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## Consumers' perception towards the extent of internet banking usage in Malaysia

### Abstract

The purpose of this paper is to investigate the consumers' perception towards the extent of internet banking usage. It examines the influence of internet accessibility, internet quality, security and privacy, transaction benefit and trust on consumers' intention to continue using internet banking services. This study employed a quantitative research approach; therefore, questionnaires were distributed among the samples. A total of 174 surveys were analyzed using Partial Least Squares (PLS). Based on the Technology Acceptance Model (TAM) developed by Davis (1989), the results show that internet accessibility, internet quality, security and privacy and transaction benefits have significant effect on the extent of internet banking usage. A practical implication of these results is that banks need to acknowledge the importance of consumers' criteria before considering using internet banking. This study helps banks to identify the important criteria in providing more comprehensive and adequate internet banking services to the community. Currently, many banks are initiating their own strategies or policies to provide user friendly and appropriate internet banking services, however, they need to consider providing comprehensive internet banking services that can give full confidence to users. Some banks are still falling behind in initiatives regarding safe and secure internet banking services.

**Keywords:** banking, online banking, internet banking services, accessibility, trust.

**JEL Classification:** G2.

### Introduction

Internet banking is defined as the delivery of banking services to customers through the internet (Chi, Grant and Edgar, 2007). Today, internet banking has become a popular channel for banks to provide banking services to their customers. The popularity of internet banking is probably due to its benefits. Furthermore, internet banking allows customers to conduct banking transactions 24 hours a day, and 365 days a year (Khalil, Janejira and Nor-Hamimah, 2010).

Internet banking in Malaysia was introduced in 1996. Domestic banking institutions allowed establishing transactional websites from June 1, 2000 while locally incorporated foreign banks started to establish from January 1, 2001. Malayan Banking Berhad (Maybank) was first to offer online banking services in Malaysia, and has provided several products and services from consumers' banking to e-business banking for commercial enterprises, including banking enquiry functions, bill payment, credit card payment, funds transfer, accounts summary, transaction history and other selective services (The Star, 2008). Since then, many other major banks in Malaysia have started to provide internet banking services. To date, all banks are offering internet banking facilities (Bank Negara Malaysia, 2014).

Online transactions have been growing at a rapid pace over the years. Over the last decade, the use of electronic payments has increased at an average

annual growth of 23.4%. In 2012, Malaysian households and businesses performed more than 300 million financial transactions with a value close to RM15 trillion via electronic channels. The transactions mainly comprise of funds transfers, bill payments, top-up for prepaid cards, purchases of phone cards and payments for investments in the capital market. Among the electronic channels, internet banking is the most popular (Bank Negara Malaysia, 2014).

Although internet banking is widely used, understanding of the drivers of customers' perceptions with intention to continue using internet banking is limited, since studies of the customers' perceptions on usage of internet banking have not been extensively widespread conducted in the context of Malaysia. Previous studies focused more on the internet banking adoption and acceptance. This has pointed out the needs for research. Thus, further study is necessary to understand the factors that influence customers' perceptions on the extent of usage of internet banking.

This study looks at the factors that influence customers' perceptions towards widespread usage of the internet banking. Based on the Technology Acceptance Model (TAM) developed by Davis (1989), this study included a few factors to examine the influence of internet accessibility, internet quality, security and privacy, transaction benefit and trust on the extent of usage of internet banking in Malaysia.

### 1. Internet accessibility

Lichtenstein and Williamson (2006) analyzed several key findings from an interpretive study of Australian banking consumers' experiences on adoption of

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internet banking. They provided an understanding of how and why specific factors affect consumers' decision whether or not to use services on the internet. Findings show convenience is the main motivator for consumers to use internet banking. People prefer easy and convenient services that enable them to save time. Internet banking provides services that ease the consumers in doing their banking activities by enabling them to perform transaction anytime and anywhere. This brings about convenience to consumers and fulfils their busy lifestyle.

Hanudin (2007) argues that customers' important concerns about internet banking are increased accessibility to the bank services, lower service charges and avoiding waiting to be helped by a teller. The shortage of internet accessibility can be a critical barrier to adoption. Consumers tend to get the easy way in using internet banking and their problems can be solved when they face them. Besides, internet banking provides flexibility, speed and ease in financial transactions. In addition, more transactions and different services involved in internet banking encourage customers to extend using internet banking.

Cost involved in internet banking is relatively low, and banks charge low fees or even cost free services for online transactions. This encourages consumers to not only use internet banking services to do transactions but also use different services involved in internet banking provided by their banks (Bughin, 2003). Customers' perceptions on acceptance of internet banking depend on the cost involved in using the services. Many users consider using or not using internet banking because of the cost factors associated with it. Thus, consumers' decision whether to use internet banking is related to the cost (Uppal, 2008).

## 2. Internet quality

Lichtenstein and Williamson (2006) highlighted the increasing risk of consumers' acceptance of internet-based services and the growing importance of offering deep levels of consumer support for internet banking services. In terms of consumer support, quality information should be relevant, related to customers' needs, and interests. Banks have to focus on relevant information which responds to customers' needs and attract them to keep accessing the firm website and using the services provided to them.

Many of the rural areas in Malaysia lack the opportunity to gain advantages from the services provided by internet due to lack of information regarding the internet banking. Thus, people tend to

visit banks for conducting transactions using traditional banking and not utilizing the internet banking services despite having online banking account. Zhu and Chen (2010) indicated that information on internet banking and knowledge about technology provides the opportunity to attract consumers to use internet banking services. People who are computer savvy and have higher familiarity with internet banking tend to use more internet banking compared to those who are not.

Besides, quality of the internet connection could impact customer's perceptions about using internet banking. People do not like to face any problems with the internet connection during performing online transaction since it could affect their transactions and the transaction might be not complete (Pikkarainen, Karjaluoto, and Pahlila, 2004). Thus, internet quality is an important factor which influences consumers' intention to use internet banking.

The ability to access information easily is the attractive feature of using internet banking. Moreover, accessing information faster can promote use of internet banking for customers which can also enable customers to check bank's information frequently (Lichtenstein and Williamson, 2006). The importance of the internet information influences the usage of internet banking. People generally accept using internet banking services that provide satisfactory internet applications and bring confidence to them.

## 3. Security and privacy

Security and privacy on internet banking is crucial as it is important for customers in performing repeated transactions. Level of security influences customers whether to continue using services. A study by Goi (2006) identified that many users are still not ready to accept internet banking services due to concerns raised by various groups, especially in the area of security and privacy.

Al-Alawi (2005) examined the applicability of online banking in Bahrain. The study considered the importance of trust and familiarity of internet as the factors increasing online banking acceptance among mature people. The results show mature customers are willing to adopt online banking if their banks provide them with necessary guidance. Thus, mature users of internet banking are concerned with the status or level of security and privacy that banks provide.

Customers' protection is another issue in using internet banking. This issue could cause deceptive practices such as unauthorized access and usage by hackers or other unethical groups of people. Banks still lack behind making secure transactions. Maybank had released security alert to warning

consumers not to be fooled by the fake emails sent to them. The email is intended to “phish” user’s personal Maybank2u.com ID and banking information. If users login and provide personal information, they may soon discover that they are the victim of a financial scam and face loss of their savings (Maybank, 2008). Thus, consumers’ perception on widespread usage of internet banking could be influenced by security and privacy.

Security is always the important challenge in consumers’ decision to use internet banking. Since internet banking involves monetary online transaction through online, customers perceive there is higher risk in using internet for financial transactions. A study by Zhu and Chen (2012) concluded that security has always been seen as the main service barrier to the internet banking as it affects users’ acceptance towards such facilities. Thus, when banks are able to provide high levels of secure internet banking services with excellent security systems and protect privacy of their users, consumers tend to continue using internet banking services.

#### 4. Transaction benefit

Awareness of services and usage of the services provided by banks have a positive impact on customers’ perception about the widespread usage of internet banking. People who are not aware of the services provided to them and have no basic knowledge will not show interest in using internet banking (Pikkarainen et al., 2004).

A study by Ho and Ko (2008) indicated that self-service technology demonstrates a positive effect on customers’ value and customers’ readiness. They concluded that customers’ value and customers’ readiness significantly affect continuous use of internet banking. When customers perceive the values of the services provided to them, they intend to accept and continue using the services. Besides, internet banking is helpful in expanding product offering. Through internet banking, banks can provide variety of services which can give positive information to the consumers to continue using internet banking services and also attract more non-users to use the services.

The trend of internet banking adoption is expected to continue in the future in credit union industry. The addition of internet banking services for credit unions and banks could benefit both of them in terms of providing convenient and fast banking services with lower costs for the customers (Dandapani, Karels and Lawrence, 2008). Thus, the more services provided to consumers through internet banking, the more probability that consumers demonstrate good perceptions towards internet banking. Therefore, it is

proposed that consumers’ perceptions about widespread usage of internet banking is influenced by transaction benefits of internet banking.

#### 5. Trust

Studies show that trust is a critical factor in stimulating online banking operations. The uncertainty an individual often assumes makes trust a necessary component. Otherwise the consumer is reluctant to use online banking services and also refuses to continue using the services (Pikkarainen et al., 2004). A study by Khalil (2007) discussed the influence of trust on internet banking acceptance. Trust, relative advantage and trial ability have significant positive effects on attitude towards using internet banking. Thus, trust is the crucial elements that brings great impact towards customers’ reaction about widespread usage of internet banking.

Trust is a vital factor on internet banking since it builds a person’s perception towards the services. Customers’ satisfaction of internet banking services, and experiences in using internet banking affect consumers’ perceptions of widespread usage of internet banking services. If customers are satisfied with the services, the level of trust will increase. Customers’ satisfaction influences level of trust that might drive them to use internet banking services.

Trust can influence the security of the system, reputation of the service provider, and reliability of online transaction. Online customers may face problems related to loss of privacy because the internet is an open system where other people can access information easily (Gerard and Cunningham, 2003). Trust is crucial in online transaction processes. Given the distant nature of the online environment, uncertainty and inability to judge products’ quality prior to use or purchase is a main concern (Zhu and Chen, 2012).

In an electronic healthcare context, while usefulness can be communicated and ease of use can be designed into the system, trust is earned. This means that all aspects of interaction with actual or potential customers should be carefully managed as trust in the provider is a function of people’s general perception of competence, honesty. Trust is formed or gained through consumers’ own experiences in internet banking or word-of-mouth.

Self efficacy refers to the level of confidence a person has. Lack of self efficacy can lead to negative attributes towards the internet banking services. According to Agarwal and Karahanna (2000), the higher the computers’ self-efficacy the higher the chances of using internet banking services.

Trust is likely to play a significant role in developing and maintaining successful relationships in the



financial service sectors because many of the products are complex and there is a physical separation between the bank advisor and the consumers. Thus, it is proposed that consumers' perception towards widespread usage of internet banking is based on the level of trust.

## 6. Research model

The purpose of this study is to test the influence of internet accessibility, internet quality, security and privacy, transaction benefit and trust on the widespread usage of internet banking in Malaysia. This study hypothesized that all the mentioned factors positively influence intention to continue using internet

banking. Five hypotheses are proposed: *H1*: internet quality has a positive impact on consumers' perceptions towards widespread usage of internet banking. *H2*: internet accessibility has a positive impact on consumers' widespread usage of internet banking. *H3*: security and privacy have a positive impact on the widespread usage of internet banking for consumers. *H4*: transaction benefit has a positive impact on consumers' perceptions towards widespread usage of internet banking. *H5*: Trust has a positive impact on consumers' perceptions towards extensive usage of internet banking services. The proposed research model is shown in Figure 1.

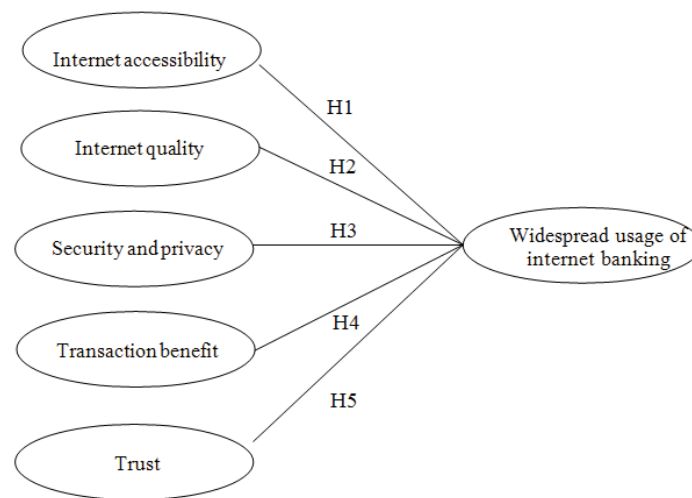


Fig. 1. Theoretical framework

## 7. Research methodology

Respondents for this study involved working individuals in Penang, Malaysia with the age of 20 years and above and level of education in bachelor's degrees and above. The survey was conducted over one month period. The questionnaires were distributed to the working individuals and completed without involvement of other parties. Items for the questionnaire were drawn from previous studies. These questions were on a five point Likert scale from strongly disagree to strongly agree.

## 8. Analysis and results

A total of 178 answered questionnaires were collected out of 300 questionnaires distributed, indicating response rate of 59.3 percent. A total of 174 questionnaires were used for data analysis after discarding four of the questionnaires due to being incomplete.

Table 1 provides the respondents' demographic profile. About 21.8 percent of them are male and 78.2 percent female. In addition, 47.1 percent between the age group of 21 to 25 years, 42.5 percent between 26 to 30 years, 8 percent range between 31 to 35 years

and 2.3 percent above 35 years old. About 42 percent are Malay and 48.9 percent Chinese, 7.5 percent Indian and 1.7 percent others. Approximately 87.9 percent of the respondents are undergraduate students, while 12.1 percent are master students. Majority of the respondents have used internet banking for 3 to 4 years (34.5 percent). Among the respondents, 63.2 percent have used internet banking between 1 to 4 times in a month, 20.7 percent use internet banking 5 to 8 times, 6.3 percent use 9 to 12 times and 9.8 percent use more than 12 times in a month. Majority of the respondents visit bank for 1 to 3 times per month (62.6 percent).

Table 1. Profile of the respondents

Demographic variables	Description	Frequency	%
Gender	Male	38	21.8
	Female	136	78.2
Age	21-25	82	47.1
	26-30	74	42.5
	31-35	14	8.00
	>35	4	2.30
Race	Malay	73	42.0
	Chinese	85	48.9
	Indian	13	7.50
	Others	3	1.70

Table 1 (cont.). Profile of the respondents

Demographic variables	Description	Frequency	%
Level of education	Bachelors degree	153	87.9
	Master degree	21	12.1
Number of years using Internet banking	<1	45	25.9
	1 to 2	32	18.4
	3 to 4	60	34.5
	>5	37	21.3
Usage of Internet banking in a month	1 to 4	110	63.2
	5 to 8	36	20.7
	9 to 12	11	6.30
	>12	17	9.80
Frequency of visit bank per month	0	35	20.1
	1 to 3	109	62.6
	4 to 6	27	15.5
	9 to 12	3	1.70

The collected data were tested using partial least squares (PLS) technique. PLS is a second generation multivariate technique that allows the simultaneous modelling of relationships among multiple independent and dependent constructs (Sang et al., 2010). PLS was chosen because it makes fewer demands for sample size than the other methods and does not require normal-distributed input data or assume multivariate normality. The measurement error is taken into account when assessing the structural model (Urbach and Ahleman, 2010). The results of the PLS analysis of the model are presented in Figure 2.

Confirmatory factor analysis was performed and items with factor loading less than 0.7 were deleted. All constructs achieved composite reliability of above 0.70, an average variance extracted (AVE) of above 0.50 and Cronbach's alpha of above 0.70. Table 2 summarizes the measurement items, sources, item loadings, composite reliability, AVE and Cronbach's alpha for the constructs of the model. Factors loading, composite reliability and AVE are used to examine convergent validity (Hair et al., 1998).

As Table 2 indicates, all constructs exhibit acceptable convergent validity. Discriminant validity was estimated by comparing the construct correlations with the square root of AVE of the construct. In this method, for adequate discriminant validity, the square root of AVE should be greater than the correlation between construct pairs (Sang et al., 2010). Table 3 illustrates the discriminant validity of the constructs which contain the construct correlations and on the diagonal the square root of AVE. It demonstrates that all of the constructs have a good discriminate validity.

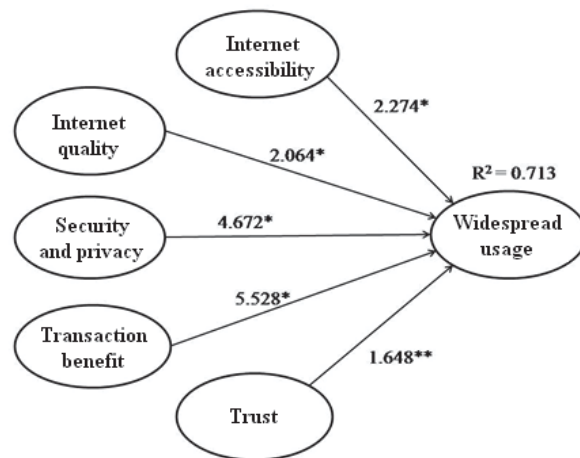
The findings support H1, H2, H3, and H4. Internet accessibility ( $\beta = 0.148$ ,  $t$ -value 2.27), internet quality ( $\beta = 0.146$ ,  $t$ -value 2.06), security and privacy ( $\beta = 0.316$   $t$ -value 4.67), and transaction benefit ( $\beta = 0.381$ ,  $t$ -value 5.53) were significant on widespread usage of internet banking. H5, however, is not supported. Trust ( $\beta = 0.091$ ,  $t$ -value 1.65) is not significant related to widespread usage of internet banking.

Table 2. Measurement items, item loadings, composite reliability, AVE and Cronbach's alpha

Variables	Items	Loading	AVE	Composite reliability	Cronbach's alpha
Extend usage	Allows me to manage my transaction more efficiency	0.840	0.664	0.941	0.928
	Current internet banking services give more confidence to users	0.705			
	Compatible with my lifestyle	0.834			
	Gives me greater control over my financial, I intend continues to use it	0.804			
	Overall, internet banking is beneficial	0.852			
	Overall, I would find internet banking is convenience and easy to use	0.879			
	I intend continues to use online banking service in the near future	0.814			
	I would recommend others to use internet banking	0.789			
Internet accessibility	Internet banking service is easy for me	0.914	0.830	0.936	0.898
	Internet banking is more flexible	0.894			
	Is easy to access with my convenience	0.925			
Internet quality	Internet website can be easily navigated	0.778	0.589	0.878	0.832
	Provides accurate information	0.822			
	Provides up to date information	0.716			
	Provides relevant information	0.761			
	Provides simple interface and encourage to use	0.761			
Security and privacy	I feel secure when conducting transaction online	0.868	0.767	0.952	0.939
	I am aware the security features of internet banking	0.833			
	I am aware the issue related to internet banking	0.876			
	I have confidence to the bank that offer internet banking services	0.880			
	I believe bank will keep my transaction confidential	0.887			

Table 2 (cont.). Measurement items, item loadings, composite reliability, AVE and Cronbach's alpha

Variables	Items	Loading	AVE	Composite reliability	Cronbach's alpha
Security and privacy	I have confidence that bank will protect my personal information	0.860			
Transaction benefit	Internet banking is an easy way to conduct banking transactions	0.849	0.750	0.900	0.834
	Transactions save more time without the need to visit bank or post office regularly	0.894			
	Transactions can be done after working hours or during bank is closed	0.855			
Trust	I trust on online banking service that it is safe in the transactions	0.928	0.850	0.958	0.941
	I trust on the accessibility of online banking for current internet connection	0.888			
	I trust on the security of the existing online transaction network	0.933			
	I trust on the creditability of internet banking that it would keep my personal information strictly confidential	0.937			



Note: significant at: \* $p < 0.05$ , \*\* $p < 0.01$ .

Fig. 2. Results of the model

Table 3. Discriminant validity of constructs

Variable	1	2	3	4	5	6
Widespread usage	<b>0.815</b>					
Internet accessibility	0.666	<b>0.911</b>				
Internet quality	0.655	0.627	<b>0.767</b>			
Security and privacy	0.654	0.390	0.578	<b>0.876</b>		
Transaction benefit	0.729	0.739	0.570	0.424	<b>0.866</b>	
Trust	0.364	0.228	0.206	0.329	0.270	<b>0.922</b>

Note: diagonal elements (in bold) are square roots of AVE.

## Discussion and contribution

This study examined the influence of internet accessibility, internet quality, security and privacy, transaction benefit and trust on the consumers' perception towards the widespread usage of internet banking in Malaysia. The results show that internet accessibility, internet quality, security and privacy and transaction benefit have positive effects on the intention to continue using internet banking while trust factors does not show any significant effect in this study.

A practical implication of these results is that banks need to highlight the criteria that consumers consider for using internet banking. This study helps banks to

identify the important criteria in providing more comprehensive and adequate internet banking services to the community. Many banks are currently initiating their own strategies or policies to provide user friendly and appropriate internet banking services, however, they need to consider comprehensive internet banking services that can provide full confidence to their users. Some banks are still falling behind in providing safe and secure internet banking services. Thus, there is still room for improvement in the internet banking systems in Malaysia.

Banks can assist consumers by developing secure online banking practices and risk management procedures to increase their trust. The web-based

service channel must be well integrated into other channels so that customers can easily interact with people who are well trained in handling problems and therefore adopt strong customers' orientations. Besides, banks need to highlight the benefits of internet banking by making internet banking easy to use, and improving internet banking security in order to enhance customers' trust. It is also important that they highlight the benefits of internet banking in their promotional and advertising activities (Khalil et al., 2010). This may influence customers from various background and cultures to continue using internet banking (Ahmed, Islam and Yahya, 2014).

Finally, as found in this study, trust is one of the major issues in the internet banking adoption. Consumers still do not trust internet banking. Banks need to ensure that internet banking services are secured. Furthermore, they need to develop security enhancement activities and enhance consumer's protection. These activities may increase level of trust among users to continue using internet banking services (Khalil et al., 2010).

A practical implication of this finding is that this study investigated the current status of internet banking industry which can then be used to benchmark for future studies and improvements. Thus, it can help banks in understanding barriers or problems that need to be addressed in providing comprehensive internet banking services.

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## Limitations

One limitation in this study is the limited sample size (174 respondents) which makes it difficult to draw a general conclusion. The second limitation of this study is that the data were collected only from working individuals in one state of Malaysia, other states around Malaysia should be considered as well. Thus, the findings can only be considered as preliminary.

Besides, past empirical studies on internet banking primarily focused on adoption of internet banking. However, the other factors that drive consumers' perceptions towards widespread usage of internet banking are still remained unclear. Finally, this study considered consumers' perceptions towards extend usage of internet banking. The intentions can be changed from time to time. Therefore, future research is required to comply with the changes of consumers.

## Future research

Future research could expand on this study by including corporate customers and students where comparison can be made among different groups in terms of their decisions and criteria for using internet banking services. Though this study included important variables, further studies can include other factors that could be important for evaluation of the widespread usage of internet banking. To further expand the study, researchers can also increase the number of respondents, collect data within a longer time frame and include other states of Malaysia.



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