

# “Relationship between types of trust and level of adoption of Internet banking”

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## SECTION 4. Practitioner's corner

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### Relationship between types of trust and level of adoption of Internet banking

#### Abstract

Internet banking has emerged as a profitable e-commerce application over the last decade. While the banks in developing countries have been able to increase the number of users of Internet banking with the help of aggressive marketing campaigns, the level of adoption still remains fairly low as is reflected by the types of Internet banking services that the customers avail of. While low level of trust has often been cited as the reason of lower degree of adoption of Internet banking, the means to develop such trust are still not clearly known. An understanding of the role of different types of trust in Internet banking can provide useful inputs for strategy design in this regard. The present paper examines the role of different types of trust in influencing the level of adoption of Internet banking. Based on the data regarding the perceptions of 107 Internet banking users in India, an attempt has been made to study the relationship between the level of adoption and institution base trust, disposition to trust and trusting beliefs.

**Keywords:** Internet banking, trust, institution base trust, disposition to trust, trusting beliefs, adoption, usage, security, associated structural assurances, service quality, benevolent policies.

**JEL Classification:** G21, M15, O33, O53.

#### Introduction

Banking, being an information intensive activity, has been quick in adopting Information Technology (IT) and especially Internet in its operations. Banks extensively use Internet as the delivery channel (Christopher et al., 2006) for its various banking activities such as accessing accounts, transferring funds, online payments, viewing account balances, availing online services, etc. (Haque et al., 2009) and such application of Internet to banking operation is termed as Internet banking or online banking. The advantages of Internet banking to both the customers and the banks are driving the adoption and its growth. While the speed and convenience in the execution of banking transactions are the primary benefits for the customers (IAMAI's, 2006); reduced costs (Orr, 1999), enhanced capacity, wider reach and service efficiency are considered to be the important benefits to a bank (Mittal et al., 2004; Berger, 2003). According to DiDio (1998), the average transaction cost at a full service bank is about \$1.07. It reduces to \$0.27 at an ATM and falls to about a penny if the same transaction is conducted on the web. Internet banking has also been seen as an important aid in improving the understanding of the customer's needs and thereby increasing customer satisfaction (Dixon, 1999). Further, banks are able to integrate other Internet banking services with the core banking services without significant investment in the infrastructure (Wah, 1999). In view of the above benefits, banks are making heavy investments in Internet infrastructure and embracing this technological system to bring about major changes in the manner banking is con-

ducted. While the Internet technology holds a great promise, it is still haunted by low rate of adoption by bank customers due to lack of trust in the virtual environment of Internet (Kim and Prabhakar, 2004; Culnan and Armstrong, 1999).

#### 1. Trust and Internet banking

Trust has often been posited as one of the essential elements of economic exchange (Dwyer et al., 1987; Spekman, 1988). Rempel and Zanna (1985) defined trust as 'a generalized expectancy held by a customer that word, promise or statement of the company can be relied upon'. Rousseau et al. (1998) defined trust as "perceptions about others' attributes and a related willingness to become vulnerable to others". Trust plays a key role at the persuasion and decision stages through which a technological innovation passes (Rogers and Shoemaker, 1971). The stage that precedes them is knowledge/awareness. Trust is essential in situations where risk and uncertainty exist (Mayer et al., 1995) and the online environment is prone to a number of risks due to its virtual nature. The uncertainty that an individual often assumes makes trust a necessary component (Gerrard and Cunningham, 2003; Pikkarainen et al., 2004). The nature of online delivery used in Internet banking increases the importance of trust as there is no direct physical contact between user and banker (Yap et al., 2009). This spatial distance means that customers cannot use the physical cues, such as observing the counter clerk, or the physical office/store space, to judge trustworthiness (Reichheld and Schefer, 2000). Thus, trust has a significant influence on a customer's attitude towards the use of Internet banking (Jarvenpaa et al., 2000; Suh and Han, 2002; Rexha et al., 2003; Liu et al., 2007;

Lichtenstein and Williamson, 2006). Kim et al. (2009) defined trust in the Internet as a banking medium as the willingness of the user to put himself vulnerable to the actions of Internet expecting that the Internet would do as required and not something else despite the possibility of existing environmental, human and system disruptions/errors. Hence, trust on the Internet banking and its infrastructure reduces customers' uncertainty and related risks associated with the possibility that a bank might behave opportunistically (Yousafzai et al., 2003).

Although there have been proliferation of Internet banking, issues of trust and distrust have been found to inhibit the adoption of Internet banking particularly in developing countries like Nigeria (Ezeoha, 2006), Thailand (Sukkar and Hasan, 2005), Spain (Hernando and Nieto, 2005), China (Laforet and Li, 2005), Jordan (Rotchanakitumnuai and Speece, 2003), Romania (Gurau, 2002), New Zealand (Chung et al., 2002), etc. These studies have underlined the importance of breaking through the trust barriers in order to achieve potential economic benefits of Internet banking. The lack of trust in the online environment has been often stated as an obstacle in the widespread adoption of Internet banking (Yousafzai et al., 2009). Majority of the customers are reluctant to adopt Internet banking because of security and privacy concerns (Lee and Turban, 2001).

Rousseau et al. (1998) defined trust in online banking as willingness on part of customer to transact online for their banking needs with an expectation that the bank will fulfill its obligations. This definition not only captures the traditional view of trust in a specific party, i.e., the bank providing e-banking services, but it also involves trust in the integrity of the transaction medium. This definition also identifies the two types of trust as proposed by McKnight et al. (1998) as the "institution-based trust" and "trusting beliefs" that is the focus of the present paper. The present paper aims at identifying various technological factors that may influence institutional-based trust and its relationship with belief in the context of Internet banking.

## 2. Level of adoption

While the banks have been able to push the customers to use Internet banking services, the usage has been primarily limited to very few services such as viewing the account balance and making a requisition for cheque book. Most users of Internet banking in developing countries like India do not use other services such as electronic fund transfers, online shopping, utility payments, online trading in financial products, etc. This may be due to lower levels of trust in Internet banking. Thus, the level of Internet bank-

ing adoption may vary depending upon the customers' level of trust. The present paper examines the relationship between different types of trust and level of adoption of Internet banking.

## 3. Literature review

Studies of online banking (Kassim and Abdulla, 2006; Mukherjee and Nath, 2003; Bhattacharjee, 2002; McKnight, Choudhury, and Kacmar, 2002; Kim and Prabhakar, 2000) have shown that trust is a critical factor in stimulating online banking operations. Reichheld and Scheffer, (2000) opined that the spatial distance between the banker or the banking staff and the customer gives rise to lack of trust in e-banking. Trust is stated to play an important role in determining consumers' initial and continued use of the e-banking service (Suh and Han, 2002; Rexha et al., 2003; Lichtenstein and Williamson, 2006).

Lee & Turban (2001) found that customers were reluctant to adopt Internet banking because of security and privacy concerns. Lack of customer trust, both in the attributes of the bank and in the virtual environment has been often found to be an impediment in the adoption of Internet banking (Aladwani, 2001). Chellappa and Pavlou (2002) argued that the introduction of new information technologies is often accompanied by security concerns and the acceptance of the virtual environment depends on controlling information security threats, enhancing consumer security perceptions and building trust. Thus, security continues to be an important issue in adoption of Internet banking.

Suh and Han (2003) observed a strong influence of trust on consumer acceptance of online banking in South Korea. For a customer to trust e-banking, he/she must be assured that the transactional medium is secure and that any information provided to the website would not be intercepted or given to a third party (Suh and Han, 2003). The majority of non-users of online banking in Romania indicated a lack of trust in the Internet (80%) and the banking system (61%) as reasons for not adopting online banking (Gurau, 2002). A study of IT managers of banks in Kuwait identified customer trust as the second biggest challenge facing online banking (Aladwani, 2001).

Trust on the virtual environment offered by Internet banking is influenced by factors like a well-designed site and ease of use of the services offered. Balasubramanian et al. (2003) underlined the role of the virtual attributes of Internet banking website in providing cognitive cues to create trust in the online environment. Wang et al. (2003), Erikson et al. (2004), and Pikkarainen et al. (2004), found relationship between customers' perception of the usefulness and adoption of Internet banking.

Gerrard et al. (2006) identified risk as one of the important factors for Internet banking adoption in Singapore. They observed that customers not using the Internet banking services had a negative perception of the security in Internet banking. Laukkanen et al. (2008) also found risk as the greatest concern in the adoption of Internet banking. However their study also pointed out human errors committed by users also as a threat to their financial services. "A higher determinant of resistance appears to be the risk related to the individual's perceived ability to use the innovation successfully, i.e. self-efficacy" (Laukkanen et al., 2008).

Yousafzai et al. (2009) examined the role of trust in Internet banking and found perceived risk and trust as antecedents of intention to adopt Internet banking. They observed perceived trustworthiness, perceived security, and perceived privacy as antecedents of trust. They found that trust in electronic banking and its infrastructure reduces customers' transaction-specific uncertainty and related risks associated with the possibility that a bank might behave opportunistically. When people trust others, they assume that those they trust will behave as they are expected to, reducing the complexity of the interaction.

Yap et al. (2009) examined the role of situational normality cues and structural assurance cues in a consumer's trust in and use of e-banking. They found that traditional service quality and website features that give customers confidence build trust in e-banking. While the relationship between service quality and attitudes and behaviors towards counter service banking has already been established (Zeithaml et al., 1996; Fassnacht and Kose, 2007; Yap and Sweeney, 2007), the customer experience goes beyond counter service and now encompasses alternative media of service delivery (Semijin et al., 2005).

The above mentioned studies underline the role of trust in adoption of Internet banking, however, the understanding of the specific paths to the development of trust for increasing the degree of adoption of Internet banking still eludes us. While security privacy and website quality have often been identified as important issues in building trust that could enhance Internet banking usage, no comprehensive model seems to have been developed that can explain the relation between such issues and the level of adoption of Internet banking. The present paper makes a modest attempt in this direction. It aims to identify various technological factors that may influence institutional-based trust, and test the validity of the web trust model proposed by McKnight et al. (2002) in the context of Internet banking.

#### 4. Web trust model

The web trust model by McKnight et al. (2002) suggests that adoption of any e-commerce system

depends upon the customers trust in the web that in turn is related to trusting beliefs and disposition to trust of the customer and the institution-based trust of the system. *Institution-based trust* is the belief that needed structural conditions are present (e.g., in the Internet) that have the potential to achieve a successful outcome in an endeavor like e-commerce. It primarily involves presence of various structures that make an environment feel trustworthy (Zucker, 1986). *Disposition to trust* is the extent to which a person displays a tendency to be willing to depend on others in different situations and persons. *Trusting beliefs* include the truster's perception of trustee's specific attributes (McKnight et al., 2002). It is expected to be influenced by both the disposition to trust and the institution based trust. *Trusting intentions* indicates a person's willingness to depend on the vendor. In any endeavor like e-commerce, this would involve the trusters' willingness to adopt the system and willingly make him/her vulnerable to perceived risks. *Trust-related behaviors* are truster's actions that demonstrate its dependence on web based infrastructure that make one vulnerable to the vendor, or increase one's risk (Mayer et al., 1995, Zand, 1972). In the context of Internet banking, this would mean level of adoption as demonstrated in use of various Internet banking facilities by the customer.

#### 5. Sample selection and methodology

To capture the perceptions of the Internet banking users regarding various trust issues influencing its adoption in India, a survey of Internet banking users of leading banks of India was conducted during the first quarter of year 2011. Convenient sampling was used to select the respondents belonging to different age groups and of different educational background. A structured questionnaire was given to these respondents in advance either personally or through e-mail so that they have understood the questions before they were approached for responses. The respondents belonging to different cities like Delhi, Gurgaon, Noida, Mumbai, Pune, Chennai, Hyderabad, Bangalore, Chandigarh, etc. constituted the sample. The questionnaire was initially pre-tested with few respondents who agreed to critically examine the questionnaire and offer suggestions. They suggested a few changes in the construct of the questions, which were duly incorporated in the questionnaire before carrying out the final survey. In total 107 completed responses were received.

The survey instruments were divided into 3 sections. The first section focused on the general profile of the respondent including his/her age group, education and profession level and income group. It also included questions regarding the users' IT and Internet awareness as well as the e-banking

services generally availed. The second section contained statements regarding various trust related dimensions of Internet banking adoption. The respondents were asked to indicate their agreement score (between 1 to 5) for each of these statements based on their perceptions and beliefs. These statements were designed after due review of existing empirical studies in this regard. There were total 40 item scales consisting of these statements in this section. The last section consisted of statements relating to overall perception of the respondents regarding each of the dimensions under which the statements in section two were grouped. There were total 5 item scales consisting of these statements in this section.

## 6. Research model

The web trust model by McKnight et al. (2002) suggested that adoption of the e-commerce system depends upon the customers trust in the web that in turn is related to trusting beliefs and disposition to trust of the customer. Since, Internet provides services to the users and hence it can be considered as an extension of e-commerce. However, in view of greater concerns of the user regarding various technology-related trust dimensions influencing the institution based trust, the model has been adapted to reflect the same. Figure 1 represents the proposed model for understanding the relationship between types of trust and the level of adoption in Internet banking.

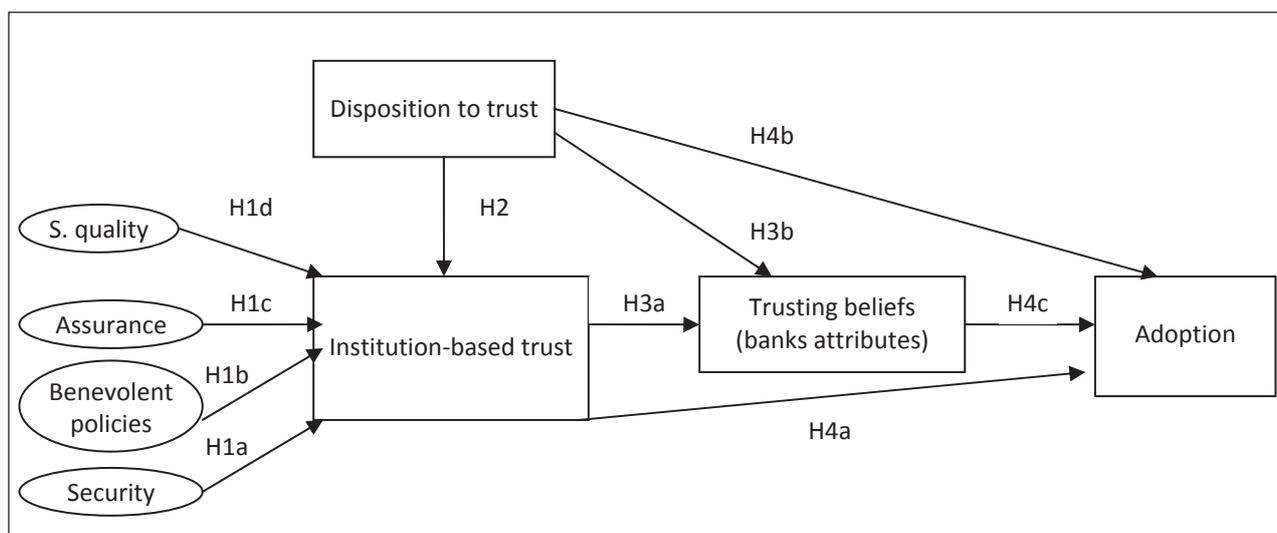


Fig. 1. Research model

## 7. Measurement/operationalization of the constructs

A set of scale items with a 5-point Likert scale (with 1 = strongly disagree, 2 = disagree, 3 = neutral, 4 = agree, and 5 = strongly agree) was used for measuring the respective constructs. These constructs include adoption, trusting beliefs, disposition to trust and institution based trust and is described in the following sections.

**7.1. Adoption.** Adoption is the acceptance and continued use of a product, service or idea (Rogers et al., 1971). Trust-related behaviors in the Mcknight's web trust model is related to adoption. Consumer adoption of new innovations is often significantly influenced by perceived risk (Jarvenpaa et al., 1999), which determines the users trusting behavior (Kim et al., 2009). Since all of the respondents in the survey were users of Internet banking, however, it was found that the level of its adoption varied. This is because the users tend to adopt Internet banking for various services like: balance enquiry, cheque/statement/draft requisition, utility payments, online shopping, electronic fund transfer or EFT trading etc. The respon-

dents were asked to specify their extent of usage of Internet banking and based on the varying response rates received; the respondents were then classified under 5 levels of adoption. The levels ranged from users adopting Internet banking for just balance enquiry as level 1 to users using it for electronic fund transferring and/or trading as level 5.

**7.2. Trusting beliefs.** This refers to the truster's belief that the trustee, in this context, the bank, has attributes that are beneficial to the truster. Although many types of trusting beliefs exist in the literature (e.g., Butler, 1991; Bhattacharjee, 2002; Gefen, 1997; Mayer et al., 1995), three most cited beliefs are: competence (ability of the trustee to do what the truster needs), benevolence (trustee caring and motivation to act in the truster's interests), and integrity (trustee honesty and promise keeping). Accordingly, the respondents were asked to indicate their agreement score on the statements regarding their perceptions/beliefs relating to the bank's security, structural assurances, service quality and benevolent policies adopted for the users. Later, an aggregate value indicating general belief with regard to the bank was then arrived at.

**7.3. Disposition to trust.** Disposition to trust is the extent to which a person displays a tendency to be willing to depend on others across a broad spectrum of situations (McKnight et al., 2002; Mayer et al., 1995; Kramer, 1999). In other words, it represents the inclination to trust other people (Ferres et al., 2004; Tan & Sutherland, 2004). A person who has high propensity to trust others tends to color the interpretations of the relationships built between trustor and trustee (McKnight et al., 2002). In the online banking context, it works similarly. A person who tends to believe that others are generally reliable and easy to trust will also believe that the online banking system will act in his/her best interest, keeping promises and remaining honest. Eight scale statements from a number of sources like McKnight et al. (2002), Wakefield et al. (2004), Jarvepanna et al. (2000), Gefen (2000), and Lee and Turban (2001) were used for measuring disposition to trust. Later, an aggregate value indicating the respondents' disposition to trust was then arrived at.

**7.4. Institution-based trust.** The concept of institution-based trust proposed by McKnight et al. (1998) represents the beliefs held by customers about 'impersonal structures and favorable conditions' that assures them about the prospect of transacting in any exchange. In other words, it is based on the presence of various structural conditions (Zucker, 1986) in order to enhance the probability of achieving a successful outcome in an endeavor like e-commerce. McKnight defined structural assurance and situational normality as the two dimensions of institution-based trust. Structural assurance refer to the presence of various structures like guarantees, regulations, promises, etc. (Shapiro, 1987; Zucker, 1986); whereas, situational normality refer to one's belief that the environment is in 'proper order' (Baier, 1986; Garfinkel, 1963; Lewis and Weigert, 1985). McKnight et al. hypothesized that institution-based trust has the potential to significantly affect both trusting beliefs and trusting behavior. Several recent studies have found that institution-based trust can strongly influence trust in online environments (Pavlou et al., 2003, 2005). Since, Internet offers a faceless environment, the role of institution-based trust becomes much more important (Gefen et al., 2006) where users take into account the structural characteristics and normality of the environment to counterbalance the lack of cues needed to form trusting beliefs in an online service (Vance et al., 2008). Keeping in view of the above, the present paper identified security, associated structural assurances, service quality and benevolent policies as the major factors that may influence institution-based trust. These factors have been briefly discussed below.

1. **Security.** Internet banking security is one of the important challenges for banks to mitigate the fear and risks perceived by customers who use the web for financial transactions (Cunningham, 2003). Ratnasingham (1998) identified a number of elements of e-commerce security namely, protection from the threats and risks of transactional integrity, authentication, authorization, awareness of information collection, information usage, access, and enforcement (Chellappa, 2003). Fourteen different statements were used to measure the perception of the respondents concerning these elements of security in Internet banking.
2. **Associated structural assurance.** Structural assurance refer to one's belief that structures like guarantees, regulations, promises, or other procedures are in place (Shapiro, 1987; Zucker, 1986). McKnight and Chervany (2000) suggested that structural assurances relate to customers' trusting beliefs as the customers are more likely to trust a safe and secure environment. Eight scale statements were used to measure the perception of the respondents concerning associated structural assurances in Internet banking. These statements were designed after the review of studies by Hoffman et al. (1999), Furnell & Karweni (1999), Milne (2000), Aladwani (2001), Gopalkrishnan et al. (2003), etc.
3. **Service quality.** Service quality is the overall assessment of the perceived performance of the service provider (Montoya-Weiss et al., 2003). It refers to the customer's comparisons of their expectations about the service with their perception of the way the service has been provided (Parasuraman et al., 1988). Liu and Arnett (2000) identified timely, relevant and accurate quality of information as one of the most important services offered online. Antovski, Lj et al. (2001) related high availability as delivery of continuous online banking services to customers as one of the key drivers for adoption of Internet banking by the customers. Five scale statements were used to measure the perception of the respondents concerning the above aspects of service quality offered by any bank in regard to Internet banking.
4. **Benevolent policies.** Perceived benevolence is based on items that refer to whether or not the bank demonstrates empathy and reception towards customers' concerns and its interest in the customers well being (Gefen, 2002; McKnight et al., 1998). Five statements were used to measure the perception of the respondents concerning the bank's benevolent policies regarding Internet banking. They mainly related to the user's belief that the bank provides 'state of art' technological Internet banking service, or that the bank is

processing the user transactions efficiently/securely or the bank is fair with its Internet banking customers or the bank is following best industry practices and policies or the bank is acting in the best interest as against the competition.

Based on the proposed web trust model as described above, the following hypotheses were tested.

*H1a: Security regarding the Internet banking environment influences the institution-based trust.*

*H1b: Benevolent policies followed by a bank regarding its Internet banking services influence the institution-based trust.*

*H1c: Associated structural assurances relating to Internet banking influence the institution-based trust.*

*H1d: Service quality offered by a bank regarding its Internet banking services influences the institution-based trust.*

*H2: Disposition to trust influences the institution-based trust regarding Internet banking environment.*

*H3a: Institution-based trust influences the user's trusting beliefs.*

*H3b: Disposition to trust influences the user's trusting beliefs.*

*H4a: Institution-based trust influences the level of adoption of Internet banking.*

*H4b: Disposition to trust influences the level of adoption of Internet banking.*

*H4c: Users' trusting belief influences the level of adoption of Internet banking.*

## 8. Methodology

To ensure research rigor and validity of the results, procedures proposed by Koufteros (1999) were followed to analyze the data. First, an instrument for the measurement scale was developed by following a systematic approach and incorporating a pre-test and a pilot test to ensure the appropriateness of the instrument. Second, an effective approach was adopted for data collection. Third, an evaluation at the item level using the tests for item reliability was performed. Fourth, regression analysis was carried out to examine the relationships between the different types of trust and the level of adoption of Internet banking and validate the hypotheses formed. Finally the model obtained was duly tested.

## 9. Demographic characteristics of the respondents

The descriptive statistics of the respondents' demographic characteristics were analyzed and presented in Table 1.

Table 1. Demographic profile of respondents

Demographic profile		Frequency	Percent
Sex	Female	47	44
	Male	60	56
Age	Less than 25	10	9
	Between 25 and 35	54	51
	Between 35 and 45	19	16
	More than 45	24	24
Occupation	Pvt sector employee	37	34.6
	Govt. sector employee	43	40.2
	Bank employee	6	5.6
	Professional/self employed	18	16.8
	Non-earning group	3	2.8
Educational qualification	Graduate or less	22	20.5
	Post graduate	38	35.5
	Professional degree	47	44
Monthly income	Less than Rs. 50,000	52	48.6
	Between Rs.50,000 and Rs.1,00,000	44	41.1
	More than Rs.1,00,000	11	10.3

As can be observed from Table 1, the sample was fairly diversified in respect of the attributes identified. The number of the male respondents (56%) and female respondents (44%) are comparable which can account to an impartial feedback from both perspectives. Half of the respondents were in the age group of 25-35 years. About 40% were government employees, 35% were private sector employees and 17% were self-employed professionals. Only 3% of the respondents belonged to non-earning group that consisted of either students or housewives. The education level of all the respondents was fairly high. All of them had minimum education level of high school or equivalent. About 80% of all respondents had higher education with either a professional qualification or masters. Almost half of the respondents belonged to middle or high-income category (monthly income > \$10,000).

## 10. Data analysis

Before the principal component analysis, Kaiser-Meyer-Olkin Measure of Sampling Adequacy and Bartlett's Test of Sphericity were performed through the SPSS. The Kaiser-Meyer-Olkin (KMO) value was .773, which is higher than the recommended minimum of 0.6 (Kaiser, 1974) indicating that the sample size was adequate for applying factor analysis. In addition, the value of the test statistic for sphericity (Bartlett, 1954) on the basis of a Chi-squared transformation of the determinant of the correlation matrix was large. Bartlett's test of sphericity was significant, supporting the factorability of the correlation matrix and the associated significance level was extremely small (0.000). For

factor extraction, principal component method was used, under the restriction that the Eigenvalue of each generated factor was more than one (see Table 2). Three components for security were generated explaining 63.5% of the variance, two compo-

nents for associated assurances were generated explaining 50% of the variance, and one each for service quality and benevolent policies were extracted in this manner explaining 50% and 58% of variance respectively.

Table 2. Factor loadings

	Item	Security			Assurance		Serv. quality	Ben. policies
1	Sec1	.576						
2	Sec2	.709						
3	Sec3	.812						
4	Sec7	.697						
5	Sec8	.670						
6	Sec9	.671						
7	Sec13	.595						
8	Sec10		.476					
9	Sec14		.529					
10	Sec12		.773					
11	Sec4			.733				
12	Sec11			.695				
13	Sec5			.840				
14	Assur1				.684			
15	Assur2				.652			
16	Assur5				.675			
17	Assur6				.681			
18	Assur7				.517			
19	Assur3					.695		
20	Assur4					.721		
21	Assur8					.776		
22	Qual1						.718	
23	Qual2						.791	
24	Qual3						.713	
25	Qual4						.570	
26	Qual5						.739	
27	Ben1							.635
28	Ben2							.805
29	Ben3							.816
30	Ben4							.806
31	Ben5							.756
	% of variance	35.590	11.749	8.617	33.676	16.174	50.409	58.740
	Cummulative variance	63.510%			49.851		50.409	58.740

Notes: Extraction method: principal component analysis. Rotation method: varimax with Kaiser normalization.

**11. Reliability**

Reliability can be defined as the degree to which measurements are free from error and therefore yield consistent results. In order to check the reliability of the scales, Cronbach’s Alpha test was carried out. As can be seen from the Table 3, the composite reliability score for each of the constructs was found to be above .70 which is considered to be the critical value for reliability (Suh & Han, 2003; Merisavo et al., 2007).

Table 3. Reliability of measurement items

Construct	Cronbach's alpha (>0.7)
Security	0.8452

Assurance	0.7989
Service quality	0.7455
Benevolent policies	0.8203
Disposition to trust	0.8731
Trusting belief	0.7602

**12. Results and interpretations**

The results of the data analysis primarily relate to (a) factors influencing institution-based trust; (b) role of disposition to trust; and (c) trusting beliefs and adoption of Internet banking. The results in respect of each of these types of trust have been discussed in the following sections.

**12.1. Factors influencing institution-based trust.**

In order to identify the factors that have significant influence on the institution based trust in Internet banking, four factors namely security, associated assurances, service quality and benevolent policies were regressed against the dependent variable institution-based trust (IBT) as perceived by the respondents. All of the factors considered were found to be statistically significant, and the overall model was also statistically significant ( $R^2 = .751, p < 0.001$ ). The obtained adjusted  $R^2$  value of 0.741 and thus the model has accounted for 74.1% of the variance in the dependent variable. Further,  $F$  value is 76.737 ( $p < 0.000$ ) which is highly significant (see Table 4).

Table 4. Coefficients of regression analysis<sup>a</sup>

Model	Unstandardized coefficients		Unstandardized coefficients	t	Sig
	B	Std. error	Beta		
Constant	3.644	.035		104.919	0.000
Security	.234	.091	.166	2.562	0.002
Assurance	.124	.066	.125	1.875	0.006
Service quality	.157	.062	.224	2.548	0.002
Benevolent policies	.339	.056	.480	6.009	0.000

Note: <sup>a</sup>Dependent variable: IBT.

All the four factors considered in the present study were found to be significant contributors to institutional-based trust. Interestingly, the benevolent policies adopted by bank regarding its Internet banking applications were considered most important. The user wants an assurance that the bank would be benevolent towards him/her in case of any anomaly in the transaction conducted online. The next in importance is the perception regarding the security measures adopted by the bank regarding Internet banking. The service quality of the bank in regard to its Internet banking applications also plays an important role in building institution based trust. Thus, the results support hypotheses H1a, H1b, H1c, and H1d.

**12.2. Role of disposition to trust.** Positing that disposition to trust will influence institution-based trust; disposition to trust was regressed against institution-based trust and was found to be statistically significant ( $R^2 = .551, p < 0.001$ ). The obtained adjusted  $R^2$  value was 0.441 ( $F$  value = 55.96,  $p < 0.000$ ). The results indicated that disposition to trust has a significant role in determining the level of institution-based trust (see Table 5). Thus, the results support the hypothesis H2 that states that disposition to trust influences the institution-based trust

regarding Internet banking environment. This would imply that the composition of the user base plays an important role in building institution-based trust in Internet banking.

Table 5. Coefficients of regression analysis<sup>a</sup>

Model	Unstandardized coefficients		Unstandardized coefficients	t	Sig
	Beta	Std. error	Beta		
Constant	2.018	.218		9.462	0.000
Disposition	0.513	0.077	.590	7.481	0.000

Note: <sup>a</sup>Dependent variable: IBT.

**12.3. Trusting beliefs and adoption of Internet banking.** In order to examine the influence of disposition to trust and institution-based trust on trusting belief, these two types of trust were regressed against trusting beliefs and the relationship was found to be statistically significant ( $R^2 = .804, p < 0.001$ ). The adjusted  $R^2$  value obtained was 0.646 which indicating that almost two-third of the variance in trusting beliefs can be explained by these two types of trust. Further,  $F$  value is 94.972 ( $p < 0.000$ ) which is highly significant (see Table 6). Both the institution-based trust and disposition to trust was found to be significantly influencing the trusting belief. Thus, the results support the hypothesis H3a and H3b. The results also lead to the conclusion that the structures created and demonstrated by the bank regarding security, assurances, service quality and benevolent policies collectively play very important role in forming trusting beliefs in Internet banking. Although the disposition to trust was also found to be significantly influencing the trusting beliefs, it was far less important as compared to institution base trust.

Table 6. Coefficients of regression analysis<sup>a</sup>

Model	Unstandardized coefficients		Unstandardized coefficients	t	Sig
	B	Std. error	Beta		
Constant	.842	.154		7.153	.000
Disposition	.110	.056	.141	1.959	.005
Institution-based trust	.639	.065	.712	9.863	.000

Note: <sup>a</sup>Dependent variable: trusting beliefs.

**12.4. Relationship between types of trust and adoption of Internet banking.** In order to examine the influence of different types of trust namely institution-based trust, disposition to trust and trusting belief on level of adoption, regression analysis was carried out. As may be observed from Table 7, all three types of trust have signifi-

cant influence on level of adoption of Internet banking. Thus, the results support the hypothesis H4a, H4b and H4c.

Table 7. Coefficients of regression analysis<sup>a</sup>

	B	t	Sig	Adjusted R <sup>2</sup>	F
Institution-based trust	1.056	8.494	0.000	.402	72.157
Disposition to trust	0.836	7.311	0.000	.331	53.457
Trusting beliefs	1.318	7.847	0.000	.364	61.577

Note: <sup>a</sup>Dependent variable: adoption.

The results lead us to the conclusion that each type of trust has a significant role in determining the level of adoption in Internet banking.

**Summary results, discussions and implications**

The results of the data analysis validate the proposed web trust model. It was observed that the level of adoption of Internet banking is positively related with levels of different types of trust. The relationships with values of the coefficients are represented in Figure 2.

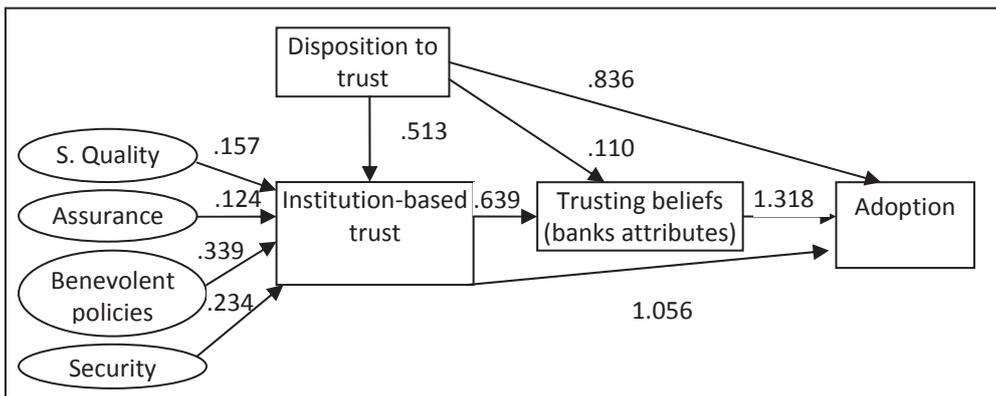


Fig. 2. Research model

The results highlight the relevance of the structures created by the bank that aim at reducing the risk of the Internet banking customer. These include security, associated assurances, service quality and benevolent policies. The results also underline the moderating role of the individual's customers' attitude towards Internet and Internet banking as reflected in disposition to trust. These two types of trust determine to a large extent the trusting beliefs of the users which in turn determine the level of adoption as reflected in the type of services that a user may avail of out of the portfolio of Internet banking services offered. These results have a number of implications for the banks particularly in the context of usage and not mere adoption of Internet

banking. Contrary to the general beliefs, the benevolent policies adopted by the bank played more significant role than the associated assurances and security measures adopted. Thus, the banks should articulate and clearly communicate to the Internet banking users all its benevolent policies. This may help in enhancing the level of Internet banking usage. Banks should also regularly communicate with its existing Internet banking users in order to influence their disposition to trust which has the potential to enhance trusting beliefs and in turn increase the level of Internet banking usage. Creating and effective management of a virtual community of existing Internet banking users may also be useful in enhancing the disposition to trust.

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