



# A evaluation of service quality in internet banking and customer satisfaction (an empirical study in Iran)

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### ARTICLE INFO

#### Article history:

Received: 27 November 2011;

Received in revised form:

15 January 2012;

Accepted: 26 January 2012;

#### Keywords

Electronic Service Quality,  
Internet Banking,  
Customer Satisfaction,  
SERVPERF.

### ABSTRACT

Rapid growth of internet and market globalization, have led the organizations to try on attracting customers in such competitive electronic market. In this battle, the only way to gain competitive advantage and becoming market' leader, is providing highly qualified electronic services. In this research, the quality of Tejarat Bank' e-services in Iran and its relation with customer satisfaction have been evaluated. The research is an applied descriptive survey. The dimensions of e-banking services' quality include Efficiency, Reliability, Security, Privacy, Trust, Responsiveness, Contact, Website Design, Service Variety. The population contains all of Internet banking customers of Tehran. Sample volume was calculated by Cochran method and was 270. Then, a questionnaire was designed based on SERVPERF questionnaire framework and was distributed among the respondents. The calculated data were analyzed through SPSS. The results for first hypothesis showed that e-banking services of Tejarat Bank had an optimum quality of the customers' viewpoint with 95% significance. The results of second hypothesis showed that, with 95% of significance, there was a positive relation between service quality and customer satisfaction. Also, the dimensions of Efficiency, Reliability, Service Variety, Responsiveness, Website design and Privacy had the most relation with customer satisfaction, respectively

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### Introduction

Nowadays, service quality is counted as a global business which owns 20% the value of international business (Lages et al., 2005: 1562). Development of e-business and market globalization, have made most organization try to attract customers in such e-market competition and gain competitive advantage through providing high qualified e-services (Oliveria et al, 2002: 724). In service industries in general and in the banking industry, in particular, the internet has been explored and exploited as a means of improving service provision (Jun et al., 2004). Banks are not only competing in traditional banking services, but have also expanded the scope of competition to an e-environment with internet banking services (Gonzalez et al., 2004). According to the Wall Street Finance Report, online banking has been identified as the third wave of the Internet revolution for this industry (Yu, 2008: 281).

The banks are no more restricted in time and demographic borders by the internet, while there will be lots of advantages for the bank and customers. On the other hands, it is very important to evaluate the services in banks due to their obvious relation with costs, profitability and customer satisfaction.

According to the reported statistics of the portal Iran Central Bank, the amount of e-services (i-banking-bills and receipts) provided for the customers in February 2006 (1137345) had a 45% growth in the next year (1648897 in feb.2007) and in feb.2008 got 5 time more (5598840) (cbi.ir). Therefore, in order to provide better services and achieving customer satisfaction to service in the banks' competition, it is very important to know the way of evaluating the quality of online bank services and customers' perception of this quality in

the country. So, the banks will find out the most important dimensions of e-service quality to consider more addition to diversification of internet services and adding different options, so that they will be able to attract new customer, while preserving the old ones. Hence, the following objectives are being pursued in this research: 1) Determining the dimensions and indexes of internet banking services' quality; 2) Measuring the quality of internet banking services of Tejarat Bank from the customers' viewpoint; 3)Evaluating the relation between the quality of internet banking services and customer satisfaction;4)prioritizing the effective factors of the quality of internet banking services on customer satisfaction.

### Literature review

Additionally, service quality is a key determinant in differentiating service offers and building competitive advantages, since the costs of comparing alternatives are relatively low in online environments. In view of these developments, service quality is a crucial issue in e-banking (Bauer et al., 2005: 154). One of the first definitions of quality in such e-services was suggested by Zeithaml et al. (2000, p. 11), who defined e-SQ as "the extent to which a web site facilitates efficient and effective shopping, purchasing and delivery". According to Jun and Cai (2001), most internet banks are still lagging behind their customers' quality expectations. In order to enhance customer loyalty, portals are required to put a strong emphasis on their customers' quality demands, which are steadily increasing over time due to the growing competition in the internet banking industry (Jun and Cai, 2001).

With the increasing application of ecommerce in organizations, the importance of measuring and monitoring e-service quality in the virtual world has been recognized. However, a common method for determining the quality attributes of a web site has not yet been established. Table 1 summarizes (in chronological order) a review of the most significant studies on the conceptualization and measurement of e-SQ.

There have been several studies on service quality of Internet banking and also evaluating its relationships with customer satisfaction, some of which are as following: They also found out eight dimensions, including "efficiency", "reliability", "privacy", "compensation", "responsiveness", "contact", "sense of beauty" and "individualization", as the key factors that influence the service quality of Internet bank. They verified that information gap, design gap and fulfillment gap were significant (Wu et al, 2008: 1446). Oppewal and Vriens (2000) developed an application for measuring retail banking service quality that consists of 28 attributes including four service quality dimensions, such as accessibility, competence, accuracy, friendliness and tangibles. Soahail and Shaikh (2008) studied on evaluating the service quality of internet banking in Saudi Arabia regarding the customers' viewpoint. Three effective factors were identified by factor analysis including "efficiency and security", "fulfillment" and "responsiveness". The result showed that online users of internet banking have generally been satisfied with services provided by the banks in Saudi Arabia (Soahail and Shaikh, 2008: 58). Loonam and O'Loughlin (2008), studied on the perceptions of the customers of self-service internet banking in financial services of Ireland; and evaluated the dimensions of service quality of internet banking. The dimensions of e-services in their research include: Web usability, Security, Information quality, Access, Trust, Reliability, Flexibility, Responsiveness, Self-recovery and Personalization/Customization. The study of Khurana (2009) was aimed to identify customer preferences towards online banking and to find out various service quality dimensions that affect customer satisfaction. Efficiency, responsiveness, fulfillment, privacy of personal information and easiness to use was found to be the core service quality dimensions of internet banking (Khurana, 2009: 96). Common dimensions that were used to assess the quality of banking websites focused on ease of use, customization, internal search function, security of transactions, aesthetic effects, and useful interaction between users and websites in order to get instant feedback from website to user (Hasan and Abuelrub, 2011: 16).

#### Research model

*Efficiency* is one of E-S-QUAL dimensions which was defined as "The ease and speed of accessing and using the site", by Parasuraman et al.(2005). Santos stated another definition of efficiency as this refers to the speed of downloading, search, and navigation (Santos, 2003: 241). According to Sohn and Tadisina (2008), *reliability* is defined as the ability of the company to perform the service accurately and dependably without a system crash (Sohn and Tadisina, 2008: 909). Jun and Cai (2001) have defined reliability as the ability of the internet bank to perform the promised service dependably and accurately (Jun and Cai, 2001: 282). Security refers to "safety and technical security of the network against the hackers and swindling" (Cox and Dale, 2001: 44). According to Santos (2003), Security refers to freedom from danger, risk, or doubt (including financial insecurity) during the service process

(Santos, 2003: 242). In e-SERVQUAL scale, the *privacy* dimension includes assurance that shopping behavior data are not shared and that credit card information is secure (Zeithaml et al, 2002: 363). The construct of *privacy* refers to companies not sharing information with third parties unless the customer gives permission. It also includes the security of sensitive information between the customer and the company. In addition, this includes providing visual symbols so customers know a secure connection is being achieved (Collier and Bienstock, 2006: 264). According to Jayawardhena (2004), trust has defined as "Inspire confidence among customers by providing a prompt and information rich service" (Jayawardhena, 2004: 196). In e-service, the company provides prompt service to customers through digital media when customers have questions or problems, which make customers more comfortable during purchasing and continue purchasing without interruption. The following are the attributes of *responsiveness* dimension.- Adequate contact information and performance- Prompt responses to customers- Timely responses to customers- Adequate response time- Quickly solve problems (Li and Suomi, 2008: 32). According to Zeithaml et al.(2002), Contact is the availability of assistance through telephone or online representatives (Parasuraman et al, 2005: 220). Thus website design should meet the following attributes in order to attract customers to conduct purchasing online easily with good navigation and useful information on the website.- Appealing and well organized website.- Consistent and standardized navigation.- Well-organized appearance of user interface.- Quickly downloading.- Easy use of the online transaction ( Li and Soumi, 2008: 32). Robbins and Stylianou (2003), have studied on websites of international enterprises and have determined their content characteristics and designs. Some of these characteristics are the availability of search button and links to the other websites. Cho and Park (2001) argue that variety of products influences internet shopper satisfaction (Rod et al, 2009: 109).

#### Research methodology

Current study is an applied descriptive survey. Library method and questionnaire were as a tool for data collection. The population contained all of internet banking customer of Tejarat Bank of Tehran. 270 people were chosen as sample volume. Classified random sampling method was used for distribution of questionnaires within the first-grade branches of Tejarat Bank of Tehran. Tehran is divided into six regions (south-east, south-west, west and center, north-east, north-west, independent central branch) and the first-grade branch of each region was selected as some customers were randomly asked to fill the questionnaire in every selected branch. The questionnaire was designed according to the objective to the objectives and hypotheses of the research through literature review and expert's ideas. It contains three parts, including demographic information (first part), evaluating the current situation of service quality of internet banking (second part) and customer satisfaction of service quality of internet banking in Tejarat Bank. SERVPERF model has been used to measure the service quality in this research. In this model the services which are used by customers, are measured only. The questionnaire has been designed based on Likert spectrum from totally disagree to totally agree and contains 32 questions. Chronbach' Alpha method was used for testing the reliability of questionnaire and it was 0.911 which showed that it owned an acceptable reliability.

### Data Analysis

Descriptive statistics were used to analyze the demographic data. Table 2 presents the demographic characteristics and time of using internet banking of the respondents.

### Hypotheses Tests:

H1: The service quality of internet banking is optimum from the customers' viewpoint.

*T-student test was used and 3 was determined as the average for variables according to the questionnaire. The following table 3 shows T-student results:*

As the significance level of the test is 0.000 and less than 0.05, and also the average is more than optimum in all dimensions, H0 is rejected and H1 confirmed. It means that service quality of internet banking in Tejarat Bank is optimum in all dimensions regarding the customers' viewpoint.

H2: There is a significant relation between service quality of internet banking in Tejarat Bank and customer satisfaction.

To evaluate the relation rate of each dimension with customer satisfaction, Pearson Correlation Coefficient was used. Table 4 Shows results of Pearson Correlation test between the dimensions of service quality of internet banking and customer satisfaction.

According to the first column of the table above, it is resulted that all dimensions have a significant linear relation with customer satisfaction (the significant level is less than error, for all items). The positive sign of coefficients shows the relation of the variables as customer satisfaction increases with increase in any dimension.

H3: The dimensions of service quality of internet banking affecting on customer satisfaction, have different priorities. The multi-variable step-by-step regression test was for this hypothesis. Table 5. Shows the results:

*Also, table 5 presents RS of efficiency, reliability, privacy, responsiveness, website design and variety through step-by-step method. Larger RS shows a more proper regression model fitted out. The more RS is near to 1, the more proper the model is. If the significance level is less than 0.05, the linearity of model is confirmed. Larger  $\beta$  (Standardized measure of the coefficients which shows the change rate of two dependent variables by one standard deviation of two independent variables) presents a stronger relation between dependent and independent variables. The following table shows that the strongest predictive variables are respectively efficiency, reliability, service variety, responsiveness, website design and privacy. It is also observed that security. Trust and contact have not considerable effects on customer satisfaction.*

### Conclusion

In this research, the quality of Tejarat Bank' e-services in Iran and its relation with customer satisfaction have been evaluated. Results showed that, e-banking services of Tejarat Bank had an optimum quality of the customers' viewpoint. Also, there was a positive relation between service quality and customer satisfaction. Also, the dimensions of Efficiency, Reliability, Service Variety, Responsiveness, Website design and Privacy had the most relation with customer satisfaction, respectively. The findings suggest the following specific directions for managers regarding online banking service provision: When assessing online service quality, managers should not employ general measures of online service quality, but should ensure that they are evaluating all aspects of their specific online service where there may be a need to use industry-specific measures. Online banking service providers

should continually monitor the level of fulfilment of personal needs and satisfaction with the organisation of the site if they wish customers to remain loyal to the online service. . Finally, there is a need to look beyond simply providing good online service sites to build strong, enduring relationships with customers.

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**Table 1: Review of studies on the measurement of e-SQ**

<b>Researcher-author and Model - instrument</b>	<b>Findings</b>
Liu and Arnett (2000)	Four major factors leading to the success of a web site are identified: (1) information and service quality, (2) system use, (3) playfulness, and (4) system design quality
Loiacono et al. (2000) WebQual™	A scale for evaluating web site quality with 12 core dimensions: (1) informational fit-to-task, (2) tailored communications, (3) trust, (4) response time, (5) ease of understanding, (6) intuitive operations, (7) visual appeal, (8) innovativeness, (9) emotional appeal, (10) consistent image, (11) online completeness, and (12) relative advantage
Zeithaml et al. (2000) E-SERVQUAL	A scale for measuring e-service quality, consisting of 11 dimensions: (1) access, (2) ease of navigation, (3) efficiency, (4) flexibility, (5) reliability, (6) customization/personalization, (7) security/privacy, (8) responsiveness, (9) assurance/trust, (10) site aesthetics, and (11) price knowledge. Four gaps (information, design, communication, and fulfillment) are identified between customers' expectations of a web site and their perceptions by using it
Yoo and Donthu (2001) SITEQUAL	A scale as an instrument for measuring online retailers' Web sites quality on four dimensions: (1) ease of use, (2) aesthetic design, (3) processing speed, and (4) security
Francis & White, (2002) PIRQUAL	A scale measured "perceived Internet retailing quality" including six dimensions, 'web store functionality', 'product attribute description', 'ownership conditions', 'delivery', 'customer service' and 'security
Barnes and Vidgen (2002) E-Qual	A method for assessing web site quality is developed, based on three dimensions: (1) usability, (2) information quality, and (3) service interaction quality
Madu and Madu (2002)	A synthesis of 15 dimensions for assessing the quality of a virtual service or operation: (1) performance, (2) features, (3) structure, (4) aesthetics, (5) reliability, (6) storage capability, (7) serviceability, (8) security and system integrity, (9) trust, (10) responsiveness, (11) product/service differentiation and customization, (12) web store policies, (13) reputation, (14) assurance, and (15) empathy
Wolfenbarger and Gilly (2003) ETailQ	A scale for measuring quality of online shopping sites, having four dimensions: (1) web site design, (2) reliability/fulfillment, (3) privacy/security, and (4) customer
Santos (2003)	A conceptual model of the determinants of e-service quality dimensions. (incubative) dimension consists of: (1) ease of use, (2) appearance, (3) linkage, (4) structure and layout, and (5) content and active dimensions consists of: (1)reliability, (2)efficiency(3)support, (4)communication,(5)security, (6)incentives

Yang and Fang (2004)	A broad conceptual framework integrating well-established models from the areas of service marketing and information systems.. Based on this framework, 16 quality dimensions of online services are identified: (1) responsiveness, (2) reliability, (3) ease of use, (4) competence, (5) access, (6) system reliability, (7) timeliness, (8) security, (9) content, (10) courtesy, (11) service portfolio, (12) continuous improvement, (13) communication, (14) aesthetic, (15) credibility, and (16) system flexibility
Bauer et al. (2005)	The measurement model of e-banking portal quality with three service categories and six dimensions: (1) security/trustworthiness, (2) basic services (core services category), (3) cross-buying services, (4) added value (additional services category), (5) transaction support, and (6) responsiveness (problem-solving services category)
Lee and Lin (2005)	Four dimensions of e-service quality are suggested through modifying the SERVQUAL model in the online shopping context: (1) web site design, (2) reliability, (3) responsiveness, and (4) trust
Parasuraman et al. (2005) E-S-QUAL E-RecS-QUAL	A scale for measuring customers' perceptions of service quality delivered by online retailers with four core dimensions: (1) efficiency, (2) fulfillment, (3) system availability, and (4) privacy. Another scale for assessing the quality of recovery service provided by web sites, having three dimensions: (1) responsiveness, (2) compensation, and (3) contact
Bauer et al. (2006) e-TransQual	Five quality dimensions, which cover all the stages of an online service transaction process: (1) functionality/design, (2) enjoyment, (3) process, (4) reliability, and (5) responsiveness
Collier and Bienstock (2006)	A conceptualization of service quality in the context of online retailers, consisting of three second-order dimensions: (1) process quality, (2) outcome quality, and (3) recovery quality. Each of these dimensions is determined by first-order dimensions: process quality by (a) functionality, (b) information accuracy, (c) design, (d) privacy, and (e) ease of use, outcome quality by (a) order accuracy, (b) order condition, and (c) timeliness, recovery quality by (a) interactive fairness, (b) procedural fairness, and (c) outcome fairness
Kim et al. (2006) E-A-S-QUAL	This model modified from E-S-QUAL and e-RecS-QUAL scales. nine dimensions are used for measuring service quality of online apparel retailers: (1) efficiency, (2) fulfillment, (3) system availability, (4) privacy, (5) responsiveness, (6) contact, (7) personalization, (8) information, and (9) security
Cristobal et al. (2007) PeSQ	A multiple-item scale for measuring the perceived e-service quality, comprising four dimensions: (1) web design, (2) customer service, (3) assurance, and (4) order management

**Table 2: Demographics characteristics and time of using internet banking sample n = 270**

	Category	Frequency	Percentages
Sex	male	174	64.4
	female	96	35.6
Age	<30	90	33.3
	31-40	96	35.6
	41-50	71	26.3
	> 50	13	4.8
Education	High school	4	1.5
	Diploma	12	4.4
	Junior college	40	14.8
	Bachelor degree	97	35.9
	Master degree	117	43.3
Time of using online banking	≤ 3months	28	10.4
	>3and≤ 6 months	39	14.4
	>6and≤ 12 months	60	22.2
	>12 months	143	53

**Table 3: T- Student test results**

Dimensions	Mean	Standard Deviation	Test Value	t
efficiency	15.9407	2.40589	12	26.914
reliability	20.8519	3.9325	18	11.916
security	14.2667	2.38552	12	15.613
privacy	3.8074	0.87081	3	15.235
trust	11.3667	2.08794	9	18.625
responsiveness	6.4444	1.55526	6	4.696
contact	13.6630	2.89618	12	9.435
Website design	17.6926	2.70308	15	16.368
Service variety	3.2741	1.05203	3	4.281

df = 296 , Significances Level= 0.000

**Table 4: Pearson Correlation test between the dimensions of service quality of internet banking and customer satisfaction**

Correlation Coefficient	Independent variables	Dependent variable
Customer satisfaction	efficiency	0.654
	reliability	0.613
	security	0.437
	privacy	0.261
	trust	0.446
	responsiveness	0.509
	contact	0.425
	Website design	0.491
	Service variety	0.539

Significances level= 0.000  
Error level= 0.05

**Table 5: Regression analysis results between customer satisfaction and nine quality dimensions**

Independent variables	Standardized CoefficientsBeta	t	Standard Error(SE)	Significances Level
efficiency	0.342	7.407	0.067	0.000
reliability	0.308	6.634	0.041	0.000
Service variety	0.229	5.391	0.141	0.000
responsiveness	0.184	4.324	0.096	0.000
Website design	0.123	2.845	0.056	0.005
privacy	0.094	2.347	0.160	0.02
Correlation Coefficient $R = 0/816$ R Square = 0/666 Adjusted R Square =0/658				

**Appendix**

Dimintions	Items	Sources
Efficiency	It is easy for me to complete a transaction through Tejarat Bank's internet banking web site	Parasuraman et al.(2005); Khurana (2009);Wu et al.(2008); Herington and Weaven (2009); Yu(2008); Yang and Fang (2004); Sohn and Tadisina (2008)
	The Tejarat Bank's site is easy to navigate	Soahail and Shaikh (2008);Collier and Bienstock (2006); Yang and Fang (2004);Khurana (2009)
	Tejarat Bank's Web site enables me to complete a transaction quickly.	Parasuraman et al.(2005);Wu et al.(2008);Herington and Weaven (2009); Akinci et al.(2010);Yang and Fang (2004)
	I can easily log on to my account Using Tejarat Bank's internet banking	Khurana (2009);Rod et al. (2009)
Reliability	The online banking transactions are always accurate	Yang and Fan (2004);Rod et al. (2009); Khurana (2009);Li and Suomi (2008); Yu (2008)
	The account information is updated immediately as soon as the transaction is	Sohn and Tadisina (2008)
	Tejarat Bank's Internet bank offers restless all year round services	Loonam and O'Loughlin (2008) ; Wu et al.(2008)



The processing transaction system of Tejarat Bank's Internet banking would not make mistakes.	Yang and Fang (2004);Wu et al.(2008)
Tejarat Bank's online banking records are always accurate	Yang and Fang (2004);Li and Suomi (2008);Yu (2008)
Tejarat Bank's Internet bank would not have the situation of transaction termination.	Khurana (2009);Yang and Fang (2004); Wu et al.(2008);Shamdasani et
I feel the risk associated with online transactions is low through Tejarat Bank's	Yu (2008);Rod et al. (2009)
Easy options for cancelling transactions are provided	Soahail and Shaikh (2008)
Tejarat Bank's makes appropriate statements concerning the completion of transactions	Soahail and Shaikh (2008)
When I send data to Tejarat Bank's web site, I am sure they cannot be modified by a third party	Casalo et al.(2007);Soahail and Shaikh (2008);Yu (2008);Rod et al. (2009)
Tejarat Bank does not share my personal information with other sites.	Casalo et al.(2007);Khurana (2009); Collier and Bienstock (2006);Akinci et al (2010)
Security icons and notifications	Loonam and O'Loughlin (2008)
I can determine my own passwords (which are unique to me and easy to remember) to log into my account at Tejarat Bank	Jayawardhena (2004)
Tejarat Bank's website always quickly resolves problems I encountered via online	Yu (2008); Li and Suomi (2008);Soahail and Shaikh (2008);Parasuraman et al.(2005)
Tejarat Bank's Web site contains a comprehensive FAQ (Frequently Asked Questions) section to help/guide me for my common problems.	Soahail and Shaikh (2008); Khurana (2009);Jayawardhena (2004)

Contact	It is very easy to contact with this Tejarat Bank's Internet banking.	Wu et al.(2008)
	Tejarat Bank's Web site provides a telephone number to reach the bank.	Parasuraman et al.(2005)
	Tejarat Bank's Internet banking offers customer service mailbox.	Wu et al.(2008)
	Tejarat Bank's Web site offers the ability to speak to a live person if there is a problem.	Loonam and O'Loughlin (2008); Wu et al.(2008); Jayawardhena (2004); Parasuraman et al.(2005)
Web site design	Tejarat Bank's Web site has worthy links (to other related websites, no dead links)	<i>Robbins and Stylianou (2003)</i>
	Tejarat Bank's Web site has effective internal search tool	<i>Robbins and Stylianou (2003)</i>
	The pages in Tejarat Bank's Web site load quickly	<i>Robbins and Stylianou (2003); Li and Suomi(2008); Cristobal et al. (2007)</i>
	Tejarat Bank's Web site incorporates a good colour scheme, easy on the eye, visually attractive and incorporates an effective layout	<i>Jayawardhena (2004); Wu et al.(2008); Li and Suomi (2008)</i>
	Tejarat Bank's web site is updated regularly	<i>Jayawardhena (2004); Cristobal et al. (2007)</i>
Service Variety	The ranges of product packages offered by Tejarat Bank's Web site always are wide enough	Yu (2008); Rod et al.(2009)
Customer Satisfaction	Overall, Tejarat Bank's Internet banking comes up to my expectations of what makes a good online banking supplier	Yang et al. (2004)
	Overall, I am satisfied with the products/services offered by Tejarat Bank's Internet banking	Yang et al. (2004)