Internet Banking Adoption in Kuala Lumpur:

An Application of UTAUT Model

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Abstract

Internet banking is becoming a new focuses as the number of internet users is increasing globally and its benefits. This study aimed to investigate the factors and determinants of internet banking adoption among Malaysian. Four factors that proposed to influence the adoption from Unified theory of acceptance and use of technology were included in this study. A total of 200 respondents were collected using convenience sampling. Results of this study showed that performance expectancy ($r = 0.51$, $p < 0.01$), effort expectancy ($r = 0.55$, $p < 0.01$), social influence ($r = 0.64$, $p < 0.01$), facilitating condition ($r = 0.63$, $p < 0.01$) and trust ($r = 0.55$, $p < 0.01$) were positively correlated with behavioral intention among respondents. Analysis of multiple linear regressions was used to determine the predictors of internet banking adoption among Malaysian. The results showed that performance expectancy, effort expectancy, social influence, facilitating condition and trust explained 56.6% variance of behavioral attention among the respondents ($F = 50.54$, $p < 0.01$). Knowing the determinants on internet banking adoption could help banking company to improve their service to attract more users. Besides, the use of internet banking could reduce the frequency to bank that indirectly reduce air pollution.

Keywords: Internet banking, Effort expectancy, Social influence, Facilitating condition, Trust

1. Introduction

In year 2000 to 2010, the total internet user growth is 444.8% in worldwide. The larger proportion (42.2%) of internet users was from Asia followed by Europe (24.2%) and North America (13.5%). Malaysia, one of the Asia countries was among the Top 10 highest number of internet users in year 2009. In year 2000, Malaysian internet users recorded 3,700,000 and increase to 16,902,600 in June, year 2010. This showed that there is 356.8 % increment in ten years time and this involved 64.6% of the total population (Internet World Stats, 2010). Internet banking was first launch by Malaysia Central Bank on June 1, 2000 to provide internet banking services to bank holders. To date, there is no published statistics regarding the number of internet banking users in Malaysia. With the increasing number of internet users and launching of internet banking, logically the number of internet banking should be increase. Thus, there is a considerable attention was focused on study related to adoption of internet banking activities among consumers.

There are numerous study has been conducted to explore and identify the factors of internet banking adoption at local and international using different theory and model. The results showed that internet banking adoption in Malaysian is relatively low and there was mixed result of influencing factors have found (Suganthi & Balachandran, 2001; Ainin, Lim & Wee, 2005; Lichtenstein & Williamson, 2006; Ndubisi & Sinti, 2006; Khalil

& Pearson, 2007; Huam, et al, 2008; Yee & Yeow, 2009; Onar, Aktas & Topcu, 2010). Hence, there is a need to have study to be conducted to update the findings. The purpose of this study is to investigate the factors and predictors of internet banking adoption among Malaysian. This study also aimed to determine the demographic differences between internet banking adopters and non adopters. This paper continue with review of influencing factors in internet banking adoption, studies from both local and internationally. The paper then continues the section of methodology, results, findings, conclusion and recommendation.

2. Literature Review

Up till recently, there are many studies had been conducted to investigate the influencing factors of internet adoption using different theory and models. Specifically, Lichtenstein and Williamson (2006) used mass media theories through individual and focus group discussion to determine the decision of internet banking adoption. Findings showed that Australian older people with low income reported themselves were lack of awareness towards internet banking and its advantage, lack of internet access and internet confidence, inadequate knowledge and support to use or initial setting up procedure, lack of trust, security and privacy risks were among the reasons of not using internet banking services.

In Turkey, Onar, Aktas and Topcu (2010) found that security and reliability were among the important factor that influences the adoption of internet banking. This followed by infrastructural competencies and user friendliness among respondents with accessibility to internet, aged 20 to 45, higher level of education and socioeconomic class. The study used Multi-criteria decision aid-based (MCDA-based).

In Malaysia, a study conducted by Suganthi and Balachandran (2001) focused on the factors of accessibility, reluctance to changes, costs, trust in one's bank, security concerns, convenience, ease of use through online survey that potentially influence internet banking adoption. The results revealed that there were positive significant relationships between accessibility, reluctance to changes and awareness with internet banking adoption.

On the other hand, Ainin, Lim and Wee (2005) adapted model of website evaluation by Chung and Payter (2002) to study the information, legal statement, order, ease of use, aesthetics effects, performance and others elements of bank that provide internet banking. The study found that a negative significant relationship between age and internet banking adoption among Klang Valley adopters. Monthly gross income and job position level had positive significant relationship with internet banking adoption among Klang Valley adopters. Further, there was no significant relationship between gender, marital status, ethnic group, level of education with internet banking adoption. The study also found that family, colleagues and peers (53.0%) were influence the most on their adoption decision. However, the study merely focused on demographic factors and there is no further analysis to identify the website elements that influence consumer in internet banking adoption.

Study conducted by Khalil and Pearson (2007) applied theory of diffusion of innovation (IDT) (Rogers, 1995) that focused on five key belief (relative advantage, compatibility, complexity, trial ability and obeservability) and trust (Mayers et al., 1995) to explore the intention to use internet banking among university students. The results of structural equation modeling showed that trust, relative advantage and trial ability significantly influence attitude. The attitude was play as moderator that influences intention to use technology that is internet banking. A similar study was conducted by Ndubisi and Sinti (2006) used IDT theory, trust and motivation theory (utilitarian and hedonism) through online survey method. The study found that four factors namely: importance of internet to banking needs, compatibility, complexity, trial ability, risk accounted explained 38.0% for the variance of internet banking adoption. There was only compatibility is not significant predictors for internet banking adoption. The study also found that utilitarian is significantly influence internet banking adoption. The internet experience, education level and frequency of usage of banking services were not related to internet banking adoption.

Later, a study done by Huam, et al (2008) attempted to investigate the determinants of the intention to use internet banking among user with at least one experience in Klang Valley. Results of multiple linear regressions showed that three significant predictors included trust, compatibility and ease of use were accounted 56.0% variance of intention to use internet banking. Recently, Unified Theory of Acceptance and Use of Technology (UTAUT) Model (Venkatesh, Morris, Davis & Davis, 2003) was used by Yee and Yeow (2009) to explore the behavioral intention of using internet banking at Malacca and Kuala Lumpur through intercepts and snowball method. Beside four factors from UTAUT Model (Performance expectancy, effort expectancy, social influence, facilitating conditions), factors of self-efficacy, anxiety, attitude towards using internet banking services and perceived credibility also included in their study. In general, the respondents rated themselves in high behavioral intention score. The descriptive results showed that respondents were perceived performance expectancy and

attitude towards using internet banking services were among the factors that influence their intention to use internet banking. However, there is no psychometric testing in the study. Thus, this study attempted to identify the determinants factors of behavioral intention towards internet banking based on four factors in UTAUT Model and trust.

3. Methodology

3.1 Sampling and Location

Pilot study of 30 respondents was carried at Cheras area to test the validity of questionnaire. Convenience sampling was employed in this study to recruit respondents. The inclusion criteria to be selected as respondent was those aged 21 to 50 years. Three areas of Kuala Lumpur were randomly chosen namely Cheras, Ampang and Pudu. A total of 200 completed cases were gathered through self-administered questionnaire.

3.2 Measurement of Variables

There are three part consisted in questionnaire to gathered information related to personal information of the respondents, internet and internet banking experience and selected variables. A total of 22 statements with five-point ordinal scale to measure behavioral intention of internet banking (3 statements) and the selected variables namely performance expectancy (4 statements), effort expectancy (4 statements), social influence (4 statements), facilitating conditions (4 statements) and trust (4 statements) that adapted from Venkatesh, et.al (2003) and Yee and Yeow (2009). The responses vary from strongly agree in one end to strongly disagree to another end with the scoring of one to five points. Prior to run analysis, the score for each variable were sum up. Hence, the possible score for behavioral intention sum score and effort expectancy sum score were ranging from 3 to 15 points and the remaining selected variables were ranging from 4 to 20 points respectively. The higher the score shows that the higher level of agreement in the specific factor.

3.3 Data analysis

The data collected was analyzed using Statistical Package for Social Science for Windows (SPSS for Windows Version 13.0). Descriptive analysis used frequency and percentage to examine the profile of the respondents. Test of Pearson moment correlation, Independent sample T-test, Chi square test of independence and Multiple linear regressions were used in this study. The level of significance at probability level of 5% was used.

4. Research and Findings

4.1 Profile of the Respondents

The results showed that more than half of the respondents were female (53.5%) and about 47.0% of the respondents were male (refer to Table 1). Generally, the respondents fell in the age group of 21 to 31 years old (44.5%), Chinese (57.5%), tertiary level of education (70.5%) and income group of RM 2001 to RM 3000 (23.0%). The number of internet banking adopters and non adopters were equally distributed. In overall comparison, the characteristics of adopters and non adopters are similar to overall profile. However, internet banking adopters more likely to being male (52.0%) and received higher income of RM 2001 and more (63.0%) compared to non adopters were more likely to being female (59.0%) and received income of RM 1000 or below (25.0%). The result was supported by Khalil & Pearson (2007) that less female engaged in internet banking. Further analysis of Chi-square test of independence showed that there is no significant different between the selected demographic variables included gender (χ^2 = 2.43, $p > 0.05$), age group (χ^2 = 4.62, $p > 0.05$), ethnicity (χ^2 = 3.19, $p > 0.05$), educational level (χ^2 = 2.62, $p > 0.05$) and monthly income (χ^2 = 9.24, $p > 0.05$) with the adoption of internet banking. The finding of this study is consistent with previous study that gender, marital status, ethnicity, educational level did not influence the adoption of internet banking (Ainin, Lim & Wee, 2005). However, this study found an inconsistent result with Ainin, Lim and Wee (2005) between age group and monthly income and internet banking adoption which may caused by stratum or sample size factor.

4.2 Selected variables and behavioral intention of the respondents

Generally, the results in Table 2 indicated that the respondents towards agree to all the statements. Independent sample T-test was used to test the differences between the selected variables and internet banking adopters and non adopters. There was a significant relationship between performance expectancy [t (198) = 5.08, $p < 0.05$], effort expectancy [t (198) = 5.18, $p < 0.05$], social influence [t (198) = 5.96, $p < 0.05$], facilitating conditions [t (198) = 4.13, $p < 0.05$], trust [t (198) = 6.25, $p < 0.05$] and behavioral intention [t (198) = 7.26, $p < 0.05$]. Those internet banking adopters have higher mean score of performance expectancy (M =15.40, SD =2.43), effort expectancy (M =14.19, SD =1.95), social influence (M =13.56, SD =2.67), facilitating conditions (M =14.30, SD =2.36), trust (M =13.27, SD =2.19) and behavioral intention (M =11.35, SD =2.08) compared to non adopters obtained lower of mean sum score.

4.3 Correlations of behavioral intention of internet banking adoption and selected variables and its determinants

Prior to multiple linear regressions, correlation analyses were executed. Table 3 shows the results of correlation analysis. There was a significant relationship between performance expectancy ($r = 0.51$, $p < 0.01$), effort expectancy ($r = 0.55$, $p < 0.01$), social influence ($r = 0.64$, $p < 0.01$), facilitating conditions ($r = 0.63$, $p < 0.01$) and trust ($r = 0.55$, $p < 0.01$) with behavioral intention.

Results of multiple linear regressions showed that five significant predictors explained 56.6% variance of behavioral attention among the respondents [$F (5, 194) = 50.54$, $p < 0.01$]. The final regression model produced by enter method for behavioral intention towards internet banking adoption is:

Behavioral intention = - 1.53 + 0.12 Performance expectancy + 0.24 Effort expectancy + 0.31 Social influence + 0.18 Facilitating condition + 0.15 Trust

Figure 1 showed the obtained standardized beta coefficient value. This indicates that one standard deviation increase in performance expectancy score brings about 0.12 standard deviation increase in behavioral intention towards internet banking adoption. Further, social influence ($\beta = 0.32$) contribute most significantly towards one's behavioral intention towards internet banking adoption followed by effort expectancy ($\beta = 0.21$), facilitating condition ($\beta = 0.16$), trust ($\beta = 0.16$) and performance expectancy ($\beta = 0.12$).

5. Conclusion, Implications and Recommendations

To conclude, demographic factors were not influence the behavioral intention towards internet banking adoption. This study reaffirmed the UTAUT Model from Unites States. This means that the model also applicable in Malaysia in order to understanding the intention to use internet banking. The gathered information could help banking companies to understand the potential of Malaysian in using internet banking. Beside, banking companies can focus on these factors such as trust to improve their service to attract and convince more customers. Internet banking is a good way to improve efficiency of service and ease customer in their daily activities. In view of environmental, using of internet banking could reduce the frequency to bank and paperless eventually reduce air pollution and save more tree.

The sample size in this study is not enough to generalize the population in Kuala Lumpur due to financial and time frame constraint. Thus, it is suggested sample size should increase the sample size in future study in order to generate more reliable results. A note of caution, this study only gather information at Kuala Lumpur and not representable for whole Malaysia. Secondly, the study should be conducted at other state in Malaysia to reaffirm the final model. It is recommended that a comparison study to be conducted by looking at cohort differences that are Generation X and Y to have deeper understanding in internet banking adoption.

Acknowledgement

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Table 1. Profile of respondents

| | Internet Banking | | | | | | Chi-square Test of Independence |
| | Non adopters | | Adopters | | Total | | |
	n	%	n	%	N	%	
Gender							
Male	41	41.0	52	52.0	93	46.5	$\chi^2 = 2.43$,
Female	59	59.0	48	48.0	107	53.5	$df = 1$, $p > 0.05$
Age group							
21-30	40	40.0	49	49.0	89	44.5	$\chi^2 = 4.62$,
31-40	29	29.0	33	33.0	62	31.0	$df = 2$, $p > 0.05$
41-50	31	31.0	18	18.0	49	24.5	
Ethnicity							
Malay	21	21.0	22	22.0	43	21.5	$\chi^2 = 3.19$,
Chinese	53	53.0	62	62.0	115	57.5	$df = 3$, $p > 0.05$
Indian	22	22.0	13	13.0	35	17.5	
Others	4	4.0	3	3.0	7	3.5	
Educational Level							
Primary	11	11.0	5	5.0	16	8.0	$\chi^2 = 2.62$,
Secondary	22	22.0	21	21.0	43	21.5	$df = 2$, $p > 0.05$
Tertiary	67	67.0	74	74.0	141	70.5	
Monthly income							
Below RM1000	25	25.0	16	16.0	41	20.5	$\chi^2 = 9.24$,
RM1001- RM2000	21	21.0	21	21.0	42	21.0	$df = 4$, $p > 0.05$
RM2001- RM3000	18	18.0	28	28.0	46	23.0	
RM3001- RM4000	24	24.0	14	14.0	38	19.5	
Above RM 4000	12	12.0	21	21.0	33	16.5	
Total	100	50	100	50	200	100	

Table 2. Items of selected variables and behavioral intention towards internet banking adoption

No.	Statements	1		2		3		4		5	
		n	%	n	%	n	%	n	%	n	%
	Performance Expectancy										
1	I can manage my money online anytime	11	5.5	20	10.0	47	23.5	95	47.5	27	13.5
2	I can keep a record of my finances	4	2.0	24	12.0	35	17.5	114	57.0	23	11.5
3	I need not visit traditional banks regularly	-	-	47	23.5	42	21.0	74	37.0	37	18.5
4	I can save time paying essential bills at the post office	5	2.5	25	12.5	37	18.5	88	44.0	45	22.5
	Effort Expectancy										
5	It is easy to use	11	5.5	19	9.5	68	34.0	72	36.0	11	5.5
6	I would find the system to be flexible to interact with	7	3.5	25	12.5	78	39.0	74	37.0	16	8.0
7	Using internet banking save me a lot of time	2	1.0	35	17.5	52	26.0	70	35.0	41	20.5
	Social Influence										
8	People who are important to me think that I should use the service	6	3.0	50	25.0	72	36.0	67	33.5	5	2.5
9	Friends use internet banking service	11	5.5	47	23.5	60	30.0	72	36.0	10	5.0
10	My working/studying environment support internet banking service	14	7.0	51	25.5	54	27.0	69	34.5	12	6.0
11	Using internet banking service indicate me to have a higher status than those who do not	13	6.5	53	26.5	64	32.0	59	29.5	11	5.5
	Facilitating Conditions										
12	I have the resources necessary to use the service	5	2.5	51	25.5	61	30.5	76	38.0	7	3.5
13	I have the knowledge necessary to use the service	8	4.0	43	21.5	63	31.5	74	37.0	12	6.0
14	All the contents of internet banking service are easy to read and understand	11	5.5	26	13.0	94	47.0	51	25.5	18	9.0
15	The language in which the document is written is easily understand	16	8.0	20	10.0	76	38.0	70	35.0	18	9.0
	Trust										
16	I trust in the ability of an internet banking to protect my privacy and personal information	12	6.0	42	21.0	79	39.5	59	29.5	8	4.0
17	I believe no money will be lost in unauthorized electronic fund transfer	21	10.5	65	32.5	64	32.0	42	21.0	8	4.0

| 18 | Other people cannot view my bank account information | 4 | 2.0 | 40 | 20.0 | 69 | 34.5 | 74 | 37.0 | 13 | 6.5 |
| 19 | Internet banking has enough specialists to detect fraud and information theft | 8 | 4.0 | 34 | 17.0 | 102 | 51.0 | 53 | 26.5 | 3 | 1.5 |

Behavioral Intention

20	I intend to use internet banking service in the near future	4	2.0	44	22.0	36	18.0	101	50.5	15	7.5
21	I predict I would use internet banking service in the near future	4	2.0	38	19.0	58	29.0	82	41.0	18	9.0
22	I plan to use internet banking service in the near future	10	5.0	43	21.5	45	22.5	79	39.5	23	11.5

Note: 1=Strongly disagree, 2= Disagree, 3= Neither agree or disagree, 4=Agree, 5=Strongly agree

Table 3. Descriptive statistics, reliability coefficients (α) and correlations (N= 200)

		M	SD	1	2	3	4	5	6	α
1.	Performance expectancy	14.40	3.01	-	0.55**	0.42**	0.55**	0.34**	0.51**	0.74
2.	Effort expectancy	13.43	2.20			0.40**	0.55**	0.37**	0.55**	0.80
3.	Social influence	12.27	2.88				0.60**	0.56**	0.64**	0.70
4.	Facilitating condition	12.81	3.02					0.60**	0.63**	0.78
5.	Trusts	12.11	2.88						0.55**	0.77
6.	Behavioral intention	10.07	2.81							0.92

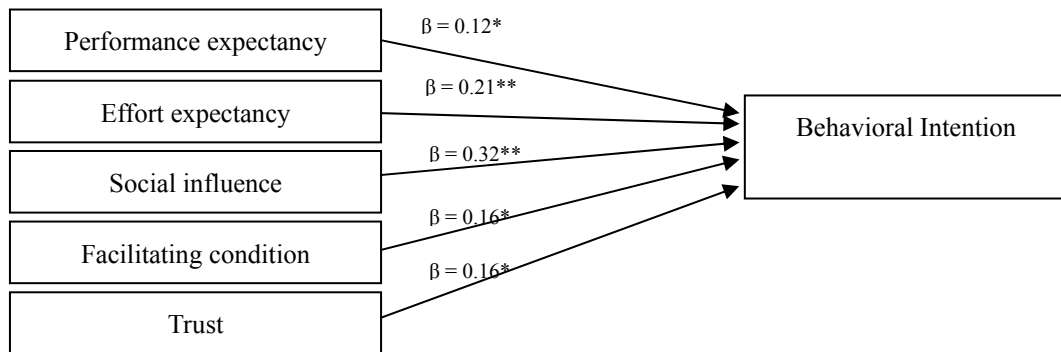** Correlation is significant at the 0.01 level of significance (2-tailed)

Figure 1. Final model of behavioral intention towards internet banking adoption (N=200)

* Correlation is significant at the 0.05 level of significance

** Correlation is significant at the 0.01 level of significance