Original Article

A model for customer retention in electronic banking market

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Abstract

Background: In a difficult competitive environment, timely and organized relationship with customers is the best way to increase customer satisfaction, increase sales and reduce costs.

Methods: In a mixed method, interview was used in qualitative section and questionnaire was used in the quantitative section. The statistical population for the interview was 12 people and the statistical population of the quantitative section included 380 customers of Saderat Bank of Isfahan and Lorestan provinces that their total number was 37000. Measurement tools included a researcher-made questionnaire and an interview form. Data analysis was performed by regression test method in SPSS software.

Results: The website, ease of use, information security, appropriate format, savings in time, and subjective norms were considered as effective variables of electronic banking services. The results indicated that each of the above components have a direct and significant relationship with customer retention. to save time, service offering systems should be used using the data of each customer and the information and the services provided without the need for the customer's presence in electronic services to improve performance of electronic banking as well as provide conditions for full competition in the market for banks to increase the performance of banks.

Conclusion: Given the development pattern of customer retention in banking services, it is necessary to pay special attention to the importance of the effective factors listed by managers and employees.

Introduction

In an environment where customers are aware and choose power, it is no longer possible to ignore their needs, so the importance of customer satisfaction and loyalty in all jobs, including the banking industry is crucial, since customer needs are the reason for the existence of organizations of this industry. The cost of retaining existing customers is much lower than attracting new customers (1).

Since customer attraction is almost 5 times more expensive than customer retention. Moreover, 1% of increase in customer retention usually results in a 5% reduction in customer attraction costs. It also leads to

a 5% increase in corporate earnings, which reduces the cost of attracting new customers. Researchers have shown empirically that customer retention is a key factor in improving a company's economic and competitive position in the market (2).

Also, e-commerce is one of the most important topics that is nowadays considered by organizations, researchers and scholars. Electronic banking and consequently electronic money as one of the most important necessary packages in the area of e-commerce can provide the conditions electronic growth and development more than before, by facilitating payment, electronic transfers, funds of Internet transactions (3).

The most important challenge for any economic organization is to increase the organization's earnings. Given what was stated, customer relationship management in organizations is a kind of business strategy. This strategy is different in different organizations depending on the needs of the organization and the customer (4).

Although information technology is entering Iran with a delay. These developments, including intensification of competition in the banking industry, the beginning of the impact of technological developments on Iranian banking and the imminent threat of alternative goods, such as security markets and financing through international markets, have caused that the issue of customer retention strategies in the banking industry to have a particular importance (5).

Electronic banking in Iran faces fundamental challenges to retain its customers, so that if these challenges are not addressed, it will cause dissatisfaction, reduced loyalty and customer retention. The mentioned challenges include educational, legal, systemic, infrastructural, organizational and cultural areas. However, the most important is the infrastructure. Given what was stated above, the aim of this study was to provide a model of customer retention in the electronic banking services of Saderat Bank in Isfahan and Lorestan provinces.

Methods

Since the present study was a mixed research, quantitative and qualitative research strategies were used in conducting it. The qualitative strategy used in the first phase of the research was data grounded theory and the quantitative strategies used in this research were survey, correlational and regression.

Data collection methods: The following methods were used to collect data:

A: Review of documents and library studies: This method included review of existing and related dissertations and research in English and Persian, as well as the use of the Internet to obtain new findings

B: Interview: This method included data, provides the possibility of direct contact with the interviewee and with the help of it, we could have a deeper evaluation of the perceptions, attitudes, interests of the subjects

A: Questionnaire: The main instrument for data collection in this study was a questionnaire. After reviewing the literature on the subject and background of the research and analyzing the interviews with experts, the main propositions were extracted and accordingly a questionnaire consisting of 41 questions was designed. Questions were designed in the form of a five-point Likert scale. The original questionnaire was presented in the appendix section.

Mixed research strategies: This research used a combination of exploratory methods - a model for creating typology - as a research strategy.

Method of collecting and analyzing qualitative data

Sampling: Participants in this study were selected among the customers of one of the public organizations (Saderat Bank). Data collection instruments at this stage of the research were face-to-face and in-depth interviews performed by asking questions lasted 30 to 120 minutes. The sample of the qualitative section in our research was 27 customers of Saderat Bank. Based on the initial interviews and according to the previous knowledge of the interviewees, we found that these people were among the most informed people about banking services and sometimes the most active people in administrative changes. In addition, they mastery on events related to the studied phenomenon helped to collect the initial data of the research.

Coding procedure: In open coding, open sampling was performed, meaning that participants were selected as the sample that provided the most opportunity to gather the most relevant data about the studied phenomenon. The scope of these people in our research was limited to 27 customers of Saderat Bank.

Labeling phenomena: In this method, we took a sentence or paragraph from the interview and divided it into parts, and labelled each of the events and ideas. In this process, we ask questions about each of them, for example, how is this done? What does it represent? We compare events as we work and give a name for those who are similar, otherwise, we will have too many names that will cause confusion.

Quantitative data collection method

Sampling and data collection instruments: The statistical population in the quantitative section of this research was Saderat Bank customers, whose number was 37000. The size of statistical sample was estimated as 380 people based on Cochran's formula. To collect data, a researcher-made questionnaire with 41 items was developed. Its items were scored on a 5-point Likert scale, from very high 5 to very low 1.

Statistical analysis method: Before performing the necessary statistical analyses to test the research hypotheses, exploratory factor analysis was first performed in a quantitative stage using the statistical technique of principal component analysis to evaluate the construct validity of the measurement instrument, if necessary, some items that reduced the validity were eliminated. Finally, 15 items of questionnaires were eliminated. Also, since all the data of this study were collected simultaneously from specific individuals with a single instrument (questionnaire), to avoid the research threat of variance of the common method, before performing the necessary statistical analysis, to test the hypotheses, Harman's single - factor test was implemented. SPSS software was used to analyze quantitative data and test research hypotheses, and perform structural equation modeling.

Results

Descriptive statistics: Qualitative section

Based on table 1, most of the participants in phase one were male. seven people (58.4%) were aged between 41-45 years. In terms of level of education, 9 (75%) had master and 3 (25%) had PhD degree. In terms of employment history33.3% had an employment history of more than 7 years.

Table 1. Frequency of descriptive statistics of respondents in the quantitative section

Variable		Number	Percentage
Gender	Male	9	%75
	Female	3	%25
Education	Masters	9	%75
	PhD	3	%25
Age (years)	< 35	1	%8.33
	35-40	3	%25
	41-45	7	%58.4
	45 <	1	%8.33
Employment history (years)	< 2	2	%16.7
	2-4	3	%25
	5-7	3	%25
	Over 7	4	%3.33

Results obtained from interview

In this regard, semi-structured interviews in the area of electronic services were conducted. During the interview, the participants were asked the following questions:

What is the requirement to retain customers in electronic services? What are the most important advantages and disadvantages of using electronic services? What are the most important characteristics of electronic banking services? How can the quality of electronic banking services be enhanced to improve the electronic banking performance? What should electronic banking employees do to identify and attract customers? What factors affect the security of customer account information in using electronic services to protect them? What are the factors that save time in using electronic services to maintain them? What are the most important characteristics of a website in using electronic services? What factors affect the subjective norm of customers in using electronic services to maintain them? What are the proper marketing methods to retain customers in electronic banking services? What factors affect the improvement of format of appearance of services in the use of electronic services to retain them?

Results obtained from implementation were reviewed line by line, conceptualized, categorized. Then, based on similarity, conceptual relationship and common characteristics were divided into primary and secondary themes. For this purpose, by reviewing the interviews and being acquainted with the basic concepts resulting from the interview, initial identifiers were created. Then, by searching and recognizing the themes (in this step, the identifiers were analyzed and the way of combining different identifiers to form the basic theme is considered).

Descriptive statistics: Quantitative section

Based on table 3, out of 380 participants in this study, 300 were male and the rest were female. The level of education of most of the samples (43.2%) had bachelor degree.

Table 3. Frequency of descriptive statistics of respondents of the quantitative section

Variable		Number	Percentage
Gender	Man	300	78.9
	Female	80	21.1
Level of education	Diploma	0	0
	Associate	0	0
	Bachelor	164	43.2
	Master	144	37.2
	PhD	72	18.9

Testing research hypotheses

Customer retention has a significant relationship with the characteristics of the website, ease of use, information security of customer account, service format (appearance), time saving, and customers' subjective norm of using electronic banking.

Table 2. Coding of main categories and subcategories (Main category: electronic services)

Sub-categories	Open codes
Requirements for customer retention in electronic services	A1: Being pioneer in providing electronic banking services A2: Close interaction with the company A3: Understanding the financial structure A4: Meeting customer needs by providing a portfolio of financing tools A5: Implementing a customer relationship management model
Benefits of electronic banking services	A6: Innovation in providing complete and diverse banking products and services in the area of electronic banking with the aim of creating more value for customers A7: Increasing the speed, accuracy and quality in providing the services required by the company's customers A8: Helping businesses grow and develop through financial resources management. A9: Improving constructive and learning communications A10: Providing the possibility of providing specialized and dedicated services to each of the company's customers A11: Optimize asset composition A12: Helping Iran's businesses to continuously reduce their claims A13: Performing specialized consultations in the area of marketing, regulations, tax, etc

	A14: Services that can be provided in the electronic banking of Saderat Bank. A15: Cost saving A16: time saving A17: Access to multiple channels for operations A18: Establishing and increase the reputation of banks in providing innovation A19: Retaining customers despite bank location changes A20: Creating opportunities to find new customers in target markets A21: Limited geographical expansion of activity A22: Establishing full competition conditions A23: Focus on new distribution channels A24: Providing improved customer service A25: Use of e-commerce strategies A26: Equal competition, retention and attraction of customer A27: Integration of different channels, information management A28: Wide range of customers A29: Guiding customers to the right channels with content characteristics and reduce costs A30: Target market customer service A31: Revenue generation
Ease of activity of companies in electronic services	A32: Receiving invoices (all company accounts) A33: Transfer of funds to your own accounts and the accounts of all persons in all banks A34: cheques and observing assigned cheques, cashed cheques or non-cashed cheques A35: Payment of bills A36: observing and managing customer facilities and commitments A37: observing the list of transactions and doing the necessary operations on them A38: observing the transactions in the desired time period A39: Observing bills A40: Collective payment system
Improving performance in electronic services	A41: Tendency to create customer satisfaction as the main element of electronic banking / A42: Tendency to support the globalization processes of banks (institutions) A43: Strategic tendency to the development of activities at the international level A44: Setting a minimum standard for access to corporate customers and defining the corporate domain as a major barrier to the expansion of electronic banking A45: Corporate banking products and services A46: Branch governance in the Iranian banking system A47: Characteristics of large companies
Necessary measures to identify the customer and attract the customer	A48: The relationship between the company and the bank to coordinate and provide all banking services A49: Coordinator of all joint meetings A50: Presence in meetings of the company with the aim of accelerating and facilitating the receipt of banking services A51: Communication channel to reflect all needs, requests, criticisms and suggestions A52: Performing all executive steps from the service request stage to obtaining the result, including A38: obtaining the application, documents, filing, following up and obtaining approvals, and A39: referring to the branch to implement it without the need for the physical presence of all members of company A53: Preparing and developing an account plan for every corporate customer and its efficient implementation. A54: Training of managers and members of the company and introduction of all electronic services of the bank company A55: Introducing all the benefits of using electronic banking for corporate customers
Factors affecting information security	A56: Performing services using up-to-date security protocols A57: Using confidential personnel and explaining security to them. A58: Encryption of information exchanged between the customer and the bank in cyberspace A59: Use of complex passwords in the use of corporate banking user space
Factors affecting time saving	A60: No need to explain the services that can be provided by the company's banking employees with details of services in the catalog or website .... A61: Using service offering systems using the data of each customer in previous visits to offer products that used by similar companies A62: Using machine learning algorithms to perform duplicate tasks in electronic services A63: Using an instructional video to explain how to use electronic services that can accelerate customer learning, such as the Shams System of Saderat Bank
The most important characteristic of the website in the use of electronic services	A64: Informing and using the services provided without the presence of the customer and employees A65: No time limit in the use of services A66: Easier informing or updating information on the website (A56 equipment: created in previous services and new services created) A67: Using graphic design in the provision of services for better understanding in face-to-face visits only orally

Table 4. Simple regression results to predict the website characteristics, security of customer account information, ease of use, service format (appearance), time saving, and customers' subjective norm through customer retention

Predictive variable	Criterion variable	B	SE	Beta	t	p
Customer retention	Website characteristics	0.210	0.004	0.954	56.388	<0.001
Customer retention	Ease of use	0.328	0.005	0.963	69.666	<0.001
Customer retention	Security of customer account information	0.371	0.003	0.989	131.440	<0.001
Customer retention	Service format	0.573	0.006	0.977	89.618	<0.001
Customer retention	Time saving	0.459	0.008	0.944	55.08	<0.001
Customer retention	Customer subjective norm	0.891	0.041	0.958	64.953	<0.001

Based on the table above and regression coefficients (standard and non-standard) and the p-value of indicates that customer retention has a significant relationship with website characteristics, ease of use, security of customer account information, service format (appearance), time saving, customers' subjective norm of using electronic banking (p>0.05). Therefore, the research hypotheses are confirmed.

Discussion

In the qualitative section, the components affecting the banking services of Saderat Bank electronic company were examined using interviews. The results in this section indicate that the website characteristics, ease of use, information security, appropriate format, time saving and subjective norms are considered as effective variables of electronic services and it can be stated that each of the above components will have a direct relationship with customer retention. Also, the results of the qualitative section of the study revealed that some factors can be effective in improving customer retention in electronic banking services. Website characteristics, ease of use, information security, appropriate format, time saving and subjective norms are among the factors affecting the improvement of customer retention model in electronic banking services. In fact, it can be stated that the characteristics of the website can be improved by improving accessibility when needed, proper design of Saderat Bank website for easy banking operations, speed and efficiency of banking operations, proper security, simplicity of website

search, proper arrangement of information on the bank's website for availability, attractiveness of website space to improve customer retention.

Also, another factor affecting customer retention is ease of use, which can be achieved by providing easy and convenient use for customers and through training employees, providing online shopping easiness, and the use of Internet systems and so on. Another effective indicator in this regard is information security, which is achieved by providing the reputation and credibility of the bank, ensuring the security of banking information, increasing trust in the information on the bank's website. Also, appropriate format plays an essential role in customer retention. It means that the site should be designed in a way that is attractive to customers to retain the customer. Time saving and subjective norms are also considered as effective factors in improving the customer retention model in electronic banking services.

In the quantitative section of the research, after collecting the distributed questionnaires and analyzing the data, we concluded that:

Customer retention has a significant relationship with characteristics of an electronic banking website. The results of this hypothesis are consistent with those of studies conducted by Ghasemi (5), and inconsistent with the results of studies conducted by Peevers et al., (6) and Gan et al., (7) Nowadays, with the increasing penetration of the Internet and human societies' attention to electronic media such as bank websites and factors such as

intensifying competition in the area of electronic banking, rapid technological change and increasing power, as well as paying attention to visitors' choice highlight the importance of examining this issue for managers and designers of these websites. In this regard, those websites will be successful that can better understand and identify the expectations and values of visitors and respond to them.

Customer retention has a significant relationship with the ease of using electronic banking .The task of bankers in today's competitive world is to get closer to customers and diversify the ways of communicating with them, as the importance of the customer and customer orientation is nowadays clear from anyone. However, these ways should be appropriate and efficient. Like the product life cycle, banks' channels of communication with people can be replaced by other channels over time, so innovation is necessary every time. Banks cannot respond to all people needs using a single way, so one of the ways to diversify and user-oriented communication with people is to use electronic banking (8).

Customer retention has a significant relationship with the security of electronic account information. The results of this hypothesis are in line with those of studies conducted by Alishahi-Tabriz et al., (9), but inconsistent with the results of a study conducted by Gan et al., (7).

One of the ways to control and prevent danger is to make users aware that before entering their information; they first examine their system in terms of virus and clean the system using a variety of software. The banks are also required to provide systems with high security, for example, use a specific identification number or PIN so that each person has a unique password. However, relying only on the password is not enough, and the unique characteristics of people such as fingerprints, signatures, etc. can also be used (10).

Customer retention has a significant relationship with saving time in using electronic banking. Results of this are consistent with those of studies conducted by Hadian (11).

In recent years, advances in information technology in the banking industry have fundamentally changed the banking operations, and customers can do their banking activities all hours of a day. Internet banking allows customers to have extensive electronic banking transactions through the bank's website and faster and at a lower cost compared to traditional branches without time and space limitations. Another advantage of electronic banking is saving in time compared to traditional branches (12). However, implementing a control system over a communication network induces inevitable time delays that may degrade performance and even cause instability. Time delays are a function of device processing time and the sharing of the communication medium. Thus system performance is not only dependent on the performance of its components but also on their network interaction. Consequently, there are growing theoretical interests in the field of networked control system. Modeling, analysis, control, optimization of networked control system are main research topics now (13.14.15). A cost-effective way to obtain increased availability and reliability in networked control system is to introduce fault-tolerant control. Therefore, research on fault-tolerant control of networked control system has great theoretical and applied significance, and it is now a new research field in which only time delay is considered for NCS (Networked Control System) at present (16). Networked control system could degrade the system dynamic performance and is a source of

potential instability in complex dynamical processes like advanced aircraft, spacecraft, and autonomous manufacturing plants.

Customer retention has a significant relationship with customers' subjective norms in using electronic banking. Electronic banking expands the bank's geographical scope, increases customer ease of use, and reduces transaction costs. This method is similar to the traditional payment method. Its most important difference with the traditional system is that it allows customers to access directly their financial information and their banking operations regardless of location and without the need to visit the bank using a personal computer and network. This method of banking offers a new way for banks to interact with their customers. Identifying the factors that affect the level of people using of electronic banking services helps banks to respond appropriately to these factors and apply their marketing strategies to promote Internet banking that meets the needs of customers. Sources of health information in Iran. The results revealed that radio and television have been main source of health information for 8 years; but there was a growing tendency to use the Internet, especially among males. Policymakers need to revise their distribution strategies based on people demand.

Conclusion

The aim of present study was to provide a model of customer retention in electronic banking services. The results of the study in the qualitative section showed that factors that can be effective in improving customer retention in electronic banking services are website characteristics, ease of use, information security, appropriate format, time saving and subjective norms. It can be stated that the website characteristics can be improved by improving accessibility when needed, proper design of Saderat Bank website for easy banking operations, having high speed and efficiency in doing banking operations, proper security, simplicity of website search, proper arrangement of information on the bank's website for availability, attractive website space to improve customer retention.

Another factor affecting customer retention is ease of use, which can be achieved by providing easy and convenient use for customers and through training employees, providing online shopping easiness, and the use of Internet systems and so on. Another influential indicator in this regard is information security, which is achieved by providing the reputation and credibility of the bank, ensuring the security of banking information, increasing trust in the information on the bank's website. Also, appropriate format plays an essential role in customer retention. It means that the site should be designed in a way that is attractive to customers to retain the customer. Time saving and subjective norms are also considered as effective factors in improving the customer retention model in electronic banking services.

Author's contribution

Ahmad Khosravi and Vahid Nasehifar developed the study concept and design. Tohfeh Ghobadi Lamuki acquired the data. Alireza Islambolchi and Hossein Hajibabaei analyzed and interpreted the data, and wrote the first draft of the manuscript. All authors contributed to the intellectual content, manuscript editing and read and approved the final manuscript.

Informed consent

Questionnaires were filled with the participants' satisfaction and written consent was obtained from the participants in this study.

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Conflict of interest

The authors declare that they have no conflict of interests.

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