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Adoption of Retail Internet Banking: A Study of Demographic Factors

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Abstract

This study focuses on the adoption of retail internet banking among consumers in the Klang Valley, Malaysia and the impact of demographics factors on such adoption behavior. This study adopts a quantitative approach using surveys conducted at banks. The results indicate that while the hypotheses pertaining to gender, race, income, educational level and occupation were not supported but age is supported. Therefore, the current research indicates that the age of retail banking consumers affects the adoption of internet banking among Malaysian consumers. The result also suggests that consumers in the age group below 25 years old are the major contributor to the differences. Based on these findings, we conclude that younger consumers are more likely to adopt internet banking. Therefore, the result suggests implications for retail bankers in Malaysia to adopt appropriate strategies to encourage retail internet banking for other age categories of consumers in Klang Valley. By doing so, it enables the banks in Malaysia to save costs of maintaining physical distribution systems through providing bigger scale of Internet retail banking services.

Key words: **Retail Internet Banking, Internet Banking Adopters, Internet Banking Non-adopters, Demographic Factors, Consumers**.

INTRODUCTION

As of September 2009, the Malaysian commercial banking system consists of twenty two banks out of which nine are locally owned (Bank Negara Malaysia 2009). The electronic revolution in Malaysian banking industries started in the 1970's, followed by most widely use technology to-date namely Automated Teller Machines (ATM) introduced in 1981 and tele-banking in the 1990's. In view of globalization and opportunities offered by Internet banking, the Malaysian government provided its first regulatory framework and approval for internet banking to locally owned commercial banks effective 1st June, 2000. Maybank was the very first bank in Malaysia to offer internet banking commencing 15th June 2000 (Suganthi, Balachandher & Balachandran, 2001; Dauda, Asirvatham, & Raman, 2007). A review of the Malaysian banking websites indicated that Alliance Bank, Ambank, CIMB, EON, Hong Leong Bank, Maybank, RHB Bank, Public Bank, Citibank, OCBC, Standard Chartered, United Overseas Bank and HSBC Bank are currently providing retail online banking. All Malaysian domestic banks have internet banking services.

There are numerous studies on adoption of internet banking that which mostly focused on the theory of diffusion of technology by Rogers (1983) and Technology Acceptance Model by Davis (1989). Likewise, upon further review for similar studies in Malaysia, it was found that most research in Malaysia were carried out to measure the impact of technology and consumers perception towards adoption of internet banking with very minimal focus on the impact of demographic factors such as age, gender, education, income and employment on the adoption of internet banking (Dauda et al. 2007). To redress this imbalance, the present study aims to examine the impact of demographic factors on adoption of internet banking in a Malaysian environment.

The scope of the study is focused to samples drawn from Klang Valley area as it is the modernised area of the country. Klang Valley is an area in Malaysia comprising Kuala Lumpur and its suburbs, and adjoining cities and towns in the state of Selangor. An alternative reference to this would be Kuala Lumpur Metropolitan Area or Greater Kuala Lumpur. This study sets out to examine this lack, whether there is any association between demographic factors and adoption of retail internet banking in the Malaysian context. This study specifically intends to measure the level of association between gender, race, age, education, occupation, and income on the adoption of retail internet banking. A review of the literature is presented, followed by the methodology used. Findings are then presented and discussed.

LITERATURE REVIEW

Recent evidence suggests that an internet-based consumer banking strategy may be effective, with reports of more profitable, loyal and committed consumers compared with traditional banking consumers (Fox, 2005). In Malaysia, with the rapid technological advancements and increasing consumer demands for more efficient delivery services, the financial landscape has continued to transition towards the increased significance of Internet Banking as one of banking distribution channels (Bank Negara Malaysia, 2009). Adoption of internet banking is primarily determined by the number of people connected to Internet. Customers will not be able to utilize internet banking without internet connectivity. The relative success of internet banking can be gauged by identifying the current and anticipated users of Internet.

The intensity of Internet use in private households in Malaysia is on the increase. There were 2,473,000 household Internet users in the country as of 1 December 2006, out of which 23.6% of the usage is for financial activities (e-Banking), an increase of 9% as compared to 2005 (Household Use Internet Survey, 2006). Despite the progress that has been achieved, Malaysians however, remain high users of currency notes and coins (Bank Negara Malaysia, 2009). The positive growth in the trend of online financial activities by retail consumers is lagging as compared to worldwide indicators and there is still room for improvement. In Table 1, 25.9 percent of Malaysians subscribe to online banking (BNM & MCMC 2009). It is therefore evident that 75% of bank subscribers are non-adopters and therefore the banking industries in Malaysia need to plan strategically and implement measures to fill the gap as to encourage the above category of non adopters to adopt internet banking.

Table 1: Internet banking subscribers

as at end of period	2006	2007	2008	3Q 09
No. Of subscribers (million)	3.2	4.6	6.2	7.5
Of which: Individual subscribers	3.2	4.5	6.1	7.3
Penetration to population (%)	11.9	16.6	21.8	**25.9**
No of broadband subscribers ('000)	897	1,116	1,714	2,116

Source: Bank Negara Malaysia and the Malaysian Communications and Multimedia Commission, 2009

Linking Demographics and Adoption of Internet Banking
There is a need to investigate consumer decision-making in internet banking adoption across a wide range of demographics (Williamson et al. 2006). Several studies were conducted to understand the role of age, gender, education, income and occupations on adoption on internet banking (Ramayah & Koay, 2002; Matilla et al. 2003). The variables discussed somehow have the relationship with adoption of Internet banking facilities.

Age
The probability of adopting Internet banking decreases by the age of the household (Ramayah & Koay, 2002). Recent studies confirm earlier reports of difficulties attracting the older age group to internet banking (Vijayan et al. 2005). Padachi et al. (2008) in their survey discovered that the younger the generation the more they are used to the new technological advancements as compared to the older generation, thereby they are more likely to adopt internet banking. Kolodinsky et al. (2004) showed that those in their middle age were less likely to adopt internet banking than the youngest group of consumers. Sylvie et al. (2005) found that the adopting of Internet banking is at the age of 35 and below because of its perceived benefits. Similarly, Huam et.al (2008) study shows that the largest age group that responded to Internet banking was from 22 to 25 years of age. Waite & Harrison (2004) and Kerem, (2002) study reveals that younger adults would be very much attracted to utilise innovative banking services. As such, younger consumers tend to be more approachable to new forms of distribution channel (Polatoglu et al., 2001; Black et al., 2002, Wilson 2000). Therefore it can be concluded that age is negatively related to the adoption of Internet banking.

Gender
Shergill & Li (2005) found that women regarded privacy protection and ethical standards

more seriously than did men. MCMC (2008) found that 51.9 percent of Malaysian home users were males, while 48.1 percent were females. 54 % of male and 46% of female respondents has been exposed to online banking transaction (Huam et al. 2008), Others suggest different figures, 66% of the rwespondents are males compared to 34% female (Mirza et al. 2009). Hung (2006) found thatmales were more influenced by relative advantage than females, while females were more influenced by perceived playfulness than males in determining continued use intentions of internet banking. Males are predicted to be dominant in Internet banking adoption. Therefore it can be concluded there is a relationship between gender and the intention to adopt Internet banking.

Race
Huam et al. (2008) found that the Malay and the Chinese ethnic groups perceived usefulness, perceived ease of use, and trust, all have significant effect on the intention to use Internet banking. They also found that the internet banking usage among Chinese, Malays and Indians were 60.8%, 27.0% and 12.2% respectively. McIver (2000) found that convenient banking services were found to be the motivating factor in the adoption of Internet banking. McIver (2000) reiterated that differences in the usage of Internet among various races are due to employment or job related purposes. Ono & Zavodny (2002) found that race has relationship with the intention to adopt Internet banking. Therefore, it is predicted that there is a relationship between race and Internet banking adoption.

Income
MCMC (2008) found that most Internet users earned RM1000 to RM3000 per month, accounting for 46.1 percent of all users. Those in the RM3000 to RM5000 bracket were the second largest group of users with 27.5 percent within its ranks. Similar findings were reached by studies based on the technology diffusion model (Chang, 2003), where income factor is expected to have less effect on technology acceptance as the technology matures (Rogers, 2003). Babiarz and DeVaney (2007), suggest that income has negative relationship with adoption of Internet banking. Howcroft (2002) views that higher income consumers have greater preference for branch banking Therefore it can be concluded that income is negatively related to the adoption of Internet banking.

Occupation
Employees made up the highest percentage of the users of internet banking (43.0 percent) (MCMC, 2008). In contrast, self-employed and employers made up only 6.0 percent and 5.5 percent respectively. Students accounted for a sizeable 31.9 percent while those unemployed including housewives and retirees 13.6 percent. As for occupation, it is interesting to note that 59.78% of the internet's banking users were government employees (Mirza et al., 2009). Banking customers with higher positions in companies tend to use Internet banking (Matilla et al., 2003; Ramayah & Koay, 2002). As a result, occupation has relation with the intention to adopt Internet banking.
According to Lee and Lee (2001), consumers with busy lifestyle would be very much likely to adopt Internet banking since it is a necessity, accessible at anytime and anywhere, and is convenient for them.

Education
MCMC (2008), found that those individuals who have tertiary education are the largest group of people adopts Internet banking. The demographic evidence revealed by

Suganthi et al. (2001) indicates those 86.2% internet bank users are graduates and undergraduates. Huam et al. (2008), suggest that approximately 67% of internet banking users already had their first university degree or are well educated (Mirza et al. 2009). Similarly, the higher the education level achieved, the greater the probability of the customer adopting internet banking (Padachi et al. 2008; Sadiq and Balachandran, 2002). Educated individuals were more likely to adopt phone banking and internet banking than those with less education (Kolodinsky et al. 2004). According to Mattila et al. (2003), education plays a significant impact on the usage of internet banking as well as playing a vital role in the adoption and usage of tele-banking technology. A college graduate attitude towards adopting Internet banking is pretty high (Lafore and Li, 2005). Therefore it is anticipated that education is positively related to the adoption of Internet banking.

METHODOLOGY

The conceptual framework adapted for this study seeks to measure the influence of demographic factors on adoption of internet banking. The framework postulates that adopters of internet banking are influenced by demographic factors such as age, gender, education, income, occupation, and race.

Development of hypotheses
Past research suggests that there is generally higher likelihood for consumers to adopt internet banking if they are educated, holding a higher position in employment and in the higher income group. In addition, past research also suggests that there is significant association between gender, race and age with adoption of internet banking.

Therefore, in line with the findings, the following hypotheses were formulated:
H1: There is a relationship between gender and adoption of internet banking among Malaysian consumers.
H2: There is a relationship between race and adoption of internet banking among Malaysian consumers.
H3: There is a negative relationship between age and adoption of internet banking among Malaysian consumers.
H4: There is a positive relationship between education and adoption of internet banking among Malaysian consumers.
H5: There is a relationship between occupation and adoption of internet banking among Malaysian consumers.
H6: There is a negative relationship between income and adoption of internet banking among Malaysian consumers.

Research Design
The research is based on primary data collection approach where surveys using close-ended questionnaires were conducted on a sample of the population drawn from Klang Valley area. The demographic factors that were measured were gender, race, age, education, occupation and income. The questionnaires were based on categorical data consisting both nominal and ordinal data and respondents indicated their particulars by ticking the appropriate cells. Respondents were asked to indicate their usage of internet banking by choosing either "Yes" for adopters or "No" for non-adopters. For this study,

respondents are considered as adopters if they are currently using retail internet banking to do business with financial institution irrespective of the usage rate. A total of 300 questionnaires were distributed at various banking outlets in Klang Valley.

FINDINGS

207 usable responses were obtained, providing a rate of return of 69%. Out of this, 137 respondents were self-classified as adopters and 70 as non-adopters. Table 2 illustrates the frequency and percentage of adopters and non-adopters.

Table 2: Demographic Profile of Respondents

Variables	Descriptions	Frequency	%	Adopter	%	Non Adopter	%
Gender	Male	83	40.1	54	54.9	29	28.1
	Female	124	59.9	83	82.1	41	41.9
Race	Malay	96	46.4	63	65.6	33	34.4
	Chinese	43	20.8	33	76.7	10	23.3
	Indian	48	23.2	29	60.4	19	39.6
	Others	20	9.7	12	60	8	40
Age	Less than 25 years old	46	22.2	18	39.1	28	60.9
	Between 25 and 30 years old	67	32.4	50	74.6	17	25.4
	Between 31 and 35 years old	40	19.3	30	75	10	25
	Between 36 and 40 years old	35	16.9	23	65.7	12	34.3
	More than 40 years old	19	9.2	16	84.2	3	15.8
Education	Certificate	19	9.2	10	52.6	9	47.4
	Diploma	56	27.1	36	64.3	20	35.7
	Degree	90	43.5	59	65.6	31	34.4
	Masters / Doctoral	33	15.9	27	81.8	6	18.2
	Others	9	4.3	5	55.6	4	44.4
Occupation	Managerial	36	17.4	23	63.9	13	36.1
	Executive	89	43.0	56	62.9	33	37.1
	Self Employed	28	13.6	23	82.1	5	17.9
	Clerical	33	15.9	21	63.6	12	36.4
	Technical	18	8.7	12	66.7	6	33.3
	Others	3	1.4	2	66.7	1	33.3
Annual Income	less than RM20,000	52	25.1	30	57.7	22	42.3
	between RM20,001 to RM35,000	48	23.2	33	68.8	15	31.3
	between RM35,001 to RM50,000	47	22.7	28	59.6	19	40.4
	between RM50,001 to RM65,000	29	14.0	23	79.3	6	20.7
	between RM65,001 to RM8l,000	12	5.8	6	50.0	6	50.0
	between RM80,001 to RM100,000	8	3.9	8	100.0	0	0.00
	more than RM100,000	11	5.3	9	81.8	2	18.2

| IBU | Adopters & Non-Adopters | 207 | 100.0 | 137 | 66.2 | 70 | 33.8 |

Table 3: Pearson Chi Square

Category	Value	df	Asymp. Sig. (2 sided)
Gender	.078	1	.781
Race	3.211	3	.508
Age	21.328	4	.002
Education	5.724	4	.249
Occupation	3.792	5	.650
Income	11.660	6	.048

Table 4: Pearson Correlations Analysis

	Gender	Race	Age	Education	Occupation	Annual Income
Internet Bank Usage	-.019 (.781)	.046 (.508)	-.211 (.002)**	-.081 (.249)	-.032 (.650)	-.138 (.048)*

** Correlation is significant at the 0.01 level (2-tailed).
* Correlation is significant at the 0.05 level (2-tailed).

Pearson correlation analysis in table 4 above provides an overall summary of the relationship between demographic variable and adoption of Internet banking. Gender, age, education, occupation and annual income are negatively related to adoption of Internet banking. Only race has positive relationship with Internet banking usage. Only gender and annual income exhibit a significant negative relationship with adoption.

Table 5 displays a model summary that indicates the strength of the relationship between age and adoption of Internet banking. The R^2 tends to optimistically estimate how well the model fits the sample in this study. Table 5 also indicates an Adjusted R^2 value of .040, therefore the model has accounted for 4.0% of its contribution to the dependent variable. It means that, there are other non-demographic variables contribute to greater impact of adoption of Internet banking.

The test statistic of F value is 9.534, which is much larger than the α value of .05. It means, it is a statistically significant at $p<0.01$ levels.

Table 5: Coefficients

Category	R2	Adjusted R2	F	Standardized Coefficients Beta	Sig
Age	**0.044**	**0.040**	**9.534**	**-.211**	**0.002****
Income	**0.019**	**0.014**	**3.968**	**-1.992**	**0.048***
Gender	0.000	-0.004	0.077	-0.019	0.781
Race	0.002	-0.003	0.439	0.046	0.508

| Education | 0.006 | 0.002 | 1.339 | -0.081 | 0.249 |
| Occupation | 0.001 | -0.004 | 0.206 | -0.454 | 0.650 |

**significant at 0.01 levels

* significant at 0.05 levels

In Table 5 above, age has a significant negative relationship with the adoption of Internet banking at 0.001 levels. Income is also has significant negative relationship with the adoption of Internet banking at 0.01 levels. Gender, race, education and occupation found to be insignificantly related to the adoption of Internet banking.

DISCUSSIONS

This study investigated the effect of demographics factors on Internet banking adoption behaviour among retail banking customers in Klang Valley. The results indicated that all hypothesis regarding gender, race, education level and occupation were not supported except for the hypothesis on age and income. In our findings, age is negatively related to the adoption of Internet banking. This finding is consistent with earlier studies by Wilson (2000); Polatoglu et al., (2001); Black et al., (2002); Kerem (2002); Joseph and Stone (2003) and Waite & Harrison (2004) which indicate that adoption of Internet banking among young consumers seem to be a common phenomena in different cultural environment in different countries. Moreover, the younger consumers are more likely to adopt Internet banking as they are found to be tech savvy. Furthermore they can access Internet from home, office, cyber café, and etc. In addition, the services offered by internet banking are inexpensive and affordable.

We also found that income of the respondents is negatively related to the adoption of Internet banking. This finding supports the earlier studies by Howcroft (2002), Chang (2003), Rogers (2003), Babiarz and DeVaney (2007), which have similar views in their studies indicating that higher income consumers have greater preference for branch banking transaction. Research conducted by MCMC (2008) indicates that those in lower income category are the highest number of Internet users who earned between RM1000 to RM3000 per month. Therefore, our finding is consistent with the findings of the above scholars.

Relationship between gender and adoption of Internet banking in the past studies were somehow inconsistent and conflicting results and this research further supports that there is insufficient evidence on the association. This study did not support previous studies of Shergill & Li (2005), Hung (2006),Huam et al. (2008) and Mirza et al. (2009) as respondents participated in our survey were predominantly female. Probably this could have influenced the findings.

It was also indicated in the past studies that adoption of internet banking increases with level of education. However, this study did not support the past empirical evidence of Suganthi et al. (2001), Sadiq and Balachandran, (2002), Mattila et al. (2003), Kolodinsky et al. (2004), Lafore and Li (2005), Huam et al. (2008), Padachi et al. (2008) and Mirza et al. (2009). It seems people with higher education are less likely to adopt Internet banking as a cautious behaviour towards Internet banking.

Findings on occupation is insignificant and found to be conflicting with previous studies

of Lee (2001), Ramayah & Koay, (2002), Matilla et al., (2003) & Mirza et al., (2009).This is due to most of our respondents were young and just entered into employment market. Race factor in our findings is also found to be insignificant and it is inconsistence with previous studies of McIver (2000), Ono & Zavodny (2002) & Huam et al. (2008). This may be due to that race factor is no longer a barrier towards adoption of Internet banking as Malaysia is already a multi racial environment where assimilation process among the races have already taken place.

The Malaysian financial market has been more competitive with the loosening of some laws and increase in approval by Bank Negara Malaysia for banks to operate Internet banking. Almost all banks offer Internet banking in the Malaysian financial market. Therefore, the financial institutions have tried to exert competitive power in the market through various ways such as merger with other financial companies, downsizing their physical facilities, and expanding their service scope through information and communication technologies. In this situation, Internet banking has been attractive to the financial sector.

Banks can expect to save a lot of the cost of maintaining their large physical distribution systems by adopting Internet banking. Although many financial institutions have realized the advantages of Internet banking and launched this service, the companies have not been able to optimize the benefits because some consumers are not aware of the services or reluctant to adopt Internet banking. Therefore, financial institutions need to make efforts to provide information on Internet banking based on accurate customer segmentation. The results of this study will help marketers in the financial companies to build innovative distribution strategies for Internet banking.

The commercial banks in Malaysia should focus on younger consumers, as they would be holding higher positions and income in the near future. This segment will adopt Internet banking on a bigger scale whereby enabling commercial banks to save costs by moving away from the traditional banking. To cater for this segment of the market, commercial banks should promote Internet banking through social media networks such as face book and twitter. Malaysian financial authorities, such as Ministry of Finance and Central Bank should formulate policies towards encouraging younger consumers by providing flexibility in regulatory matters. Business people who are travelling on International assignments for their business or professional commitments need convenient banking to perform their transaction at their own pace of time through Internet banking. Older consumers tend to be more conservative toward Internet banking and have difficulties in learning the new types of banking. As such, education programs must be offered to this segment of consumers in order to market the new banking technology efficiently. The need to educate older generation arises as they have plenty of purchasing power and is expected to spend large sums of financial services.
Through education and awareness programs, consumers with high income can be shifted from conventional banking to Internet banking. Older consumer who are inclined to new innovation and willing to consider Internet banking as their choice of banking can be the targeted market of the banks. As the older generation perceives Internet banking is risky, the banks must provide assurance that Internet banking transactions are safe, secure and the risk free

LIMITATIONS OF THE STUDY

This study was conducted on smaller sample size of 207 respondents in Klang Valley. A more comprehensive study of Internet banking adoptions and can be conducted if the number of respondents reaches a significant number. The number of respondents from the Chinese community is found to be smaller compared to other races and this would have influenced the results. Future study should consider the equal proportion of race to obtain more accurate and reliable findings. It is also found that number of female respondents was higher compared to male respondents in this study. Future study should consider equal proportion of male and female respondents. The credibility and integrity of the respondents are important in answering the questionnaire. The accuracy of the responses by the respondent could probably be disputed as it relies solely on the understanding of the respondents towards the distributed questionnaire. Further study may be required to confirm whether there is any other factor that contributes in the adoption of retail internet banking. Therefore, it is also possible to explore other variables besides demographic to confirm further influence in adoption level. It is also useful to explore the profession between government sector, private sector and self employed. It is also possible to investigate locations of the respondents to enhance the study. A more comprehensive study of Internet banking adoptions usage can be conducted with large size of respondents.

CONCLUSION

This study is focused on the adoption of retail internet banking among consumers in Klang Valley. It investigates the impact of demographics factors on Internet banking adoption behaviour among Klang Valley retail consumers. This study adopts a quantitative approach using questionnaire survey at the banks in the Klang Valley. The results indicated that hypotheses regarding gender, race, educational level and occupation were not supported. But, the hypotheses on age and income are supported.

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