

Analyzing the Relationship Between the Level of E-banking and Customer Satisfaction From E-banking Service Quality in Iran

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In order to dominate the environmental rapid changes and obtain the flexibility, using e-banking is vital and inevitable today. The purpose of this research is to analyze e-banking changes and its level of customer satisfaction in Iranian Banks in a four-year period and the measurement of customer satisfaction of e-banking service quality in Iran. In order to achieve this goal, a survey conducted in two phases. Firstly, four-year data was gathered from the electronic banking project. Secondly, a sample of research including 19 private and public banks in Iran was selected, a questionnaire was designed, distributed, collected and analyzed. All data for these banks was taken from Central Bank of the Islamic Republic of Iran. The methodology of research was factor and correlation analysis. The results imply that increasing the level of e-banking in Iran has a positive relationship with customer satisfaction from e-banking service quality.

Keywords: e-banking, correlation, customer satisfaction, e-banking service quality

Introduction

Rapid technological advances have introduced significant changes in the global economic and business environment (Hway & Yu, 2003). In this regard, trend of electronic commerce (e-commerce) has become a very important technological advancement for businesses in changing business practices (Brodie, Winklhofer, Coviello, & Johnston, 2007; González, Dentiste, & Rhonda, 2008; Lichtenstein & Williamson, 2006). This has experienced a tremendous growth in recent years as a result of new business initiatives utilizing these technologies (Barwise & Farley, 2005).

In particular, industries that are information-oriented such as banking services and securities trading sectors are expected to experience the highest growth in e-commerce (Ibrahim, Joseph, & Ibeh, 2006; Hughes, 2002). Inevitably, this phenomenon has sparked a lot of attention in the academic literature lately (such as Gan, Clemes, Limsombunchai, & Weng, 2006; K. Pikkarainen, T. Pikkarainen, Karjaluo, & Pahnla, 2006;

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Shamdasani, Mukherjee, & Malhotra, 2008).

Considering this, all banking service industries in Iran are affected by the advancement of the technological innovation as well. In banking industry, branches alone are no longer sufficient to provide banking services to cater the needs of today's sophisticated and demanding customers. The provision of banking services through electronic banking, namely, ATMs, POS, and e-cart has provided an alternative means to acquire banking services more conveniently. With the proliferation of computers usage, the electronic delivery of banking services has become ideal for banks to meet customer's expectations. Compatible with the revolutionary components of the electronic marketplace, Iran has actively developed e-banking services since mid-2000. Public awareness of e-banking among users has been increased and thus people are ready to migrate to technology applications.

Furthermore e-banking provides higher degree of convenience that enables customers to access internet bank all the time and in all places. Apart from that, the accessibility of computers is perceived as a measure of relative advantage (Devlin, 1995; Ainscough & Lockett, 1996; Daniel, 1999; Black, Lockett, Winklhofer, & Ennew, 2001; Polatoglu & Ekin, 2001; Suganthi, Balachandher, & Balachandran, 2001; Gerrard & Cunningham, 2003; Wong et al., 2008). In fact, it has become the main means for banks to market and sell their products and services (Amato-McCoy, 2005) and is perceived to be a necessity in order to stay profitable and successful (Gan et al., 2006; Wong et al., 2008)

So the implementation of e-banking, such as internet banking and the use of computer-based office banking software hold several obvious advantages for banks. It improves profit level through the reduction of both variable and infrastructure costs, provides a source of differentiation and competitive advantage, provides global reach, adds another communication and feedback channel, increases customer satisfaction through the reduction of waiting times, and thus improving service performance, or otherwise enabling bank to more fully realize its sales potential through the achievement of higher sales volume (Lichtenstein & Williamson, 2006; Fox, 2005; Hernandez & Mazzon, 2007; K. Pikkarainen, T. Pikkarainen, Karjaluoto, & Pahlila, 2006; Shamdasani et al., 2008; Schaggnit, 1998; Schneiderman, 1992; Wong et al., 2008).

With these explanations, the focus of this research is on the customer satisfaction by receiving a high service quality since the other advantage of e-banking are derived from customer satisfaction of services delivered to them.

Furthermore, given the fact that banks invest billions in the internet infrastructure (Deutsche Bank invests approximately half a billion US dollars per year), customer satisfaction and customer retention are increasingly developing into key success factors in e-banking. Most importantly, profitable e-banking requires a strong focus not only on the acquisition of new customers, but also on the retention of existing customers, since the acquisition costs in online banking exceed that of traditional off-line business by 20-40 percent (Reibstein, 2002; Reichheld & Schefer, 2000). This study poses a very important question: What is the relationship between level of e-banking and customer satisfaction from e-banking service quality in Iran? To answer this question, one needs recognize the level of e-banking services and customer satisfaction and scales used for measurement.

Overview of the Latest E-banking Changes in Iran and Main Questions

The published information by Central Bank of the Islamic Republic of Iran refers to this fact that e-banking encountered with a positive growth in every component of e-banking. Figures 1-3 show the positive

growth in ATM, e-cart and POS in Iranian Banks in the period of 2006 to 2010 (Islamic republic of Iran central bank report)

Figure 4 shows that the average of e-banking growth in this period has been more than 25 percent. However, the important question is that, whether this growth caused customer's satisfaction from e-banking services as the main factors of long term profitability and successes.

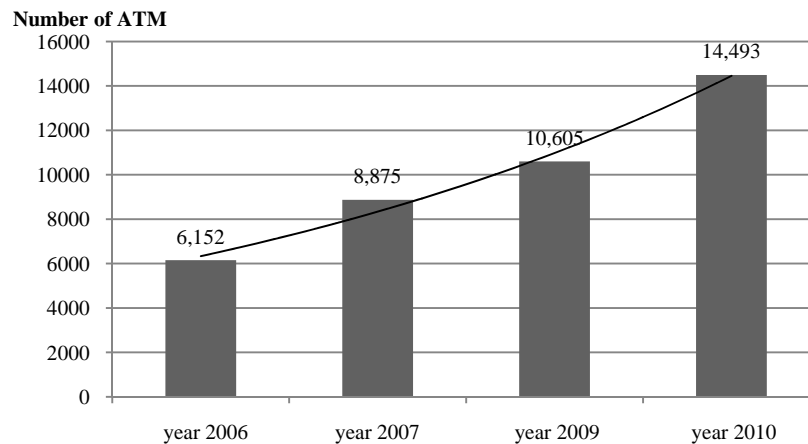


Figure 1. Number of ATM in Iranian Banks in 2006-2010. Source: Retrieved from <http://www.cbi.ir/>.

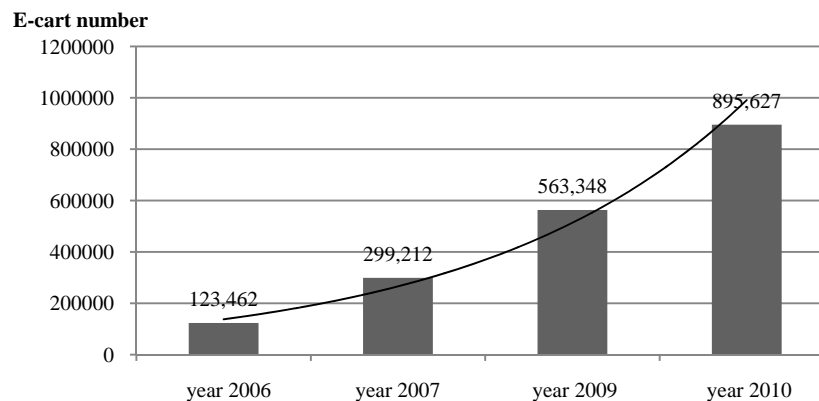


Figure 2. Number of e-cart in Iranian Banks in 2006-2010. Source: Retrieved from <http://www.cbi.ir/>.

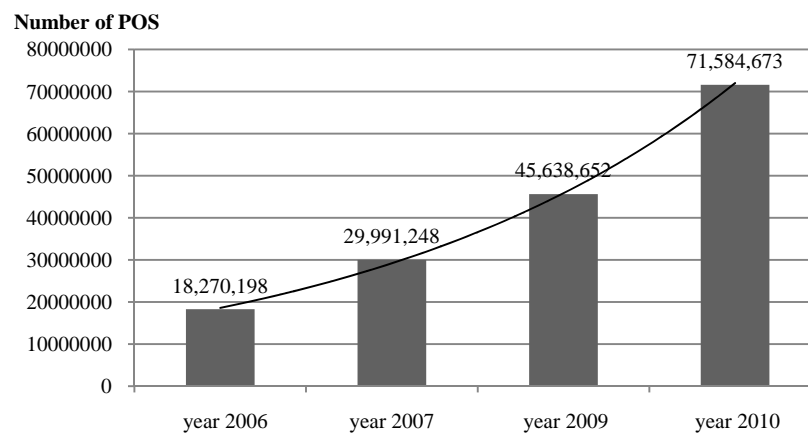


Figure 3. Number of POS in Iranian Banks in 2006-2010. Source: Retrieved from <http://www.cbi.ir/>.

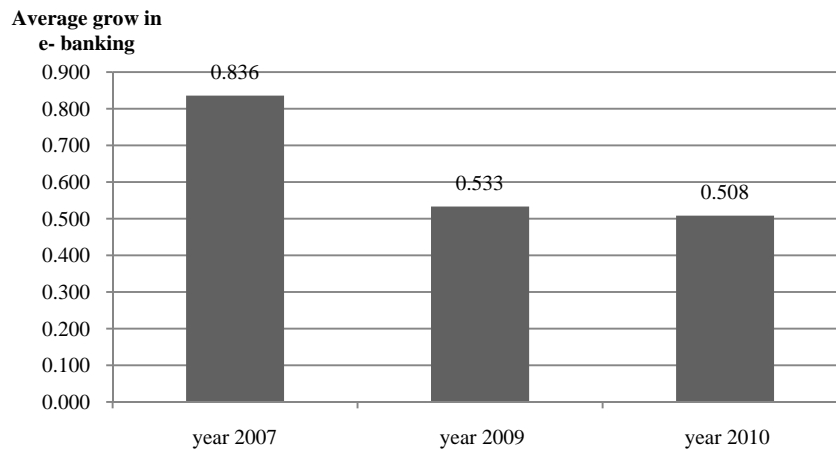


Figure 4. Average e-banking growth in Iran 2007-2010.

Literature Review

E-banking Service Quality

There is a long history of research on e-banking, customer satisfaction and service quality. In this section, we try to explain these concepts and their probable relationship. In literature, service quality is a very important determining factor of customer satisfaction. Service quality attributes in e-banking industry is the main service delivery and communication channel. Offering high quality services to satisfy consumers' needs at lower costs, is potential competitive advantage of e-banking. Some studies show that e-banking has successfully reduced operating and administrative costs (Siriluck & Speece, 2003; Devlin, 1995).

To sustain a long-term relationship, banking institutions have to embrace the concept of customer satisfaction. As supported by McMahon (1996), for banks to survive in e-banking era, they will have to earn consumer loyalty through product features and services excellence (Wai-Ching Poon, 2008).

These issues encountered in electronic service delivery have thus prompted a proliferation of research into how service quality may be measured and managed for electronic service deliveries (such as Parasuraman et al., 1991, 2005; Zeithaml et al., 2000, 2001, 2002; Yang & Jun, 2002; Bauer et al., 2005; Ibrahim et al., 2006; Shamdasani et al., 2008; Wai-Ching Poon, 2008).

Fassnacht and Köse (2007) and Wai-Ching Poon (2008) found that high electronic service quality in web-based services had an important role in building overall customer trust for service provider. Indeed, it seems that e-banking and traditional banking, though very different in their bases of customer interaction, are inseparable facets of the banking system, and should be seen as complimentary rather than substitutable ways on banking. It follows then that the customer's experiences with e-banking may have an influence on changing their expectations and perceptions of traditional banking services.

Satisfaction

Customer satisfaction is often seen as a long-term success factor to an organization's competitiveness (Hennig-Thurau & Alexander, 1997; Wai-Ching Poon, 2008). Satisfaction refers to the consumer's emotional evaluation of their experiences with the consumption or ownership of specific goods and services (Westbrook, 1981; Wai-Ching Poon, 2008).

Literature on process definitions of satisfaction is more wide spread and generally more accepted in academic circles. The central theme of the process definition is the expectancy disconfirmation paradigm (Ruyter & Bloemer, 1999). According to this paradigm, a consumer's feeling of satisfaction results from comparing a product or service's perceived performance in relation to his or her expectations. If the performance falls short of expectations, negative disconfirmation occurs, resulting in a feeling of dissatisfaction. If the performance exceeds the expectations, positive disconfirmation occurs, and the consumer is highly satisfied. If the performance just matches expectations, the consumer's expectations are confirmed, and the consumer is just satisfied (Wai-Ching Poon, 2008).

Thus, both service quality and satisfaction are constructs resulting from the comparison of expectations and performance. Indeed, empirical research by Parasuraman et al. (1985) have found several examples where consumers satisfied with a service still did not think that it was of high quality. Oliver (1993) has also suggested that customers require experience with the product or service to determine how satisfied they are with it, while quality can be perceived without actual consumption experience (Wai-Ching Poon, 2008).

E-banking Service Quality Measurement

After recognition of customer satisfaction and service quality concepts, determining the method for measuring these concepts is the main issue.

Many studies focus on measuring these concepts. For example, Kano's (1984) method for measuring customer-defined quality suggests three fundamental quality demands relevant to quality evaluation: basic demands, performance demands and enthusiasm demands. These demands are fulfilled by three types of performance elements. Basic performances are regarded as obligatory (must-be services) and are therefore, not explicitly voiced. Spoken attributes are typically voiced, while surprise attributes are again rarely voiced (as they are unexpected) and can therefore, achieve high levels of satisfaction in sense of excitement (Bauer et al., 2005).

The service model by Berry (1987) and the penalty-reward-approach by Brandt (1988) follow a similar logic but suggest two generic categories of service elements: minimum elements or routine services include all factors and processes that entail demerits if the provider fails to fulfill customer requirements. Value-enhancing services or non-routine-services encompass all elements that exceed customer expectations and are rewarded with bonus points (Bauer et al., 2005).

As a consequence of the increasing importance of modern information and communication technologies for delivery of financial services, the analysis of e-banking quality issues becomes an area of growing interest to researchers and managers (Hughes, 2003; Jayawardhena, 2004; Bauer et al., 2005).

The study presented by Gounaris and Dimitriadis (2003) and Bauer et al. (2005) is the first attempt to investigate the service quality of e-banking portals. Based on the SERVQUAL, the authors identify three quality dimensions, namely customer care and risk reduction benefit, information benefit and interaction facilitation. These dimensions are represented by only 14 items, a fact that has to be criticized. The following studies are focused on specific service delivery aspects of conventional, simple banking web sites and therefore consider particular service quality dimensions. Broderick and Vachirapornpuk (2002) and Jun and Cai (2001) employed qualitative techniques. By using the critical incident technique, Jun and Cai (2001)

identified 532 critical incidents in online banking, which are grouped into three central quality categories namely that of customer service quality, online systems quality, and banking service products quality (Bauer et al., 2005).

In this study, we use the method (Ibrahim et al., 2006) for measuring the e-banking service quality and customer satisfaction. Their study has drawn on a sample of 135 UK retail banking customers in exploring the key dimensions of the relatively new electronic service quality (e-SQ) construct, and evaluating how the survey respondents perceive their respective banks' performance on those critically regarded e-SQ dimensions. Using an exploratory factor analysis procedure, it uncovered six composite dimensions of electronic service quality, including the following factors as a questionnaire (Ibrahim et al., 2006):

- All my banking needs will be included in the electronic banking menu options;
- All my electronic banking transactions will be performed accurately;
- Electronic banking services will be easy to use;
- Electronic banking services will have convenient hours of operation;
- All my electronic banking transactions will be processed efficiently;
- Accurate records of all my electronic banking transactions will be provided;
- There will be no waiting time involved in obtaining electronic banking services;
- All my electronic banking transactions will be guaranteed;
- Electronic banking will provide secure and reliable services;
- Electronic banking will provide additional options for some customers (non-English speaking, disabled and elderly);
- Electronic banking will have ATMs accessibly located Electronic banking will adequately satisfy my complaints either on the spot or within 24 hours;
- Electronic banking will provide a friendly environment, including musical entertainment, to customers in the queue;
- Electronic banking will provide a friendly environment, e.g., adverts of bank's services, to customers waiting in the queue to be served;
- Electronic banking will provide other relevant information about financial services to customers waiting in the queue;
- Electronic banking service will be personalized;
- Electronic banking will acknowledge me by name on the screen during the transaction;
- Electronic banking will enable me to set up accounts and perform transactions immediately;
- Electronic banking will provide brochures to educate;
- Me on how to use services electronic banking service will have a personal/friendly electronic banking service will have a user-friendly system;
- Electronic banking service will provide online directions;
- Electronic banking will provide customer feedback services;
- Electronic banking will provide special services for the elderly;
- Electronic banking will provide additional options for some customers (non-English speaking, disabled and elderly);
- Electronic banking will have adequate menu options for everyday banking.

Methodology

Data Collection

In this research, required data have been obtained from two sources: First, source was the reports from Central Bank of the Islamic Republic of Iran and another source was questionnaires, which were distributed among Iranian Banks customers. The reports of Irani Central Bank contain information of 19 private and public banks. Data presented here were extracted from ATM, e-cart and POS in every year from 2006-2010. These data contain 70 cases as time series. The questionnaire contains the e-banking service quality factors that demonstrate the banking customer satisfaction. These factors have mentioned in literature review. The number of questionnaires is 2,276 that given to Iranian banks customers.

Data Analysis and Results Conclusion

A factor analysis was conducted to develop constructs that will help to analyze the questionnaires' responses and to evaluate factors that influence customers' perceived e-banking service quality. Factor analysis assists in condensing a large set of variables into a smaller number of basic components, which include some connected variables. The factor analysis in this study has implemented for customer data that collected by questionnaires for measuring the e-banking service quality and customer satisfaction. According to Table 1 KMO-Bartlett test that sample size is adequate for this study. As showing in Table 2, three components can show more than 61 percent of variation and Table 3 shows that all of 24 questionnaires variables have more correlation with component 1 so it can be resulted that all of them categorized to only one component.

Table 1

KMO-Bartlett Test for Sample Size

Kaiser-Meyer-Olkin measure of sampling adequacy		0.892
Bartlett's test of sphericity	Approx. chi-square	844.419
	df	2,275
	Sig.	0.000

Table 2

Total Variance Explained

Component	Initial eigenvalues			Extraction sums of squared loadings			Rotation sums of squared loadings		
	Total	% of variance	Cumulative %	Total	% of variance		Cumulative %	Total	
1	11.357	47.320	47.320	11.357	47.320	47.320	5.970	24.874	24.874
2	2.002	8.342	55.662	2.002	8.342	55.662	5.375	22.395	47.269
3	1.320	5.500	61.162	1.320	5.500	61.162	3.334	13.893	61.162
4	0.971	4.046	65.209						
5	0.796	3.317	68.525						
6	0.727	3.028	71.554						
7	0.674	2.807	74.361						
8	0.625	2.606	76.967						
9	0.591	2.464	79.431						
10	0.558	2.323	81.755						
11	0.481	2.003	83.757						
12	0.435	1.814	85.571						
13	0.413	1.721	87.292						
14	0.404	1.682	88.974						
15	0.384	1.599	90.573						

(Table 2 continued)

Component	Initial eigenvalues			Extraction sums of squared loadings		Rotation sums of squared loadings	
	Total	% of variance	Cumulative %	Total	% of variance	Cumulative %	Total
16	0.366	1.526	92.099				
17	0.341	1.420	93.519				
18	0.299	1.245	94.764				
19	0.271	1.131	95.895				
20	0.252	1.049	96.944				
21	0.215	0.894	97.838				
22	0.204	0.851	98.690				
23	0.187	0.779	99.468				
24	0.128	0.532	100.000				

Table 3

Rotated Component Matrix

Variable	Component		
	1	1	1
1 All my banking needs will be included in the electronic banking menu options	0.624	-0.303	0.226
2 All my electronic banking transactions will be performed accurately	0.608	-0.408	0.349
3 Electronic banking services will be easy to use	0.675	-0.358	0.151
4 Electronic banking services will have convenient hours of operation	0.715	-0.215	0.046
5 All my electronic banking transactions will be processed efficiently	0.719	-0.380	0.085
6 Accurate records of all my electronic banking transactions will be provided	0.702	-0.398	-0.053
7 There will be no waiting time involved in obtaining electronic banking services	0.691	-0.175	-0.128
8 All my electronic banking transactions will be guaranteed	0.732	-0.322	-0.100
9 Electronic banking will provide secure and reliable services	0.794	-0.334	0.011
10 Electronic banking will provide additional options for some customers (non-English speaking, disabled and elderly)	0.501	0.079	-0.181
11 Electronic banking will have ATMs accessibly located electronic banking will adequately satisfy my complaints either on the spot or within 24 hours	0.758	-0.128	-0.141
12 Electronic banking will provide a friendly environment, including musical entertainment, to customers in the queue	0.801	0.127	0.074
13 Electronic banking will provide a friendly environment, e.g. adverts of bank's services, to customers waiting in the queue to be served	0.545	0.473	0.436
14 Electronic banking will provide other relevant information about financial services to customers waiting in the queue	0.574	0.477	0.498
15 Electronic banking service will be personalized	0.719	0.285	0.315
16 Electronic banking will acknowledge me by name on the screen during the transaction	0.661	0.143	-0.163
17 Electronic banking will enable me to set up accounts and perform transactions immediately	0.688	0.339	-0.022
18 Electronic banking will provide brochures to educate me on how to use services	0.787	0.053	0.015
19 Electronic banking service will have a personal/friendly Electronic banking service will have a user-friendly system	0.696	0.293	-0.241
20 Electronic banking service will provide online directions	0.665	0.252	-0.312
21 Electronic banking will provide customer feedback services	0.659	0.315	-0.311
22 Electronic banking will provide special services for the elderly	0.673	0.059	-0.425
23 Electronic banking will provide additional options for some customers (non-English speaking, disabled and elderly)	0.743	0.215	-0.112
24 Electronic banking will have adequate menu options for everyday banking	0.688	0.112	0.132

After factor analysis for questionnaires, in the next stage, level of e-banking correlates to the e-banking service quality. As mentioned in this study level of e-banking in Iran is divided to three variables that are ATM number, e-cart and POS number in Iranian Bank. This study correlates these variables to level of e-banking

service quality to test following hypotheses:

H1: There is a positive relationship between number of ATM and e-banking service quality.

H2: There is a positive relationship between number of e-cart and e-banking service quality.

H3: There is a positive relationship between number of POS and e-banking service quality.

Table 4

Correlation Analysis

Hypothesis	H1	H2	H3
Pearson Correlation	0.384	0.113	0.236
Sig. (2-tailed)	0.012	0.232	0.041

In order to test the relationship of factors for each hypothesis, the Spearman Rank correlation coefficient is conducted. Spearman Rank correlation coefficients, ranging from +1 to 1, estimate the magnitude and direction of relationship for the factors for hypotheses. The coefficient's sign signifies the direction of relationship. A positive sign means that the factors are moving in the same direction, whereas a negative coefficient signals otherwise. The absence of a relationship is indicated by an approximate zero coefficient. At 5 per cent level of significance, Table 4 gives the correlations and sig. the variables included in the analyses. Number of ATM was linked to e-banking service quality ($r = 0.284$, $p < 0.012$). Thus, we conclude number of ATM significantly related to e-banking service quality. Number of e-cart was related to e-banking service quality ($r = 0.113$, $p < 0.232$) and number of POS was related to e-banking service quality ($r = 0.236$, $p < 0.041$).

Discussion

Data analysis shows that in Iranian banks if we diffuse more and more ATM and POS number, We can expect that e-banking service quality can be proceeded better and better by e-banking customer so this resulted to enhance the customer satisfaction. Diffusing the ATM and POS have a positive relationship by e-banking service quality since these are facilitating banking services and help customers to keep their banking requisition easier .

Also the analysis shows that there is no positive relationship between diffusing the e-cart and e-banking service quality and then customer satisfaction. The sig. in related test shows this relationship cannot be accepted. This result shows that the Iranian banks in diffusing e-carts do not consider the needs of customers and they focus only on quantitative growth to demonstrate great and good performance. The Iranian banks should be diffusing the e-carts parallel to other developments in e-banking.

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