### **Management Dynamics**

Volume 8 | Number 1

Article 1

April 2008

## Factors Influencing Internet Banking Adoption: An Empirical Study

Kamal K. Gupta

Department of Management, Raj Kumar Goel Institute of Technology, Ghaziabad, India

Follow this and additional works at: https://managementdynamics.researchcommons.org/journal



Part of the Business Commons

#### **Recommended Citation**

Gupta, Kamal K. (2008) "Factors Influencing Internet Banking Adoption: An Empirical Study," Management Dynamics: Vol. 8: No. 1, Article 1.

DOI: https://doi.org/10.57198/2583-4932.1183

Available at: https://managementdynamics.researchcommons.org/journal/vol8/iss1/1

This Research Article is brought to you for free and open access by Management Dynamics. It has been accepted for inclusion in Management Dynamics by an authorized editor of Management Dynamics.

# FACTORS INFLUENCING INTERNET BANKING ADOPTION: AN EMPIRICAL STUDY\*

Kamal K. Gupta\*

#### Abstract

In the modern era banks can not afford to ignore the importance of Internet as a delivery channel. Although Internet banking offers several advantages, majority of banks' customers are not using Internet banking as reported in several studies. This paper attempts to identify the factors that influence the adoption of Internet banking and how these factors impact Internet banking usage. A survey of Internet banking users was conducted in the National Capital Region of India, at select locations.

Based on literature survey and focus group interviews, research model and hypotheses were developed. Exploratory factor analysis reveals five factors—perceived ease of use, perceived usefulness, security and privacy, information about Internet banking, and quality of Internet connection that influence adoption of Internet banking. Further, these factors were regressed on use of Internet banking. Impact of all the five factors was found significant. Information about Internet banking was found to be the most influential factor followed by perceived usefulness and security and privacy.

#### INTRODUCTION

The way financial services are delivered is changing as the Indian financial system is undergoing a period of substantial change. Internet banking is the most recent delivery channel introduced for financial services in India. Internet banking involves customers using the Internet to access their bank and account, to undertake banking transactions. Internet banking services can be classified into two levels—basic level involves setting up of a Web page by a bank to give information about its product and services and the advance level involves provision of facilities such as accessing accounts, funds transfer, and buying financial products or services online. The latter one is called transactional Internet banking and is the subject matter of this study. Banks can achieve

<sup>\*</sup>Assistant Professor – Marketing Area, Department of Management, Raj Kumar Goel Institute of Technology, Ghaziabad, India.

notable cost savings, reduce their branch networks and downsize the number of their service staff by offering Internet banking services. These benefits can contribute to maximizing profits.

According to Internet & Mobile Association of India's report on online banking, there are 38.5 million Internet users in India and the number is set to cross 100 million by 2007-08. Based on limited banking resources, IAMAI has estimated 4.6 million Indian Internet users are banking online. Banks, certainly, can not ignore such a huge business opportunity. Despite its several advantages, most of bank customers, even today, are not using Internet channel for banking transactions. Therefore, it is important for banking professionals to understand and analyse the factors which influence adoption of Internet banking services.

In this paper, an attempt has been made to identify the factors that influence Internet banking adoption and their impact on Internet banking usage. Findings of this study should be useful for banking professionals dealing with Internet banking services in formulating marketing strategies. They can effectively encourage their customers to adopt this new delivery channel so as to bring down operational costs and yet provide a more convenient and satisfying banking experience.

Section 2 of the paper deals with the literature survey, development of hypotheses and research model. Research methodology (the sample, measurement of constructs and the survey instrument) is discussed in Section 3. Results of data analysis (demographic profile, factor analysis, regression analysis and correlation analysis) are discussed in Section 4, followed by discussion and theoretical implications in Section 5. The conclusion is presented in Section 6.

#### LITERATURE SURVEY AND DEVELOPMENT OF HYPOTHESES

Internet banking acceptance has generated a great deal of research in the past (Sathye, 1999; Waite and Harrison, 2002; Bradley and Stewart, 2003; Gerrard and Cunningham, 2003; Mukherjee and Nath, 2003; Wang et al., 2003; Eriksson et al., 2005; Pikkarainen et al., 2006;). There are two main reasons underlying Internet banking popularity. First, it is the cheapest delivery channel for banking products (Robinson, 2000; Giglio, 2002). Second, banking transacting through Internet requires less time and effort in comparison to physical branch banking (Karjaluoto et al., 2003). These advantages of time and cost savings and freedom to bank from any where in the world and at any

time have been reported as the main reasons for Internet banking acceptance (Polatoglu and Ekin, 2001; Black et al., 2002; Howcroft et al., 2002).

Technology acceptance model (TAM) is a widely accepted model in studying information system acceptance (Davis et al., 1989; Mathieson, 1991; Davis and Venkatesh, 1996; Gefen and Straub, 2000; Al-Gahtani, 2001) and it better explains the attitude toward using an information system than that of other models (Mathieson, 1991). TAM posits that behavioral intention determines actual information system use and behavioral intention is determined by both attitude and perceived usefulness. Both perceived usefulness and perceived ease of use have an effect on behavioral intention. Perceived ease of use also affects perceived usefulness. TAM has been tested in many studies (Davis, 1989; Davis et al., 1989; Mathieson, 1991; Adams et al., 1992; Davis, 1993; Segars and Grover, 1993; Taylor and Todd, 1995) and has been found consistent in explaining a significant amount of the variance in behavioural intentions and system use.

Perceived ease of use refers to the degree to which a person believes that using a particular system would be free of effort. A significant number of studies suggested perceived ease of use influences intention to use both directly or indirectly via its impact on perceived usefulness (Agarwal and Prasad, 1997; Davis et al., 1989; Venkatesh, 1999; Venkatesh and Davis, 2000). Cooper (1997) found that ease of use was one of the three important characteristics from the customer's perspective for adoption of innovative service. Consumers' perceptions and understanding of innovative technology is found to be an important element in shaping its acceptance (Rogers, 1962; Scarbrough and Corbett, 1992). Perceived ease of use affects the consumer acceptance of system use through its impact on perceived usefulness and attitude toward using the Internet (Davis et al., 1989). Chau (1996) found that perceived ease of use affects usefulness, attitude, intention and actual use. This leads to the following hypothesis:

# H1: Perceived ease of use has a positive effect on consumer acceptance of Internet banking.

Perceived usefulness is the degree to which an individual believes that using a particular system would enhance his or her performance (Davis, 1989). A significant number of studies have shown that perceived usefulness is an important antecedent to behavioural intention to adopt technology (Davis et al., 1989; Venkatesh, 1999; Venkatesh and Davis, 2000). Barczak et al. (1997) reported that the perceived usefulness of something is its ability to provide a

means-end relationship and thus, provides a reason-to-use. Davis (1989), in his investigation, found the relationship between perceived usefulness and usage was stronger and more consistent than other variables reported in prior studies. According to Fishbein & Azjen 1975), expectancy theory is the basis of perceived usefulness and is concerned with an individual's belief in the decision making process. Individuals evaluate the consequences of their behavior in terms of perceived usefulness and base their choice of behavior on the desirability of the usefulness (Chau, 1996). Perceived usefulness has been found to be the most important factor affecting user acceptance in many studies (Szajna, 1994; Igbaria et al., 1997; Sun, 2003). This discussion leads to the following hypothesis:

# H2: Perceived usefulness has a positive effect on consumer acceptance of Internet banking.

According to Moon and Kim (2001) factors affecting the acceptance of a new information system are likely to vary with the technology, target users, and context (Moon and Kim, 2001). Therefore, besides perceived ease of use and usefulness factors identified in the original TAM, other relevant factors will also be investigated.

According to Minjoon and Shaohan (2001), customers appear to be much more apprehensive with the security of the internet banking than they are with that of traditional banking. Security refers to the reliability of internet banking and an overall belief on the part of the user that banking transactions can be completed confidentially and safely (Maenpaa, 2006). The significance of security and privacy to the acceptance of online banking has been found in many banking studies (Roboff and Charles, 1998; Westin and Maurici, 1998; Cranor et al., 1999; Sathye, 1999; Hamlet and Strube, 2000; Tan and Teo, 2000; Polatoglu and Ekin, 2001; Black et al., 2002; Bradley and Stewart, 2002; Giglio, 2002; Howcroft et al., 2002, Page and Luding, 2003). Polatoglu and Ekin (2001) proposed three dimensions of security— reliability, safety, and privacy. In quite a few studies, consumers' concerns about security and privacy have been emphasized as being the most important obstacle to the adoption and use of Internet banking services (Sathye, 1999; Daniel, 1999; Cox and Dale, 2001; Howcroft et al., 2002). This leads to the following hypothesis:

# H3: Security and privacy have a positive effect on consumer acceptance of Internet banking.

The adoption or rejection of an innovation begins when the consumer

becomes aware of the product (Rogers and Shoemaker, 1971). Sathye (1999) found that the lack of awareness about Internet banking and its benefits contribute to the non-adoption of electronic banking. Information about Internet Banking refers to the consumers' awarenessof Internet banking services on offer in the marketplace, benefits associated with Internet banking, and their knowledge of how to use Internet banking (Gan et al., 2006). The Internet banking literature supports that information has an impact on consumers' adoption of Internet banking (Sathye, 1999; Polatoglu and Ekin, 2001). Therefore, it becomes necessary that the banks make their existing (those who are not using Internet channel) and potential consumers aware about the availability and value proposition of their Internet banking services (Sathye, 1999). Guiltinan and Donnelly (1983), identify information about the benefits of using a product/service as an essential service/product promotion strategy in bank marketing context. This discussion leads to the following hypothesis:

# H4: Information about Internet banking has a positive effect on consumer acceptance of Internet banking.

Internet banking services can only be availed by those customers who have access to Internet. Pikkarainen et al. (2006) investigated the quality of Internet connection construct in their study on consumer acceptance of online banking in Finland. They found that speed and reliability of Internet connections in Finland was quite common and therefore, is not important. However, concern regarding the speed and reliability of the Internet connection was raised in focus group interviews conducted for this study and might be relevant in Indian context. This leads to the following hypothesis:

# H5: Quality of Internet connection has a positive effect on consumer acceptance of Internet banking.

#### **RESEARCH MODEL**

The proposed model (Figure 1) comprises four widely researched and validated factors—perceived usefulness, perceived ease of use, security and privacy, and knowledge of Internet banking that influence Internet banking adoption (Davis et al., 1989; Chau, 1996; Wang et al., 2003; Maenpaa, 2006; Ndubisi and Sinti, 2006; Pikkarainen et al., 2006). (Davis et al., 1989; Davis, 1993; Al-Gahtani, 2001). Focus group interviews with the four banking professionals and ten Internet banking customers also endorsed these factors and therefore, included in the proposed research model.

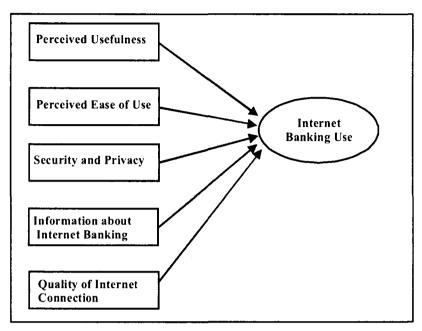


Figure 1: The Research Model

#### **RESEARCH METHODOLOGY**

#### Sample

Non-probability convenience sampling method was used to select the sample. The survey was conducted in the national capital Delhi and adjoining four satellite towns—Noida, Gurgaon, Faridabad and Ghaziabad. Prospective respondents with previous Internet banking experience were approached in the shopping malls, supermarkets, and cyber cafes. Out of a total of 600 questionnaires distributed, only 572 useable questionnaires were received.

#### **Measurement of the Constructs**

The items included in a scale must represent the concept about which generalizations are to be made in order to ensure its content validity (Bohmstedt, 1970). Therefore, scale items for this study were mainly adapted from prior studies to ensure content validity (Davis et al., 1989; Chau, 1996; Wang et al., 2003; Maenpaa, 2006; Ndubisi and Sinti, 2006; Pikkarainen et al., 2006).

Five constructs of consumer acceptance of Internet banking—perceived ease of use, perceived usefulness, security and privacy, information about

Internet banking, and quality of Internet connection were operationalised using adapted/modified items from previous studies (Davis et al., 1989; Chau, 1996; Wang et al., 2003; Maenpaa, 2006; Ndubisi and Sinti, 2006; Pikkarainen et al., 2006). The use of an information system has been found acting as an indicator of its user acceptance in many studies (Davis et al., 1989; Davis, 1993; Al-Gahtani, 2001; Legris et al., 2003; Pikkarainen et al., 2006). Therefore, use of internet banking services was chosen as the dependent variable in the model. The frequency of use has been found to capture the consumer's use of a technology in the technology context (Lang and Colgate, 2003; Ricard et al., 2001). Use of Internet banking, in this study, is operationalised through an item about their frequency of Internet bankinguse.

Construct	Item
Perceived Ease of Use	<ul> <li>My interaction with Internet banking services is clear and understandable</li> <li>Learning to use Internet banking services is easy for me</li> <li>I find Internet banking services to be flexible to interact with</li> <li>It is easy for me to become skillful at using Internet banking services</li> <li>I find Internet banking services easy to use</li> </ul>
Perceived Usefulness	<ul> <li>Using Internet banking services makes it easier for me to conduct my banking transactions</li> <li>Using Internet banking services enables me to conduct my banking transactions more quickly</li> <li>Using Internet banking services improves my performance in conducting my banking transactions</li> <li>I find Internet banking services useful in conducting my banking transactions</li> </ul>
Security and Privacy	<ul> <li>Internet banking services is safe, information concerning Internet banking transactions will not fall into wrong hands</li> <li>Using the Internet banking services is financially secure</li> </ul>

<ul> <li>Information concerning my Internet banking transactions will not be known to others.</li> <li>I trust in the technology the Internet banking services are using.</li> </ul>						
Information about Internet Banking	<ul> <li>I have generally received enough information about Internet banking services</li> <li>I have received enough information about the benefits of using Internet banking services</li> </ul>					
Quality of Internet Connection	<ul><li>Internet connection is fast</li><li>Internet connection is reliable</li></ul>					

#### The Survey Instrument

A survey research approach is used to measure the antecedents of the constructs in the proposed model: perceived ease of use, perceived usefulness, security and privacy, and knowledge of internet banking. Structured questionnaires were used to collect data from the internet banking customers. After verification of the proposed hypothesis from a focus group of six banking professionals, the survey instrument was pilot tested on twenty internet banking customers. Based on their feedback the questionnaire was modified and the revised questionnaire was again pre-tested among a set of twenty respondents and it worked well.

In the Part-I of final questionnaire, eighteen statements were used to measure the research model constructs (refer Appendix B). All the items were rated on a five point Likert scale (1-5) with anchors ranging from "strongly disagree" to "strongly agree" by the target respondents except the item use of Internet Banking services which was anchored by "almost never" to "almost always". Demographic questions (fixed-alternative) pertaining to the respondent's gender, age, education, occupation, and income were included in the second section. Besides these eighteen items, demographic questions (fixed-alternative) pertaining to the respondent's gender, age, education, occupation, and monthly gross income were also included in Part-II of the final questionnaire.

### **RESULTS**

Variable	Categories	No. of Respondents	Percent
Gender	Male	432	75.5%
Female		140	24.5%
Age	Below 20 years	22	3.8%
21-30 Years	,	242	42.3%
31-40Years		176	30.8%
41-50 years		<i>77</i>	13.5%
Above 50 years		55	9.6%
Education Level	Senior Secondary	38	6.6%
Graduate	,	221	38.6%
Post Graduate		313	54.8%
Occupation	Service	271	47.4%
Business		209	36.5%
Student		60	10.4%
Other		32	5.7%
Monthly Gross Income	Less than Rs. 10000	42	7.3%
Rs. 10001-25000		138	24.2%
Rs. 25001-40000		188	32.8%
Above Rs. 40000		149	26.1%
Not Applicable		55	9.6%

**Table 1 Demographic Profile of Respondents** 

Items/Factors	
Factor 1 Perceived Ease of Use	
My interaction with Internet banking services is clear and understandable	.887
Learning to use Internet banking services is easy for me	.750
I find Internet banking services to be flexible to interact with	.810
It is easy for me to become skillful at using Internet banking services	.731
I find Internet banking services easy to use	.884
Factor 2 Security and Privacy	
SEC1-Internet banking services is safe, information concerning Internet banking transactions will not fall into wrong hands	.863
SEC2-Using the Internet banking services is financially secure	.778

SEC3-Information concerning my Internet banking transactions will not be known to others				.874		
SEC4-I trust in the technology the Interr services are using	net bank	ing		.848		
Factor 3 Perceived Usefulness		-		.812		
Using Internet banking services makes ime to conduct my banking transactions		for	.876			
Using Internet banking services enables conduct my banking transactions more			.870			
Using Internet banking services improve performance in conducting my banking	•	ctions		.836		
I find Internet banking services useful ir transactions	condu	cting m	ny bank	ing		
Factor 4 Information about Internet Ban	king					
I have generally received enough information about Internet banking services				.865		
I have received enough information about the benefits of using Internet banking services			.914			
Factor 5 Quality of Internet Connection						
The Internet Connection that I use is fas	st			.905		
The Internet Connection that I use is rel	iable		.894			
Eigen Values	3.420	3.069	2.938	1.858	1.641	
% Variance	20.12	18.05	17.28	10.93	9.65	
Cumulative Variance	20.12	38.17	55.45	66.38	76.03	
Cronbach's α	.880	.874	.840	.773		
Overall Cronbach's $\alpha = .776$						
Kaiser-Meyer-Olkin Measure of Sampling Adequacy = .713						
Bartlett's Test of Sphericity:						
Approx. Chi-Square = 6340.764						
df = 136						
sig. = .000						

Table 2 Factors Influencing Adoption of Internet Banking, Cronbach's á, KMO and Bartlett's test of Spericity

Results of both Kaiser-Meyer-Olkin (KMO) measure of sampling adequacy (0.713) and Bartlett's test of sphericity (.000) suggested that exploratory factor analysis was appropriate for the data collected. The Cronbach's alpha test measures the consistency of the scale. The closer the value of coefficient of reliability to 1.0, the more reliable is the scale (Cronbach, 1951). The generally agreed upon lower limit for Cronbach's alpha is 0.70, although it may decrease to 0.60 in exploratory research. Overall Cronbach's Alpha value is .776 and for individual factors ranged from .773 to .884 and therefore all the factors in the research model have adequate reliability. The practical significance criteria considers factor loadings +-0.50 or greater are practically significant and each single factor should include at least two items (Hair et al., 2005). Our exploratory factor analysis meets this criteria as all of the factor loadings of the items in the research model were greater than 0.50 and number of items loaded on five factors extracted ranged from two to five.

Table 2 shows the results of factor analysis (SPSS output) of the seventeen variables. Exploratory factor analysis was performed to identify the key factors influencing the adoption of Internet banking. All the seventeen items fit into the factor model. Five factors—perceived ease of use, perceived usefulness, security and privacy, information about Internet Banking, and quality of Internet connection were extracted from the eighteen variables using Principal Component analysis and Varimax rotation with Kaiser Normalization. Factors having eigen values greater than 1 were chosen (Hair et al., 2005). All the five factors together explain 76.03% variance in the data. For descriptive statistics (mean and standard deviation) refer Appendix A.

Multiple regression analysis was used to assess the impact of factors influencing adoption of Internet banking (independent variables) on Internet banking use (dependent variable).

The score for each factor was arrived after averaging the individual scores of each item loaded on that factor.

Table 3 shows that the overall regression model is significant (F = 69.441; p < .01). The plot of residuals indicates that the data follow linearity and normality conditions without any homoscedasticity. Further, all the Variance Inflation Factor values are closer to 1.00 that indicates the absence of multicollinearity.  $R^2$  for this model is .380 that means 38% of the variation in Internet banking use can be explained from the five factors—perceived ease of use, perceived usefulness, security and privacy, information about Internet Banking, and quality of Internet connection.

Standardized Coefficients	t		Sig.	Collinearity Statistics
Beta		Tole	erance	VIF
(Constant)		2	.23	0.026
Perceived ease of use	0.175*	5.07	.000	0.917 1.091
Perceived usefulness	0.255*	7.685	.000	0.996 1.004
Security and privacy	0.23*	6.512	.000	0.878 1.139
Information about Internet banking	0.321*	9.272	.000	0.914 1.094
Quality of Internet connection	0.194*	5.83	.000	0.986 1.014
F <sub>model</sub> (p-level)	69.441 (	(.000)		
R <sup>2</sup>	.380			
R <sup>2</sup> adjusted	.375			

**Table 3 Regression Analysis** 

Standardized Coefficients Beta column reveals that regression coefficients for all the five predictor variables i.e. five factors influencing Internet banking adoption are statistically significant. The relative importance of these five factors in predicting the Internet banking use can be compared using Beta coefficients. Information about Internet banking has the greatest impact on Internet banking use ( $\beta = 0.321$ , p < 0.01), followed by perceived usefulness ( $\beta = 0.255$ , p < 0.01), security and privacy ( $\beta = 0.230$ , p < 0.01), and quality of Internet connection ( $\beta = 0.194$ , p < 0.01). Perceived ease of use has the lowest impact on Internet banking use ( $\beta = 0.155$ , p < 0.01).

Table 4 shows the correlation between Internet banking usage and factors influencing Internet banking adoption. All the correlations are significant at p < .01.

Thus, the findings support H1, H2, H3, H4 and H5.

<sup>\*</sup> Significant at the .01 level

Perceived Ease of Use	Perceived Usefulness	Secur	ity and Privacy	Informati on about Internet Banking	Quality of Internet Connection
Frequency of Internet	Pearson Correlation	.291	.239 .356	.434**	.244
Banking Use Sig. (two- tailed)	.000	.000	.000	.000	.000

#### **Table 4 Correlation Analysis**

#### DISCUSSION AND THEORETICAL IMPLICATIONS

This study is first of its kind in the Indian context that provides insights into the factors that affect consumer adoption of Internet banking and also, helps in understanding the impact of these factors on the use of Internet banking. Information about Internet banking is the most influential factor affecting internet banking use. Pikkarainen et al. (2006) in their investigation have also found amount of information about Internet banking having the highest impact on its use among all the factors. Findings regarding perceived ease of use and perceived usefulness are in line with previous TAM related studies that support the impact of these two factors on the Internet banking use (Davis, 1989; Davis et al., 1989; Teo et al., 1999). However, from the impact point of view perceived usefulness is the second most influential factor, whereas, perceived ease of use is the least important one. Security and privacy has a significant positive impact on Internet banking use as supported in many banking related previous studies (Roboff and Charles, 1998; Sathye, 1999; Hamlet and Strube, 2000; Polatoglu and Ekin, 2001; Black et al., 2002; Giglio, 2002; Howcroft et al., 2002). Quality of Internet connection has also been found impacting the Internet banking use. This is contrary to a previous study conducted by Pikkarainen et al. (2006).

#### **CONCLUSION**

Five factors—perceived ease of use, perceived usefulness, security and privacy, information about Internet banking, and quality of Internet connection, identified in this study have a significant impact on the use of Internet banking in the Indian context. Information about Internet banking is the most influential

<sup>\*\*</sup> Correlation is significant at the .01 level (2-tailed)

factor, followed by perceived usefulness, and security and privacy. Banking professionals can make use of the findings of this study in designing effective marketing strategies and increasing user acceptance of Internet banking.

#### REFERENCES

Barczak, G., Ellen, P.S. and Pilling, B.K. (1997), "Developing typologies of consumer motives for use of technologically based banking services", Journal of Business Research, Vol. 38, No.2, pp.131-9.

Black, N.J., Lockett, A., Ennew, C., Winklhofer, H., and S. McKechnie (2002), "Modeling customer choice of distribution channels: an illustration from financial services", International Journal of Bank Marketing, Vol. 20, No. 4, pp.161-173.

Bradley, L. and Stewart, K. (2002), "A Delphi study of the drivers and inhibitors of internet banking", International Journal of Bank Marketing, Vol. 20, No.6, pp.250-60.

Chau, P.Y.K. (1996). "An empirical assessment of a modified technology acceptance model." Journal of Management Information Systems, Vol. 13, pp.185-204.

Cooper, R.G. (1997), "Examining some myths about new product winners", in Katz, R. (Eds), The Human Side of Managing Technological Innovation, Oxford, pp.550-60.

Cox, J. and Dale, B.G. (2001), "Service quality and e-commerce: an exploratory analysis", Managing Service Quality, Vol. 11, No.2, pp.121-31.

Cranor, L.F., Reagle, J. and Ackerman, M.S. (1999), "Beyond concern: understanding net users' attitudes about online privacy", technical report, TR 99.4.3, AT&T Labs – Research, available at: www.research.att.com/resources/trs/TRs/99/99.4/99.4.3/report.htm

Cronbach, L.J. (1951) 'Coefficient alpha and the internal structure of tests', Psychometrika, Vol. 16, No. 3, pp.297-334.

Daniel, E. (1999), "Provision of electronic banking in the UK and the Republic of Ireland", International Journal of Bank Marketing, Vol. 17, No.2, pp.72-8

Davis, D. and Fred (1989) "Perceived usefulness, perceived ease of use, and user acceptance of information technology." MIS Quarterly, Vol. 13, No.3, pp. 319-339.

Davis, F.D., Bagozzi, R.P. and Warshaw, P.R. (1989), "User acceptance of computer technology: a comparison of two theoretical models", Management Science, Vol. 35, No.8, pp.982-1003.

Eriksson, K., Kerem, K. and Nilsson, D. (2005), "Customer acceptance of internet banking in Estonia", International Journal of Bank Marketing, Vol. 23, No. 2, pp.200-216

Fishbein, M. and Ajzen, I. (1975), Belief, Attitude, Intention, and Behavior: An Introduction to Theory and Rearch. Reading, MA: Addison-Wesley.

Gan, C., Clemes, M., Limsombunchai, V. and Weng, A. (2006), "A logit analysis of electronic banking in New Zealand", International Journal of Bank Marketing", Vol. 24, No. 6, pp.360-383

Gerrard, P. and Cunningham, J.B. (2003), "The diffusion of Internet banking among Singapore consumers", The International Journal of Bank Marketing, Vol. 21, No.1, pp.16-28.

Giglio, V. (2002), "Privacy in the world of cyberbanking: emerging legal issues and how you are protected", The Secured Lender, No.March/April, pp.48-60.

Guiltinan, J.P. and Donnelly, J.H. (1983), "The use of product portfolio analysis in bank marketing planning", in Shanmugam, Burke (Eds), Management Issues for Financial Institutions, pp.50.

Hair, J. F., Anderson, R. E., Tatham, R. L. and Black, W. C. (2005), Multivariate Data Analysis, Pearson Education 103-118.

Hamlet, C. and Strube, M. (2000), "Community banks go online", ABA Banking Journal's 2000 White Paper/Banking on the Internet.

Howcroft, B., Hamilton, R. and Hewer, P. (2002), "Consumer attitude and the usage and adoption of home-based banking in the United Kingdom", The International Journal of Bank Marketing, Vol. 20, No.3, pp.111-21.

Igbaria, M., Zinatelli, N., Cragg, P. and Cavaye, A.L.M. (1997). "Personal computing acceptance factors in small firms: a structural equation model," MIS Quarterly, Issue 21, pp.279-305.

Internet & Mobile Association of India (2006) 'IAMAI's Report - Online Banking 2006', available at <a href="http://www.iamai.in/">http://www.iamai.in/</a>

Maenpaa, K. (2006), "Clustering the consumers on the basis of their perceptions of the Internet Banking", Internet Research, Vol. 16, No. 3, pp.304-322.

Minjoon, J. and Shaohan, C. (2001), "The key determinants of internet banking service quality: a content analysis", International Journal of Bank Marketing, Vol. 19, No.7, pp.276-91.

Mols, N.P., Bukh, P.N.D. and Nielsen, J.F. (1999), "Distribution channel strategies in Danish retail banking", International Journal of Retail & Distribution Management; Vol. 27, No.1, pp.37-47.

Mukherjee, A. and Nath, P. (2003), "A model of trust in online relationship banking", The International Journal of Bank Marketing, Vol. 21, No.1, pp.5-15.

Page, C. and Luding, Y. (2003), "Bank managers' direct marketing dilemmas – customers' attitudes and purchase intention", International Journal of Bank Marketing, Vol. 21, No.3, pp.147-63.

Pikkarainen, T., Pikkarainen, K., Karjaluoto, H. and Pahnila, S. (2006), "Consumer acceptance of online banking: an extension of technology acceptance model", Internet Research, Vol. 14, No. 3, pp.224-235.

Polatoglu, V.N. and Ekin, S. (2001), "An empirical investigation of the Turkish consumers' acceptance of internet banking services", International Journal of Bank Marketing, Vol. 19, No.4, pp.156-65.

Robinson, T. (2000), "Internet banking: still not a perfect marriage", Informationweek.com, April 17, pp.104-106.

Roboff, G. and Charles, C. (1998), "Privacy of financial information in cyberspace: banks addressing what consumers want", Journal of Retail Banking Services, Vol. 20, No.3, pp.51-56.

Rogers, E.M. (1962), Diffusion of Innovations, Free Press, New York, NY.

Rogers, E.M. and Shoemaker, F. (1971), Communications in Innovation, Free Press, New York, NY.

Sathye, M. (1999), "Adoption of Internet banking by Australian consumers: an empirical investigation", International Journal of Bank Marketing, Vol. 17 No.7, pp.324-334.

Scarbrough, H. and Corbett, J.M. (1992), Technology and Organisation Power, Meaning and Design, Routledge, London, pp.147.

Sheshunoff, A. (2000), "Internet banking – an update from the frontlines", ABA Banking Journal, No. January, pp.51-53.

Sun, H., and Zhang, P. (2003). "A new perspective to analyze user technology acceptance," Working Paper, Syracuse University.

Szajna, B. (1994) "Software Evaluation and Choice: Predictive Validation of the Technology Acceptance Instrument," MIS Quarterly, Vol.18, No.3, pp.319-324.

Tan, M. and Teo, T. S. H. (2000), "Factors Influencing the Adoption of Internet Banking", Journal of Association for Information Systems, Vol. 1, Article 5, pp.

Waite, K., Harrison, T. (2002), "Consumer expectations of online information provided by bank websites", Journal of Financial Services Marketing, Vol. 6 No.4, pp.309-22.

Westin, A.F. and Maurici, D. (1998), "E-commerce & privacy: what the net users want", Privacy & American Business, and PricewaterhouseCoopers LLP, New York, NY, available at: www.pwcglobal.com/gx/eng/svcs/privacy/../../fig/E-Commerce.pdf

### **APPENDIX A**

### **Descriptive Statistics**

Scale Items	Mean	Std. Deviation
My interaction with Internet banking services is clear and understandable	3.50	1.133
Learning to use Internet banking services is easy for me	3.60	1.036
I find Internet banking services to be flexible to interact with	3.45	1.035
It is easy for me to become skillful at using Internet banking services	3.56	1.168
I find Internet banking services easy to use	3.52	1.156
3.53		1.11
Using Internet banking services makes it easier for me to conduct my banking transactions	3.93	1.053
Using Internet banking services enables me to conduct my banking transactions more quickly	3.84	1.074
Using Internet banking services improves my performance in conducting my banking transactions	3.78	1.124
I find Internet banking services useful in conducting my banking transactions	3.90	1.115
3.86		1.09
Internet banking services is safe, information concerning Internet banking transactions will not fall into wrong hands	3.61	1.013
Using the Internet banking services is financially secure	3.57	1.074
Information concerning my Internet banking transactions will not be known to others	3.62	1.175
I trust in the technology the Internet banking services are using	3.65	1.008
3.61		1.07
I have generally received enough information about Internet banking services	3.24	1.333
I have received enough information about the benefits of using Internet banking services	3.38	1.180
3.31		1.26
The Internet Connection that I use is fast	3.44	1.171
The Internet Connection that I use is reliable	3.33	1.217
3.39		1.19

#### APPENDIX B

#### **Internet Banking Survey**

Complete this form only if you use or have used Internet Banking Services

Thank you for your time. Your response is anonymous and will be treated in confidence.

#### Part-I

Please indicate the extent to which you agree with each of the following statements. Circle a number from 1 to 5 that best represents your level of agreement with the statement, where 1 = "strongly disagree" and 5 = "strongly agree":

1.	My interaction with Internet banking services is clear and understandable	1 2 3 4 5
2.	Learning to use Internet banking services is easy for me	1 2 3 4 5
3.	I find Internet banking services to be flexible to interact with	1 2 3 4 5
4.	It is easy for me to become skillful at using Internet banking services	1 2 3 4 5
5.	I find Internet banking services easy to use	1 2 3 4 5
6.	Using Internet banking services makes it easier for me to conduct my banking transactions	
7.	Using Internet banking services enables me to conduct my banking transactions more quickly	12345
8.	Using Internet banking services improves my performance in conducting my banking transactions	12345
9.	I find Internet banking services useful in conducting my banking transactions	
10.	Internet banking services is safe, information concerning Internet banking transactions will not fall into wrong hands	12345

11. Using the Internet banking services is financially secure	12345
12. Information concerning my Internet banking transactions will not be known to others	1 2 3 4 5
13. I trust in the technology the Internet banking services are using	1 2 3 4 5
14. I have generally received enough information about Internet banking services	1 2 3 4 5
15. I have received enough information about the benefits of using Internet banking services	12345
16. Internet connection that I use is fast	12345
17. Internet connection that I use is reliable	12345

### Part-II

1.	Your Gender is	Male ()
		Female ()
2.	Your Age is Below	20 years ()
		21-30 Years ()
		31-40Years ()
		41-50 years ()
	Above	50 years ()
3.	Your Education Level is Senior	Secondary ()
		Graduate ( )
		Post Graduate ( )
4.	Your Occupation is	Service ()
		Business ()
		Student ( )
		Other ()
		• •

5. Your Monthly Gross Income is Less than Rs. 10000 ()

Rs. 10001-25000 ()

Rs. 25001-40000 ()

Above Rs. 40000 ()

Not Applicable ()