Eriksson *et al.*, 2005; Pikkarainen *et al.*, 2004; Wang *et al.*, 2003; Polatoglu and Ekin, 2001; and Sathye, 1999). This limitation has motivated the author to conduct a study on consumer acceptance on Internet banking in Islamic bank from Malaysians perspective. In addition, this study enables to enhance the Islamic bank Internet banking usage for two reasons. First, it offers a general guideline for the bank to attract the existing and new customers use the system by investigating the possible factors influence the use. Second, this study enables to inform the public indirectly about the availability of the Internet banking in Islamic bank.

The objective of this study is to investigate the determinants that influence Internet banking acceptance in Islamic bank. To achieve this

objective, technology acceptance model (TAM) as the base model is used for the study and modified it to reflect the Internet banking context. In general, TAM appears to be the most widely accepted theory among information systems research for studying users' system acceptance behavior. The research framework of this study draws on TAM for its basic model and come out with an extension of TAM model to better reflect the model for consumer acceptance on Internet banking in Islamic bank. In base TAM, perceived ease of use and perceived usefulness are addressed as the most important constructs in predicting information system (IS) acceptance. Many researchers agreed that these two constructs are useful and valid in understanding individual's intention to adopt IS (for example, Liu *et al.*, 2005; Chiu *et al.*, 2005; Cheong and Park, 2005; and Nysveen *et al.*, 2005). However, depending on the specific technology context, additional constructs are needed to propose in order to reflect the differences of internet banking acceptance of Islamic bank. Therefore, the author proposed perceived credibility, amount of information on Internet banking, perceived enjoyment and social norm in order to enhance the understanding of customers' acceptance on Internet banking. These new constructs address the context of the Internet banking and the characteristics of the target system users (Cheong and Park, 2005).

In the following, the author would like to highlight some of the previous study findings related to the present study. Then for the next section, the model employed in this study is presented as well as the hypotheses in supporting the model. In the methodology, sample characteristics are described and measures are presented and validated. Finally, the results are presented, and implications of the results are also discussed. In addition, the conclusion part will highlight a number of the limitations and the potential future study that can be made in the future at the same field of research.

## **2. Literature review**

### *TAM: Perceived Usefulness (PU) and Perceived Ease of Use (PEOU)*

Perceived usefulness is defined here as the degree to which a person believes that using a particular system would enhance his or her job performance was based on Davis (1989). Chiu *et al.* (2005) found that perceived usefulness positively influences online purchase intentions. The result indicates that consumers are likely to consider the Internet useful for making purchases. Cheong and Park (2005) found the same result as Chiu *et al.* (2005). Cheong and Park (2005) argue that perceived usefulness has a positive impact on intention to use M-Internet. This indicates that the perceived usefulness of M-Internet plays a critical role in developing the positive attitude toward M-

Internet as well as intention to use. Pikkarainen *et al.* (2004) found that perceived usefulness was positively correlated with online banking use. The study also further indicates that perceived usefulness were found to be the most influential factors explaining the use of online banking services. This finding refers to the fact that consumers use online banking for the benefits it provides in comparison to other banking delivery channels. This result also supported by the study conducted in Taiwan by Wang *et al.* (2003). Wang *et al.* (2003) found that perceived usefulness had a significant positive effect on behavioral intention for Internet banking. This finding refers to the fact that the Internet banking systems offer benefits for Taiwanese in terms of improving banking transaction, comfort and very useful. The ultimate reason people exploit Internet banking systems is that they find the systems useful to their banking transaction (Wang *et al.*, 2003). In Malaysia, the study by Guriting and Ndubisi (2006) found the appropriateness of the TAM model in predicting online banking intention in Malaysia. The results of the study show direct relationship between perceived usefulness and intention to adopt online banking. Further, when online banking is perceived as useful, customers' intention to adopt it would be greater (Guriting and Ndubisi, 2006). This study is in line with the study by Ramayah *et al.* (2003) who found that perceived usefulness has direct positive effect on the intention to use Internet banking. The result supports the earlier findings by Davis (1989), and Ndubisi *et al.* (2001).

Perceived ease of use refers to the degree to which a person believes that using a particular system would be free of effort (Davis, 1989). Pikkarainen *et al.* (2004) found that perceived ease of use was not positively correlated with online banking use. This indicates that perceived ease of use does not statistically significantly affect the use of Internet banking. Consequently, perceived ease of use has less impact on technology acceptance. In short, perceived ease of use is not considered as a good predictor in explaining users' acceptance. In contrast, Wang *et al.* (2003) found that perceived ease of use had a significant positive effect on behavioral intention. This finding refers to the fact that users who have a higher computer self-efficacy are likely to have more positive perceived ease of use. Taiwanese feel Internet banking is easy to organize and offer understandable interaction between customers and the bank's web site. Further, Guriting and Ndubisi (2006) found that perceived ease of use had a significant positive effect of behavioral intention to use online banking in Malaysia Borneo. Likewise bank customers are likely to adopt online banking when it is easy to use (Guriting and Ndubisi, 2006). The study by Ramayah *et al.* (2003) conducted in Penang found that perceived ease of use has proven to have significant impact on intention to use Internet banking. The result corroborates the findings by Adams *et al.* (1992), Davis *et al.* (1989) and Ramayah *et al.* (2002b).

### *Perceived Credibility (PC)*

Perceived credibility refers to the two important dimensions – security and privacy – that are identified across many studies as effecting intention by users to adopt the Internet-based transaction systems (Wang *et al.*, 2003). In fact, the importance of security and privacy to the acceptance of Internet banking has been noted in many banking studies (for example, Pikkarainen *et al.*, 2004; Howcroft *et al.*, 2002; Polatoglu and Ekin, 2001; and Sathye, 1999). In specific, privacy and security were found to be significant obstacles to the adoption of online banking in Australia (Sathye, 1999). In supporting this evident, Wang *et al.* (2004) found that perceived credibility had a significant positive effect on behavioral intention over Internet banking. The study also strongly suggests that perceived credibility has the higher ability to predict and explain the intention of users to adopt Internet banking. However, the study by Pikkarainen *et al.* (2004) showed contradicts result. Their study showed that perceived credibility to be statistically non-significant. In that sense, security and privacy were found to have a relatively weak relationship with the acceptance. The result is consistent with the study conducted in Malaysia by Ndubisi and Sinti (2006) who found that the risk is a weak predictor because of the assurance of the banks over the security of their internet banking. All the cyber banks in Malaysia promote this product as a fully secure option with 128-bit encryption technology (Ndubisi and Sinti, 2006). In contrast, a study by Ramayah and Ling (2002) found that the respondents placed security as one of the important factors when adopting Internet banking. Most fundamentally, most of the individuals are reluctant to use Internet banking as they have concerns over the security and privacy issues. This is also supports the findings of Suganthi and Balachandran (2001) who found that one of the important factors affecting Internet banking in Malaysia is security concerns. This is in line with many banking studies conducted during the past years (for example, Howcroft *et al.* 2002; Polatoglu and Ekin, 2001; and Sathye, 1999). Therefore the present study expects that the perceived credibility will influence the acceptance of Internet banking.

### *Amount of Information on Internet Banking (AIIB)*

Information refers to the data whose form and content are appropriate for a particular use (Alter, 2002). People need information on Internet banking in order to increase their understanding on how the system is working, and on how the system is beneficial for their financial transactions. The absent of information on Internet banking can hinder an individual capacity for effective action in using the system. Therefore, the amount of information consumers has about Internet banking has been identified as a major factor impacting the adoption (Pikkarainen *et al.*, 2004). Given this fact, it is obvious to propose this construct in

order to assess the importance of AIIB to customers of Islamic bank. In response to this concern, the study by Sathye (1999) found 69% of business customers were not using Internet banking because they were not clear about the benefits of Internet banking. Therefore, low awareness of Internet banking is a factor in causing people not to adopt Internet banking. The result is also in line to what studied by Pikkarainen *et al.* (2004). They argued that amount of information is positively correlated with intention to use Internet banking ( $p < 0.05$ ). The study claimed further that the amount of information about Internet banking to be considered the most influential factor in explaining the use of online banking services. Hence, for adoption of Internet banking, it is necessary that the banks offering this service make the consumers aware about the availability of such product and explain how it adds value relative to other products of its own or that of the competitors. Further, Ramayah and Ling (2002) who conducted a research in Penang, Malaysia found that awareness is not an issue because their respondents are aware of Internet banking. This means the banks have been successful in promoting and creating awareness of the products and services they are offering through the internet (Ramayah and Ling, 2002). The added value in Internet banking was convenience, save time and lower cost. Overall, the present study expects that the amount of information on Internet banking will affect the acceptance of Internet banking.

#### *Perceived Enjoyment (PE)*

Perceived enjoyment refers to the extent to which the activity of using a computer is perceived to be enjoyable in its own right (Davis *et al.*, 1992). A number of studies on perceived enjoyment (for example, Nysveen *et al.*, 2005; Pikkarainen *et al.*, 2004; Teo *et al.*, 1999; Igbaria *et al.*, 1995; and Davis *et al.*, 1992) have noticed the importance of the construct. Of these, the studies conducted by Nysveen *et al.* (2005) and Teo *et al.* (1999) found that perceived enjoyment significantly affects intentions to use electronic system. For example, Nysveen *et al.* (2005) found that perceived enjoyment correlates positively with intention to use mobile chat, which is a stronger determinant for female users compared to male users. Teo *et al.* (1999) noted that perceived enjoyment correlates positively with frequency of Internet usage. Teo *et al.* (1999) definitely believed that internet usage offers fun, pleasant and exciting since it is flexible. Other studies have found controversial findings on the role of enjoyment on acceptance. For instance, Pikkarainen *et al.* (2004) found that perceived enjoyment was almost statistically significant variable. They argue that perceived enjoyment does not statistically significantly affect the use of Internet banking. Igbaria *et al.* (1995) found that enjoyment has no statistically significant effect on the acceptance of data processing systems. On this basis, it is

expected that perceived enjoyment affects the acceptance of Internet banking.

### *Social Norm (SN)*

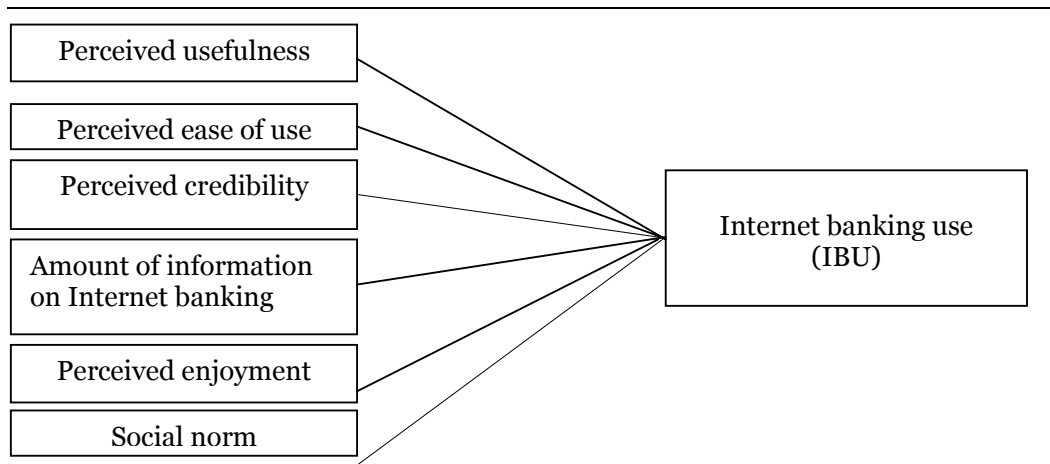
Social norm or normative pressure (Nysveen *et al.*, 2005) refers to the person's perception that most people who are important to her or him should or should not perform the behavior in question (Fishbein and Ajzen, 1975). According to Nysveen *et al.* (2005), social norm or normative pressure – is revealed to influence behavioral intention in numerous studies based on theory of reasoned action (TRA). Nysveen *et al.* (2005) argues that social norm influences intentions more strongly for female users in respect of using mobile chat services. In fact, normative pressures have no effect on intentions to use mobile chat services for men. In sum, they argue that social norm influences the intention to use mobile chat services. The result of this study also parallel to what studied by Venkatesh and Morris (2000). A study by Venkatesh and Morris (2000) found stronger influence of social norm on behavioral intention. The work of Venkatesh and Morris (2000) was conducted in the context of technology usage in a workplace. In Malaysia, the study by Ramayah *et al.* (2002a) found that the greater the social norm pressure the higher the intention to use Internet banking. It was found to be the most significant factor that influences intention to use Internet banking. A lot of Malaysian consumers seek to conform to expectations of others or seek advice from those who are close to them. Social norm is basically offers an improvement beyond the general constructs offered by Davis (1989) notably perceived usefulness and perceived ease of use. Therefore, social norm is also important construct that can explain the Islamic bank customers' acceptance on the usage of Internet banking in the future.

## **3. Theoretical framework**

### *The Model*

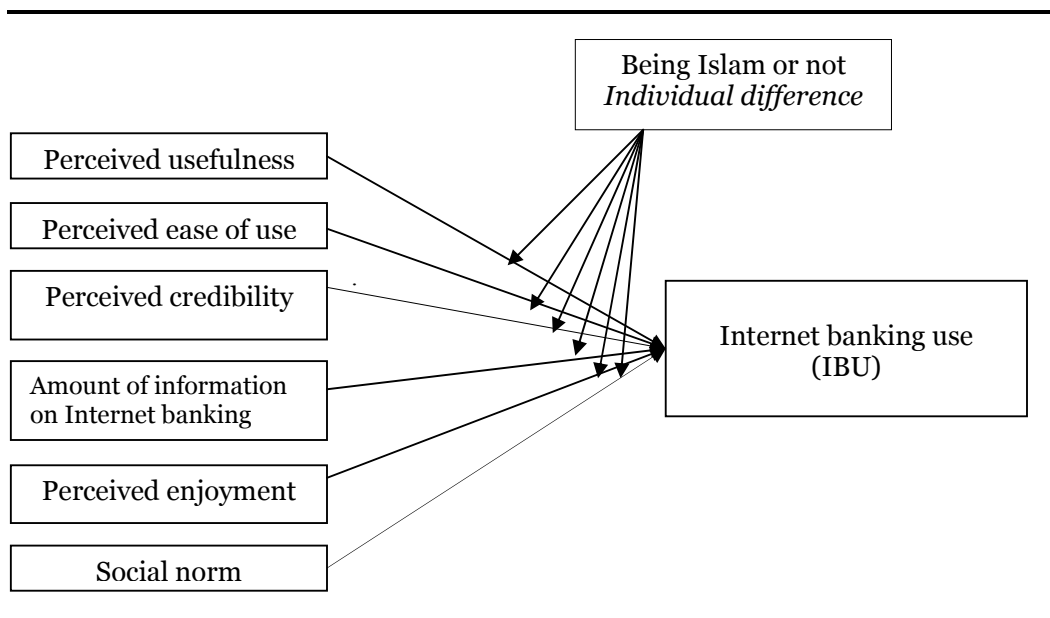
The following figure shows the research model to be empirically investigated. The model was suggested to reflect the previous studies for example, Nysveen *et al.* (2005); Mahmod *et al.* (2005); Chiu *et al.* (2005); Pikkarainen *et al.* (2004); and Sathye (1999). Therefore, modifying the model from these studies is necessary in order to better reflect Internet banking in Islamic bank. Consequently, a modified model may helpful in explaining the customers' acceptance on Internet banking in Islamic bank. The modified model as used in this study is displayed as follow:

**Figure 1**  
**The Research Model**



In order to produce an interesting study, the author proposes a moderator to further explain the findings in order to support the research objective. The intervening effect of individual difference is that, the effect of being Islam and non-Islam which is included in the following final model:

**Figure 2**  
**The Research Model with Intervening effect**





### *The Hypotheses*

The following hypotheses develop to reflect the research model:

- H1: Perceived usefulness has a positive effect on Internet banking acceptance among the Islamic bank's customers (being Islam or not);
- H2: Perceived ease of use has a positive effect on Internet banking acceptance among the Islamic bank's customers (being Islam or not);
- H3: Perceived credibility has a positive effect on Internet banking acceptance among the Islamic bank's customers (being Islam or not);
- H4: Amount of information on Internet banking has a positive effect on Internet banking acceptance among the Islamic bank's customers (being Islam or not);
- H5: Perceived enjoyment has a positive effect on Internet banking acceptance among the Islamic bank's customers (being Islam or not); and
- H6: Social norm has a positive effect on Internet banking acceptance among the Islamic bank's customers (being Islam or not).

## **4. Methodology**

### *Subject*

The data for this study is obtained through a survey conducted in Islamic bank branches, in Labuan and Kota Kinabalu, Sabah, Malaysia. The survey was conducted in May-June 2006. To facilitate the survey process, a convenience sampling was used to generate voluntary participation from the bank's customers. It allows a precise result in the data findings. About 250 questionnaires were provided for the survey. Of these, only 117 questionnaires distributed and filled by the respondents during the survey due to cost and time constraints. The distribution of subjects in regards to gender, age, education, income, religion and ethnics. The data for this study were collected through self-administered questionnaires distributed by the author. Using this method is based on the fact to collect the questionnaires immediately after they are completed by the respondents. In that sense, there is a 100% respond rate. Then, the completed data was analyzed using SPSS 12.0.

**Table 1**  
**Demographics**

	<b>Number</b>	<b>Percentage</b>
<b>Gender</b>		
Male	54	46.2
Female	63	53.8
<b>Age</b>		
<21	17	14.5
21-30	60	51.3
31-40	35	29.9
41-50	5	4.3
<b>Education</b>		
High school or lower	63	53.8
Diploma	21	17.9
Bachelor	33	28.2
<b>Income</b>		
No income	12	10.3
<500	2	1.7
501-1000	14	12.0
1001-1500	43	36.8
1501-2000	29	24.8
2001-over	17	14.5
<b>Religion</b>		
Islam	71	60.7
Buddhist	12	10.3
Hindu	6	5.1
Christian	28	23.9
<b>Ethnic</b>		
Sabahan	24	20.5
Sarawakian	12	10.3
Malay	42	35.9
Chinese	32	27.4
Indian	7	6.0

Source: Sample Survey.

The profile of respondents is presented in Table 1. A slight majority of the respondents were females (53.8%). By age, respondents were grouped into less than 20 (14.5%), 21 to 31 (51.3%), 31 to 40 (29.9%) and 41-50 (4.3%). In terms of education, respondents that hold bachelor comprised of 28.2% and diploma at 17.9%. Meanwhile for qualification from high school or lower are represented by 53.8%. Most of the respondents had income ranging from RM1,001-RM1,500 (36.8%). In

terms of religion, most of the respondents were Islam (60.7%) and Malays were involved largely in this study with 35.9%.

### *Measures*

The questionnaire was constructed in two sections. First section consists of respondent characteristics whilst second part consists of the asked constructs. In the questionnaire, the respondents require to rate their level of agreement with statements using five-point scales ranging from “strongly disagree” (1) to “strongly agree” (5). The questionnaire was pre-tested using five lecturers from Labuan School of International Business and Finance, Universiti Malaysia Sabah. Their maturities and vast banking experiences are two factors of allowing these subjects to review the used items in the questionnaire. The final measures are displayed in Appendix 1). The following lists the measures used in this study:

- Perceived usefulness with three items is modified from Wang *et al.* (2003);
- Perceived ease of use with three items is modified from Davis (1989), and Venkatesh (2000), Nysveen *et al.* (2005) Yu *et al.* (2005); and Pikkarainen *et al.* (2004);
- Perceived credibility with three items is modified from Wang *et al.* (2003) and Pikkarainen *et al.* (2004);
- Amount of information on Internet banking with three items is modified from Pikkarainen *et al.* (2004);
- Perceived enjoyment with four items is modified from Pikkarainen *et al.* (2004); Teo *et al.* (1999); and Igarria *et al.* (1995);
- Social norm with three items is modified from Shimp and Kavas (1984); and
- Finally, Internet banking use with three items is modified from Nysveen *et al.* (2005) and Shimp and Kavas (1984).

Further, the research instrument was tested for reliability using Cronbach’s coefficient alpha estimate as reported in Table 2. The reason of allowing Cronbach’s alpha was to ensure internal consistency among the measures. Sivanand *et al.* (2004) who found the alpha value to be more than 0.70, which is a cut off point, across the sample. Peterson (1994) points that acceptable value of Cronbach’s alpha can vary between 0.5 and 0.95 depending on the type of research. For basic research Cronbach’s alpha should be higher than 0.7-0.8. Tasir and Abu (2003) who mentioned that the maximum value for reliability test is equal to 1, if the alpha value found to be less than 0.6, thus it may not good measures. In this study, the Cronbach’s alpha values for all dimensions range from 0.75 to 0.89, exceeding the minimum alpha of

0.6 (Hair *et al.*, 1998), thus the constructs measures are deemed reliable.

**Table 2**  
**Alpha and Mean**

<b>Determinants</b>	<b>Cronbach Alpha</b>	<b>Mean</b>
PU	0.8314	3.63
PEU	0.8686	3.34
PC	0.7489	3.81
AIIB	0.8391	4.06
PE	0.8112	3.48
SN	0.8729	4.28
<i>IBU</i>	0.8884	4.21

Source: Sample Survey.

Factors analysis is also conducted in order to confirm the construct validity of the scales could be performed adequately by using principle component analysis. The minimum factor loading of 0.6 on its hypothesized constructs is proposed (Nunnally, 1978). An eigenvalue of more than 1.0 was used as a determinant criterion for each factor in the factor analysis. Factor loading values were obtained using varimax rotation. Table 3 shows the results of the factor analysis. As a result, most of the factor loading for each instrument exceeded 0.6, meeting the essentially significant level of convergent validity.

The regression analysis is also conducted to reveal how different factors affect the use of Internet banking. The results of the regression analysis are presented in Table 4. There are two perspectives in the results. First, only perceived credibility ( $t=2.910$ ,  $p<0.01$ ) and social norm ( $t=8.669$ ,  $p<0.01$ ) are statistically significant. Second, there are four measures which are statistically non-significant (PU,  $t=0.282$ ; PEU,  $t=-0.628$ , AIIB,  $t=0.969$  and PE,  $t=-0.252$ ). However, the overall model was statistically significant ( $F=17.861$ ,  $R^2=0.501$ ,  $p<0.01$ ) which demonstrates the appropriateness of the model (Tasir and Abu, 2003).

**Table 3**  
**Factor Loadings**

<b>Determinants</b>	<b>Factor</b>					
	<b>Factor 1</b>	<b>Factor 2</b>	<b>Factor 3</b>	<b>Factor 4</b>	<b>Factor 5</b>	<b>Factor 6</b>
PU1	0.966					
PU2	0.715					
PU3	0.966					
PEU1		0.727				
PEU2		0.961				
PEU3		0.964				
PC1			0.954			
PC2			0.962			
PC3			0.498			
AIIB1				0.954		
AIIB2				0.735		
AIIB3				0.944		
PE1					0.531	
PE2					0.777	
PE3					0.949	
PE4					0.894	
SN1						0.873
SN2						0.892
SN3						0.761
Eigen Value	3.86	2.31	1.98	1.52	1.32	1.01
Percentage of variance explained	22.31%	13.33%	11.45%	8.78%	7.66%	5.86%

Source: Sample Survey.

**Table 4**  
**Regression Results**

Model Summary						
Model	R	R Square	Adjusted R Square	Std. Error of the Estimate		
1	0.705	0.501	0.470	0.94591		
a Predictors: (Constant), SN, AIIB, PC, PEU, PU, PE						
ANOVA						
Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	95.886	6	15.981	17.861	0.000**
	Residual	98.422	110	0.895		
	Total	194.308	116			
a Predictors: (Constant), SN, AIIB, PC, PEU, PU, PE						
b Dependent Variable: IBU						
Coefficients						
Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	0.286	1.014		0.282	0.779
	PU	-4.713E-02	0.075	-0.108	-	0.531
	PEU	7.106E-02	0.148	0.166	0.480	0.632
	PC	0.158	0.054	0.233	2.910	0.004**
	AIIB	5.265E-02	0.054	0.086	0.969	0.335
	PE	-4.000E-02	0.159	-0.110	-	0.801
	SN	0.470	0.054	0.610	8.669	0.000**
					0.252	
a Dependent Variable: IBU						

Notes : \*\* Significant at 0.01 . \* Significant at 0.05.  
Source: Sample Survey

## 5. Results

**Table 5**  
**Correlation Results**

Determinants	IBU	Sig.
PU	-0.122	0.190
PEU	0.108	0.248
PC	0.319	0.000**
AIIB	-0.011	0.903
PE	0.062	0.508
SN	0.649	0.000**

Notes: \*\*Significant at 0.01. \* Significant at 0.05.

Source: Sample Survey

### *Perceived Usefulness*

Based on the result, H1 was not supported, indicating that the respondents' acceptance on Internet banking was not determined by the perceived usefulness. The result is deemed two things. First, in general the respondents have been familiar with the usefulness of the Internet but ignore to use due to other associated factors affect their intention (for example, income level as well as education background). Second, the respondents still familiar with the traditional bank transaction which offers two services (1) ask for transaction and (2) ask for money withdrawal. The result was inconsistent with Chiu *et al.* (2005) and Cheong and Park (2005). Chiu *et al.* (2005) found that perceived usefulness positively influences online purchase intentions. On the other hand, Cheong and Park (2005) found the same result as Chiu *et al.* (2005). Cheong and Park (2005) argue that perceived usefulness has a positive impact on intention to use M-Internet. In sum, the difference due to the different banking structure as well as the experience and knowledge of the respondents involved.

### *Perceived Ease of Use*

H2 also suffers the same result as H1. Result indicates that perceived ease of use was not positively correlated with acceptance of Internet banking in the Islamic bank under study. Pikkarainen *et al.* (2004) has supported the result with the argument perceived ease of use has less impact on technology acceptance. However, Wang *et al.* (2003) found the different result which is not in line with the present study because the study identified computer self-efficacy as the encouraging factor to push individuals use Internet banking. In sum, perceived ease of use is a good predictor in explaining the Internet banking acceptance, however in this case, perceived ease of use is identified as poor predictor which leads into statistically non-significant ( $p > 0.248$ ).

### *Perceived Credibility*

H3 suggested that perceived credibility has a positive effect on consumer acceptance of Internet banking in the Islamic bank under study. From Table 5, the hypothesis is confirmed ( $p < 0.01$ ). In fact, this result is supported by Wang *et al.* (2003) who found that perceived credibility had a significant positive effect on behavioral intention over Internet banking. As expected, perceived credibility is important predictor in Internet banking which is dealt with individuals' satisfaction. The author believes that those respondents may approach the Internet banking facility if the bank more concerned about privacy issues and protect the customers. In contrast, Pikkarainen *et al.* (2004) found that perceived credibility to be statistically non-significant, not influence behavioral intention. This is further explained by Howcroft *et al.* (2002) who stated that although consumers' confidence in their bank was strong, their confidence in technology was weak. For further improvement, informative marketing program should stress the importance of security and privacy. Consequently, it enables to increase the consumers' confidence in using Internet banking.

### *Amount of Information on Internet Banking*

Not surprisingly, H4 is not supported which indicates that the consumer knowledge of Internet banking is considered as a minor predictor. In contrast, the study by Pikkarainen *et al.* (2004) found the amount of Internet banking a consumer has about Internet banking has a positive correlation with use. The difference may inform us that traditional way of doing banking is still play dominant role among Malaysians instead of Internet banking. In fact, Internet banking is only an alternative banking channel and people tend to choose the traditional way because of their sufficient knowledge on the system instead of Internet banking.

### *Perceived Enjoyment*

Based on Table 5, we can find that H5 is not supported as what was hypothesized ( $p > 0.01$ ). It seems that perceived enjoyment does not statistically significantly affect the use. The result is also controversial. Davis *et al.* (1992) argue that enjoyment is related to the use of the computer. Teo *et al.* (1999) also argue that enjoyment is related to the use of the Internet. On the other hand, Igarria *et al.* (1995) argue that enjoyment is not related to the use of the data processing system and has no statistically significant effect on the acceptance of data processing systems. The results suggest that, the difference in the systems applied in these studies may affect the level of enjoyment that can affect the acceptance of the systems.



### *Social Norm*

We can see from the result indicates that social norm is supported to what was hypothesized. Thus, H6 is supported. The result is partially confirmed with the study results by Nysveen *et al.* (2005) and Venkatesh and Morris (2000) argue that social norm has an effect on intentions to use mobile chat services and technology usage in a workplace respectively. In reality, the decision to use electronic system sometimes influenced by the external environment such people around the individual. Therefore, using Internet banking needs other relatives, family members and friends to participate in ones decision before using the system.

Overall, the results indicate that perceived credibility and social norm are positively correlated with Internet banking acceptance ( $p < 0.01$ ). Correlations of all variables with acceptance are displayed in Table 5. In sum H3 and H6 are supported. These variables show that, perceived credibility and social norm were found to be the most influential factors explaining the use of Internet banking. On the perceived credibility side, respondents stress the important of security and privacy when using Internet banking. Basically, consumers are not willing to accept the Internet banking with low privacy and protection efforts from the bank especially the consumers' financial information. To some extent, consumers perhaps are willing to participate if the bank convinces them, including convincing consumers about the technology use for Internet banking implementation. As expected, perceived credibility is considered as the pinpoints to gauge Internet banking acceptance in the Islamic bank under study. On the other hand, social norm is an external factor influences the respondents decision either yes or not to use the system. In that sense, relatives, family members and friends are individuals around the respondents play important roles in encouraging the respondents to employed Internet banking. If the influence is positive, an individual tends to change his habit to use Internet banking and vice versa. In sum, social norm is also important and considers being significant driver of acceptance.

## **6. Concluding Remarks**

The objective of this paper was to develop a specific version of TAM that can explain the consumer acceptance to use Internet banking in Islamic bank. In the first place, this paper has released an extension model of TAM for consumer acceptance on the Internet banking in Islamic bank labeled Islamic Internet Banking Acceptance Model (IIBAM) (see Appendix 2). This model is unique for two reasons. First, this study investigates consumer acceptance for Internet banking from the perspective of Islamic banking institutions and draws useful inferences

for Islamic Internet banking institution. Second, this study was one of the first to test TAM that includes religion (being Islam or not) as a moderator due to the neglect of religion role in TAM model. The previous studies either in Malaysia or others had ignored the role of religion in TAM (i.e. Guriting and Ndubisi, 2006; Nysveen *et al.*, 2005; and Venkatesh and Morris, 2000 to mention a few).

The study results also lead to a number of contributions to technology acceptance research. First, it successfully applied the extended TAM in Internet banking from Islamic bank's point of view that is quite different from the previous studies. Perceived credibility and social norm were found to be significant determinants of Internet banking acceptance. By religion, perceived credibility only significant among Muslims and not to non-Muslims whereas social norm contributes significantly for both Muslims and non-Muslims. Therefore, the results presented in this study could offer insights on the factors that seem to affect Internet banking acceptance. Second, this study provides an input or guideline to manager of the bank. In any marketing efforts, the bank should emphasis that it can make the customers feel secure when using Internet banking, that it provides an attention to the issues of privacy and security. There are two ways deemed necessary in supporting this fact. First, the Internet banking division of the bank needs to develop the beliefs on the credibility of the system to customers by organizing an Internet banking training course to increase the skills and understanding of the bank's customers. Second, the bank also should concentrate the issues privacy and security in its website by providing clear information about those issues to be taken as primary concerns in the bank's website. It can do so by providing the guarantee of the bank on the customers financial information when these customers doing banking transaction over Internet banking. For social norm, the bank should focus on in-group situation by providing hints on the social norm of using Internet banking. To do so, the existing customers must be encouraged to use the system in-group situation. Once these customers use the system, the bank can use these existing customers to become as motivators encourage their friends, relatives and families to apply for the Internet banking. Consequently, the bank can increase the customer base and positive impact for Internet banking acceptance.

This study suffers three limitations. First, the sample size [n=117] was quite small compared to the previous studies (for example, Cheong and Park (2005) with 1,279 respondents; Nysveen *et al.* (2005) with 684 respondents; and Sathye (1999) with 612 respondents). However, this is only a minor shortfall and the author believes this sample size able to contribute significantly, at least at exploratory level. In addition this sample only consisted of Islamic bank's customers from Labuan and Kota Kinabalu. Consequently, this has an effect on the generalization of the findings. Second, the model developed in this study might also suffer

from the fact that for example perceived expressiveness and other possible factors influencing the acceptance of Internet banking were not included in the model. Third, the study results consist of *multicollinearity* problem which can be detected to non-significant results for PEOU and PE, although *F*-statistic reports the overall significant for the model.

To tackle these limitations, several suggestions are proposed. First, future studies should be expanded into other cities, such as Miri, Kuching, Kuala Lumpur and other possible cities may offer an accuracy of the data findings. Consequently, it helps to acquire a larger sample from these cities in order to guarantee the validity of the data findings. For the second limitation, there may be a need to search for additional variables that will improve our ability to predict usage intentions more accurately. For example, personal innovativeness and expressiveness could be the possible variables. The third limitation provides learning to future studies to be more caution in respondents' selection as well as the location of study in order to reduce multicollinearity problem. Finally, the study at least offers an insight about Internet banking adoption from Islamic bank's point of view.

## References

- Adams, D. A., Nelson, R. R. and Todd, P. A. (1992) Perceived usefulness, ease of use, and usage of information technology: A replication. *MIS Quarterly*, 16(2), 227 – 247.
- Alter, S. (2002) *Information System: The Foundation of e-business*. New Jersey: Prentice Hall.
- Chiu, Y.N., Lin, C.P. and Tang, L.L.(2005) Gender differs: assessing a model of online purchase intentions in e-tail service. *International Journal of Service Industry Management*, 16(6), 416 – 435.
- Cheong, J.H. and Park, M.C. (2005) Mobile internet acceptance in Korea. *Internet Research*, 15(2), 125 – 140.
- Davis, F. D., Bagozzi, R. P. and Warshaw, P. R. (1989) User acceptance of computer technology: A comparison of two theoretical models. *Management Science*, 35 (8), 982-1003.
- Davis, F.D., Bagozzi, R.P. and Warshaw, P.R. (1992) Extrinsic and intrinsic motivation to use computers in the workplace. *Journal of Applied Social Psychology*, 22(14), 1111 – 1132.

- Davis, F.D. (1989) Perceived usefulness, perceived ease of use, and user acceptance of information technology. *MIS Quarterly*, 13(3), 319 – 340.
- Eriksson, K., Kerem, K. and Nilsson, D. (2005) Customer acceptance of internet banking in Estonia. *International Journal of Bank Marketing*, 23(2), 200 – 216.
- Fishbein, M. and Ajzen, I. (1975) *Belief, Attitude, Intention and Behavior*. Reading: Addison-Wesley.
- Guriting, P. and Ndubisi, N.O. (2006) Borneo online banking: Evaluating customer perceptions and behavioural intention. *Management Research News*, 29(1/2), 6 – 15.
- Hair, J.F. Jr, Anderson, R.E., Tatham, R.L. and Black, W.C. (1998) *Multivariate Data Analysis*, 5<sup>th</sup> Edition. New Jersey: Prentice Hall.
- Howcroft, B., Hamilton, R. and Hewer, P. (2002) Consumer attitude and the usage and adoption of home-based banking in the United Kingdom. *International Journal of Bank Marketing*, 20(3), 111 – 121.
- Igbaria, M., Livari, J. and Maragahh, H. (1995) Why do individuals use computer technology? A Finnish case study. *Information & Management*, 29, 227 – 238.
- Liu, S.H., Liao, H.L. and Peng, C.J. (2005) Applying the technology acceptance model and flow theory to online e-learning users' acceptance behavior, *Issues in Information Systems*, 4(2), 175 – 181.
- Mahmod, R., Dahlan, N., Ramayah, T., Karia, N. and Asaari, M.H.A.H. (2005) Attitudinal Belief on Adoption of E-MBA Program in Malaysia. *Turkish Online Journal of Distance Education-TOJDE*, 6(2), 1 – 10.
- Nually, J.C. (1978), *Psychometric Theory*. New York: McGraw-Hill.
- Ndubisi, N.O. and Sinti, Q. (2006) Consumer attitudes, system's characteristics and internet banking adoption in Malaysia. *Management Research News*, 29 (1/2), 16 – 27.
- Ndubisi, N.O., Jantan, M. and Richardson, S. (2001) Is the technology acceptance model valid for entrepreneurs? Model testing and

examining usage determinants. *Asian Academy of Management Journal*, 6 (2), 31 – 54.

Nunnally, J.C. (1978) *Psychometric Theory*. New York: McGraw-Hill.

Nysveen, H., Pedersen, P.E. and Thorbjornsen, H. (2005) Explaining intention to use mobile chat services: moderating effects of gender. *Journal of Consumer Marketing*, 33(5), 247 – 256.

Peterson, R.A. (1994) A meta-analysis of Cronbach's coefficient alpha. *Journal of Consumer Research*, 21, 381 – 91.

Pikkarainen, T., Pikkarainen K., Karjaluoto, H. and Pahnla S. (2004) Consumer acceptance of online banking: an extension of the technology acceptance model. *Internet Research*, 14(3), 224 – 235.

Polatoglu, V.N. and Ekin, S.(2001) An empirical investigation of the Turkish consumers' acceptance of Internet banking services. *International Journal of Bank Marketing*, 19(4), 156 – 165.

Sathye, M. (1999) Adoption of Internet banking by Australian consumers: an empirical investigation. *International Journal of Bank Marketing*, 17(7), 324 – 334.

Shimp, T.A. and A. Kavas. (1984) The Theory of Reasoned Action Applied to Coupon Usage. *Journal of Consumer Research*, 11(3), 795 – 809.

Sivanand, C.N.,Geeta, M. and Suleep. (2004) Barriers to Mobile Internet Banking services adoption: an empirical study in Klang Valley of Malaysia. *The Internet Business Review*, 1, 1 – 17. Available at: [http://www.arraydev.com/commerce/jibc/0103\\_01](http://www.arraydev.com/commerce/jibc/0103_01). [Accessed on: September 20, 2005].

Suganthi, B. and Balachandran, G. (2001) Internet banking patronage: An empirical investigation of Malaysia. *Journal of Internet Banking and Commerce*, 6 (1). May 2001. Available at: [http://www.arraydev.com/commerce/jibc/0103\\_01](http://www.arraydev.com/commerce/jibc/0103_01). [Accessed on September 20, 2005].

Tasir, Z. and Abu, M.S. (2003) *Analisis Data Berkomputer SPSS 11.5 for Window*. Kuala Lumpur: Venton Publishing.

Teo, T.S.H., Lim, V.K.G. and Lai, R.Y.C.(1999) Intrinsic and extrinsic motivation in internet usage. *Omega International Journal of Management Science*, 27, 25 – 37.

- Venkatesh, V. (2000) Determinants of Perceived Ease of Use: Integrating Control, Intrinsic Motivation, and Emotion into the Technology Acceptance Model. *Information System research*, 11(4), 342 – 365.
- Venkatesh, V. and Morris, M.G. (2000) Why don't men ever stop to ask for directions: gender, social influence and their role in technology acceptance and usage behaviour. *MIS Quarterly*, 24(1), 115 – 139.
- Vijayan, P. and Shanmugam, B. (2003) Service quality evaluation of Internet banking in Malaysia. *Journal of Internet Banking and Commerce*, 8(1). Available at: <http://www.arraydev.com/commerce/jibc/0306-06.htm>. [Accessed on: September 20, 2005].
- Wang, Y.S., Wang, Y.M., Lin, H.H. and Tang, T.I. (2003) Determinants of user acceptance of Internet banking: an empirical study. *International Journal of Service Industry Management*, 14(5), 501 – 519.

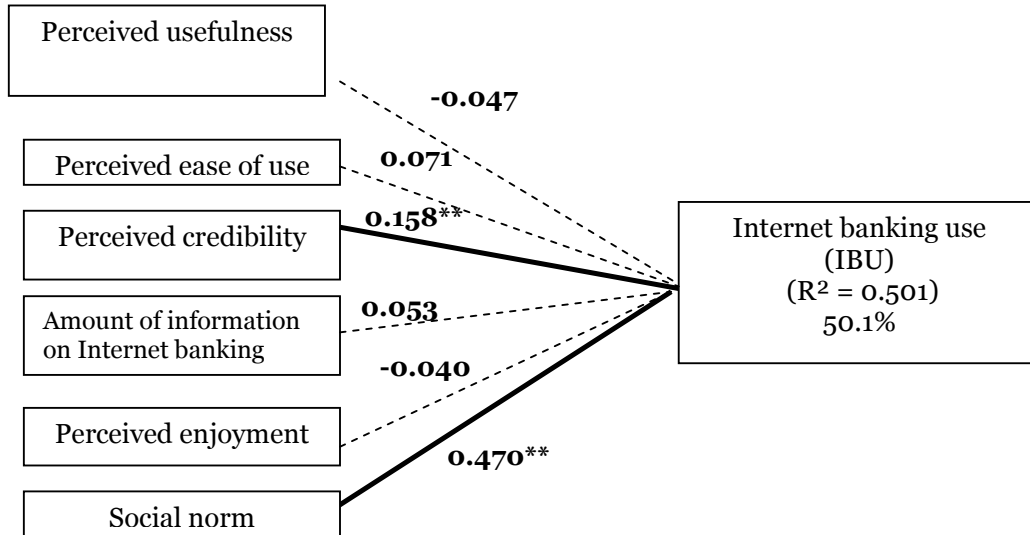
## Appendix 1 Research Instruments

<b>Source(s)</b>	<b>Code</b>	<b>Research Items</b>
<i>Perceived usefulness</i> Wang <i>et al.</i> (2003)	PU1	Using an Internet banking enables to improve my performance in conducting banking transaction
	PU2	Using an Internet banking makes it easier for me to utilize banking services
	PU3	I find an Internet banking to be useful in my banking transaction
<i>Perceived ease of use</i> Davis (1989), and Venkatesh (2000), Nysveen <i>et al.</i> (2005) Yu <i>et al.</i> (2005); and and Pikkarainen <i>et al.</i> (2004)	PEU1	Learning to use an Internet banking is easy for me
	PEU2	My interaction with an Internet banking system is understandable and clear
	PEU3	I find an Internet banking is easy to use
<i>Perceived credibility</i> Wang <i>et al.</i> (2003) and Pikkarainen <i>et al.</i> (2004)	PC1	Using an Internet banking would not divulge my personal information
	PC2	I would find an Internet banking secure in conducting my banking transaction
	PC3	I trust in an Internet banking as a bank
<i>Amount of information on Internet banking</i> Pikkarainen <i>et al.</i> (2004)	AIIB1	I have generally enough information about an Internet banking
	AIIB2	I have received enough information about the benefits of using an Internet banking
	AIIB3	I have received information about using an Internet banking from the staff of Islamic banks
<i>Perceived enjoyment</i> Pikkarainen <i>et al.</i> (2004); Teo <i>et al.</i> (1999); and Igarria <i>et al.</i> (1995)	PE1	Using an Internet banking is fun
	PE2	Using an Internet banking is positive
	PE3	Using an Internet banking is exciting
	PE4	Using an Internet banking is wise
<i>Social norm</i> Shim and Kavas (1984)	SN1	If I use an Internet banking most of the people who are important to me will regard me as clever
	SN2	If I use an Internet banking most of the people who are important to me will regard it as useful
	SN3	If I use an Internet banking most of the people who are important to me will regard it as valuable
<i>Internet banking use</i> Nysveen <i>et al.</i> (2005) and Shim and Kavas (1984)	IBU1	My general intention to use an Internet banking is very high
	IBU2	I intend to increase my use of an Internet banking in the future

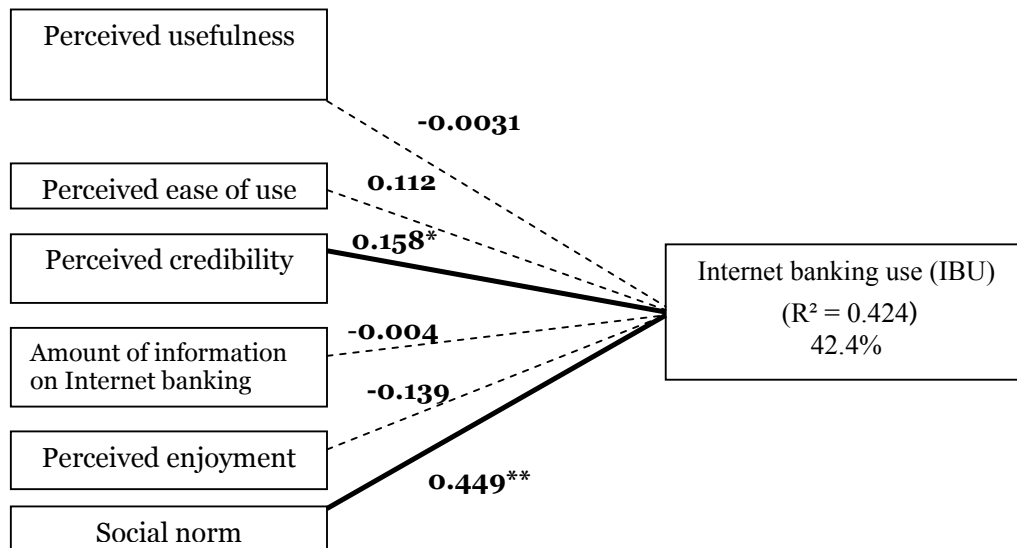
Source: Sample Source.

**Appendix 2**  
**Model: IIBAM**

**Model: IIBAM (Overall)**



**Model: IIBAM (Being Muslim)**



Non significant path ----->

Significant path —————>

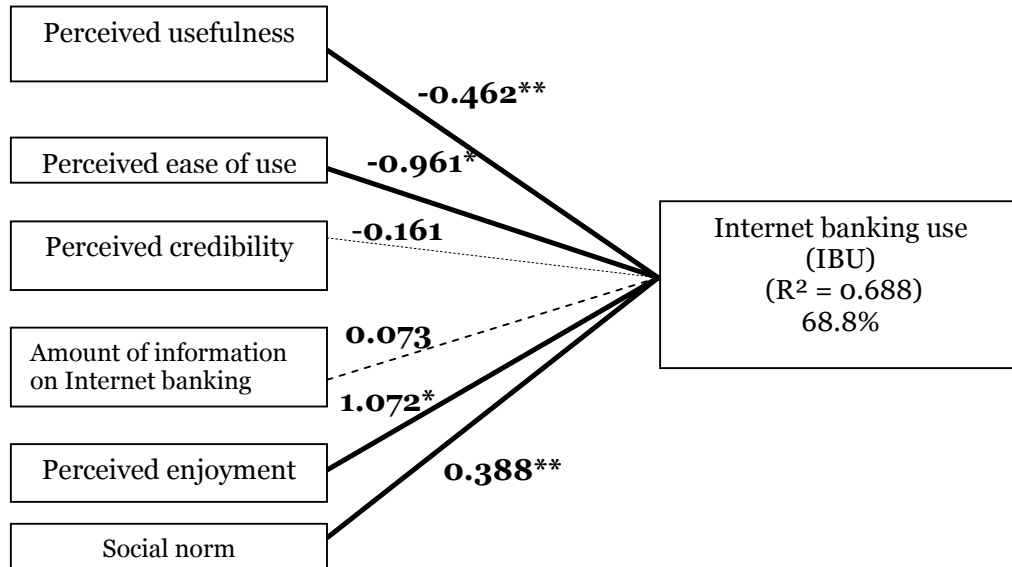
Notes: \*\* Significant at 0.01. \* Significant at 0.05.

Source: Sample Survey.



**Appendix 2 (Continued)**  
**Model: IIBAM**

**Model: IIBAM (Being non-Muslim)**



*Non significant path* ----->

*Significant path* —————>

Notes: \*\* Significant at 0.01. \* Significant at 0.05.  
Source: Sample Survey.