

Customers' Perception Towards Online Banking Transactions : An Empirical Analysis in India

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Abstract

With over 460 million internet users, India is the second largest online market, ranked only behind China. With the ongoing digital drive in India, the number of users opting for online banking is expected to double to reach 150 million mark by 2020, from the current 45 million active urban online banking users in India. Accordingly, this study reviewed the Indian consumers' perceptions and intention to use online banking transaction services. Further, this paper aims to identify the factors that affect a customer's decision whether to use online services. A survey was conducted in the three cities of the State of Maharashtra, Tamil Nadu, Delhi and West Bengal in India using a convenient sample of 200, out of which there were 180 active users of Internet Banking. We evaluated the combined Banking service quality score of each sample unit based on Banking service with respect to 15 primary indicators. Analysis of the BSQS value revealed that the range of overall score is very wide maximum being 95.40% and the minimum being 66.80%. Further, we used a generalized linear model, specifically a logistic regression model and we tried to estimate the factors that improve an individual's final decision for making online banking transaction and the contribution of each. In the Model, we analyzed Banking Service Quality Score and its relationship with six independent variables such as security, website, trust, speed of transaction, internet banking cost and ease of use.

Key Words

Online Banking Transaction, Banking Service Quality Scorecard, Customers' Perception, Empirical Analysis, India.

INTRODUCTION

Globalization and technology have added a new dimension to the competitive pressures that are already reshaping the financial services industry. The resulting changes will have a great impact on the development and use of alternative distribution channels. The most recent delivery channel is online banking. The term 'online banking' is associated with internet banking or electronic banking which has been appropriately defined as the automated delivery of new and traditional banking products directly to the customers through online and interactive communication channels (Mobarek, 2009). The presence of electronic commerce has been particularly apparent and promising in the financial services industries. With the help of electronic innovations such as the internet, banking services are no longer bound to time and geography. Consumers all over the world can access their accounts 24 hours a day, seven days a week. Banks also can reach out to consumers relatively easily and provide them not only with transaction services but also general as well as detailed information about their services. Internet users are rapidly increasing in Asia. In 2012, internet users in Asia had the highest growth rate of 44.8%, followed by Europe with 22.7%; North America 13%; Latin America 10.6%; Africa 7%; Middle East 3.3%; and Oceania/Australia 1% (Internet World Statistic, 2012). With the ongoing digital drive in India, the number of users opting for online banking is expected to double to reach 150 million mark by 2020, from the current 45 million active urban online banking users in India, according to a report drafted by Facebook and The Boston Consulting Group (BCG) (<https://www.financialexpress.com/industry/banking-finance> dated August 14, 2019). With over 460 million internet users, India is the second largest online market, ranked only behind China (<https://www.statista.com/topics/2157/internet-usage-in-india/> dated 14th August, 2019).

At present there are 27 Public Sector Banks in India including SBI (plus its 5 associates), 19 nationalized banks (<https://www.paisabazaar.com> dated August 14, 2019), 12 old Private Sector banks and 9 new Private Sector banks (as per revised guidelines issued by the RBI). Online banking systems facilitate the financial institutions, customers, individuals and businessmen to have ease of access to their accounts, to engage in business transactions as well as to enable the account holders to obtain information on the financial product and services through the intranet and extranet (Mavri and Ioannou, 2006; Singhal & Padhmanabhan, 2008). Many terms have been used to describe the online banking terminology, such as, internet banking, online banking, or PC banking.

Apart from that, consumers can engage in online banking by using ATMs, wire transfers, telephone banking, electronic fund transfers and debit cards (Haque *et al.*, 2009). In some of the countries like Finland, New Zealand, and Brazil, online banking has become commonplace with a penetration rate of 50% and maintained double-digit growth in recent years (Cai *et al.* 2008), though among Indian consumers who use online banking, many are inactive or use the services only sporadically, often for simple bookkeeping or verification tasks rather than more complex transactions such as loan payment or bill management.

Because of online banking facilities, customers are able to perform many transactions such as customer service inquiries, transfers of funds from one account to another account, loan applications, opening a new account, and transactions between third party accounts. With the rapid changes and advancement in information technology (Rahman *et al.*, 2014; Talukder, 2011, 2014), online banking has introduced new methods and systems for banking institutions to deliver their services to potential customers (Mobarek, 2009). Hence, it is important for the banks to align their prognostic strategies in response to the changing customer needs with new technological developments. This study was conducted to investigate the Indian consumer's perceptions towards online banking transaction. It is also crucially important for the banking institutions to understand their consumer's perceptions towards their online banking system in order to compete in reactive banking marketplace. Security, trust, and website privacy may lead consumers to take a careful but bold approach when using online banking services. The main purpose of the study was to explore the crucial factors that influenced the Indian customers' perception towards the online banking transaction.

Wang *et al.* (2003), Oh *et al.* (2006), Sumanjeet (2009) and Harris *et al.* (2011) stated that security, trust and privacy were the most significant factors of the online banking system. Quazi and Talukder (2011) investigated the impact of demographics on the adoption of technological innovation. According to Delvin (1995), customers have less time to spend on activities such as visiting a bank and therefore want a higher degree of convenience and accessibility. Liao and Cheung (2002) used survey data and regression analysis to measure consumer attitudes towards Internet-based e-retail banking as a financial innovation. They found that individual expectations regarding accuracy, security, network speed, user-friendliness, and user involvement and convenience were the most important quality attributes in the perceived usefulness of Internet-based e-retail banking. In addition, willingness to use depended significantly on the first five factors, allowing the interdependencies between them to be estimated in terms of marginal

rates of substitution or ratios of the corresponding regression coefficients. This study reviewed the Indian consumers' perceptions and intention to use online banking transaction services. Further, this paper aims to identify the factors that affect a customer's decision whether to use online services. In order to meet this goal, we used a generalized linear model, specifically a logistic regression model, and we tried to estimate the factors that improve an individual's final decision and the contribution of each.

The remainder of this paper is structured as follows : Section 2 gives a brief overview of the literature relevant to this paper, while Section 3 provides details about data and methodology adopted followed by a discussion of the findings relating to the extent of banking service quality in section 4. In section 5, impact of several characteristics related to customers' perception on the extent of banking service quality is reported and analyzed. Section 6 sums up and gives concluding remarks.

LITERATURE REVIEW

Several studies have shown that consumers are not a homogeneous group; perceptions, requirements and behavior vary extensively among different segments. Past research related to adoption of customers for online banking transaction practices has identified a number of demographic, psychological, attitudinal and behavioral factors.

Invalli, Raghurama and Chandramma (2011) have identified four segments ('General Interest in Banking', 'Branch Convenience Seekers', 'Indifferent to E-Banking', 'E-Convenience Seekers') of customers based on their present banking behavior in the urban and semi-urban regions in India with the help of factor analysis. Banking behavior has been judged on the basis of several variables, viz., collection of feedback, advertisement in media, cordiality of bank staff, time taken at counter, availability of staff in branches, operation of SB account, cheque collection, bank loyalty, addition of new services, ATM services, availability of loan products, up-to-date equipments, service charges, bank location, display inside the branch, etc.

Heaney (2007) made an empirical research on internet banking behaviour and perceptions of Generations X and Y in Australia. They explored that internet banking users perceive their banks as providing higher quality services compared to non-internet banking users. A large majority of non-internet banking users never tried internet banking at all. Security and privacy concerns were cited.

Based on these findings, it can be recommended that banks still need to provide both internet- and non-internet-based means of banking to their younger consumer segments. The banking industry needs to address concerns about security, trust and ease of use to persuade more of Generations X and Y to use internet banking.

Using the data from the 2003 Survey of Consumers commissioned by the Survey Research Center at the University of Michigan, Cai *et al.* (2008) found that consumers' perceptions of the characteristics of e-banking, namely the perceived advantages and problems, had different impacts on consumers' attitudes toward and their use of such service. While the perceived problems were more important in forming consumers' attitudes toward e-banking, the perceived advantages had the greatest impact on consumers' use of such service.

Any acceptance of technology-enabled service depends mainly on its perceived ease of use, security, awareness of benefits and above all reliability. Accessibility of the source, availability of uninterrupted power supply, Internet connection, technical staff and bundling of services can speed up the adoption and hence usage rates (Invali, Raghurama and Chandramma, 2011).

Luarn and Lin (2005) identified the factors that determine acceptance of Internet banking by the users. In their study, Luarn and Lin extended the technology acceptance model (TAM), which includes perceived ease of use and perceived usefulness, by adding 'perceived credibility', 'perceived self- efficacy' and 'perceived financial cost' to the theoretical framework. The results strongly support the extended TAM in predicting users' intentions to adopt mobile banking.

Bomil and Ingoo (2002) confirmed in their study that two beliefs, ease of use and usefulness, partially explain the user's behaviour in the emerging environment such as Internet banking. They introduced trust as another belief in TAM that has an impact on the acceptance of Internet banking. According to the results of their statistical analysis, trust is one of the most significant beliefs in explaining a customer's attitude towards using Internet banking. Trust has a more direct effect on an individual's behaviour than perceived ease of use in the online banking context, while perceived ease of use has a greater total effect on a customer's actual use.

Hitt and Frei (2002) examined whether and how characteristics or behaviours might differ between customers who use electronic delivery systems

and those who use traditional channels. By using logistic regression, they concluded that demographic characteristics and changes in customer behaviour following adoption of PC banking account for only a small fraction of the overall differences. They also found evidence that customers who adopt online banking have a greater propensity than traditional customers to adopt future bank products and services over a time period.

Karjaluoto *et al.* (2002) explored the effect of different factors affecting attitude formation towards Internet banking in Finland. By using factor analysis, they determined the factors that influence the formation of attitude towards online banking and their relation to the use of online services. The study showed that prior experience of computers and technology as well as demographic factors impact heavily on consumers' online behaviour. A typical online banking user is relatively young, well educated and with high level of income.

Jun and Cai (2001) used the critical incident technique to uncover the key dimensions of Internet banking customers and to identify critical satisfying and dissatisfying factors, including customer service quality, banking service product quality and online systems quality. The most frequently mentioned factors of satisfaction or dissatisfaction were reliability, responsiveness, access and accuracy.

Prior studies have identified that the demographic characteristics viz., age, gender, education, income and occupation of the users are significantly associated with adoption of Internet Banking (Karjaluoto *et al.*, 2002; Kolodinsky *et al.*, 2000; Sathye, 1999). Prior literature exhibits linkage of age with adoption of technologies, with younger people being more willing to adopt (Karjaluoto *et al.*, 2002; Lee *et al.*, 2002; Trocchia and Janda, 2000; Zeithaml and Gilly, 1987). Gender has not been found to have a direct impact on adoption of technology in general (Taylor and Todd, 1995), on the other hand Gefen and Straub (1997), Shergill and Li (2005) and Wan *et al.* (2005) validate that men and women appear to have dissimilar acceptance level of technology, with men more ready to adopt. Further, income and education have a propensity to influence adoption of an innovation (Donnelly, 1970; Labay and Kinnear, 1981; Lee *et al.*, 2002). Listing the significant factors influencing the adoption of Internet Banking, Im *et al.* (2003) regard that income, education and age are the most widely accepted identifiers for innovators. On the contrary, Listing the significant factors influencing the adoption of Internet Banking, Jaruwachirathanakul and Fink (2005) stress that demographic variables of gender, education and income have an impact on adoption, but not age. Gilly and Zeithaml (1985) validate in their

study that age influences the adoption of technology and assert that the older the customer, the higher the negative perception towards technology. Mattila *et al.* (2003) find that income and education predict whether or not consumers adopt Internet Banking. Mann and Sahni (2012) explored that the demographic characteristics of age and income play a vital role in influencing the adoption behavior of Internet Banking services.

DATA, SAMPLE AND METHODOLOGY

This section describes the research design of the study including sample description and data collection.

Sample

A survey was conducted using a convenient sample of 200, out of which there were 180 active users of Internet Banking. The survey was conducted in the three cities of the State of Maharashtra, Tamil Nadu, Delhi and West Bengal in India. For sampling purposes, the population consisted of respondents of the four cities of Mumbai, Chennai, Delhi and Kolkata and 50 respondents were selected from each city. Zonal offices of almost all the banks located in the region were approached and finally officials of nine banks provided the complete lists of their customers using Internet Banking. Out of the nine banks, whose customers were finally tapped, five were private sector banks, namely Citibank, ICICI Bank Ltd., HDFC Bank Ltd., Standard Chartered Bank and Axis Bank. Customers of four public sector banks namely State Bank of India, Punjab National Bank, Bank of India and Canara Bank were also approached. The list of customers provided by the banks was exhaustively covered, the customers were contacted telephonically and were asked, if they were active users of Internet Banking. If they replied in the affirmative, they were requested to participate in the not-for-profit survey on Internet Banking. If they agreed, an appointment was fixed with them at a convenient place and time and the questionnaire was personally got filled from each of the respondents. The total numbers of questionnaires filled were 200, out of which incomplete and biased responses were extracted and only 180 final responses were retained.

Data and Methodology

The data for this research are secondary in nature and banking service quality items were hand picked through thorough discussion with customers. Only voluntary items were considered. Literature survey was used for the selection of banking service quality indicators. For measuring the extent of

banking service quality, we have constructed a weighted disclosure index based on the previous empirical studies with some modifications. The measurement for the extent of service was categorized as follows : No score is assigned, if a bank was not able to provide any item; on the other hand, if a bank had ability to provide any item, score is assigned based on attributes like comprehensiveness, clarity, relevance etc. Further, based on its relative importance on total service practice, it was decided to attribute some weightage to each of the indicators. Although, attributing weightage is fraught with subjectivity to some extent (Das *et al.*, 2008), it was considered unavoidable given the lack of uniformity in providing service. Later, based on previous studies on banking service quality and our sample survey, normally accepted norms, also the theoretical considerations and availability of data, a number of factors had been selected as potential explanatory variables for explaining the variation in the banking service quality score among the selected units. Finally, a regression model is utilized to analyze the results of this study and this is in tandem with the previous studies. The customer perception level data relating to explanatory variables banking characteristics (ease of use, security, awareness of benefits, reliability, etc.) were taken through discussion with customers.

Selection of Indicators

To show the trends in banking service and to analyze the extent and type of service in a systematic manner, selection of some indicators was considered necessary. The study concentrated on 15 primary indicators based on the previous studies (Gray *et al.*, 1995; Guthrie, 1982; Guthrie and Mathews, 1985). Content analysis was used to place information within 15 dimensions/ indicators.

Assignment of Score

It was decided to attribute maximum achievable score/weightage to all service indicators mentioned above considering their perceived importance towards banking activity of any unit. For the purpose of designing the score card, we have taken help of the academicians, auditors and corporate executives working in the field of finance. The distribution of total score is a subjective process but it was considered unavoidable to assess the extent of social reporting (Wallace *et al.*, 1994). The details of maximum achievable score for each indicator is presented in Table 1.

Table 1
Banking Service Quality Scorecard

Sl. No.	Parameter	Score
1.	Collection of Feedback	60
2.	Advertisement in Media	70
3.	Cordiality of Bank Staff	90
4.	Availability of Staff in Branches	60
5.	Bank Loyalty	70
6.	Addition of New Services	60
7.	ATM Services	70
8.	Up-to-Date Equipments	80
9.	Operation of SB Account	90
10.	Time Taken at Counter	90
11.	Availability of Loan Products	40
12.	Cheque Collection	40
13.	Service Charges	40
14.	Bank Location	80
15.	Display Inside the Branch	60
GRAND TOTAL		1000

Finally, we evaluated the combined banking service quality score of each sample unit based on banking service with respect to all 15 primary indicators. We used following formulae to obtain Banking Service Quality Score (BSQS) :

$$BSQS = \frac{\text{Score Obtained}}{\text{Maximum Achievable Score}} \times 100$$

BANKING SERVICE QUALITY SCORE OF SAMPLE COMPANIES

Based on performance with respect to 15 primary indicators, the study evaluated the combined BSQS value of the sample banks. Analysis of the BSQS value reported in Table 2 reveals that the range of overall score is very wide maximum being 95.40% and the minimum being 66.80%. Mean score is moderate (82.71%) and standard deviation is 8.19%. 32.50% banks have attained more than 90% score and 11 (5.50%) banks have attained less than 70% score. Most of the sample companies (79) have attained score in the range of 70%-80%.

Table 2**Overall Banking Service Quality Score**

Score (%)	No. of Sample Companies	% of Sample Companies
<40		
40-60		
60-70	11	5.50
70-80	79	39.50
80-90	45	22.50
>90	65	32.50
Total	200	100.00

Source : Questionnaire of Select Respondents. Results Computed.

IMPACT OF CUSTOMERS' PERCEPTION ON THE EXTENT OF BANKING SERVICE QUALITY

We measured banking service quality of sample banks through Banking Service Quality Score (BSQS). Banking Service Quality score was assigned by applying weightage on different service items. We seek to determine whether relationship exists between BSQS and a set of customers' perception specific factors. Taking cue from previous studies on banking service quality and based on our sample survey, normally accepted norms, also the theoretical considerations and availability of data, some customers' perception factors had been selected as potential explanatory variables for explaining the variation in the banking service quality score among the selected units.

Out of 200 respondents, the study revealed that 20 respondents are not internet banking literate, which means that there are 180 active internet banking users. Customers' perception factors had been measured targeting only those active internet banking users.

EXPLANATORY VARIABLES & HYPOTHESES FORMULATION

Security

It is argued that the security of banking transaction is the primary concern of the online banking or e-banking system. The lack of convincing security in the online transfer of funds may cumulatively culminate into serious damage to the banking sector. Hence, the ardent hope of most internet banking customers who want financial transaction security is in order to protect their money (Ndubisi and Sinti, 2006; Fatima, 2011). Empirical studies suggest that the

security of information is the most key component to online banking users (Hutchinson and Warren, 2003; Srivastava, 2007; Singhal and Padhmanabhan, 2008; Wong *et al.*, 2009; Ragoobur and Ayriga, 2011; Saleh, 2011; Chuang and Hu, 2011; Harris *et al.*, 2011; Jalil *et al.*, 2014). A five-point scale (poor security to high security) was used to measure the extent of security for online banking transaction.

Accordingly, we test the following hypothesis :

Hypothesis 1 : There is a significant relationship between customer security towards making online banking transaction and banking service quality score.

Website

Considerable empirical evidence supports a positive relationship between website and banking service quality (Wang and Lin, 2003; Vanlwaarden *et al.*, 2004; Liao *et al.*, 2006; Goi, 2010; Chuang and Hu, 2011; Talukder, 2011b). Banking websites on the internet usually record transactional information. In these online banking transactions, customers can make their payments for loans and mortgages (Wong *et al.*, 2009). In 1999, most bank websites offered transactional capabilities. Some common services offered were derived such as money transfers, bill payment, checking account balances and histories, etc. (Eze *et al.*, 2011). User satisfaction with websites directly impacted their choice of sites visited, demonstrating that users were most concerned with information content and ease of use. Kim *et al.* (2003) identified six criteria of website evaluation by integrating the criteria used : 1) business function, 2) corporate credibility, 3) contents reliability, 4) website attractiveness, 5) systematic structure, and 6) navigation. Many elements of design and graphic art can be used to convey content on the web. Elements of space, use of images, size of images, use of animation, audio, number of words per line, color, and size of characters are among just a few of these factors (Rosen and Purinton, 2004). A five-point scale (dis-satisfaction with website to high satisfaction with website) was used to measure the extent of satisfaction level with website for online banking transaction. The discussion above leads us to the following hypothesis :

Hypothesis 2 : There is a significant relationship between website towards making online banking transaction and banking service quality score.

Trust

The association between trust and banking service quality has been examined by a number of studies. It is argued that trust is very much related to a consumer's behavior with e-banking security (Chong *et al.*, 2010). The lack of customer trust can limit the opportunities for implementing web technologies (Hamid *et al.*, 2007) and can be further determined by the perception of confidence and trust on the reliability of the e-banking partners (Hamid *et al.*, 2007). Studies have found positive relationship (Chong *et al.*, 2010; Foon and Fah, 2011; Talukder *et al.*, 2014) between banking service quality and trust. A five-point scale (low trust to high trust) was used to measure the extent of trust for online banking transaction. The discussion above leads us to the formulation of following hypothesis for testing :

Hypothesis 3 : There is a significant relationship between trust towards making online banking transaction and banking service quality score.

Speed of Transaction

Prior research suggests that speed of transaction has a role in explaining the extent of banking service quality (Miranda and Banegi, 2006; Mavri and Ioannou, 2006). A five-point scale (Dissatisfactory to satisfactory) was used to measure the extent of trust for online banking transaction.

On the basis of above discussion, we tested the following hypothesis :

Hypothesis 4 : There is a significant relationship between speed of transaction towards making online banking transaction and banking service quality score.

Internet Banking Cost

Internet banking costs include those associated with Internet activities as well as bank costs and charges. Cost influences consumers' attitudes towards electronic services. The price of electronic banking over the Internet falls into two parts. An individual must first purchase the necessary computer hardware, software, Internet subscription, and provide for future updating and replacement. As the prices of computer products and Internet accounts fall as a result of technical progress and competition, consumers become more attracted by the e-marketplace, and a reduction in set-up outlay would produce a positive effect on Internet-based virtual retailing. If Internet banking becomes more reasonably priced, individuals will more readily adopt these new services. A significant relationship is supported by the studies of Mavri and Ioannou (2006). A five-

point scale (low cost to high cost) was used to measure the internet banking cost towards online banking transaction.

Based on the above arguments, the following hypothesis is tested :

Hypothesis 5 : There is a significant relationship between internet banking cost towards making online banking transaction and banking service quality score.

Ease of Use

Perceived ease of use as defined by Davis (1989, p. 985) is regarded 'to be the degree to which an individual perceives that using a particular system will involve less effort'. An application perceived to be easier to use than another product or service is more likely to be accepted by users. Internet Banking has been perceived as an innovation relatively easy to comprehend and use (Swanson, 1987; Moore and Benbasat, 1991; Taylor and Todd, 1995; Liao *et al.*, 1999; Daniel, 1999; Sathye, 1999; Liao and Cheung, 2002; Wang *et al.*, 2003; Eriksson *et al.*, 2004; Yang and Lester, 2004; Ndubisi and Sinti, 2006; Cheng *et al.*, 2006). It is designed to operate and to create a user-friendly interface leading to easy-to-use technology, which will facilitate in adoption by the users (Straub, 1989; Premkumar *et al.*, 1994). A five-point scale (difficulty in use to easy to use) was used to measure the ease of use for online banking transaction.

Based on the above arguments, the following hypothesis is tested :

Hypothesis 6 : There is a significant relationship between ease of use towards making online banking transaction and banking service quality score.

Data Analysis

The sample of 180 respondents were tested in terms of reliability. Chronbach's Alpha, which is the measure of reliability, was used in this research work. Table 3 shows that the value of Chronbach's Alpha is 0.855 (more than 0.700 is good), which shows that the data and results found from this sample were statistically reliable.

Table 3
Reliability of the Sample

Cronbach's Alpha	No. of Items
0.855	7

In Table 4, it is seen that all the dependent variables are positively correlated but the correlation coefficients lie between 0.117 to 0.565. It is apparent

from Table 4 that correlation coefficients (Pearson Correlation) between all the variable pairs are significant and no variable should be dropped on the basis of multicollinearity (high value of correlation coefficient). This leads to undertaking multiple regression analysis. Multiple regression model (Linear Enter Model) are used to determine which of the variables have a significant influence on the Banking Service Quality Score and which of variables are insignificant. At the time of performing multiple regressions, the values of all the independent variables and dependent variable are computed taking the data of all sample units. In the Model, we analyzed Banking Service Quality Score (BSQS) and its relationship with six independent variables such as security (SECURITY), website (WEBSITE), trust (TRUST), speed of transaction (SPEED_TRANSACTION), internet banking cost (INTBANK_COST) and ease of use (EASE_USE).

Table 4
Correlation Matrix of Independent Variables

		Correlation Matrix					
		Security	Website	Trust	Speed of Transaction	INTBANK Cost	Ease of Use
Correlation	Security	1.000					
	Website	.437	1.000				
	Trust	.355	.502	1.000			
	Speed of Transaction	.303	.565	.441	1.000		
	INTBANK Cost	.117	.016	.131	.135	1.000	
	Ease of Use	.269	.464	.451	.491	.132	1.000

Significant at 0.05 level (one-tailed)

The result of the regression analysis of the Model is obtained by using SPSS (version 20.0) statistical package. Comparing the overall explanatory power as indicated by adjusted R^2 which is 0.844 (R^2 is 0.801). The observed F statistics for the Model is also significant at 5% level. The model incorporates total six explanatory variables viz., security, website, trust, speed of transaction, internet banking cost and ease of use. The summarized result of the final regression model is reported in Table 5-6.

Table 5
Variables Entered/Removed^a

Model	Variables Entered	Variables Removed	Method
1	Security, Website, Trust, Speed Transact, INTBANK Cost, Ease Use ^b	–	Enter

a. Dependent Variable : BSQS, b. All requested variables entered
All the six variables are considered at the time of multiple regression analysis.

Table 6
Estimates from the Multiple Regression Analysis of the Banking Service Quality Score

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	0.849 ^a	0.801	0.844	16.83477

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	3484.545	6	580.758	12.432	.000 ^b
	Residual	8081.538	173	46.714		
	Total	11566.083	179			

Model		Unstandardized Coefficients		Standardized	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	58.663	4.186		14.014	.000
	Security	0.493	0.814	0.044	0.605	.001
	Website	3.929	0.814	0.417	4.826	.000
	Trust	1.171	0.739	0.126	1.585	.005
	Speed Transact	0.900	0.795	0.093	1.132	.000
	INTBANK Cost	0.601	0.808	0.048	0.744	.000
	Ease Use	0.574	0.755	0.059	0.760	.000

a. Predictors : (Constant), Security, Website, Trust, Speed of Transaction, INTBANK Cost, Ease of Use.
b. Dependent Variable : BSQS

It was observed that the Model has a coefficient of determination (R^2) of 0.801 with a standard error of the estimate of 16.83477. Observed F statistics of the model is 12.432 and it is significant at 5% level. This indicates that all the independent variables together have a significant influence on the Banking Service Quality Score (BSQS) at 5% level. All the explanatory variables are significant. Hence, the entire hypothesis can be accepted, i.e., from hypothesis 1 to 6 were accepted.

It is observed that all the coefficients of BSQS are positive. Thus, it can be said that internet banking services provided by all the Indian bankers are judged based on 6 predictors (ease of use, internet banking cost, security, trust, speed of transaction, website) by the consumers. Among all the predictor variables website has the maximum value of coefficient (3.929) and security has the minimum coefficient (0.493).

FORMULATION OF MODEL

The model that has been specified for determination of relative role of each independent variable is given below :

$$BSQS_i = \alpha + \beta_1 \text{ Security} + \beta_2 \text{ Website} + \beta_3 \text{ Trust} + \beta_4 \text{ Speed Transact} + \beta_5 \text{ INTBANK Cost} + \beta_6 \text{ Ease Use} + e_i$$

where,

i = Index of unit (1, 2,, 180)

BSQS = Banking Service quality Score

Security = Security of Banking Transaction

Website = Satisfaction level with website for on-line banking transaction

Trust = Trust for on-line banking transaction

Speed Transact = Speed of transaction for on-line banking transaction

INTBANK Cost = Internet banking cost for on-line banking transaction

EASE Use = Ease of use for online banking transaction

α = Constant

β = Parameters

e = Error term

Accordingly, in this study, the Regression Equation is :

$$BSQS = 58.663 + 0.493 \text{ Security} + 3.929 \text{ Website} + 1.171 \text{ Trust} + 0.9 \text{ Speed Transact} + 0.601 \text{ INTBANK Cost} + 0.574 \text{ Ease Use} + e_i$$

SUMMARY AND CONCLUSION

Initially this study evaluated the combined Banking service quality score of each sample unit based on Banking service with respect to 15 primary

indicators. Further, this paper has tried to identify the determinants of internet-based banking transaction and the competing arguments on the relative importance of each of the factors in the banking service quality score determination.

Accordingly, this research shows that consumers are assessing internet based banking services based on security, website, trust, speed of transaction, internet banking cost and ease of use. At the time of interviewing the consumers we came to know that they give a great importance to the website, as it is the authentic source of getting any information about the service provider bank and its products. The result of regression model is also showing significant relationship between website and BSQS. In case of security, the consumers are very much concerned, but in our result the security gets minimum value of coefficient. All other predictor variables of BSQS significantly match with the qualitative responses of respondents given at the time of data collection.

As with all empirical work in this area, our results are subject to certain limitations. First, our sample period is only one year and the results we have documented may not adequately capture the historical trend of banking service. Second, we have assigned weights to different theme to arrive at banking service quality score. To the extent, subjectivity involved in such scoring process, our inferences may be used with caution. However, subjectivity is unavoidable in measuring qualitative disclosure. Third, we do not take other forms of banking service quality like demographic variables viz., age, academic qualification, occupation, income, etc. into consideration. Despite these potential shortcomings, we believe that our findings contribute evidence on the recent trend of online banking service quality in India and its determinants.

There is need for continuing more exploratory and empirical research on different aspects of online banking transaction. Apart from the explanatory variables considered in the present study, future research may analyze brand value, investor pressure, litigation, regulation/legislation, innovation and quality control, productivity and cost savings, research and development, expenditure on social overheads, employees participation in management, corporate governance parameters etc. on online banking transaction practice. Even, future research may be conducted to identify the extent and direction of online banking transaction in the Indian context in a more detailed way increasing sample size. A comparative study may also be undertaken on online banking transaction practice in developing countries. It is generally assumed that better online banking transaction would promote far-reaching outlook. A study on relationship

online banking service quality score and organizational performance may help to answer the question of whether increased online transaction is simply rhetoric or whether they represent positive stance, with full trust and security truly reflecting ethical behaviour.

References

- Bomil, S.; and Ingoo, H. (2002), Effect of Trust on Customer Acceptance of Internet Banking, *Electronic Commerce Research and Applications*, 1, pp. 247-263.
- Cai, Yi; Yang, Yali; and Cude, Brenda (2008), Inconsistencies in US Consumers' Attitudes Toward and Use of Electronic Banking : An Empirical Investigation, *Journal of Financial Services Marketing*, Palgrave Macmillan Ltd., Vol. 13, 2, pp. 150-163.
- Cheng, T. C.; Lam, D. Y.; and Yeung, C. L. (2006), Adoption of Internet Banking : An Empirical Study in Hong Kong. *Decision Support Systems*, 42(3), pp. 1158-1572.
- Chong, A.; Keng-Boon, B.; and Boon-In, T. (2010), Online Banking Adoption : An Empirical Analysis, *International Journal of Bank Marketing*, 28(4), pp. 267-287.
- Chuang, C. C.; and Hu, F. L. (2011), An Empirical Study of Customers' Perception of E-banking Service Based on Time Usage, *Journal of Internet Banking and Commerce*, 16(2), pp. 1-11.
- Daniel, E. (1999), Provision of Electronic Banking in the UK and the Republic of Ireland, *International Journal of Bank Marketing*, 17(2), pp. 72-82.
- Das, D.; Dhar, S.; and Gandhi, S. K. (2008), Mandatory Disclosure in Annual Reports of Companies Listed in Indian Stock Exchanges : Extent and Determinants, *Indian Accounting Review*, 12(1), pp. 18-37.
- Davis, F. D. (1989), Perceived Usefulness, Ease of Use and User Acceptance of Information Technology, *MIS Quarterly*, 13(3), pp. 319-339.
- Delvin, J. (1995), Technology and Innovation in Retail Banking Distribution, *International Journal of Bank Marketing*, Vol. 13, pp. 19-25.
- Donnelly, J. H. (1970), Social Character and Acceptance of New Products, *Journal of Marketing Research*, 7 (February), pp. 111-113.
- Eriksson, K.; Katri, K.; and Daniel, N. (2004), Customer Acceptance of Internet Banking in Estonia, *International Journal of Bank Marketing*, 23(2), pp. 200-216.
- Eze, U. C.; Manyeki, J. K.; Yaw, L. H.; and Har, L. C. (2011), Factors Affecting Internet Banking Adoption Among Young Adults : Evidence from Malaysia, *International Conference on Social Science and Humanity*, 5, pp. 377-381.
- Fatima, A. (2011), E-banking Security Issues : Is There a Solution in Biometrics? *Journal of Internet Banking and Commerce*, 16(2).