E-banking Service Quality: A Study of Retail Customer's Perspicacity

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Abstract: Indian financial sector has witnessed remarkable growth in terms of electronic mode of banking. Banks offer customers (both retail and corporate) online services through a variety of channels. In the past, service quality factors with respect to retail customers and E-banking have been moderately studied and especially decision making factors that motivates retail customers to use this mode of electronic channels. This study evaluates E-banking service quality from retail customer's perspective. The constructs in this study were developed for reliability and validity by using measurement scales from prior studies. In order to confirm factor analysis results, SEM has been employed. The results of study show that service quality have influence on customer's perceptions. This study has its share of limitations that also serves as directions for future research.

Keywords: E-Banking, Service Quality, Security, Perceptions

I. INTRODUCTION

Banking business has been changed across the globe and the effect of the same can be seen in the Indian banking sector as well. Banks adopted electronic channels to deliver services to customers because these channels are low cost also it offers anywhere and anytime banking. Indian banks now have shifted their focus towards a customer oriented banking products and services.

On the other hand as per the changing market scenario and with growing demands of the retail customers, banks need to re-look at their business models and the number of products they offers. According to Barnes and Corbitt (2003), banks are trying to offer their customers not just anytime banking but anywhere-anytime banking through appropriate application of developments in the information technology area. Over the past few decades Indian banking sector invested a considerable efforts in IT with the intention to improve product innovation, operational efficiency and competitive ability in the financial industry [Padmanabhan (2012)].

A study conducted by Khan et al. (2009) on service quality in India shows customers are satisfied with service quality on the various dimensions. Parasuraman and Zinkhan (2002) mentioned information and transaction efficiency as two key advantages of E-service quality. Jayawardhena and Foley (2000) mentioned that service quality feature in bank's websites is important to boost customer satisfaction. Cronin and Taylor (1992) hypothesized that satisfaction is an antecedent of service quality. They explored that service quality appears to be only one of the service factors contributing to customers' satisfaction and judgments. According to Caruana and Malta (2002) service quality has

been found to be an important input to customer satisfaction.

Thakur (2010) investigate the effect of service quality and customer satisfaction on customer loyalty among the group of customers in Indian banking industries. Data has been collected from 298 customers of the Indian banking industries; results reveal that customer satisfaction is significantly and positively related with customer loyalty; customer satisfaction is also found important mediator between service quality and customer loyalty. Electronic service quality plays critical role in success or failure of an organization. According to Yang (2001) and Zeithaml (2002) establishment of trust and relation with customers greatly affected by E-service experience. Zeithaml et al., (2002) cited online service quality is essential to achieve success in business. On the same lines Oliveira et al. (2002) mentioned that electronic services might be significant to retain existing customers while attracting potential customers in the digital age.

The importance of measuring and monitoring e-service quality has been recognized with enhanced adoption of e-service in banking field. Mishra (2010), tried to show the relationship between customer satisfaction on bank services and the attributes of the perceived service quality and therefore presented two structural equation models (SEMs), one for public and another for private sector banks in India. Specifically, structural equation model is formulated to explore the impact of the relationship between customer satisfaction and service quality attributes. Mols (2000) concludes that in E-banking unlimited access to variety of financial transaction and quality levels of bank products are becoming a key driving force in attracting new customers and enhancing customer satisfaction. One of the key determinants for successful e-business is e-service [Carlson & O'Cass (2010)].

Santos (2003) described E-service quality as largely customer evaluations and judgments regarding the quality of e-service delivery in the virtual marketplace. According to Sylvie & Ina (2010) with the growth of the e-commerce, E-service has become a popular. Morre (1987) described that service quality can lead an organization and enable to gain a lasting competitive advantage. Existing literatures on e-service quality mainly concentrate on dimensions and measuring methods of e-service quality, and there is no recognized definition of e-service. Parasuraman et al., (1985) defined service quality as the comparison between service expectation and service performance. Authors reported that service quality is determined by the differences between customers' expectations of the service and their perceptions of the service experience.

According to Akinci et al. (2004), banks provide cost-effective and convenient services to customers without compromising the quality of services. Service quality is one of the essential factors determining the success/failure of E-banking. Providing good customer service quality through various online channels has been a major concern for banks. Service quality is a critical determinant for establishing and sustaining satisfying relationships with customers. Previous studying suggests that service quality is an important indicator of customer satisfaction [Spreng and Machoy (1996)]. Several e-service quality dimensions were identified from previous studies. It is important to build up E-service quality measurements because it will ultimately help in controlling and improving the performance of online services provided by banks. Hossain and Leo (2009) evaluate the service quality in retail banking that is based on different levels of customer's perception regarding service quality. The result showed customers' perception is highest in the tangibles area like infrastructure facilities of the bank and lowest in the competence area. Table 1 depicts measurement of E-service quality dimensions proposed by different authors. Competitive advantage is gained by providing banking services to customers but not due to the attraction of Internet [Furst et al., (2002)]. Supported by the above theoretical foundation, this study addresses the issues related to electronic service quality in E-banking environment. Table 2 shows the Service Quality Dimensions.

Table 1: Measurement of E-Service Quality

Sr.. No.	Authors	Values	Dimensions
1	Johnston(1995)	18	Access, aesthetics, attentiveness, availability, care, cleanliness/tidiness, comfort, commitment, communication, competence, courtesy, flexibility, friendliness, functionality, integrity, reliability, responsiveness and security.
2	Dabholkar (1996)	6	Website design, reliability, delivery, ease of use, enjoyment and control
3	Kaynama and Black (2000)	7	Content, access, navigation, design, response, background, and personalization.
4	Cox and Dale (2001)	6	Website appearance, communication, accessibility, credibility, understanding and availability.
5	Ho and Lin (2010)	5	Web design, customer service, assurance, preferential treatment and information provision.
6	Wolfinbarger and Gilly (2002)	4	Web site design, reliability, privacy/security, and customer service
7	Zeithaml (2002)	11	Access, ease of navigation, efficiency, flexibility, reliability, personalization, security/privacy, responsiveness, assurance/trust, site aesthetics, and price knowledge.
8	Yang et al. (2003)	6	Reliability, access, ease of use, attentiveness, security, and credibility
9	Yang and Fang (2004)	4	Reliability, responsiveness, assurance and access
10	Parasuraman, Zeithaml, &Malhotra (2005)	5	Information availability and content, ease of use or usability, privacy/security, graphic style, reliability
11	Kim et al (2006)	9	Efficiency, fulfillment, system availability, privacy, responsiveness, compensation, contact, information and graphic style in online retailing.
12	Li & Suomi (2009)	8	Website design, reliability, responsiveness, security, fulfillment, personalization, information and empathy

Source: Developed by the Researchers

Table 2: Service Quality Dimension

Sr. No.	Service quality	No. of items
1	Reliability	10
2	Responsiveness	10
3	Empathy	7
4	Assurance	8
5	Trust	7
6	Security	11
	Total	53

Source: Developed by the Researchers

The purpose of this study is to examine service quality dimensions from retail customer's perspectives. In order to obtain complete view of banking industry, two more dimensions items were added to the SERVQUAL scale. The additional items (trust and security) were derived by going through interviews with branch managers, IT administrator, IT staff, officers and retail customers of selected banks. Therefore total 53 items were included under six dimensions (i.e. Reliability, Responsiveness, Assurance, Empathy, Trust and Security) to measure the service quality. The respondents were asked to evaluate their level of satisfaction on 53 items. All the items were measured on the five-point Likert scale from 5 (strongly agree) to 1 (strongly disagree).

II. RESEARCH OBJECTIVE AND METHODOLOGY

The primary objective of this research study is to scrutinize the retail customers' perceptions about the service quality of E-banking. In this section we present the research methodology. After describing sample and variables, statistical analysis is presented.

Sample Description:

The study attempts to examine the retail customer's view point towards E-banking security in the urban north India. The data for this study is collected from retail customers who have saving account in ICICI bank branches at Jalandhar, Patiala and Mohali and that are using bank services specifically electronic banking services form the last one year at least. In order to accumulate data, pre-tested questionnaire has been prepared and have been filled either by face to face interaction or sent through post/email during the period of May 2014 to December 2014. A total of 350 pieces of questionnaire papers are given out to the retail customers of ICICI branches on randomly basis. However those questionnaires that not filled properly have been completely taken out. Hence, the universe of population is the 225 retail customers. This study is descriptive as well as exploratory in nature.

Research Variables:

The present study is related to E-banking services availed by retail customers. The study is descriptive as well as exploratory in nature. In the study, E-banking will be judged on the basis of following components:

I. Reliability: It means ability to perform the promised service dependably and accurately.

II. Empathy: Caring individualized attention the service provider gives to its customers.

III. Responsiveness: It is willingness to help customers and provide prompt service.

IV. Assurance: It includes knowledge and courtesy of employees and their ability to inspire trust and confidence.

V. Security: It aimed at protecting users from risk of fraud, hacking or phishing.

VI. Trust: It means customers rely on electronic services.

III. FACTOR ANALYSIS

Factor analysis technique was applied on respondents' responses with regard to selected

service quality variables. A scale was developed to identify the service quality regarding E-banking services provided by bank. Total 19 factors were selected to find the service quality E-banking services from retail customers view point. The respondents were required to rate variables/statements on a five point Likert scales, which ranged from strongly disagree to strongly agree.

Scale Development and Refinement: These items were to be rated on a five point Likert scale by the respondents. Item wise reliability analysis was executed on selected variables for developing a reliable scale. For the determination of reliability assessment of uni-dimensionality, reliability and validity have been answered. Hence, based upon these concepts the scale generated for present objective was refined and purified. Also the inter-item correlations and Cronbach's alpha statistics were employed to conduct the scale reliability analysis and to know extend to which items were correlated with the remaining items in a set of items under consideration. The results are shown in Table 3.

Table 3: Scale Reliability Analysis

Variables	Initial	Extraction	Corrected Item-Total Correlation	Cronbach's Alpha if Item Deleted	Mean	Std. Dev.
ETH-1	1.000	.634	.564	.691	2.72	.922
ETH-2	1.000	.752	.785	.940	3.54	.862
ETH-3	1.000	.521	.547	.932	3.77	.733
SEC-1	1.000	.641	.533	.921	2.93	.849
SEC-2	1.000	.554	.531	.807	3.43	.951
SEC-3	1.000	.638	.492	.904	3.04	.964
TRU-1	1.000	.754	.512	.989	3.70	1.163
TRU-2	1.000	.833	.476	.420	3.92	.587
TRU-3	1.000	.594	.694	.816	3.61	1.634
RLB-1	1.000	.569	.686	.510	3.24	.793
RLB-2	1.000	.704	.455	.815	3.82	1.624
RLB-3	1.000	.558	.654	.744	3.21	1.077
RLB-4	1.000	.788	.870	.973	3.52	.545
RSPN-1	1.000	.702	.523	.954	3.21	.932
RSPN-2	1.000	.534	.440	.828	3.83	.921
RSPN-3	1.000	.690	.212	.910	3.52	.972
ASSUR-1	1.000	.698	.580	.922	2.60	.943
ASSUR-2	1.000	.579	.619	.802	2.17	.982
ASSUR-3	1.000	.687	.713	.933	3.41	.926

Item Means: Mean=3.336, Minimum=2.913, Maximum=3.451, Range=.521, Max/Min=1.332, Variance=.023, N=19

Source: Developed by the Researcher; Note: EMP=Empathy; SEC=Security; TRU=Trust; RLB=Reliability; RSP= Responsiveness; ASSUR =Assurance

The Cronbach's alpha is a right indicator to move forwards as the value of Cronbach's alpha coefficient of 0.6 and above is considered worthy for research in social sciences [Cronbach, (1990)].

Also the corrected-item-total correlation > 0.5 and inter-item correlation is more than 0.3. Principal component analysis (PCA) was conducted as a means of data reduction, to ascertain if the face validity of the items held [Pallant (2001)]. Prior to performing PCA the suitability of data for factor analysis was assessed. The correlation matrix revealed many coefficients of .3 and above. PCA revealed the presence of components with Eigen values exceeding 1. It is likewise important to mention that corrected-item-total correlation > 0.5 and inter-item correlation >0.3 is good enough for reliability of the scale [Hair et al., (2009)]. The value of communalities using principal component analysis ranged from 0.521 to 0.833. Here, it is apt to mention that commonality >0.5 is sufficient for the explanation of constructs [Hair et al. (2009)]. All these values show factors analysis has extracted good quantity of variance in the items.

According to the scale used if all the 19 items get a rating of 5 each, the total score would be 95. A correlation matrix was constructed using the variables in the questionnaire to show the strength of relationship among the variables considered in the questionnaire. According to Kline (1998), correlation matrix is defined as "a set of correlation coefficients between a number of variables". Correlations of all variables with each other were examined using Pearson Correlation coefficients. There is a sufficient correlation to go ahead with factor analysis. Factor analysis is performed with varimax rotated, Principal Component Analysis. Correlations among different items were found to be fairly satisfactory as well as significant.

IV. EXTRACTION OF FACTORS

Table 4 shows factor analysis of 53 variables; this analysis extracted 19 factors from these variables. Each component was defined by at least three scale items. Kaiser-Meyer-Olkin (KMO) Measure of Sampling Adequacy (MSA) values was sufficient enough for validating factor analysis results. Here, it is pertinent to mention that KMO>0.6 and P<0.5 are good enough for research in social sciences [Hair et al., (2009)]. The Bartlett's Test of Sphericity also has significant values (p<0.5). All these requirements are sufficient for validating factor analysis. All the factors having loads more than 0.5 are considered good. Items with factor loadings <0.5 were removed.

Table 4: Extracted Factors

Construct and item	Factor Loading	Eigen value	% of Variance
Empathy			
ETH-1	.622 to .775	5.522	51.011%
ETH-2	.860 to .858	1.621	13.47%
ETH-3	.782 to .828	1.700	17.425%
Security			
SEC-1	.792 to .869	7.666	42.661%
SEC-2	.874 to .846	2.821	16.346%
SEC-3	.810 to .857	1.509	11.522 %
Trust			
TRU-1	.856 to .910	5.154	47.560%
TRU-2	.821 to .841	1.662	14.770%
TRU-3	.873 to .825	1.810	15.922%

Continue…

Continue…

Reliability			
RLB-1	.766 to .911	7.712	37.661%
RLB-2	.743 to .831	2.866	11.567%
RLB-3	.738 to .844	1.637	8.625%
RLB-4	.717 to .824	1.732	7.386%
Responsiveness			
RSP-1	.731 to .926	7.454	36.881%
RSP-2	.785 to .834	2.232	12.349%
RSP-3	.742 to .813	1.512	9.707%
Assurance			
ASSUR-1	.821 to .924	6.643	30.813%
ASSUR-2	.646 to .918	3.476	14.491%
ASSUR-3	.642 to .812	6.330	36.706%

Source: Developed by the researchers

Table 5 shows different ranges of KMO, Bartlett's test of spericity, Load values and Eigen values of SERVQUAL variables.

Table 5: KMO, Bartlett's Test of Spericity, Load values and Eigen Values

	Empathy	*Security*	*Trust*	*Reliability*	*Responsiveness*	*Assurance*
Cronbach's alpha	.702	.766	.892	.950	.923	.921
KMO	.932	.856	.808	.853	.865	.834
Bartlett's test of spericity	$X^2=$ 4410.110 DF=40	$X^2=$ 821.233 DF=58	$X^2=$ 902.272 DF=58	$X^2=$ 5131.941 DF=137	$X^2=$ 6741.33 DF=191	$X^2=$ 6774.441 DF=52
Eigen values	1.510 to 5.866	1.643 to 7.745	1.655 to 5.343	1.454 to 6.122	1.454 to 8.541	3.932 to 6.122

Source: Developed by the researchers

V. EXTRACTION OF FACTORS SEM FOR LEVEL OF SATISFACTION IN E-BANKING SERVICES

SEM (structural equation modeling) is an efficient way to find the causal relationships between constructs and their underlying measurement suitability. It includes measurement model and path analysis. Confirmatory factor analysis is employed to test the reliability and validity of the questionnaires after collecting the questionnaires. The loading factor values of each manifest variable are higher than 0.6; suggested threshold value is 0.6 [Bagozzi& Yi (1988)], indicating that internal consistency and convergent validity are good; composite reliability (Construct reliability) and the Cronbach's α value of each construct are higher than 0.8, also the average variance extracted of each construct is greater than 0.5, indicating good reliability.

Path Analysis

In the following part an attempt has been induced to disclose the effects of path analysis

conducted using a SEM. The values for various fit indices, chi-square, level of significance and effect of factors/items on SERVQUAL variables are shown in table 7. The path loading on Empathy ranged from .91 to 1.0. The path loading of 1.0 for ETH-1 and 0.98 for ETH-2 show that these items play a more important role as compared to other items. The path loading on Security has the range from .85 to 1.00. The maximum loading is for SEC-1 showing the dominance in this factor. Trust has path loading from .95 to 1.00. The results show that the loading of TRU-3 (1.00) played a more dominating role for this factor. All the loading is different and sufficient to explain this factor. The path loading on Reliability has the range from .80 to 1.00. The maximum loading is for RLB-1 showing its dominance in this factor. Responsiveness has path loading from .82 to 1.00. The results show that the RSP-1(1.00) played a more dominating role for this factor. Assurance has path loading from .95 to 1.00. Maximum loading is for ASSUR-2(1.00) shows its dominance.

Table 6 shows variables with dominant path loading. After analyzing the data it is clear that customers termed security as prime factor and they are increasingly worried their online accounts. Moreover customers do not feel safe while transacting through online channels. Banks kept their promises by introducing new safety measures but these measures are far from effective in countering latest online threats. This section helped us in understanding the online banking service quality in E-banking and the items which are playing more and less important role towards the satisfaction of respondents for the online services provided by bank.

Table 6: Dominant Factors

Service quality variable	*Factor*	*Statements*
Empathy	ETH-1	Bank understand customer needs
		Bank gives the individual attention
		Help desks or call centers gives personal attention
Security	SEC-1	Security is prime factor for E-banking services
		Misuse of personal information
		Internet hackers may take control
		No compensation for any losses
		It is harmless to do transactions
Trust	TRU-3	Feeling of safety while using E-banking
		Bank keep their promises
Reliability	RLB-1	Relevant and accurate information
		Problem-free and accurate web-links
		Restriction of unauthorized access
		Interest to problem solving
Responsiveness	RSP-1	Customers get on to the site quickly
		Easy to find the information on the website
		Quick to complete a transaction
		Website doesn't require lot of effort
Assurance	ASSUR-2	Up-to-date equipment & technology
		Website is easy to use
		Easy to find information on bank's website

Source: Developed By the Researchers

Effect Estimates for Factors and Variables:

The path analysis conducted using a Structural Equation Modeling technique revealed most of the divergence in the customer satisfaction level. Here, it is also interesting to note that items with very high total effect play a more important role in satisfaction level as compared to other items. The other items also showed significant path loading on satisfaction level.

Table 7: Fit Indices and Guidelines for Model Analysis

Factors/Variables	*Decisions Effect Estimates*		
	Total	**Direct**	**Indirect**
Security	**1**	1	0
Trust	**0.868**	0.819	0
Assurance	0.944	0.934	0
Empathy	0.853	0.856	0
Responsiveness	0.856	0.934	0
Reliability	0.877	0.853	0
ETH-1	**1**	0	1
ETH-2	0.965	0	0.983
ETH-3	0.873	0	0.933
SEC-1	0.880	0	0.820
SEC-2	0.833	0	0.856
SEC-3	0.961	0	0.975
TRU-1	0.973	0	0.954
TRU-2	0.883	0	0.809
TRU-3	0.914	0	0.854
RLB-1	0.901	0	0.521
RLB-2	0.993	0	0.741
RLB-3	0.978	0	0.888
RLB-4	0.853	0	0.243
RSPN-1	0.745	0	0.935
RSPN-2	0.892	0	0.844
RSPN-3	0.803	0	0.828
ASSUR-1	0.900	0	0.918
ASSUR-2	0.874	0	0.868
ASSUR-3	0.967	0	0.864
Chi square= 361.334, DF= 172, RMR= .075, GFI= .814, AGFI= .845,PGFI= .812, NFI=.573, RFI=.844, IFI= .754, TLI=.854, Significance Level= 0.000			

Source: Developed by the Researchers

The extracted factors have significant path loading to indicate reliability, trust, empathy, responsiveness, assurance and security have significant association to frame satisfaction level towards the online services provided by bank. This section helped us in understanding the E-service

quality in E-banking and the items that are playing more and less important role towards the satisfaction of retail customers.

VI. CONCLUSION, LIMITATIONS AND FUTURE RESEARCH

Despite its growth, E-banking is still avoided by retail customers due to number of factors, primarily because of less secure environment provided by banks. Past research studies also showed concerns over these issues that constituted an obstruction in the usage of E-banking. The path analysis conducted using SEM discovered most of the variance in the E-banking service quality issues. It is essential for the banks to understand specific needs of retail customers. It is also noteworthy for banks to provide accurate information in a problem free web environment; customers' should be assured of privacy of their data.

This study comprises number of limitations like the study mainly focused on one particular type of domain i.e. retail customers. Generalization of the findings to other service contexts or service areas should be taken with taken into account and would entail additional investigations. Consideration of other regions/states might have interesting findings. Moreover, research studies with much larger sample size would be required to ensure more comprehensive findings of the study.

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