

Factors That Affect the Adoption of Internet Banking in Malaysia

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Abstract: This study identifies factors that induce consumers to adopt internet banking services. It analyses data from 200 respondents in Malaysia. The findings show that cost saving, risk and privacy, features availability and convenience are the key factors that influence consumers' internet banking usage. These findings should encourage banks to improve their internet banking systems and implement them in a more user-friendly way in order to increase the level of adoption of internet banking by consumers.

Key words: Internet banking, cost saving, features availability, security and privacy, convenience

INTRODUCTION

In today's business world, ICT plays an important role in the development of global business. Almost all industries have been affected by rapid technological development including the banking industry. If a bank wishes to enhance its competitive advantage in the financial industry, it should continuously improve its IT systems, as well as provide banking services electronically to customers.

Similarly in Malaysia's banking industry, following the great revolution of global business and IT development the Malaysian government decided to implement internet banking in June, 2000 and May bank Berhad was the first bank in Malaysia to obtain a license to implement internet banking. Over time, more and more banks have also launched internet banking services in order to compete in the market.

The advantages of internet banking are obvious to those customers who are using the services. Customers can easily access their personal and business account information while avoiding waiting in long queues in physical bank branches. Through the internet banking system, they can check their balance whenever they need to. In addition, many transactions can be carried out online, such as paying bills, interbank transfers, investments and so on. This will help save the customer time and money (Hong *et al.*, 2013).

Although, internet banking provides flexible, fast and easy financial transactions, however the acceptance internet banking in Malaysia remains low. Only 31% of Malaysians have an interest in internet banking and a further 66% are worried by security concerns. Malaysians are thus still reluctant to adopt the system for several reasons. First, the security and privacy of these

transactions are perceived to be unacceptable, as the crime rate in Malaysia is relatively high. Second, internet banking is not user friendly enough, as the system could be down frequently and need a long time to reboot. Third, there is a lack of computer literacy among Malaysians.

Studies conducted in foreign countries show that the growth rate of internet banking usage is different because of many factors. These differences raise concerns about the major factors behind the customer adoption of internet banking services. Thus, this study is important to conduct in Malaysia in order to identify differences in the determinants of the customer acceptance of internet banking services compared with other countries and to assess the major factors that influence Malaysians' adoption of internet banking.

Theoretical framework: The primary theoretical foundation for this study is the uses and gratifications model which is a key theory to explain why people choose to use a particular medium. According to this theory, people select a specific medium to gratify their goals and needs (Blumler, 1979; Katz *et al.*, 1974). Many studies have therefore employed this model to explain the use of the internet and internet-related communication (Katz *et al.*, 1974; Papacharissi and Rubin, 2000). Another key theoretical foundation for this study is innovation diffusion theory.

Adoption of internet banking: Technological development, particularly in the area of IT is revolutionising the way business is done. Now-a-days, the internet plays an important role in financial and banking services. According to internet banking can be considered to be an internet portal through which

customers can use different kinds of banking services. The growth of the use of internet banking will also change the structure and amount of investment in the growth of the banking system (Vainio, 2006).

Internet banking refers to the system that enables bank customers to access account and general information on bank products and services through a PC or other electronic device (OCC, 1999). Since, the mid-1990s, US financial institutions have rapidly increased their services on the internet (Damar and Hunnicutt, 2007). Internet banking is thus an important internet-delivery service that provides benefits for both commercial banks and bank customers. As a result, internet banking has become a common service offered by many depository institutions (Damar and Hunnicutt, 2007).

Acceptance is the adoption and continuing use of a product, service or idea. Rogers and Shoemaker (1971) stated that consumers go through a process of knowledge, persuasion, decision and confirmation before they are ready to accept a product or service. Individuals who are skilled and used to using the internet are significantly accepting of internet banking services. In addition, users who are experienced in using computers and the internet use internet banking services (Lassar *et al.*, 2005).

The acceptance of internet banking services can be investigated by identifying the reasons behind the use of internet banking (Eriksson *et al.*, 2005). Shih and Fang (2004) found that these factors include the behavioural intention to use internet banking which is the actual usage of banking transactions, attitudes, subjective norms, the perceived and relative advantages of internet banking and normative influences. They also agreed with Wungwanitchakorn (2002) that the compatibility and complexity of internet banking influence the acceptance of internet banking usage. e-Banking is regarded, as an important delivery channel that offers one-stop services and information to gain competitive advantages in the banking sector.

Further, some researchers have noted that psychological and behavioral factors can be the reason which affect the adoption of any new innovation, such as internet banking include consumer awareness, ease of use, security, accessibility, techno phobia or simply reluctant to change, preference for personalized services and cost of adopting the innovation (The Star, 2000). The creation of awareness among consumers of products or services is considered to be an important characteristic for the adoption or acceptance of any innovative service or product. The following study discusses some of the identified factors influencing the adoption of internet banking.

Cost saving: The cost of acquiring a new innovation influences consumer adoption. Suganthi and

Balachandran (2001) identified cost as a characteristic of internet banking adoption. The 2 types of costs are involved in internet banking, namely; the normal costs associated with internet activities and bank charges and costs (Sathye, 1999). If consumers use a new technology, the technology must be reasonably priced relative to the alternatives or provide value-added features (Willis, 1997) otherwise from the consumer standpoint, the adoption of new technology may not be viable. Millions of users refuse to rely on the internet due to its limitations and high access charges (Guru *et al.*, 2000). Once consumers think about the additional costs needed to access internet banking they might not accept this service, even though it is convenient.

On the other hand, Orr (1999) stated that electronic processing dramatically reduces cost per transaction. Further, cost is not only a monetary term it could be measured in non-monetary terms, such as time. Orr (1999) added that by using internet banking, consumers can save the travelling cost to the bank and transaction time as well. Consumers can make the transaction in a few minutes through internet banking rather than waiting in a queue.

Furthermore, benefits are gained not only by consumers but by banks as well. A study by Didio (1998) of United States banks found that the average transaction cost at a full service bank is about \$1.07. This reduces to \$0.27 at an ATM and falls to about a cent if the same transaction is conducted on the web. In addition, Irvine (1999) stated that electronic bill presentment costs 40% less than paper delivery. These cost savings can offer customers and banks a reduced cost of banking and still provide efficient and varied services.

Risk and privacy: Another important factor determining the decision of consumers to use internet banking is security. According to Oghenerukeybe (2009), internet banking provides the faster delivery of banking services to a wider range of customers. However, it is a trust-based system which means that the theft of personal identity information can cause customers to lose their confidence and trust in the system and their banks (Altintas and Gursakal, 2007). Some consumers and banks are keeping away from internet banking because of security issues (ABF, 1997). Wallis (1997) also reported that more households would be willing to conduct their transactions over the internet when security is improved and transactions guaranteed. According to a study by O'Connell (1996) in Australia, security concerns are the main cause for the slow growth of internet banking in the country. In the US, Thornton consulting concluded that 67% of US banks feel that security concerns are the major barrier for Internet banking. Similarly, Booz-Allen

and Hamilton (1996) showed that security concerns are the main factor for the non-adoption of internet banking in Latin America.

Trust determines the security of transacting for consumers, as well as the acceptability rate of internet banking in the long run. On this issue, Stewart (1999) found that the failure of the internet as a retail distribution channel has been attributed to the lack of trust consumers have in electronic channels and in web merchants. Trust also refers to the level of confidence of consumers towards online transactions.

Security in internet transactions is a concern to customers where financial information is involved (Stafford, 2001). According to Roberts (2009), a consumer has the right to control his or her personal data in internet banking. The main privacy issues are the security and privacy of sensitive consumer information related to online sales and services transactions, the collection and use of consumer data and statistics and the protection of a consumer's right to privacy (Rayport and Jaworski, 2004).

A proper security system should be able to prevent the illegal or inappropriate use of its data and to deter cyber-criminals and hackers (Rayport and Jaworski, 2004). However, there are some risks in using internet banking services. Featherman and Pavlou (2003) defined perceived risk in the field of e-banking as the potential for loss in the pursuit of a desired outcome of using e-Banking services. Consumers' perceptions of the relatively high risk associated with performing financial transactions over the internet might actually hinder internet banking adoption (Kamel and Hassan, 2003). The effect of perceived risk on adoption and post-adoption processes in the context of retail banking was highly supported by Alagheband (2006), Eriksson *et al.* (2008), Jaruwachirathanakul and Fink (2005), Kolodinsky *et al.* (2004), Lin (2008) and Vatanasombut *et al.* (2008).

Security and privacy protection issues are of critical importance and serious concern to the online community. Not only industries play a role in providing security but also governments must assure it with suitable regulations. Gerrard and Cunningham (2003) found that the confidentiality of consumer data is another important concern in the adoption of online banking. Most consumers fear that their personal financial information could be accessed by someone else.

White and Nteli (2004) examined why the increase in internet users in the UK had not been paralleled by an increase in internet usage for banking purposes. The results showed that consumers still worry about the security and safety aspects of the internet. Chung and

Paynter (2002) conducted a survey in New Zealand and confirmed that the security and complexity of internet banking limited its full acceptance.

According to Madu and Madhu (2002), strong concerns about security are related to the unwillingness to use internet banking services. Various problems could occur due to security violations, such as the destruction of operating systems or disruption of information access (Min and Galle, 1999). Brack (2000) found that most customers are dissatisfied with the insecure infrastructure of web security systems. In internet banking, security is one of the most challenging barriers since customers feel at higher risk when using the web for financial transactions (Gerrard and Cunningham, 2003).

The failure of technology-based service delivery systems could make customers fear using internet banking (Walker *et al.*, 2002). Customers do not have confidence that the problem can be solved quickly. Westland (2002) found that transaction risk is higher when online markets fail to assure that services will be delivered with adequate quality. Moreover, slow response times can lead to a delay in service delivery and cause customers to be unsure that the transaction was completed (Jun and Cai, 2001).

In addition, internet fraud or deception can negatively affect customers' perceptions of internet banking safety and security (Altintas and Gursakal, 2007). Criminals can steal a user's online banking credentials because the user name and password combination is relatively easy to acquire making it possible to fraudulently access internet banking accounts and commit financial fraud (Oghenerukevbe, 2009). Hence, perceived security has been widely recognised as a barrier to the adoption of internet innovation in financial services (Mattila and Mattila, 2005). This research predicts that security concerns diminish over time, as it is perception rather than reality that gives rise to these concerns.

Features availability: The availability of access to the Internet is considered to be a prerequisite for the adoption of internet banking (Sathye, 1999). The more convenient and wide spread access to computers and the internet, the greater is the possibility of accepting internet banking. O'Connell (1996) found a lack of access to computers as one of the possible reasons for the slow adoption of internet banking. Daniel (1999)'s study in the UK showed a low usage of electronic banking due to the lack of customer access to suitable PCs. Furthermore, Ramsay and Smith (1999) also found accessibility to be one of the main reasons for the non-adoption of internet banking.

Further, web content and design have also been identified as influencing customer satisfaction. According to Hoyos, an inadequate website design is often cited as a major deficiency to internet banking. Doll (1995) and Muylle (1998) found that product information content, the amount of product information, product information format, languages and layout features affect customer satisfaction. In addition, the adoption of internet banking is also affected by the level of user friendliness of the internet banking site. The easier people can access computers and the internet, the greater is the possibility of them using internet banking.

Hoffman and Novak (1996) showed a significant correlation between website download speed and web user satisfaction. In this context, the use of high-resolution graphics and inefficient web servers has a significant negative impact. However, it must be acknowledged that download speed is also dependent on the user's computing hardware and method of connection.

Yakhlef (2001) found that banks are responding to the internet differently, those that see the internet as a complement or a substitute to traditional channels achieved better communication and interactivity with customers_[MF4]. Robinson (2000) stated that online banking is able to extend and build strong relationships with customers by providing 24/7 financial services right into the homes or offices of customers.

However, Oumlil and William (2000) found that banks may also enjoy the benefits of internet banking instead of fulfilling customer loyalty and satisfaction. Nancy and Robert (2001) argued that customers are more likely to interact with humans rather than machines before making a financial transaction. Some customers feel more possibilities for asking questions and believe that bank clerks perform fewer errors. Hway-Boon and Yu (2003) concluded that banks in Malaysia should aim to enhance operation and product management through a mixture of branch banking and e-Channels, such as ATMs, phone banking and PC banking in order to generate a good image and increase customer loyalty. Internet banking also requires that the level of service provided to customers remains much the same as that provided by a salesforce in traditional marketing (Gurau *et al.*, 2003).

In addition, new innovations empower employee collaboration, information sharing and knowledge integration which can create faster innovation. Henderson (1994) showed that rapid innovation offers even more opportunities to customise a specific service or product according to customers' needs. Currently, the web creates new opportunities for corporate customers and the bank

to improve collaboration in product design and customisation. For instance, customers can manage their accounts through the bank portal.

Convenience: Cooper (1997) identified ease of use as one of the three important characteristics from customers' perspectives for the adoption of innovative services. Dover (1988) found that ease of use is a factor in customers' acceptance of electronic banking. In the same vein, a study conducted by a company called Cyber Dialogue showed that as many as 3.1 million American adults have discontinued their use of internet banking due to the complexity of the service and dissatisfaction with the level of customer service.

Mols (2000) suggested that internet banking must be easy to use in order to increase interest and acceptance from customers. Banks must ensure that services are simple easy and sufficiently high quality to ensure customer satisfaction. The user friendliness of domain names and navigation tools on websites is another important determinant of ease of use. Moreover, webpage design is also an important determinant.

The convenience of banking outside the branch's official opening hours has been proved to be significant in cases of adoption. Moutinho *et al.* (1997) stated that internet banking provides customers convenient and inexpensive access to the bank 24/7. He added that ATMs can carry out the same routine transactions as human tellers in branch offices. Thornton and White (2001) found that a reduction in the percentage of customers visiting banks and an increase in alternative channels of distribution minimise queues in branches.

In addition, one of the major attractions in the commercial use of the web is the ability to access information easily. Hardy and Dougherty (1997) pointed out that internet banking can create better levels of responsiveness to customers interested in investments. Customers can easily access company information or express consultancy through the particular bank portal. Furthermore, if the firm website is easily accessible customers can access information faster, encouraging them to continue connecting back to the firm website so they can frequently check firm information.

Based on the consensus of the findings of prior studies, the following hypotheses are proposed:

- H₁: Cost saving influences the adoption of internet banking
- H₂: Features availability influences the adoption of internet banking
- H₃: Risk and privacy influence the adoption of internet banking
- H₄: Convenience influences the adoption of internet banking

MATERIALS AND METHODS

The target population of the study was existing and potential internet banking users of MBA students in UPM. Respondents were chosen from different ages, working backgrounds and banking usage. To date of the 821 registered MBA students from various trimesters in UPM only 200 completed questionnaires had been received, making up 24.4% of the total population.

The list of internet banking motives was adapted mainly from the scales used by Davis (1989) and Kerem (2003). Most survey questions were measured on a five-point Likert scale that ranged from 1 strongly disagree to 5 strongly agree. The questionnaire was subdivided into 5 sections as follows: 4 questions related to the profiles of respondents, 5 questions capturing variables concerning cost saving, 5 questions aimed at exploring the issue of security and privacy, 5 questions testing features availability, 5 questions measuring the effect of convenience and 7 questions on the adoption of internet banking.

RESULTS AND DISCUSSION

Respondent profiles: Table 1 describes the profiles of survey respondents. Most respondents are women (60.5%). This could be because in Malaysia, there is a growing trend of female enrolments in higher education. The majority of respondents are young adults (86.5%) because MBA students are working adults who have already obtained their first degrees and require post-graduate degrees for promotion to management level. In terms of race, the majority are Malay and Chinese, as they are the higher number in Malaysia. Surprisingly, non-existing users of internet banking were higher than existing users even though respondents are highly educated. One reason could be that they are still unfamiliar with the internet banking environment. With regard to reliability analysis, the values of Cronbach's alpha for all variables are above 0.6.

Multicollinearity analysis:

- Cost saving
- Convenience
- Features availability
- Adoption of internet banking
- Risk and privacy

From Table 2, the values of all research variables are <0.7 which means there is no problem of multicollinearity and all research variables are statistically independent and uncorrelated.

Table 1: Respondent profiles

Variables	No.	Percentage
Gender		
Male	79	39.5
Female	121	60.5
Age		
30 or less	173	86.5
31 and above	27	13.5
Race		
Malay	81	40.5
Chinese	84	42.0
Indian	16	8.0
Others	19	9.5
Status of internet banking		
Existing user	90	45.0
Non-existing user	100	55.0

Table 2: Multicollinearity analysis for all research variables

Values	1	2	3	4	5
1	1				
2	0.477**	1			
3	0.353**	0.456**	1		
4	0.389**	0.295**	0.510**	1	
5	0.458**	0.420**	0.557**	0.660**	1

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

Table 3: Pearson correlation coefficients

Variables	Correlation	Adoption of internet banking
Cost saving	Person correlation	0.458**
	Sig. (2-tailed)	0.000
Features availability	Person correlation	0.420**
	Sig. (2-tailed)	0.000
Risk and privacy	Person correlation	0.557**
	Sig. (2-tailed)	0.000
Convenience	Person correlation	0.660**
	Sig. (2-tailed)	0.000

Table 4: Model summary: Adoption of internet banking

Model	R	R ²	Adjusted R ²
1	0.733	0.537	0.528

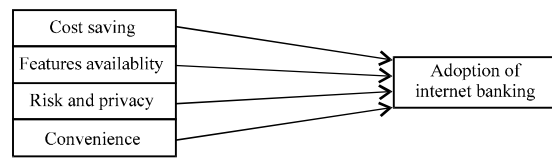


Fig. 1: Process of adaption of internet banking

Pearson correlation coefficients: The result in Table 3 shows that all 4 variables are statistically and significantly correlated to the adoption of internet banking.

Multiple regression analysis: The 4 independent variables can significantly explain the variance in the adoption of internet banking (Table 4 and Fig. 1).

As shown in Table 5, the p-value (sig. 0.000) is $\alpha < 0.05$. The F-statistic is also significant. The model for this study is thus a good descriptor of the relation between the dependent and predictor variables. Therefore, the independent variables of cost saving,

Table 5: ANOVA

Model	Coefficient	Sum of squares	df	Mean square	F	Sig.
1	Regression	21.267	4	5.317	56.316	0.000
	Residual	18.315	194	0.094		
	Total	70.646	218			

Table 6: Coefficients

Model (1)	Unstandardised coefficients		Standardised coefficients		
	β	Sig.	β	Rank	Sig.
Constant	0.940	0.253			0.000
Cost saving	0.160	0.068	0.138	3	0.019
Features availability	0.086	0.043	0.119	4	0.046
Risk and privacy	0.158	0.044	0.221	2	0.000
Convenience	0.401	0.052	0.458	1	0.000

features availability, risk and privacy and convenience can significantly explain the variances in the adoption of internet banking. The alternative hypothesis is there by supported by the data (Table 6).

The R value is the correlation coefficient between the dependent and independent variables taken together. The value of the correlation coefficient for this study is 0.733. There is thus, a positive and high correlation between the dependent variable (adoption of Internet banking) and independent variables (cost saving, features availability, risk and privacy and convenience).

The R² indicates the extent to which the independent variables can explain the variations in the dependent variable. In this study, the 4 independent variables can explain 53.7% of the variations in the dependent variable. However, this still leaves 46.3% unexplained. In other words, other additional variables are important for explaining employee engagement that were not considered in this study.

The results of this study are in line with other international research, however the difference between this study and others is the degree of influence of each factor towards the adoption of internet banking. Respondents in different geographical areas will have different education backgrounds, income levels, cultures, consumer behaviours and so on.

Cost saving: Significantly predicts the dependent variable the p-value for cost saving is 0.019 which is $\alpha < 0.05$. This result is in line with the findings of Suganthi and Balachandran (2001) who identified cost as a characteristic of the adoption of internet banking. Cost saving here refers to time constraints. The majority of Malaysian consumers are impatient when queuing or waiting. In addition, for example in Kuala Lumpur, traffic congestion is an important concern under this factor. Sometimes a very short distance takes a very long time to travel because of traffic jams. Consumers may thus choose to use internet banking in order to save time being stuck in traffic.

Features availability: Significantly predicts the dependent variable the p-value for leadership is 0.046 which is $\alpha < 0.05$. This result is in line with the finding of Hernandez-Ortega *et al.* (2007) that an inadequate website design is often cited as a major deficiency in internet banking. Features availability is the lowest concern among Malaysians because they are not familiar with webpage design compared with other countries. As long as, the necessary function is provided, this is good enough. They are less concerned about how creative and impressive a webpage layout is.

Risk and privacy: Significant predict the dependent variable the p-value for leadership is 0.000 which is $\alpha < 0.05$. This result is in line with the finding of Datta (2010) that a number of internet users still do not trust e-Commerce security. Risk and privacy moderately influence consumer adoption in Malaysia. In recent years, security issues regarding internet banking have been taken into account by banks in order to provide a safer banking system for consumers. Thus, this factor will become a lesser concern compared with convenience.

Convenience: Significantly predicts the dependent variable the p-value for leadership is 0.000 which is $\alpha < 0.05$. This result is in line with the finding of Mols (2000) who suggested that internet banking must be easy to use in order to increase interest and acceptance by customers. In Malaysia, convenience is the primary concern for consumers, especially those living in the city. Urban dwellers have little time to make transactions in banks. Therefore, if there are better alternatives available to make their lives easier, they will easily adapt to change. Moreover, Malaysia is considered to be a rapidly developing country and many businesses need to conduct banking transactions 24/7. Internet banking is thus more convenient for them. Moreover, online purchasing is a recent trend in Malaysia. Many consumers now like to purchase items through the internet, such as clothes, furniture, daily products and so on with customers needing to make payments through e-Banking. Hence, internet banking offers more convenience to online buyers.

In addition, all these results may be significant because of the respondents education backgrounds. All respondents are well educated and able to understand the relationships between each independent variable and the adoption of internet banking.

CONCLUSION

The results of this study are in line with other international research however, the difference between this study and others is the degree of influence of each

factor towards the adoption of internet banking. Respondents in different geographical areas will have different education backgrounds, income levels, cultures, consumer behaviours and so on.

In Malaysia, convenience is the primary concern for consumers, especially those living in the city. Urban dwellers have little time to make transactions in banks. Therefore, if there are better alternatives available to make their lives easier, they will easily adapt to change.

Risk and privacy and cost saving moderately influence consumer adoption. Since, the security systems of internet banking are improving, the former factor will become a less concern compared with convenience. Cost saving here refers to time constraints. The majority of Malaysian consumers are impatient when queuing or waiting.

Lastly, features availability is the lowest concern among Malaysians because they are not familiar with webpage design compared with other countries. As long as the necessary function is provided, this is good enough. They are less concerned about how creative and impressive a webpage layout is.

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