

# A COMPARATIVE STUDY OF ONLINE AND PHYSICAL BANKING

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## Abstract

*The rapid growth of the Internet has presented a new host of opportunities as well as threats to business. Banks find that they have to constantly innovate and update to retain their demanding and discerning customers and to provide convenient, reliable, and expedient services. With the development of asynchronous technologies and secured electronic transaction technologies, however, more banks have come forward to use Internet banking both as a transactional as well as an informational medium. In light of internet becoming increasingly important as a banking delivery channel over physical banking for both banks and customers, this study has made an attempt to find which attributes a user considers significant while evaluating a banking service involving both delivery channels. Also, the factors which would result in adoption of internet banking and their relation with consumer online banking behavior were studied. The results of the study indicated that increased trust, usefulness, convenience and ease-of-use are primary factors that influence individuals' usage of online banking over physical banking. The relationship between two categories of factors revealed that users' perception of increase status and satisfactory fulfillment of needs significantly influence customers' internet adoption behavior.*

**Keywords:** *perceived trust, perceived convenience, perceived usefulness, perceived ease-of-use, online banking adoption attributes.*

## Introduction

With the rapid diffusion of the Internet, banking in cyberspace is fast becoming an alternative channel to provide banking services and products. Banking has always been a highly information intensive activity that relies heavily on information technology (IT) to acquire, process, and deliver the information to all relevant users. Not only is IT critical in the processing of information, it provides a way for the banks to differentiate their products and services. Driven by the challenge to expand and capture a larger share of the banking market, some banks invest in more bricks and mortar to enlarge their geographical and market coverage. Others have considered a more revolutionary approach to deliver their banking services via a new medium: the Internet. In the recent years there has been explosion of Internet based online banking applications (Liao and Cheung, 2003). Beckett, Hower & Howcroft (2000) states that the emergence of new forms of technology has created highly competitive market conditions for bank providers. The Internet is now being considered as a strategic weapon and will revolutionize the way banks operate, deliver, and compete against one another, especially when competitive advantages of traditional branch networks are eroding rapidly (Nehmzow 1997; Seitz 1998). They claim that the Internet poses a very serious threat both to the customer base of the traditional banking oligopoly and to its profits.

Customers today are demanding much more from banking services. They want new levels of convenience and flexibility (Birch and Young 1997) on top of powerful and easy to use financial management tools and products and services that traditional retail banking could not offer. Internet banking has allowed banks and financial institutions to provide these services by exploiting an extensive public network infrastructure. As a result, registered Internet banking users can now perform common banking transactions such as writing checks, paying bills, transferring funds, printing statements, and inquiring about account balances.

## Literature Review

Technology has introduced new ways of delivering banking to the customer, such as ATMs and Internet Banking. Banks began to look at e-banking as a means to replace some of their traditional branch functions (Singh et al. 2002). Since the chances of success in launching new Internet-based services increase with understanding the adoption/use process of Internet-based services, numerous studies on the adoption of online banking have been conducted in recent years. Any decision to adopt e-banking is normally influenced by a number of factors.

The internet banking adoption is dominated by social norm effects (Chang 2005) and evidence was found that adoption of internet banking is influenced by sex, age, marital status, degree of exposure to internet banking, and the characteristics of the banks when new technology is introduced (internet banking). Sanmugam (2007) explores the consumer's adoption behavior constructed by using demographic, social economic and technological capacity indicators to estimate the probability of a bank customer adopting internet banking in Malaysia and found that adoption predominantly depends on social factors. The knowledge of core services, additional services, and problem-solving services dimensions as major determinants of consumer's quality perception in the internet provides banks a promising starting point for establishing an effective quality management for their e-businesses (Bauer et al. 2005).

Liao et al. (2008) stress that the success in Internet banking will be achieved with tailored financial products and services that fulfill customer's wants, preferences and quality expectations. Mattila et al. (2003) concedes that customer satisfaction is a key to success in Internet banking and banks will use different media to customize products and services to fit customers' specific needs in the future. Liao et al. (2003) suggest that consumer perceptions of transaction security, transaction accuracy, user friendliness, and network speed are the critical factors for success in Internet banking.

Lack of awareness (Hasan et al. 2010) and levels of education and income (Boyacioglu 2010) were the factors that most affected internet banking use. The adoption of internet banking was more where customers found it to be easy and thought that it served their purpose. Usefulness, web security and personal views of customers were also considered to be important factors in influencing the adoption.

The security risks of Internet banking have always been a concern to the service providers and users. Dixit and Datta (2010) found that the acceptance of e-banking services among adult customers was affected by concerns regarding security and privacy. The finding depicts many factors like security & privacy, trust, innovativeness, familiarity, awareness level increase the acceptance of e-banking services among Indian customers. The finding shows that in spite of their security and privacy concern, adult customers are willing to adopt online banking if banks provide him necessary guidance. Yerkes (1998) argues that, due to the relative newness of this rapidly growing industry, banks as well as consumers had serious concerns about the security of Internet access to client accounts, which was the biggest challenge (Denny 2000). Suk et al. (2010) show that the two factor authentication does not affect most of the key factors affecting Internet banking adoption including ease-of-use and it helps reduce the perceived risks. However, it increases the security awareness and concern of the users and it somehow affects users' trust in using Internet banking.

## Research Framework

The objective of this study is to identify and understand the factors that are significant in explaining intentions to adopt Internet banking services. A framework based on the theory of planned behavior (Ajzen 1985) and diffusion of innovations Theory (Rogers 1983) is used to derive the factors. The combined framework will provide a multidimensional approach to comprehensively understand adoption intentions. The findings will help in understanding the theoretical constructs of the framework in the adoption of Internet banking.

The second objective of the study was to study the impact of perceived compatibility and image awareness dimensions on consumer banking behavior. An attempt has been made to find impact on consumer banking behavior dimensions (PT, PU, PC and PEOU) if a user perceives internet banking to be compatible and it helps in enhancing image. The relevant literature and survey instruments developed by past studies provided the basis for developing the questionnaire for this study.

A total of 90 respondents were selected randomly who have availed both internet and physical banking of a nationalized bank in a mid-size metropolitan city. The questionnaire was divided in two parts which consisted of 10 dimensions pertaining to consumer online banking behavior attributes (as shown in Table 1). The first part

recorded individuals' response towards online banking on a Likert scale of 1 to 5. For instance, if a respondent agrees to that internet banking keeps his/her information more confidential than physical banking then he/she responds with 1 or 2 depending on degree of agreement. Whereas if an individual disagrees with the statement then the he/she responds with 4 or 5 depending on degree of disagreement. The second part of the questionnaire measures users' internet banking attributes which would influence him to adopt internet banking on a Likert scale of 1 to 5. In this part responses regarding two attributes viz. perceived compatibility and image awareness were recorded as the study of literature suggested that fulfillment of these subjective norms will have a positive influence among consumers' adoption of internet banking.

The research framework for this study is adapted from Taylor and Todd (1995a) and is based on the theory of planned behavior (TPB) (Ajzen 1985) and the diffusion of innovations theory (Rogers 1983). The framework postulates that a person's intention to adopt Internet banking is determined by following four factors. They are:

*Trust:* A common and widely recognized obstacle to electronic commerce adoption has been the lack of security and privacy over the Internet (Bhimani 1996; Cockburn and Wilson 1996; Quelch and Klein 1996). This has led many to view Internet commerce as a risky undertaking. Thus, it is expected that only individuals who perceive using Internet banking as a low risk and highly trustworthy undertaking would be inclined to adopt it.

*Usefulness:* Hill et al. (1986) found that usefulness predicts intentions to use a wide range of technologically advanced products. Thus, an individual confident in having the skills in using the computer and the Internet is more inclined to adopt Internet banking. This is because the individual is comfortable in using the innovation.

*Convenience:* Liao and Cheung (2003) concluded that convenience is one of the main factors driving people to bank online. Lee et al. (2005) discovered that current and prospective adopters perceived convenience as a determinant of intention to adopt online banking.

*Ease-of-use:* Past research has indicated that an innovation with substantial complexity requires more technical skills and needs greater implementation and operational efforts to increase its chances of adoption (Cooper and Zmud 1990; Dickerson and Gentry 1983). As the Internet is very user friendly with its "point and click" interface, it is likely that potential customers may feel that Internet banking services are less complex to use, and hence would be likely to use such services.

The factors and corresponding dimensions which were used to compare internet over physical banking are shown in Table 1. Accordingly, following hypothesis was also formulated.

**Table 1: Consumer Banking Behavior Attributes**

<b>Factors</b>	<b>Corresponding Items</b>
Perceived Trust (PT)	<ul style="list-style-type: none"> <li>• Confidentiality of information</li> <li>• Security of transactions</li> </ul>
Perceived Usefulness (PU)	<ul style="list-style-type: none"> <li>• Effectiveness</li> <li>• Usefulness</li> </ul>
Perceived Convenience (PC)	<ul style="list-style-type: none"> <li>• Accessible anytime</li> <li>• Accessible anywhere</li> <li>• Range of services</li> </ul>
Perceived Ease-of-Use (PEoU)	<ul style="list-style-type: none"> <li>• Easy to learn</li> <li>• Easy to do</li> <li>• Provides all service functions</li> </ul>

H<sub>1a</sub>: Perceived trust influences usage of internet banking over physical banking.

H<sub>1b</sub>: Perceived usefulness influences usage of internet banking over physical banking.

H<sub>1c</sub>: Perceived convenience influences usage of internet banking over physical banking.

H<sub>1d</sub>: Perceived ease-of-use influences usage of internet banking over physical banking.

The second part of the study tries to find out the fit of users' online banking behavior attributes viz. perceived compatibility and image awareness factors and their corresponding dimensions with consumer banking behavior (Table 2). The literature survey has indicated that banks focus in targeting these subjective norms of users' would result in adoption of internet banking.

*Perceived compatibility:* Budman (2003) considered perceived compatibility to be a psychological barrier and believed that once individuals become comfortable online transactions, they would increase the usage of other online services. Compatibility indicates the strength of consumer perception that an innovation is consistent with their past experiences, current values and future needs (Rogers, 1983). Therefore, lower requirement to change existing customer habits such as current method of banking the higher likelihood that customers will use online.

*Image Awareness:* Venkatesh and Davis (2000) included subjective norms in their approach to study online banking adoption. Subjective norms refer to whether individual beliefs such as PT etc., regarding the adoption of new product/service are affected by reference groups such as family, friends etc. or public opinion leaders in his/her community. Image awareness is defined as adoption of online banking tending to elevate the standing of an individual within a group, with enhanced image comprising one of the benefits of online banking.

**Table 2: Adoption of Online Banking Attributes**

Factors	Corresponding Items
Perceived compatibility (PComp)	<ul style="list-style-type: none"> <li>• Familiar with internet-based banking services</li> <li>• Like to deal with banking matters oneself</li> <li>• Comfortable with online banking</li> <li>• Online banking fits the needs</li> </ul>
Image awareness (IA)	<ul style="list-style-type: none"> <li>• Using online banking increases social status</li> <li>• Using online banking increases profile</li> </ul>

The hypothesis formulated to evaluate the impact of consumer banking behavior on adoption of internet banking was proposed as follows:

H<sub>2a</sub>: PC, PEoU, PT and PU are significantly influenced by PComp

H<sub>2b</sub>: PC, PEoU, PT and PU are significantly influenced by IA.

## Results

In the first part of the questionnaire it was studied that on which dimensions users of two banking delivery channels consider internet banking to be better provider of services. For this objective dimensions pertaining to various discussed factors were designed in a differential manner wherein customers evaluated a dimension by comparing two banking delivery channels. The statements were designed to show the comparison between internet and physical banking on a five-point Likert scale. The statements were constructed in a manner where internet banking was considered to be better than physical banking and a respondent shows his/her degree of agreement by responding below three, whereas, if he/she disagrees then response greater than three would be indicated implying that physical banking is providing better service than internet banking. To check the significance of sample mean a one-tail t-test at 5% significance level was applied and results are shown in Table 3. So the responses were not constrained by two boundaries. Instead a response greater than three irrespective of by how much implied the respondents' liking of internet banking over physical banking. This is why the sample means were calculated indicating respondents responses and were compared with the middle value of three which was presumed to be population mean.

The results as shown in Table 3 indicates t-values of all dimensions to be significant except one dimension (internet banking provides all service functions offered by physical banking). This implies that users of two banking delivery channels consider internet banking to be a better means of delivering banking services as compared to physical banking except the insignificant dimension. The figures in table 3 evidently display that H<sub>1a</sub>, H<sub>1b</sub> and H<sub>1c</sub> are strongly accepted and H<sub>1d</sub> is partially accepted. That is PT, PU and PC very significantly influence individuals online banking behavior and if a bank provides effective online banking service by considering these three factors then users can be influenced to use online banking rather than physical banking which would result in lowering of costs and better productivity for the bank. The results correctly indicate that physical banking is preferred when an individual wants variety of services as internet banking lacks in offering all the services.

**Table 3: Comparison of Online and Physical Banking**

Factors	Dimensions	Mean	Standard Deviation	t -value
	Internet banking...			
Trust	Keeps my information more confidential than physical banking (PB).	2.25	0.72	-4.68
	Secure my transactions more strongly than PB	1.75	0.64	-8.75
Usefulness	Is more effective than PB	1.55	0.69	-9.44
	Is more useful than PB	1.4	0.60	-11.96
Convenience	Is more accessible anytime than PB	1.6	0.68	-9.19
	Is more accessible anywhere than PB	1.55	0.60	-10.72
	Provides broader range of services than PB	2.15	0.93	-4.07
Ease-of-use	Is easier to learn how to use than PB	2.3	0.98	-3.19
	Is easier to do what I want than PB.	1.85	0.75	-6.90
	Provides all service functions offered by PB	2.9	1.12	-0.39*

*\*insignificant t-value at 5% significance level*

In the second part of questionnaire respondents were subjected to questions pertaining to how much users perceive internet banking to be compatible with their needs and adoption would result in enhancement in their image and social status. Simple linear regression technique has been used to evaluate the impact of internet banking adoption dimensions (perceived compatibility and image awareness) which were taken as independent variables over online banking behavior (PT, PU, PC and PEoU) which were considered as dependent variable. For illustration, the objective was to identify that banks should focus more on which of the two independent dimensions so that they can make internet banking to be more trustworthy, useful, convenient and easy to learn.

The results as shown in Table 4 indicate that for all the dimensions independent and dependent variable have a positive relationship implying that users' online banking behavior of trust, usefulness, convenience and ease-of-use will increase if they find online banking delivery channel to be more compatible and instrumental in enhancing their social status. But the relationship was found to be significant only for PT and PComp and PEoU and IA. This indicates that users consider online banking to be a trustworthy medium of conducting financial business if service providers give increased emphasis on designing it in a way that it fits the needs of customers and make them comfortable in dealing with banking matters. Also results show that users easily use and adapt towards online banking if they feel that adoption of online banking will have a positive impact on their social status and it will increase their societal profile. Thus both hypothesis H<sub>2a</sub> and H<sub>2b</sub> are partially accepted.

**Table 4: Relationship between banking behavior and online banking adoption attributes**

Dependent variable	Independent variable	Beta value	t-value
Perceived Trust (PT)	Perceived Compatability	0.37	3.49*
	Image Awareness	0.089	0.83
Perceived Usefulness (PU)	Perceived Compatability	0.041	0.37
	Image Awareness	0.054	0.56
Perceived Convenience (PC)	Perceived Compatability	0.017	0.123
	Image Awareness	0.142	1.12
Perceived ease-of-use (PEoU)	Perceived Compatability	0.147	0.802
	Image Awareness	0.443	3.03*

\*significant t-values at 5% significant level

## Conclusion

E-banking, the latest generation of electronic banking transactions, opened up new window of opportunity to the existing banks and financial institutions. Most of the banks have their own websites but not all of them offered internet facilities. This study has attempted to present a process-oriented research structure regarding online banking by reviewing literature extensively. Consistent with many previous reports and studies contending that perceived trust is the most important factor in adoption of online banking, this study also concluded that absence of trust results in discouraging people from online banking. Accordingly, since the adoption of an innovation is primarily the outcome of a learning process, a fundamental step in expediting online banking diffusion is to convince consumers that online banking is trustworthy and it helps in enhancing image and social status. Also, the results of study have concluded that instilling attributes of trust, convenience and usefulness in online banking delivery channel the banks can make the adoption of internet banking amongst individuals significantly faster. In line with the findings ease-of-use may be considered partially significant but avoidable criterion regarding adoption of online banking, which explains that even if this attribute is missing from online banking delivery channel then also individuals will be inclined towards adoption of internet banking.

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