Factors influencing the level of adoption of Internet banking: 
An integration of TAM and Web Trust Model
Muneesh Kumar¹, Mamta Sareen², Marie Helene Abbo³
1- Department of Financial Studies, University of Delhi, New Delhi, India
2- Kirori Mal College, University of Delhi, Delhi, India
3- ESC-Pau, Pau, France
marie-helene.abbo@esc-pau.fr

ABSTRACT

While the race for offering new Internet banking services continues, banks struggle to find higher levels of Internet banking adoption among their customers. In spite of a number of studies on adoption of new technologies including Internet banking, understanding of the factors that have a significant impact on the adoption of Internet banking is fairly incomplete. Though there is sufficient empirical evidence of Technology adoption model (TAM), a number of studies have pointed out trust as an important determinant of adoption of technology. The present paper integrates Mcknight’s web trust model with TAM in the context of adoption of Internet banking. It identifies the antecedents of different types of trust and examines their relative role in building the trusting beliefs that in turn influence not only the adoption but also the level of adoption of Internet banking. The study is based on the data collected in a survey of 107 Internet banking users in India.

Keywords: Internet banking, level of adoption, disposition to trust, associated structural assurances, technology adoption model.

1. Introduction

Continued and improved technological innovations in Internet technologies have made sophisticated applications economically feasible. However, due to low rate of adoption among the users, many of such applications are unable to justify the investment required to build suitable technological infrastructure. Internet banking is one such application that promises number of benefits, yet there is something that is holding the customers from fully adopting Internet banking (Sathye, 1999). A number of models attempt to explain the factors that may influence the adoption of new technologies. The Technology Acceptance Model (TAM), based on the theory of reasoned action (TRA) (Ajzen and Fishbein, 1980), is one of the most widely used models that help to understand the user’s decision to adopt technology (Kwon and Wen, 2010, Gefen et.al. 2003; Ridings and Gefen, 2002). TAM identifies perceived usefulness (PU) and perceived ease of use (PEOU) of the system/technology as major factors determining the adoption of new system/technology. The reason for TAM’s popularity is because of its parsimony and the wealth of empirical support for it (Davis 1989; Koufaris, 2002; Guriting et. al. 2006; Ventakesh et.al., 1996; Wang et. al. 2003; Yiu et. al. 2007). Although, many studies have demonstrated the validity of TAM across a wide range of IS, TAM lacks the trust focus (Suh and Han, 2002; Shankar et al., 2002). There is a stream of empirical evidences that suggests trust as an important factor in the adoption of technology especially Internet technology (Mcknight, et al., 1998; Reichheld and Schefter 2000;
Jarvenpaa et al., 2000; Tan and Teo, 2000; Gefen et al., 2003). Mcknight, et al. (1998) developed a trust model based on different types of trust like dispositional trust and institution based trust that have the potential to impact trusting beliefs and adoption. Therefore, there is a need to examine how trust is positioned with PU and PEOU in the process of adoption of Internet banking. The present paper integrates Mcknight’s web trust model with TAM for examining the factors that influence the level of adoption of Internet banking.

2. Technology acceptance model (TAM)

Technology Acceptance Model (TAM), introduced by Davis (1989), is an adaptation of the Theory of Reasoned Action (TRA) that provides an explanation of the user behavior in accepting new system/technology. Davis (1989) proposed that intention to use technology is often predicted by perceived ease of use and perceived usefulness. Numerous empirical tests have indicated that TAM is a robust model of technology acceptance behaviors in wide variety of information systems and countries (Koufaris M , 2002; Gefen, Karahanna and Straub, 2003; Chan S and Lu M. , 2004; Gong M. et al., 2004; Kim and Malhotra., 2005 ). Over the years, researchers have modified TAM by either introducing factors from related models, or by introducing additional or alternative belief factors, and by examining antecedents and moderators of perceived usefulness and perceived ease of use (Venkatesh et. al., 2002; Wixom and Todd, 2005).

2.1 TAM and trust

Several studies have applied TAM and trust in their models (Jarvenpaa et al., 2000; Gefen and Straub, 2003; Koufaris and Hampton-Sosa, 2002; Pavlou, 2002; Suh and Han, 2002; Hans van der Heijden et al., 2003). Table 1 briefly enlists the contributions of some of the researchers in this regard.

<table>
<thead>
<tr>
<th>Study</th>
<th>Results</th>
</tr>
</thead>
<tbody>
<tr>
<td>Gefen and Straub (2000)</td>
<td>PEOU→ PU→ Trust&lt;br&gt;PEOU , PU , Trust→ Intention to use</td>
</tr>
<tr>
<td>Kim and Prabhakar (2002)</td>
<td>Propensity to trust, structural assurances, word of mouth referrals→ Trust</td>
</tr>
<tr>
<td>Pavlou (2003)</td>
<td>PEOU, PU → Trust on e-commerce-vendor</td>
</tr>
<tr>
<td>Koufaris and Hampton-Sosa(2004)</td>
<td>PEOU, PU → Trust&lt;br&gt;Trust → Intention to Return, Trust → Intention to purchase</td>
</tr>
<tr>
<td>Reid M. et al. (2008)</td>
<td>Computer self-efficacy → PEOU→ PU → Intention&lt;br&gt;Trust → PU, PEOU</td>
</tr>
<tr>
<td>Song Hong Lei, 2010</td>
<td>Service Quality →PU, PEOU → Behavioral Intention&lt;br&gt;System Quality → PU, PEOU, Trusting Perceptions → Intention</td>
</tr>
<tr>
<td>Su-Wen Chen, 2010</td>
<td>PEOU → Trust → Intention; PU → Trust → Intention&lt;br&gt;Subjective Norms → Trust, Perceived Risks → Intention</td>
</tr>
</tbody>
</table>

As can be seen from the table, trust has often been recognized to have a positive influence on perceived usefulness especially in an online environment as trust allows users to become vulnerable to the e-vendor (Pavlou, 2003). Gefen et. al (2003) found perceived ease of use to
have a positive influence on trust especially in the initial adoption of the system. It is
interesting to note that whereas some of the researchers have found PU and PEOU to impact
perceived trusting intentions in online environment (Pavlou, 2003; Koufaris and Hampton-
Sosa, 2004); some researchers found that trust has the potential to influence PU of the system
(Reid M., 2008). Many researchers have found that both trusting perceptions and PU and
PEOU significantly contribute towards the behavioral intentions in e-commerce environment
(Song Hong Lei, 2010; Su-Wen Chen, 2010). However, these studies do not provide clues
regarding the sources of trust in the context of technology adoption.

2.2 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. The
present paper makes a modest attempt 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.

2.3 Trust, TAM and internet banking

Trust has often been posited as one of the essential elements of economic exchange (Dwyer
et al, 1987; Spekman, 1988). Trust in the online banking environment is often stated to be
more important than in the offline-banking environment (Ratnasingham 1998). Since,
Internet banking transactions contain very sensitive information (Gefen, 2000; Morgan and
Hunt, 1994), there is a fear amongst users that leakage of such sensitive information either
due to security breach or any other technical snag may result in huge amount of losses
(monetary or otherwise) (Suh and Han 2002; Rexha et al., 2003; Liu et al., 2007; Lichtenstein
and Williamson, 2006). 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, 2003), China (Laforet, S., and Li, X., 2005), Jordan
(Rotchankanitumnui and Speece, 2003), Romania (Gurau, 2002), etc. These studies have
underlined the importance of breaking through the trust barriers in order to achieve potential
economic benefits of Internet banking.

Though perceived usefulness and ease of use, as suggested by TAM, has been found useful in
predicting intentions and usage of Internet banking (Cheng et al., 2010; Eriksson and Nilsson,
2007; Lai and Li, 2005; Suh and Han, 2002); some researchers have integrated other
variables as antecedents for Internet banking adoption. Hong lei Song (2010) integrated trust
perception and perceived risk to predict the user intention. They found that improving the
service quality and system quality of Internet banking helps in reducing the perceived risks of
the customers and there by enhance their intentions to use.

Sadeghi et al (2010) studied the electronic banking acceptance in Iran using TAM and some
external variables namely convenience, accessibility, accuracy, security, usefulness, bank
image and web site design. Lee Ming-Chi (2008) integrated TAM with TPB to find factor
affecting the intention to use Internet banking. The results indicated that the intention to use
online banking is adversely affected mainly by the security/privacy risk, as well as financial
risk and is positively affected mainly by perceived benefit, attitude and perceived usefulness.
Similar findings were obtained by Pikkarainen et al (2006), who investigated the acceptance
of Internet banking in Finland and Hong Kong, respectively and found perceived usefulness to be more influential than perceived ease of use in explaining the acceptance of online banking. Reid M. (2008) integrated trust, computer self-efficacy and attitude with TAM for customer acceptance of internet banking. Wang et. al. (2003) introduced perceived credibility as a new factor reflecting the user's security and privacy concerns apart from computer self efficacy and other TAM factors for the acceptance of Internet banking. Jahangir et al (2008) studying the role of perceived usefulness and perceived ease of use of internet banking in the context of Bangladesh found that security, privacy and customer attitude significantly affect the customer adaptation of internet banking. Su-Wen Chen (2010) integrated perceived behavioral control referring to control beliefs about the presence of factors that may facilitate or impede performance of behaviour; subjective norms referring to perceived social pressure to perform a behavior; perceived risk referring to uncertainty regarding possible negative consequences; and trust along with perceived ease of use and perceived usefulness as antecedents of adoption of internet banking.

These studies underline the need for integrating trust in TAM as most of the additional factors included in these studies had direct or indirect relationship with the concept of ‘trust’. Moreover, these studies fail to recognize the variance in the level of adoption of Internet banking by different users.

2.4 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 banking adoption may vary depending upon the customers’ level of trust. The present paper integrates different types of trust with TAM to examine their relationship with level of adoption of Internet banking.

3. Research model

Figure 1: Research model
An extension of TAM using different types of trust is represented in Figure 1. The model incorporates, in addition to PU and PEOU, three types of trust namely institution based trust, disposition to trust and trusting beliefs as antecedents to level of adoption of Internet banking.

3.1 Sample selection

This model was tested using the data regarding the perceptions and behavior of Internet banking users 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 instrument was 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 factors influencing institutional based trust like security, structural assurances, benevolent practices and service quality of the bank, PU, PEOU and disposition to trust.

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 50 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 7 item scales consisting of these statements in this section.

3.2 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) were used for measuring the respective constructs. These constructs include perceived usefulness, perceived ease of use, disposition to trust and institution based trust and are described in the following paragraphs.

3.2.1. Adoption

Adoption is the acceptance and continued use of a product, service or idea (Rogers 1983). TAM (Davis et al., 1989) model suggests that customer adoption behavior is determined by the intention to use a particular system, which in turn is determined by the perceived usefulness and perceived ease of use of the system. Adoption of Internet banking not only helps in reducing costs and improving competitiveness but also helps bank's ability to retain the existing customer base and to attract new customers (Guriting and Ndubisi, 2006; Gerrard
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and Cunningham, 2003; Rotchanakitmuai and Speece, 2003; Akinci et al., 2004). 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 respondents 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.

3.2.2. Trusting beliefs

This refers to the trustor’s belief that the trustee, in this context, the bank, has attributes that are beneficial to the trustor. 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.

3.2.3 Perceived usefulness

Perceived usefulness (PU) is defined as the extent to which a person believes that using a particular system will enhance his or her performance (Davis, 1989). The rationale for using the PU as an antecedent to adoption is based on Theory of Reasoned Action (TRA). PU has been found to be an important antecedent for adoption of electronic banking (Guriting and Ndubisi, 2006; Eriksson et al., 2005; Laforet and Li, 2005). In the context of internet banking, perceived usefulness might refer to saving of time, convenience, efficiency, free from errors, cost effectiveness, easily accessible, effective management of finances, etc. In this study six items were used to scale the usefulness of Internet banking.

3.2.4. Perceived ease of use

Perceived ease of use (PEOU) refers to the extent to which a person believes that using a particular system will be free of effort (Davis et al., 1989; Gefen and Straub, 2000). In the context of Internet banking, PEOU would also include error free interaction with the site and execution of transaction (Chau et al., 2002; Hernandez and Mazzon, 2007; Guriting and Ndubisi, 2006; Eriksson, 2005; Wang et al., 2003). In the context of internet banking, perceived ease of use might refer to appeal of the site, easy navigation, simple to use, easily accessible, high functionality, easy to understand, etc. The present study used eleven items to scale the ease of use of Internet banking site.

3.2.5. 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). In the electronic context, 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 sources like Mcknight et. al. 2002, 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.
3.2.6. 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. Several recent studies have found that institution-based trust can strongly influence trust in online environments (Pavlou et al., 2003). The present paper identified Security, Associated structural assurances, Service Quality and Benevolent Policies as the major factors that may influence institution based trust. Fourteen items for security, eight items for associated structural assurances, five items for Service Quality and five items for Benevolent Policies were used to scale institution based trust.

3.3 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. Statistical Package for Social Sciences (SPSS) version 12 was used as the analysis tool. 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.

3.4 Demographic characteristics of the respondents

The descriptive statistics of the respondents’ demographic characteristics were analyzed and presented in Appendix I. As can be observed, 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).

3.5 Data analysis

Since, the number of items used for measurement was fairly large (49); principal component analysis was carried out to reduce the data items. However, before factor 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 0.773, 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 (Barlett, 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 Eigen value of each generated factor was more than one (See Appendix II). Three components for security were generated explaining 63.5% of the variance, two components for associated assurances were generated explaining 50% of the variance, three components for PEOU were generated explaining 66% of the variance, two components for PU were generated explaining 71% of the variance, and one each for service quality and benevolent practices were extracted in this manner explaining 50% and 58% of variance respectively.

3.5.1 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 4, 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 and Han, 2003; Merisavo et al., 2007).

Table 2: Reliability of measurement items

<table>
<thead>
<tr>
<th>Construct</th>
<th>Cronbach’s Alpha (&gt;0.7)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Security</td>
<td>0.8452</td>
</tr>
<tr>
<td>Assurance</td>
<td>0.7989</td>
</tr>
<tr>
<td>Service Quality</td>
<td>0.7455</td>
</tr>
<tr>
<td>Benevolent Policies</td>
<td>0.8203</td>
</tr>
<tr>
<td>Perceived Usefulness</td>
<td>0.8294</td>
</tr>
<tr>
<td>Perceive Ease of use</td>
<td>0.8537</td>
</tr>
<tr>
<td>Disposition to trust</td>
<td>0.8295</td>
</tr>
<tr>
<td>Trusting beliefs</td>
<td>0.9388</td>
</tr>
</tbody>
</table>

4. Results and interpretations

The results of the data analysis primarily relate to a) Factors influencing Institution based trust, b) Factors influencing trusting beliefs, c) Factors influencing PEOU and PU, and d) Factors influencing adoption of Internet banking. The results in respect of each of these types of trust have been discussed in the following paragraphs.

4.1 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 ($R^2 = .751, p < 0.001$). Further, F value is 76.737 (p<0.000), which is highly significant (See Table 5). Thus, H1a, H1b, H1c, and H1d were supported by the results.
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Table 3: Coefficients of Regression Analysis

<table>
<thead>
<tr>
<th>Model</th>
<th>Unstandardized Coefficients</th>
<th>Unstandardized Coefficients</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>B</td>
<td>Std. Error</td>
</tr>
<tr>
<td>Constant</td>
<td>3.644</td>
<td>.035</td>
</tr>
<tr>
<td>Security</td>
<td>.236</td>
<td>.091</td>
</tr>
<tr>
<td>Assurance</td>
<td>.213</td>
<td>.066</td>
</tr>
<tr>
<td>Service Quality</td>
<td>.157</td>
<td>.062</td>
</tr>
<tr>
<td>Benevolent Policies</td>
<td>.369</td>
<td>.056</td>
</tr>
</tbody>
</table>

a: Dependent Variable: IBT

All the four factors considered in the present study namely benevolent policies, security, associated assurances and service quality, in the order of importance, were found to be significant contributors to institutional based trust. Benevolent policies adopted by bank regarding its Internet banking transactions were considered most important perhaps because the user expects the bank to follow benevolent policies as he/she is aware of his/her inability to fully assess the vulnerabilities of the internet banking infrastructure.

4.2 Factors influencing trusting beliefs

Positing that disposition to trust and institution-based trust will influence trusting beliefs, their inter-relationships were examined. First, disposition to trust and institution based trust was regressed against trusting beliefs of the bank’s attributes. Both these factors were found to have a significant impact on the trusting beliefs and explained almost 70% of the variance ($R^2 = 0.695$, $p < 0.001$, F value = 118.579). Thus, H2b and H2c are supported. It may be noted that disposition to trust has a greater influence than institution based trust implying that a customer’s propensity to trust plays a significant role in determining trusting beliefs.

Table 4: Coefficients of regression analysis

<table>
<thead>
<tr>
<th>Model</th>
<th>Unstandardized Coefficients</th>
<th>Unstandardized Coefficients</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>B</td>
<td>Std. Error</td>
</tr>
<tr>
<td>A. Dependent Variable: trusting beliefs</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Constant</td>
<td>1.375</td>
<td>.149</td>
</tr>
<tr>
<td>Disposition to trust</td>
<td>.522</td>
<td>.051</td>
</tr>
<tr>
<td>Institution based trust</td>
<td>.123</td>
<td>.046</td>
</tr>
<tr>
<td>B. Dependent Variable: Institution based trust</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Constant</td>
<td>1.865</td>
<td>.223</td>
</tr>
<tr>
<td>Disposition to trust</td>
<td>0.561</td>
<td>0.070</td>
</tr>
</tbody>
</table>

An attempt was also made to examine the relationships between disposition to trust and institution based trust. For this purpose, disposition to trust was regressed against institution based trust and the relationship was found to be statistically significant ($R^2 = 0.401$, $p < 0.001$, F value = 64.185). The results indicated that disposition to trust also influences the level of institution-based trust (see Table 6). Thus, H2a is supported.
4.3 Factors influencing PEOU and PU

Factor analysis reduced the six scale items for PU to two factors namely efficiency and ‘convenience and free-from-error’. These factors were regressed against the dependent variable PU. Both these factors were found to be statistically significant and together they explained almost two-third of the variance ($R^2 = .672$, $p < 0.001$, $F = 42.771$, $p<0.000$). Similarly, factor analysis reduced the eleven scale items for PEOU to three factors namely accessibility, appeal and functionality. These factors were regressed against the dependent variable PEOU. All these factors were found to be statistically significant and together they explained almost 60% of the variance ($R^2 = .611$, $p < 0.001$, $F = 20.463$, $p<0.000$). Thus, H3a and H3b are supported.

Table 5: Coefficients of regression analysis

<table>
<thead>
<tr>
<th>Model</th>
<th>Unstandardized Coefficients</th>
<th>Unstandardized Coefficients</th>
<th>B</th>
<th>Std. Error</th>
<th>Beta</th>
<th>T</th>
<th>Sig</th>
</tr>
</thead>
<tbody>
<tr>
<td>A. Dependent Variable: PU</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Constant</td>
<td>1.14</td>
<td>.072</td>
<td>7.550</td>
<td>0.000</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Efficiency</td>
<td>.640</td>
<td>.072</td>
<td>.643</td>
<td>8.856</td>
<td>0.000</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Convenience and Error Free</td>
<td>.191</td>
<td>.072</td>
<td>.192</td>
<td>2.643</td>
<td>0.005</td>
<td></td>
<td></td>
</tr>
<tr>
<td>B. Dependent Variable: PEOU</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Constant</td>
<td>3.355</td>
<td>.075</td>
<td>45.773</td>
<td>0.000</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Accessibility</td>
<td>.384</td>
<td>.075</td>
<td>.407</td>
<td>5.215</td>
<td>0.000</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Appeal</td>
<td>.343</td>
<td>.075</td>
<td>.363</td>
<td>4.657</td>
<td>0.000</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Functionality</td>
<td>.260</td>
<td>.075</td>
<td>.276</td>
<td>3.537</td>
<td>0.001</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

As can be seen from Table 7, efficiency factor contributed more towards perceived usefulness of Internet banking. This factor included cost effectiveness, time saving, and efficient management of finances. The results imply that the perception about usefulness of Internet banking depends upon the degree of the efficiency and effectiveness with which Internet banking applications work. As regards the perceived ease of use, accessibility and appeal were considered more important than the functionality.

4.4 Factors influencing level of adoption in Internet banking

In order to identify the factors affecting level of adoption, trusting beliefs, disposition to trust, PEOU and PU were regressed against level of adoption as perceived by the respondents. As can be seen from table, the results were found to be statistically significant ($R^2 = .430$, $p < 0.001$, $F = 25.896$). This would imply failure to reject our hypothesis H4a, H4b, and H4c.

Table 6: Coefficients of regression analysisa

<table>
<thead>
<tr>
<th>Model</th>
<th>Unstandardized Coefficients</th>
<th>Unstandardized Coefficients</th>
<th>B</th>
<th>Std. Error</th>
<th>Beta</th>
<th>T</th>
<th>Sig</th>
</tr>
</thead>
<tbody>
<tr>
<td>Constant</td>
<td>-1.169</td>
<td>.599</td>
<td>-1.953</td>
<td>0.012</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Trusting Beliefs</td>
<td>.959</td>
<td>.245</td>
<td>.447</td>
<td>3.910</td>
<td>0.000</td>
<td></td>
<td></td>
</tr>
<tr>
<td>PU</td>
<td>.082</td>
<td>.101</td>
<td>.072</td>
<td>0.817</td>
<td>0.011</td>
<td></td>
<td></td>
</tr>
<tr>
<td>PEOU</td>
<td>.272</td>
<td>.126</td>
<td>.220</td>
<td>2.158</td>
<td>0.005</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

a: Dependent Variable: level of Adoption
The results presented above validate the proposed model. They also point out fairly significant role of trusting beliefs on the level of adoption of Internet banking.

5. Summary results, discussions and implications

The results of the data analysis validate the proposed model, which integrates the Mcknight’s web trust model with TAM. It was observed that the level of adoption of Internet banking is positively related with levels of different types of trust and PU and PEOU. The relationships with values of the coefficients are represented in Figure 2.

![Figure 2: Research model](image)

The results indicate that the trusting beliefs have much greater role in level of adoption of Internet banking than even the PU and PEOU. Given this role of trusting beliefs, it is imperative for any bank that different types of trust remain the focus of strategies for promoting adoption of Internet banking among its customers. The results highlight the relevance of the structures created by the bank that aim at increasing the trusting beliefs of the Internet banking customer. These beliefs relate to the bank’s attribute such as its service quality, benevolent policies, security features adopted, and associated structural assurances. The results also underline the moderating role of the individual’s customers’ attitude towards Internet and Internet banking as reflected in the 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. As regard the PEOU, it was observed that mere functionality of the Internet banking application is not sufficient to promote its adoption instead accessibility and appeal play a far greater role in encouraging the usage. Similarly, efficiency in the execution of Internet banking tasks seems to be more important than convenience and free-from-error.

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. Perhaps ‘no-risk’ assurances to the customers can go a long way in enhancing the levels of adoption. Creating and effective management of a virtual community of existing Internet banking users may also be useful in enhancing the disposition to trust. The findings of the study may be useful in formulating a promotional strategy that integrates usefulness, ease of use and trust for adoption of Internet banking.

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