Modeling and analysis of bank customer satisfaction using neural networks approach

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Abstract

Purpose – The purpose of this paper is to propose the application of artificial neural networks (ANN) to predict overall bank customer satisfaction and to prioritize influencing factors on customer satisfaction.
Design/methodology/approach – Data are collected from 436 randomly selected customers at ten different branches of an Iranian bank using a questionnaire consisting of 51 questions. An exploratory factor analysis (EFA) is done on the collected data to determine those factors that influence customer satisfaction. A multilayer perceptron ANN model is developed using the factor scores from the EFA. The ANN model is trained and validated to predict overall bank customer satisfaction. In addition, a linear regression model is developed to predict customer satisfaction. Prediction accuracy of the ANN model is compared with that of the linear regression model. The developed ANN is then used to compare sensitivity of customer satisfaction to each influencing factor.
Findings – Nine different influencing factors are extracted by EFA. The factors include Fees and Loans, Prompt Service, Appearance, Technological Service, Responsiveness, Reliability and Trustworthiness, Employees' Attitudes and Behaviors, Accessibility to Bank and Availability of Service, and Interest Rates. Training and validation results show that the ANN model has 73 percent higher accuracy compared to the linear regression model in predicting overall bank customer satisfaction. Factor prioritization results show that Fees and Loans, Appearance, and Prompt Service have the highest impact on customer satisfaction, respectively; interest rate and accessibility to bank and availability of service are the least dominant factors influencing overall bank customer satisfaction.
Practical implications – This study proposes a more reliable and accurate methodology to predict customer satisfaction when compared with regression-based methods. ANN can also be utilized by bank management systems to prioritize different influencing factors that affect the satisfaction level of bank customers.
Originality/value – This paper advances the knowledge on bank customer satisfaction by proposing application of artificial intelligence methods. A case study is discussed and results of the application of an ANN are compared with those of a commonly used statistical regression model.

Keywords Artificial neural networks, Back propagation, Factor prioritization, Overall bank customer satisfaction

Paper type Research paper

Introduction

In today's competitive marketing environment, service organizations mostly focus on serving customer needs. The goal is to keep up with the competition and to deliver satisfying financial benefits to account holders and other stake holders (Chi and Gursoy, 2009; Yuksel *et al.*, 2010; Aydin and Ozer, 2005). Studies have shown that customer dissatisfaction significantly degrades the success of a service

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organization in the marketplace as each dissatisfied customer on average communicates their experience to ten other individuals (Gurjar and Rathore, 2013; Mazuch, 2012; Hasan *et al.*, 2012). As a result, successful service organizations do their best to acquire the highest level of customer satisfaction and aim to provide outstanding service for their customers (Tax *et al.*, 1998; Lazarevic and Petrovic-Lazarevic, 2007).

Financial service organizations, and in particular banks constitute a significant part of the economy in every country. This implies a vital need to achieve a high level of customer satisfaction as a result of bank marketing activities (Zineldin, 1995; Gustafsson *et al.*, 2005; Bena, 2010; Yuskel *et al.*, 2010; Fram and McCarthy, 2011). Results of a study by Zhang (2008) showed that by improving bank customer issues by only 5 percent, a branch can make as much as an 85 percent profit. In addition, bank customer satisfaction has a strong positive impact on customer loyalty (Bowen and Chen, 2001; Caruana, 2002; Gronholdt *et al.*, 2000; Ball *et al.*, 2006; Keisidou *et al.*, 2013). The impact of service value on customer loyalty is mediated by customer satisfaction (Seiler *et al.*, 2013). Hence, success in achieving customer satisfaction in the banking industry significantly improves the banks' financial performance, and on a larger scale, economic growth of the nation (Farquhar and Panther, 2008).

Accurate prediction of customer satisfaction and prioritizing the main influencing factors are essential for the management of banking operations. These help to adjust the strategies for how to distribute investment and manage efforts affecting a variety of different banking and customer service issues.

During recent years in Iran, privatization in the banking industry has dramatically increased. Therefore, banks compete directly to satisfy their customers. This paper focuses on studying the customer satisfaction at ten different branches of an Iranian bank.

Modeling is an effective approach for predicting customer satisfaction levels of bank customers. The bank customer satisfactions models documented in the research literature are categorized into two main groups. The first category includes statistical models such as structural equation models (SEMs) and regression models. Some examples of this category include (Kaura, 2013; Ibok and John, 2013; Singh and Kaur, 2011; Krishnamurthy *et al.*, 2010; Herington and Weaven, 2009; Manrai and Manrai, 2007; Fatima and Razzaqu, 2010a; Fatima and Mohammad, 2010b; Amin and Zaidi, 2008; Al-Hawari and Ward, 2006; Moutinho and Anne, 2000; Kristensen *et al.*, 2000). The main drawback for this category of models is the lack of high prediction accuracy since the models have a linear structure while customer satisfaction has a highly nonlinear relationship with the influencing factors.

The second group includes artificial intelligence models such as artificial neural networks (ANN). ANN is an effective tool to model the behavior of nonlinear systems while having a simple structure that makes it computationally efficient. ANN has been utilized to predict customer satisfaction in non-banking organizations such as the auto industry, telecommunications, and healthcare services (Cui *et al.*, 2011; Goode *et al.*, 2005; Carlucci, *et al.*, 2013). There has been no study in the literature on ANN modeling of bank customer satisfaction. To the best of the authors' knowledge, this study develops the first case in which an ANN model is used to predict overall bank customer satisfaction.

The contribution of this work is threefold. First, it develops an ANN model with nine inputs (i.e. influencing factors) to predict overall bank customer satisfaction. Second, performance of the ANN model in predicting overall customer satisfaction is compared with those of a linear regression model. Third, a sensitivity analysis is done using the

developed ANN model to compare the impact of various influencing factors so that management can adjust the bank's strategies accordingly to achieve higher levels of customer satisfaction.

The paper is presented as follows. The next section describes the approach used for data collection and the results of a factor analysis used to identify the major influencing factors on overall customer satisfaction. Then, design and development of the ANN model are detailed in the section of Artificial Neural Networks for Customer Satisfaction Prediction. The section of Results and Discussion describes the training and validation results of the developed ANN model. In addition, prediction performance of the ANN model is compared with that of a linear regression model in this section. The section of Prioritization of the Influencing Factors describes a sensitivity analysis based on the developed ANN model to prioritize the most dominant factors on customer satisfaction. Finally, the section of Conclusions concludes the paper by summarizing the major finding from this study.

Data collecting and exploratory factor analysis

A questionnaire (shown in the Appendix) is used to investigate overall bank customer satisfaction indicated by a five-point Likert scale ranging from 1 (strongly agree) to 5 (strongly disagree). The customer satisfaction measures from two surveys (Press *et al.*, 1997; Albro, 1999) developed by American bankers association (ABA) have been used in this questionnaire.

The survey consists of three parts. In the first part, the demographic information of the customers including age, gender, occupation, education level, and type of bank account that the customer holds is collected. The second part includes 51 different questions to determine customer satisfaction on 51 different variables. In the third part, a question is used to elicit the customers' overall satisfaction. The data are collected from 436 randomly selected customers at ten different branches of a known Iranian bank in the city of Tehran. In all, 36 questionnaires have been excluded due to incorrect answers, and the remaining 400 questionnaires are used for the analysis.

Frequency distributions of the respondents with respect to the demographic information are as follows: the majority of the respondents were female (73 percent), 22 percent were male, and the remaining did not respond to this question; 43 percent (43 percent) of the respondents were 26-35 years old, 22 percent were 36-45 years old, and only 7 percent were older than 56; more than 40 percent of the respondents had received degrees lower than Bachelor's degree and less than 3 percent held graduate level degrees; half of the respondents were self-employed and less than 4 percent were students; More than 31 percent of the respondents held checking accounts and only 12 percent held long-term saving accounts.

Factor analysis is then conducted and the responses are analyzed. Scale validation is tested using Cronbach's α and is measured at 0.927 which is greater than Nunnally's threshold of 0.70 (Nunnally *et al.*, 1976).

An exploratory factor analysis (EFA) is conducted on the collected data to identify the few factors hidden in the large number of variables to be replaced by the original variables for a further analysis. Two tests including the Bartlett's test of sphericity and the Kaiser Meyer Olkin (KMO) measure of sampling adequacy test are done to see if the samples are appropriate to conduct EFA. The p-value of the Bartlett's test is found to be 0.000 and hence, it is significant (p-value < 0.05). The KMO value is found to be 0.936 which is higher than the desired minimum value of 0.6. Therefore, the variables are correlative and fit for EFA (Roxy, 2001). In addition, the determinant of the correlation

matrix is non-zero which indicates the reliability of the data for EFA. Then, according to the results of the communalities, questions 16, 18, and 34 should be excluded and the EFA is done for the remaining variables since they have small values of extraction communalities (less than 0.5). This indicates that these variables do not fit well with the factor solution (Breckenridge *et al.*, 2009; Jyoti *et al.*, 2011).

Results show that the Eigen values of nine factors are greater than one as shown in Table I. They account for 62.4 percent of the variance information from the samples. Therefore, these nine factors are extracted and considered for the rest of the study.

Factor naming is conducted according to the principles of higher factor loadings, correlation, and common features of the variables (i.e. questions). The names of the factors with the corresponding question numbers and factor loading values are shown in Table II. The factor names (with the same order as component number in Table I) include: 1, Employees' Attitudes and Behaviors; 2, Technological Services; 3, Interest Rates; 4, Reliability and Trustworthiness; 5, Responsiveness; 6, Fees and Loans; 7, Prompt Service; 8, Accessibility to Bank and Availability of Service; and 9, Appearance. As seen, the factor loadings of all the selected items have relatively high values.

Reliability of the factors are calculated using Cronbach's α and listed in Table III. The calculated Cronbach's α's are above 0.7 which shows good factor reliability. For the factor of Accessibility to Bank and Availability of Service, Cronbach's α is close to 0.7 and the reliability is acceptable since it is above 0.6 (Leentjens *et al.*, 2014).

ANN for customer satisfaction prediction

Output scores of the nine factors from the EFA are used to develop an ANN model to predict overall bank customer satisfaction. In this section first, a brief overview on the ANN methodology is presented. Then, details of the ANN model development are described.

ANN methodology

The concept of ANN originates from studies of the human brain. The human brain is a highly complex, nonlinear, and parallel information processing system that is capable of performing certain computations (e.g. pattern recognitions and learning) many times faster than the fastest digital computers (Haykin, 1999). To do these computations, the brain organizes its structural constituents, known as neurons (Haykin, 1999). ANN models hold promise to learn and capture the behavior of highly nonlinear systems with proper accuracy and low computational efforts. These advantages cannot be achieved by common linearly structured models due to system nonlinearities and complexities.

Component	Eigen value	Variance	Cumulative
1	15.843	33.006	33.006
2	3.199	6.665	39.671
3	2.321	4.836	44.507
4	1.274	4.734	49.242
5	1.538	3.205	52.446
6	1.465	3.033	55.480
7	1.247	2.655	58.135
8	1.108	2.308	60.443
9	1.047	2.181	62.642

Table I.
Effect of nine factors on the total variance

Table II. Factor naming with corresponding question numbers and factor loading values

Employees' Attitudes and Behaviors		Technological Services		Interest Rates		Reliability and Trustworthiness		Responsiveness		Fees and Loans		Prompt Service		Accessibility to Bank and Availability of Service		Appearance	
Question	Factor loading	Question	Factor loading	Question	Factor loading	Question	Factor loading	Question	Factor loading	Question	Factor loading	Question	Factor loading	Question	Factor loading	Question	Factor loading
6	0.717	45	0.806	38	0.859	26	0.692	4	0.776	32	0.719	19	0.633	41	0.673	42	0.775
11	0.689	46	0.800	39	0.843	27	0.664	7	0.775	30	0.692	13	0.618	40	0.614	43	0.629
10	0.676	47	0.758	37	0.842	50	0.651	15	0.732	33	0.628	20	0.556	23	0.559	35	0.506
1	0.673	48	0.709	36	0.829	51	0.483			31	0.619	29	0.504	24	0.539	21	0.439
12	0.637	49	0.631			25	0.476			28	0.454						
2	0.634	44	0.609														
8	0.632																
17	0.629																
14	0.628																
3	0.587																
5	0.575																
6	0.551																
22	0.470																

Factor	Cronbach's α
Employees' Attitudes and Behaviors	0.904
Technological Services	0.880
Interest Rates	0.891
Reliability and Trustworthiness	0.824
Responsiveness	0.851
Fees and Loans	0.801
Prompt Service	0.747
Accessibility to Bank and Availability of Service	0.687
Appearance	0.711

Table III.
Factor reliability

Multilayer perceptron (MLP) is a common feedforward ANN model with architecture consisting of multiple layers of neurons. The layers include: input layer, hidden layer(s), and output layer. Each layer is fully connected to the next layer. Figure 1(a) shows the schematic of a simple MLP ANN with three neurons in the input layer, one hidden layer with four neurons, and one neuron in the output layer. Except for the input layer, each neuron in the other layers has a nonlinear activation function. Figure 1(b) shows how the ANN inputs are connected to a sample hidden neuron (i.e. *i*th neuron in the hidden layer). Since there is no activation function for the input layer neurons, the input and output of each input neuron are the same. Each input is multiplied by a weight and then is added to the ones coming from the other input neurons; the result is added to a constant (known as bias). Then, the activation function is used to give the output of that specific hidden neuron as shown in Figure 1(b). Similar operations are done for the other hidden layer neurons. A similar set of operations is done for the output layer neuron. The outputs of the hidden neurons are multiplied by the corresponding weights and added together and also to a bias; the activation function of the output neuron is then used to give the output of the ANN model. A similar approach is followed when there are more model outputs (i.e. output layer neurons).

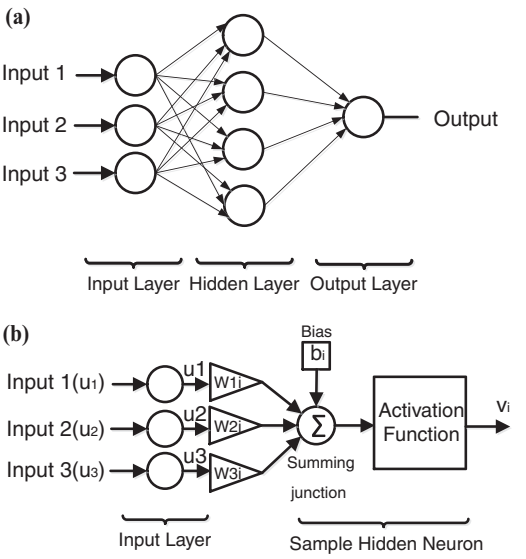

Figure 1.
(a) Schematic of a simple ANN; (b) operations for a sample hidden layer neuron

ANN model development

Factor scores of the EFA are then used to develop an MLP ANN model to predict overall bank customer satisfaction. Structure of the ANN model is shown in Figure 2. The ANN model has nine inputs (i.e. input neurons) which represent the nine factors from the explanatory analysis and one output which is the overall customer satisfaction. For the hidden layers and output layers, a hyperbolic tangent sigmoid function is used as the activation function:

$$\tanh(s) = \frac{\sin h(s)}{\cos h(s)} = \frac{e^{\alpha s} - e^{-\alpha s}}{e^{\alpha s} + e^{-\alpha s}} \quad (1)$$

It is essential to train the ANN model to predict overall customer satisfaction. The ANN model is fully trained when the values of all the network weights are determined and the model predicts the output with sufficient accuracy. The back-propagation learning algorithm (Haykin, 1999) is used to train the ANN model using MATLAB® ANN toolbox. The weights are initially chosen randomly. Then, during several training iterations, they are adjusted to minimize a cost function chosen to be the mean squared error (MSE) (Haykin, 1999). The ANN is simulated with the input data and the error is calculated between the predicted output and the actual output. Then, the weights are updated starting with the output weights and progressing back to the input weights using a gradient descent in order to minimize the MSE. The process is repeated until a performance goal is achieved.

Results and discussion

The ANN model is trained and validated in this section. Then, performance of the ANN model is compared with that of a linear regression model.

ANN structure design

To design the ANN structure, it is necessary to determine the optimum size of the ANN model which is the optimum number of neurons in the hidden layer(s). In addition, it is necessary to determine the optimum number of training iterations to avoid overtraining the model. For this purpose, in this section the design procedure is illustrated for overall

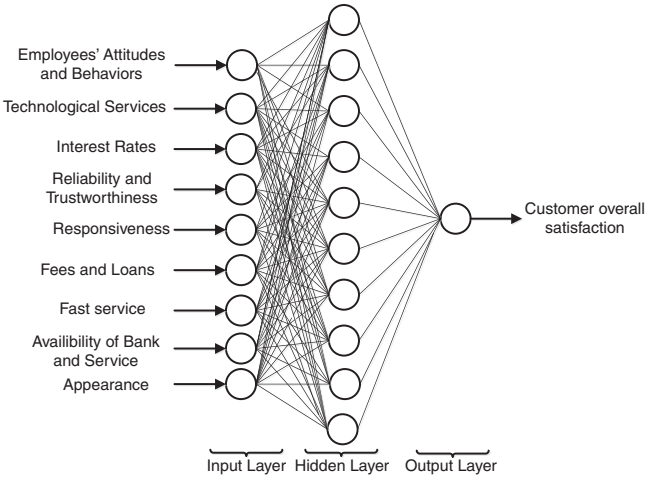

Figure 2.
ANN used in this study

bank customer satisfaction ANN model. The size of the ANN model is determined as one hidden layer and 30 neurons is selected. The number of neurons in the hidden layer is chosen by investigating the training performance as shown in Figure 3. The ANN is trained and validated over a range of one to 50 hidden neurons (Figure 3).

As the number of hidden layer neurons increases, the MSE decreases. After 30 neurons in the hidden layer, the change in prediction accuracy of the model is minor with increase in the complexity of the network. This helps in choosing the smallest network size with an acceptable accuracy. A size of 30 neurons in the hidden layer is selected to satisfy a trade-off between the model complexity and accuracy.

The ANN model is then simulated to find the optimum number of training iterations to avoid overtraining. The results are shown in Figure 4. Initially, the MSE decreases dramatically with increasing the number of training iterations, but then the drop in MSE becomes small and the MSE stays at nearly a constant value. Optimum number of training iterations is found to be 100, as shown in Figure 4.

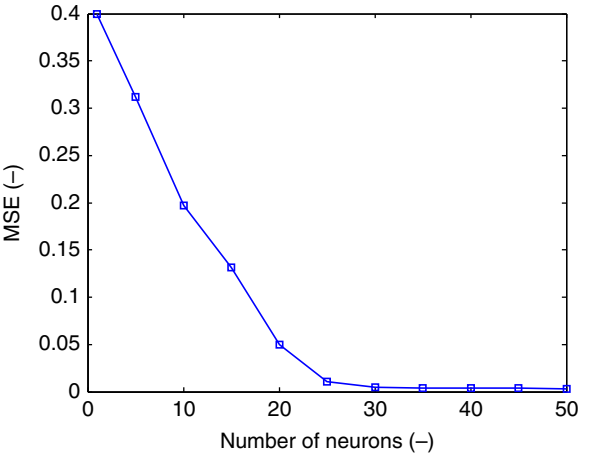

Figure 3.
ANN prediction error vs number of neurons in the hidden layer

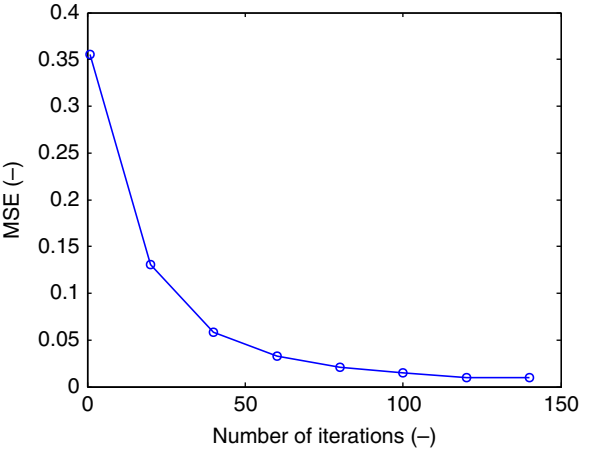

Figure 4.
ANN prediction error vs number of training iterations

Training and validation of the model

It is a common practice in ANN modeling (Priddy and Keller, 2005; Haykin, 1999) to train and validate model with two different data sets. Initially, ANN model is trained and tested with a large number of data (training data set). After meeting training accuracy requirements, the ANN model is validated using a smaller data set which previously was not used in training. No training is done during the validation step; the model is only run for the given input values and the predicted and actual outputs are compared for the error calculation. The validation step is essential to increase confidence in reliability of model prediction. In this study, 400 data are used for training and validating the model. Each data point includes the EFA scores of the nine input factors along with the overall bank customer satisfaction output. Totally, 75 percent (75 percent) of the data (320 data) is used for training and to increase confidence in reliability of the model, the remaining 25 percent of the data (80 data) is used for validation. Results of training and validation of the model are shown in Figures 5 and 6, respectively. The training results show that the model is successfully trained to predict overall bank customer satisfaction with high accuracy (MSE of less than 0.009). Given the validation data set to the ANN model, performance of the model is tested as shown in Figure 6. The validation results show that the model is able to successfully predict overall customer satisfaction in both capturing the actual trend of variations and accuracy of prediction. The prediction MSE for the validation data set is 0.16. The MSE of training is less than the validation MSE due to the fact that the model is tested with the same data set used in training.

Performance of the developed ANN model is then compared with that of a linear regression model. Results of the linear regression analysis including standardized beta and p-values are listed in Table IV. p-value results show that all the factors are significant in the regression model (p-value < 0.05) (Kräplin *et al.*, 2014).

The developed linear regression model is as follows:

$$Sat = 3.56 + 0.371V_1 + 0.239V_2 + 0.144V_3 + 0.182V_4 + 0.185V_5 + 0.181V_6 + 0.252V_7 + 0.180V_8 + 0.860V_9 \quad (2)$$

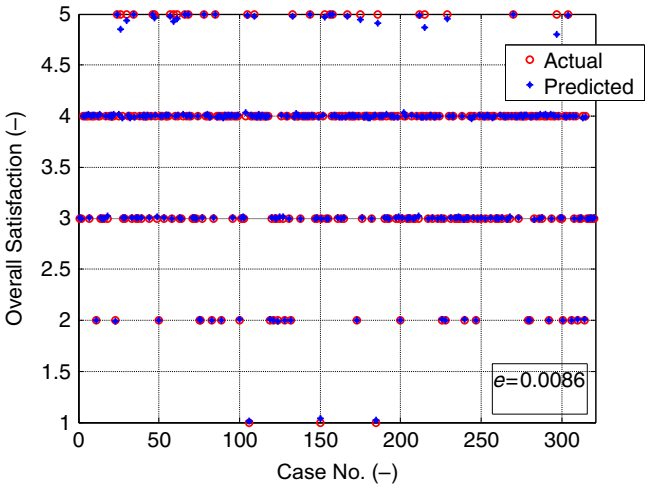

Figure 5.
Training results of the developed ANN

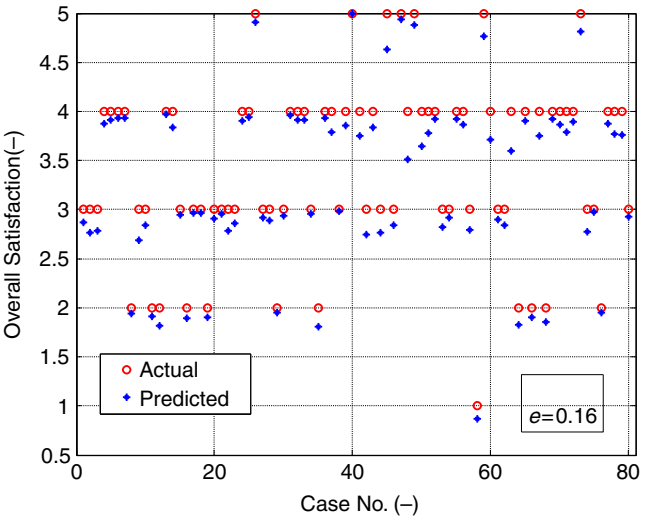

Figure 6.
Validation results of the developed ANN

Factor	Standardized β	p-Value
Employees' Attitudes and Behaviors	0.453	0.000
Technological Services	0.292	0.000
Interest Rates	0.176	0.000
Reliability and Trustworthiness	0.222	0.000
Responsiveness	0.225	0.000
Fees and Loans	0.220	0.000
Prompt Service	0.307	0.000
Accessibility to Bank and Availability of Service	0.219	0.000
Appearance	0.105	0.001

Table IV.
Regression analysis results

Where *Sat* is the predicted overall customer satisfaction by the linear regression model. V represents the vector of different variables affecting overall customer satisfaction with the order of variables described in the section of Data Collecting and Exploratory Factor Analysis.

In total, 75 percent of the data, the same as those used for the ANN model training, is used for developing the regression model (determining the model coefficients) and the remaining 25 percent is used for validation. The MSE for model development is 0.025 and the validation MSE is 0.6. These results show that the ANN model is a more reliable tool to predict overall customer satisfaction with 0.0241 and 0.44 lower training and validation errors, respectively, which means more than 73 percent lower prediction error compared to the linear regression model. This is due to the fact that ANN can effectively learn behavior of highly nonlinear and complex variables like overall customer satisfaction if sufficient number of hidden neurons and layers are provided (Haykin, 1999). The accuracy of the linear regression model is degraded when applied to nonlinear problems such as customer satisfaction (Goode *et al.*, 2005; Bejou *et al.*, 1996).

Prioritization of the influencing factors

The developed ANN model is then used to prioritize the nine influencing factors by comparing the level of effectiveness on overall bank customer satisfaction. Identifying the most and least dominant influencing factors is critical since it allows managers and stakeholders to distribute their investment according to the level of effectiveness of different factors. For this purpose, a sensitivity analysis is done using the weights of the neurons in the ANN input layer.

Table V compares the input layer weights for the nine influencing factors. Results show that Fees and Loans is the most dominant factor influencing overall bank customer satisfaction with the weight of 0.8787 which is 17 percent greater than the second dominant influencing factor. The main reason for such a high dominancy could be the current highly growing needs and desires of people to own properties such as house, car combined with their lack of financial ability to purchase. This motivates customers to use banks with more incentive loan offers and lower fees.

The second effective factor is found to be Prompt Service with more than 3 percent dominancy than the third factor. In today's life, time is a valuable factor for people. Customers do not tolerate long lines or slow service. They expect prompt service which banks can provide by hiring more employees.

Appearance is identified as the third effective factor. Today in Tehran, customers' expectations have increased significantly due to the opening of private banks and financial firms with employees who are more professional in appearance and attire, and the provision of luxurious and higher quality facilities such as furniture and computers. Using such facilities makes customers feel more comfortable. Technological Service, Responsiveness, and Reliability and Trustworthiness are all the next influencing factors with less than 3 percent difference in the level of effectiveness.

On the other hand, Interest Rates and Accessibility to Bank and Availability of Service with weights of 0.5503 and 0.5457, respectively, have the least effects on overall bank customer satisfaction in this study. Nowadays, all the banks in the country have the same interest rates due to governmental laws which make this factor the least effective one. Most of the branches have been distributed in a variety of spots through the city of Tehran and almost all have the same accessibility (i.e. parking lot and business hours). Furthermore, e-banking has sharply decreased the number of customers physically visiting the bank branches. That is why Accessibility to Bank and Availability of Service is not a high influential factor.

No.	Factor name	Weight
1	Fees and Loans	0.8787
2	Prompt Service	0.7393
3	Appearance	0.7143
4	Technological Service	0.5999
5	Responsiveness	0.5980
6	Reliability and Trustworthiness	0.5867
7	Employees' Attitudes and Behaviors	0.5758
8	Interest Rates	0.5503
9	Accessibility to Bank and Availability of Service	0.5457

Table V. Effectiveness comparison for different influencing factors (order of factors in the table is based on the effectiveness level)

Conclusion

Data were collected using a questionnaire with 51 questions from 436 randomly selected customers at ten different branches of a known Iranian bank in the city of Tehran. An EFA was conducted to find nine main influencing factors on overall bank customer satisfaction. Reliability of the questionnaire and the factors were verified by checking Cronbach's α's.

The computed factor scores from the EFA were then used to design and develop an MLP ANN model with nine inputs to predict overall bank customer satisfaction. The ANN model was trained and validated with MSEs of 0.009 and 0.16 for training and validation, respectively. Performance of the developed ANN model was then compared with that of a linear regression model and results showed more than 73 percent higher accuracy for the ANN model compared to the linear regression model.

The developed ANN model was then used to prioritize the nine influencing factors by comparing the weights in the ANN input layer. Results showed that Fees and Loans, Prompt Service and Appearance are the most effective factors influencing overall bank customer satisfaction, respectively. On the other hand, Interest Rates and Accessibility to Bank and Availability of Service, respectively, have the least impacts on overall bank customer satisfaction. These findings help bank management to adjust its strategies for how to distribute investment and manage efforts to achieve a high customer satisfaction.

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Appendix. Questionnaire used in this survey

Gender: Age:
Level of education: Occupation:
Type of account: Checking ☐ Saving (short-term) ☐ Saving (long-term) ☐ Loan ☐
Please rate your satisfaction with each of the following criteria on a scale of one to five (strongly agree to strongly disagree).

(1) Receiving enough information from the bank.
(2) Proper guidance from the bank employees.
(3) Fully resolving the customers' issues and concerns.
(4) Proper phone responding to customers.
(5) Necessary consultation from the bank to customers.
(6) Respecting customers.
(7) On-time response to the customers' questions and concerns.
(8) Friendly atmosphere for customers to communicate with each other.
(9) Manner of employees' speaking to customers.
(10) Level of bank communication with customers.
(11) Given information from bankers about the accounts.
(12) Bank tellers' attitudes and behaviors to customers.
(13) Speed of doing tasks.
(14) Bank employees' responsiveness.
(15) Resolving customers' issues by phone contact.
(16) Giving information to customers about the account activities.
(17) Bank employees' politeness and courtesy to customers.
(18) On-time sending the bank statements to customers.
(19) Having an organized order in taking care of customers at the branch.
(20) Waiting time in lines.
(21) Bank employees' appearance and attire.
(22) Having confidence in the bank employees.
(23) Easy access to the bank branch.
(24) Availability of parking lots near the bank branch.
(25) The branch manager is very responsive.
(26) Accuracy and carefulness in doing the tasks.
(27) Accuracy of the bank statements.

(28) Time spent at the branch to open a new account.
(29) The environment inside the bank branch.
(30) The procedure of receiving loans from the bank.
(31) The required fee for receiving loans.
(32) Bank advertisements.
(33) Procedure of refunding loans by customers.
(34) Using travel cheques.
(35) Interior cleanliness.
(36) Interest rate for short-term saving accounts.
(37) Interest rate for long-term saving accounts.
(38) Procedure of receiving the interest for short-term saving accounts.
(39) Procedure of receiving the interest for long-term saving accounts.
(40) The business hours of the bank branch.
(41) Proper location of the bank branch.
(42) The outside view of the bank branch building.
(43) Name of bank.
(44) The Automated Teller Machines (ATMs) at the bank branch.
(45) Mobile phone payment service.
(46) Bank Internet customer service.
(47) Bank innovative/technological customer service.
(48) Bank mobile phone customer service.
(49) Bank information system about customer services.
(50) Keeping customers' confidential information.
(51) Bank commitments to customers.

All in all, how do you rate your overall satisfaction with this bank?

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