An insight into the attributes influencing the acceptance of internet banking: the consumers’ perspective

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Abstract: Six factors with 42 elements were identified to examine the influences of demographic variables and attitudes towards the acceptance of internet banking in Malaysia using a Likert scale questionnaire. Results revealed that all elements for each factor are significant, except for design factors; whilst convenience and securities were the most important attributes influencing the inclination to accept internet banking services. It was found that demographics as well as occupation background have a high correlation to the tendency to accept internet banking. Conversely, gender, race and marital status appeared to have insignificant influence. Some recommendations on ways to address the impediments were suggested.

Keywords: internet banking; attributes; acceptance; services; standards; Malaysia.


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## 1 Introduction

Internet banking is an innovative service that gives users fast and convenient access to banking activities, and it gives users equal opportunity for easy access to banking activities such as retrieval of account balance, transfers of money, interest information, as well as reconciliation of accounts (Karjaluoto et al., 2002). It is a powerful ‘value-added’ tool to attract new, as well as to retain existing customers. To gain competitive advantage in today’s dynamic environment, banks must therefore meld technology into their relationship building and marketing activities (Lu et al., 2005). With the proliferation of internet expansion and computers usage, the electronic delivery of banking service has become instrumental for banks to meet customer’s expectations.

Banks in Malaysia have started developing internet banking as early as June 2000. Previous studies examined the issues on the evolution of internet banking (Sohail and Shanmugham, 2003) and analysed the success factors in multi-channel strategy in the Malaysian banking scenario such as ATMs, telebanking and PC banking (Balachandher et al., 2000; Ong and Cheng, 2003). While, Suganthi et al. (2001) have investigated customer preferences for internet banking in Malaysia, and Khong and Richardson (2003) have examined the critical success factors of business process reengineering as a quality management technique in the Malaysian banks and finance companies. Robinson (2000), for instance, found that half of the people that have tried internet banking services will not become active users. With the population of about 26.6 million in Malaysia today and fast-growing number of business entities, it is vital for bankers to comprehend the current trend of internet banking usage. E-commerce, and especially internet banking, is an extremely interesting and important subject since the future global economy depends on internet banking for fast delivery purposes. However, the study on customer preferences with wider scope of determinants on internet banking acceptance has not been extensively examined in the Malaysian context. The motivation for this study also arises from the belief that the poor growth of internet banking in Malaysia is a result of a lack of an adequate regulatory framework for customer protection and the lack of initiatives on the part of the banks in promoting this delivery channel. Hence, a thorough examination of the factors influencing the acceptance of internet banking in Malaysia is essential for bank administrators.
The aim of this study is to obtain current insights into the influences of demographic variables towards the attributes of acceptance of internet banking by Malaysian consumers. This is done by integrating the traditional Technology Acceptance Model (TAM) (Davis et al., 1989) to other additional dimensions. These additional factors are the most commonly identified factors from the extant literatures. TAM provides the theoretical foundation for the development of the determinants of this research topic. TAM posits that perceived usefulness and perceived ease of use determine a person’s behaviours. In addition, the study also examines the impact of other factors such as the customers’ attitude towards risk, trust in the service provider, the customers’ perceived value of internet banking and the interface design of the bank website on internet banking acceptance.

This paper also investigates individual differences in demographic and perceptions. Findings of this study are useful for the banking sector in formulating appropriate strategies to build customer loyalty and customers’ retention. With the advancement of electronic and wireless technology into newer innovations, such as WAP, GPRS and 3G, it becomes ever more important for banks to focus their efforts in internet banking systems in order to leverage their businesses. Attention should be given in this area to understand the attributes which motivate consumers to go online shopping or retail e-shop. The initiatives undertaken by the banks to promote internet banking had a large positive effect on customers’ trust for both users as well as non-users of internet banking. The customers trust in turn had a moderate to large positive effect on internet banking acceptance. Thus, the findings do lend support to the central role of banks in their initiatives of promoting new banking innovations.

The next section begins with a discussion on the factors affecting consumer behaviour concerning internet banking and information system acceptance. This is followed with the research methodology and subsequently the findings and factor regression and correlation analyses. Finally, the conclusion is conferred.

2 Literature review

One of the most utilised models in studying information system acceptance is the TAM (Davis et al., 1989). Traditionally, it was perceived that system use is determined by perceived usefulness and perceived ease of use which relates to intention that in turn is reflected in behaviour. Perceived usefulness refers to the user’s belief that the use of a certain application system will enhance its performance, while perceived ease of use is defined as the degree to which the prospective user expects the potential system to be free to effort (Davis et al., 1989). According to Ajzen and Fishbein (1980), TAM is said to base on the theory of reasoned action since it concerns with the intended behaviours, assuming the consumers behave rationally and evaluate systematically given all available information. The use of information system acts as an indicator for information system’s acceptance (Pikkarainen et al., 2004). Pikkarainen et al. (2004) also perceived usefulness was the other main attribute influencing internet banking acceptance. Prior research has empirically found positive relationship between perceived ease of use and perceived usefulness as significant critical influential attributes on the use of internet banking (Agarwal et al., 2000; Johnson and Marakas, 2000; Hong et al., 2001; Chau, 2001; Wang et al., 2003; Guriting et al., 2007). Hence, an internet banking application, which is
perceived to be easier to use is more likely to be accepted by the consumer. In this study, ease of use is grouped as the ‘Convenience’ factor. It is hypothesised that convenience has positive effects on consumer acceptance of internet banking.

Convenience has enabled customers to access e-bank at all time and place as a measure of relative advantage (Black et al., 2001; Polatoglu and Ekin, 2001; Suganthi et al., 2001; Howcroft et al., 2002; Gerrard and Cunningham, 2003; Fong et al., 2007). Black et al. (2001) and Fong et al. (2007) also claimed that past experiences significantly impacted customer’s willingness to accept internet banking. They also found complexity in conducting financial transactions over internet banking was inversely related to an experienced and computer literate consumer. Gerrard and Cunningham (2003) and Fong et al. (2007) also identified other factors of paramount importance in ensuring the success of internet banking, namely the belief of consumers’ confidence on the system, and the ability of an innovation to meet their needs using different features available on the Website. Therefore, it is hypothesised that feature availability has positive effects on consumer internet banking acceptance.

Apart from that, the offer of high-quality services to satisfy consumer needs at lower costs is a potential competitive advantage of internet banking. Some studies showed that internet banking has successfully reduced operating and administrative costs (Ong and Cheng, 2003; Siriluck and Mark, 2003). Cost savings have helped internet-based banks offer lower or no service fees, and offer higher interest rates on interest-bearing account than traditional banks (Jun and Cai, 2001). Technologies should be reasonably priced relative to its alternatives; otherwise the acceptance of the new technology may not be viable from the standpoint of the consumers. It is hypothesised that fees and charges have a negative impact on adoption of internet banking.

On the other hand, quality designs, graphics or colours and portrayal of good image of the bank would enhance efficient use of navigation. Design was found to influence user satisfaction (Jayawardhena and Foley, 2000). Besides, Hoffman and Novak (1996) found that there was a significant correlation between download speed and user satisfaction. Speed of download depends on the nature of the site downloaded, the computing hardware and method of connection used to download information (Jayawardhena and Foley, 2000). Thus, it is hypothesised that design and speed have positive effects on consumer acceptance of internet banking.

Consumers frequently do not trust internet technology for three main reasons: security of the system, distrust of service providers and worries about the reliability of internet services (Lee and Turban, 2001; Howcroft et al., 2002; Rotchanakitumnuai and Speece, 2003; Flavián and Guinaliu, 2006). Security is an important dimension that may affect users’ intention to accept e-based transaction systems (Chen and Barnes, 2007). This is also called ‘perceived credibility’ in Wang et al.’s study (2003). Security refers to the protection of information from unsanctioned intrusions or outflows. Security is a frequently cited obstacle (Goldfinger, 2001; Jun and Cai, 2001; Polatoglu and Ekin, 2001; Gerrard and Cunningham, 2003). The breach of security poses tremendous threats to the success of the internet banks. Consumers fear that personal information to divulge internet banking sites might be misused by others over the internet. Consumers also fear over the security of financial transactions made over the internet (Aladwani, 2001; Black et al., 2001). This has been proven by Ho and Ng’s study (1994) that there was a low adoption rate of electronic payment system since consumers perceived that it is riskier than other traditional payment methods, and thus fail to substitute for cash and credit card payment. There is a need to upgrade the banks’ security system and reputation.
Aladwani (2001) found that reputation is one of the major factors that affect customer adoption of technology-based service delivery. The study by Rotchanakitumnuai and Speece (2003) recognised consumers’ main concerns about legal support which were primarily the ability of the courts to resolve internet banking disputes efficiently, and secondly the fair accountability to bank customers in the event of any financial mistakes made by the bank. Hence, improvement of perceived credibility is crucial in order to gain users' confidence and trust.

Apart from that, it has been widely recognised that demographic factors have a great impact on consumer attitudes regarding online services (Jayawardhana and Foley, 2000; Mattilia et al., 2003; Poon et al., 2004; Wan et al., 2005). In the area of internet banking specifically, Singh (2004) and Akinci et al. (2004) have revealed that more males used internet banking than females in South Africa and Turkey. Jarvenpaa and Todd (1997) claimed that there was a strong negative relationship between age and the acceptance of new technologies.

Apart from that, younger, educated, wealthy (Lassar et al., 2005) and higher income levels consumers (Im et al., 2003; Lassar et al., 2005) were most likely to accept internet banking. Specifically, some even found that the career-oriented upper middle class were most likely to accept internet banking (Roemer and Buhl, 1996), while Akinci et al. (2004) found that mid-aged consumers were more likely than younger or older consumers to use internet banking. Prior experience of computers was also an essential factor underlying attitude (Poon et al., 2004). An extremely high correlation was found between prior computer experience and computer attitude as indicated in Karjaluoto et al. (2002). Therefore, demographic characteristics were tested to distinct internet banking acceptance level to see if the general beliefs of the younger, more educated, more affluent of the population or high-level occupations are more likely to adopt internet banking. The hypotheses proposed that household income level and education level will be positively related to internet banking acceptance, while age level will be negatively related to internet banking acceptance. In addition to TAM literature that included age, education, occupation and household income as independent variables in the analysis, other dimensions that might influence acceptance, such as gender, race, marital status, prior experience (computer literacy) and internet accessibility were also included to view broader dimensions.

3 Methodology

3.1 Sampling procedure

Anonymous questionnaires were randomly administered to a total of 500 respondents. The response rate was 71.8% (359). Among these, 324 (64.8%) of the responses were usable as most items were adequately responded. To assure randomness, every fifth customer that visited commercial banks to deal with transactions was selected. The questionnaire was administered face to face; as such the response rate was satisfactorily high.
3.2 The instrument

This paper is the extension of the earlier studies by Suganthi et al. (2001) and Poon (2008). The former identified seven factors (with 17 elements) affecting the acceptance of internet banking, and the later examined ten attributes (with 78 elements). Screening questions were asked to assure that the respondents had used internet banking services before. This assured their perceptions were based on actual experience. The questionnaire was only administered to respondents who answered confirmative to screening questions since the refusal to answer the survey increases the degree of error in the data collection stage (Aaker et al., 1998). The questionnaire comprises two sections. Section 1 comprised questions on demographic characteristics and Section 2 consisted of questions assessing the factors affecting the acceptance of internet banking services. Respondents were asked to indicate their levels of agreement based on a 4-point Likert scale ranged from 1 (strongly disagree) to 4 (strongly agree).

3.3 Profiles of respondents

There were 155 (47.8%) female and 169 (52.5%) male respondents. A majority of the respondent (29.9%) were in the range of 26–35 years old (middle adulthood), 28.1% were below 25 years old, 22.8% were aged over 46 years old, 19.1% were between 36 and 45 years old. 54.3% of the sample respondents were single and 31.8% were married. 41.7%, 39.5% and 12.7% were Malay, Chinese and Indian, respectively. Out of all the respondents, 101 (over 31%) had achieved at least a Diploma level qualification, 46.6% of the respondents being degree holders and 22.2% were postgraduates. From the whole sample, 18.8% of the respondents were involved in manufacturing industry, 16.4% were sales, marketing, advertising and customer service workers, about 12% were information communications technology related workers and professionals and a minority (4.3%) were managers, CEOs or CFOs. Slightly more than half the respondents (51.6%) were earning a monthly income of less than RM3000. The sample has a higher proportion of younger, more educated, moderate income earners. Nevertheless, this over-representation might not be undesirable because people with such characteristics form a ‘major customer segment for banking institutions’ (Akinci et al., 2004, p.223). Younger generation was relatively more computer literate and more likely to accept internet banking services. Those with a higher average level of monthly income also appeared to be significant affluent users. A majority (77.1%) of the respondents were able to access the internet at home/workplace. More than three-quarters (78.7%) of the respondents were computer literate and had previous experience in surfing the internet. Therefore, techno-phobic is not an issue to be discussed here.

3.4 Identification of factors

A factor analysis with orthogonal VARIMAX rotation was conducted using principal axis factoring as an extraction method (Hair et al., 1998) to reaffirm the factors’ identification. VARIMAX method maximised the sum of variances of required loading of the factor matrix. From the VARIMAX-rotated factor matrix, it was hypothesised that in building the acceptance of an internet banking service, six factors were identified as the factors representing 58.97% of the explained variance. They were convenience, feature availability, security, design, speed and fees and charges. A total of 74 variables
were loaded significantly. All factors whose factor loading >0.50, and eigenvalue >1 were retained in the factor solution (Lewis, 1984). The variables with higher loadings signalled the correlation of the variables with the factors on which they were loaded (Kaiser, 1974). To assess the internal reliability of the factor identified, a Kaiser–Meyer–Olkin (KMO) index was used. Kaiser characterises the measure in the 0.9’s as marvellous, 0.8’s as meritorious, 0.7’s as middling, 0.6’s as mediocre, 0.5’s as miserable and below 0.5’s as unacceptable (Kaiser, 1974). Results showed a KMO of 0.766 that indicated medium measure of sampling adequacy. The multiple regression analysis was used to examine the relationship between internet banking usage and factors acceptance.

4 Findings

4.1 Benefits of internet banking

Table 1 shows that 84% of the respondents with a standard deviation of 1.823 perceived internet banking transactions reduced operating and administrative costs. Bankers achieved economies of scale since it provided more services counts at lower costs manner. Twenty per cent of the respondents with a standard deviation of 0.73 strongly agreed that internet banking improved competitive position for banks. Only 2% of the respondents strongly disagreed with it. This indicates that majority of the respondents’ perception have been changing, in which they believe traditional payment methods are not competitive advantage for the operation of commercial banks in Malaysia. Seventy nine per cent of the respondents deemed that internet banking helps building the banks’ image and reputation. Moreover, three quarters of them with standard deviation of 0.9 agreed that internet banking provides faster, easier and more reliable services compare to traditional payment methods. Furthermore, about 80% of the respondents agreed that they are satisfied with the reduction cost of services, while 78% of the respondents perceived internet banking as a time-saving method for banking transactions. These benefits motivated them to demand for more innovative services and more willing to accept the idea of virtual banking.

<table>
<thead>
<tr>
<th>Items</th>
<th>Degree of agreement (%)</th>
<th>4</th>
<th>3</th>
<th>2</th>
<th>1</th>
<th>Non-response</th>
<th>Mean</th>
<th>Std Dev.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Reduce operating and administrative cost</td>
<td></td>
<td>22</td>
<td>62</td>
<td>10</td>
<td>4</td>
<td>2</td>
<td>2.50</td>
<td>1.823</td>
</tr>
<tr>
<td>Improve competitive position</td>
<td></td>
<td>20</td>
<td>61</td>
<td>16</td>
<td>2</td>
<td>1</td>
<td>2.97</td>
<td>0.731</td>
</tr>
<tr>
<td>Improve bank’s image</td>
<td></td>
<td>23</td>
<td>56</td>
<td>17</td>
<td>3</td>
<td>1</td>
<td>2.97</td>
<td>0.784</td>
</tr>
<tr>
<td>Provide faster, easier and more reliable services</td>
<td></td>
<td>26</td>
<td>49</td>
<td>15</td>
<td>10</td>
<td>0</td>
<td>2.91</td>
<td>0.900</td>
</tr>
<tr>
<td>Reduce the cost to customers</td>
<td></td>
<td>23</td>
<td>56</td>
<td>18</td>
<td>2</td>
<td>1</td>
<td>2.98</td>
<td>0.765</td>
</tr>
<tr>
<td>Time saving</td>
<td></td>
<td>28</td>
<td>50</td>
<td>15</td>
<td>6</td>
<td>1</td>
<td>2.98</td>
<td>0.876</td>
</tr>
</tbody>
</table>

Note: The means are determined by using a 4-point Likert scales rating from strongly agree (4) to strongly disagree (1).
4.2 Demographic attributes on internet banking users

ANOVA test was carried out to examine if selected demographic variables influence the usage of internet banking. Results from Table 2 indicate that there was a significant difference between the selected demographic segmentation factors where differences in age, education level and income level are concerned. The result showed that ‘the respondents used to pay bills, transfer funds, check account status and/or check stock price, and credit card related matters via internet banking’ were significant difference among different age group, education level and income level at 1% level of significance. There was, however, no significant difference among different races in Malaysia. Meanwhile, there is no difference with respect to race, age, education and income level with particular about getting information on housing loan, hire purchase, deposits via internet banking.

Table 2  Results on the ANOVA tests based on race, age, education and income levels on internet banking users

<table>
<thead>
<tr>
<th>Items</th>
<th>Race</th>
<th>Age</th>
<th>Education</th>
<th>Income</th>
</tr>
</thead>
<tbody>
<tr>
<td>I use e-banking for fund transfer</td>
<td>0.058</td>
<td>13.730**</td>
<td>5.583**</td>
<td>14.810**</td>
</tr>
<tr>
<td>I use e-banking for checking account status and/or stock price watch</td>
<td>0.373</td>
<td>10.155**</td>
<td>18.712**</td>
<td>27.400**</td>
</tr>
<tr>
<td>I use e-banking to pay bills</td>
<td>0.332</td>
<td>7.846**</td>
<td>13.414**</td>
<td>20.268**</td>
</tr>
<tr>
<td>I use e-banking for credit card purposes</td>
<td>0.464</td>
<td>8.226**</td>
<td>7.600**</td>
<td>16.897**</td>
</tr>
<tr>
<td>I use e-banking for housing loan</td>
<td>2.248</td>
<td>0.418</td>
<td>0.320</td>
<td>2.552</td>
</tr>
<tr>
<td>I use e-banking for hire purchase</td>
<td>0.384</td>
<td>0.254</td>
<td>0.331</td>
<td>0.247</td>
</tr>
<tr>
<td>I use e-banking for deposits</td>
<td>0.961</td>
<td>0.846</td>
<td>2.825</td>
<td>2.158</td>
</tr>
<tr>
<td>I use e-banking for other purposes</td>
<td>0.868</td>
<td>0.418</td>
<td>7.876**</td>
<td>0.387</td>
</tr>
</tbody>
</table>

**denotes significant at 0.01 levels.

4.3 Confidence level on Cyberlaw

Table 3 presents the mean, standard deviation and t-value confidence of Cyberlaw on internet banking for different age, race, education and income levels. There is no significant difference in relation to confidence level on Cyberlaw in Malaysia. Respondents trust the usage of digital signatures on the internet banking (with mean of 2.10). However, respondents perceived that privacy policies on internet banking and data security in Malaysia are in distinct (mean = 2.90 and 2.95, respectively). Results indicated that respondents are not quite confident on the legal standards of Cyberlaw in Malaysia (mean = 2.91). The relationship between the legal framework relating to internet banking and customers trust was generally weak. Hence, it is belief that the perception of the inadequacy of the legal framework in building consumer trust.
Attributes influencing the acceptance of internet banking

Table 3  Confidence on Cyberlaw

<table>
<thead>
<tr>
<th>Items</th>
<th>Mean</th>
<th>SD</th>
<th>t-value</th>
</tr>
</thead>
<tbody>
<tr>
<td>I am confident on the legal standards of Cyberlaw in Malaysia</td>
<td>2.91</td>
<td>0.878</td>
<td>−1.284</td>
</tr>
<tr>
<td>Policies on data security in Malaysia are clear</td>
<td>2.95</td>
<td>0.856</td>
<td>−1.586</td>
</tr>
<tr>
<td>Privacy policies on the E-banking in Malaysia are clear</td>
<td>2.90</td>
<td>0.877</td>
<td>−1.559</td>
</tr>
<tr>
<td>I trust the usage of digital signatures on the e-banking website</td>
<td>2.10</td>
<td>0.877</td>
<td>−1.559</td>
</tr>
</tbody>
</table>

Notes: Mean is from 1 (strongly agree) to 4 (strongly disagree); significant at 0.05 level if the t-value is ‘=’ or ‘>’ the critical value of 1.96.

4.4 Discussion of factor analysis

Figure 1 depicts a summary of the factor analysis of all the response ranking of the factors that affect the acceptance of internet banking in Malaysia. Results revealed the attributes loaded on each factor, factor loadings, eigenvalues, the variance explained by each factor, factor mean and Cronbach’s α. All factor loadings are significant. All factors displayed a Cronbach’s α coefficient of at least 0.71, indicating the questionnaire had attained a rather satisfactory level of reliability for virtual banking in general. Hence, all variables were retained. Among the factors, security has the highest ranking with a mean of 3.124 and a standard deviation of 0.312. The design factor has the lowest ranking with a mean of 2.371. Having established the characteristics relevant to the acceptance of internet banking, the hypothesis can be created. Generally, there is a positive relationship between internet banking usage and the various characteristics of convenience, feature, confidentiality, speed, design and management, except for fees and charges. The details of orthogonal factors are as follows:

Figure 1  Factor analysis, eigenvalue, mean, variance and α reliabilities

Notes: Forty-two internet banking attributes captured in six factors, percentage of variance explained = 58.97, KMO measure of sampling adequacy = 0.766, Mean scale: using a 4-point Likert scale: 1 = strongly agree; 4 = strongly disagree.

Factor 1 (Convenience) contained nine items and explained 19.82% of the variance in the data with an eigenvalue of 8.7. While a loading of eight items in factor 2 (Feature availability) accounted for 3.69% of the variance with an eigenvalue of 1.73. Factor 3
(Security) contained nine items, which accounted for 25.71% of the variance with an eigenvalue of 10.63. Meanwhile, factor 4 (Design) loaded with three items, accounted for 2.38% of the variance with an eigenvalue of 1.01. Factor 5 (Speed) explained 3.62% of the variance with an eigenvalue of 1.43. Finally, factor 6 (Fee and charge) exhibits loadings for eight variables. The security factor explained most of the total variance.

The relationship between the dependent and the six orthogonal factors were then entered into a regression analysis. The regression analysis was conducted to reveal how different factors affect the use of internet banking. Results in Table 4 show factors listed in the order of importance based on $\beta$ coefficients that explained relative impact of the six factors on the variance of acceptance levels. The correlation coefficient indicated that the six factors explained 71.3% of the variance of internet banking acceptance. Hence, the regression model was said to have achieved goodness-of-fit in predicting the variance of customers’ overall acceptance. The derived factor scores generated for the factors were used as independent variables.

<table>
<thead>
<tr>
<th></th>
<th>B</th>
<th>S.E.</th>
<th>$\beta$</th>
<th>t value</th>
<th>Sig.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Convenience</td>
<td>0.403</td>
<td>0.058</td>
<td>0.406</td>
<td>6.948</td>
<td>0.000</td>
</tr>
<tr>
<td>Security</td>
<td>0.395</td>
<td>0.057</td>
<td>0.392</td>
<td>6.929</td>
<td>0.000</td>
</tr>
<tr>
<td>Feature availability</td>
<td>0.211</td>
<td>0.059</td>
<td>0.226</td>
<td>3.576</td>
<td>0.001</td>
</tr>
<tr>
<td>Fees and charges</td>
<td>0.186</td>
<td>0.147</td>
<td>0.193</td>
<td>1.263</td>
<td>0.511</td>
</tr>
<tr>
<td>Speed</td>
<td>0.128</td>
<td>0.058</td>
<td>0.133</td>
<td>2.206</td>
<td>0.042</td>
</tr>
<tr>
<td>Design</td>
<td>0.001</td>
<td>0.072</td>
<td>0.004</td>
<td>0.013</td>
<td>0.672</td>
</tr>
</tbody>
</table>

$R^2$ 0.508
Adjusted $R^2$ 0.498
$R^2$ Change 0.3915
F Change 54.54 $p < 0.001$

Notes: Dependent variable: degree of overall acceptance of e-banking facilities. Independent variables: factors representing the components of perceived determinants of e-banking acceptance.

Convenience carried the heaviest weight in explaining users’ overall acceptance level, with $\beta = 0.403$ indicated that a one-unit increase in satisfaction with convenient factor would lead to 40.3% increase in customers’ acceptance of internet banking facilities. It is noteworthy that security factor (with $\beta = 0.395$) appeared to be one of the most significant attribute influencing the acceptance of internet banking. This was followed by feature availability ($\beta = 0.211$), fees and charges ($\beta = 0.186$) and speed ($\beta = 0.128$).

Results of Pearson correlation of all factors and demographic variables with the acceptance of internet banking have also been carried out (results are not shown here, but available upon request). Results indicated that relatively high correlations were found between internet banking acceptance, the factors and demography. Computer literacy was found to have the highest correlation with overall acceptance, which was consistent with Karjaluoto et al. (2002). Besides that, internet banking acceptance was found to be positively correlated with internet accessibility at home, education, occupation and income level at 5% level. Meanwhile, acceptance was found negatively correlated with age. This implies, of the demographic variables, middle-adulthood and young age, higher educated, moderate income and occupation group were important variables...
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affecting internet banking acceptance. Meanwhile, marital status, race and gender were insignificant factors. Obviously, male-dominated internet banking was not significant here.

5 Managerial implications for services and standards

The study has emphatically established the crucial variables that consumers look for in banks: convenience, security, fees and charges, design, features availability and speed. Particularly, banks should put emphasis on the perceptions of customers relating to the relatively neutral/dissatisfied mean characteristics, such as security (mean = 3.1), convenience and speed (mean = 2.9), thereby enabling internet banking to be viewed more favourably. Recent rampant occurrences of cyber-fraud cases have resulted in more negative perceptions on the security of internet banking systems. Obviously, banks need to come up with concrete solutions to improve the trustworthiness of systems. In terms of distribution, it is recognised that the convenience service delivery method offered and recognised a minimum level of computer literacy as an important factor that deters the lower educated, lower income, and/or old-aged bracket groups from using internet banking services. In addition, it is recognised that demographic factor influences customer intentions, where younger age brackets, higher educated and moderate income groups tend to be more acceptable to internet banking. Reputation of the e-bank is built from the consumers’ experience with the internet banking service and spread by word-of-mouth. Therefore, to improve customers’ perception, the speed of response to customers’ complaints is of essence. On the other hand, banks should not neglect the older-aged group that prefers consumer-centric policies. For this group, time and effort spent to learn new channels is too large to offset the time and cost of making a trip to the bank. Moreover, internet banking has no social dimensions as compared to a face-to-face interaction, thus this could be an obstacle to the acceptance of internet banking. Lastly, managers may need to consider the use of different languages on the internet banking website since Malaysia is a multi-racial country that consists of three major races, namely Malay, Chinese and Indian. This would ensure a more professional and friendly service to all customers.

6 Conclusions and limitations

The primary objective of the study was to study consumer acceptance of internet banking in Malaysia in the light of the TAM added to other variables derived from internet banking acceptance literature. The results of regression analysis conducted on the six factors indicated that security was the major influential factor towards the use of internet banking services, followed by the convenience factor. As far as the demographic factors were concerned, the young and middle-adulthood, moderate income and middle-class occupation groups seemed more acceptable to internet banking. However, variables such as gender, race and marital status appeared to be not significant. The findings also indicate that the acceptance of internet banking can be enhanced by proactive actions taken by both the banks and the regulators. Therefore, sufficient transparency of laws must be there to protect the consumers in cyberspace, in line with
the advancement evolving in the advent of technology. This study only focused on the
users of internet banking and did not include the voice of non-users. Therefore, future
research may address aspects of marketing strategy and promotional and communication
issues in order to acquire new users as well as to effectively maintain existing customers.

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Attributes influencing the acceptance of internet banking


