Performance evaluation with fuzzy VIKOR and AHP method based on customer satisfaction in Turkish banking sector

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Abstract

Purpose – Firms operating in the service sector must have a dynamic structure to be competitive in a volatile business environment. The dynamic structure brings skilled employees and talented managers together to create effective strategies for global competition. In traditional retail service companies, the majority of the staff interacts intensively with the clients and engaged in advanced facilities. The purpose of this research is to evaluate the performance results of the banks in Turkey based on the level of customer service and satisfaction within an interdisciplinary frame.

Design/methodology/approach – The fuzzy VIKOR and AHP method has been applied to analyse the performance levels of Turkish banks registered in Borsa Istanbul. In order to obtain the dynamics of data, the customer satisfaction competencies have been identified as the reference points for experts.

Findings – The empirical results confirm that the performance results of the banks vary based on customer satisfaction level and ownership types. The fundamental conclusion clarifies the facilities of the state-owned banks are suitable for meeting customer expectations, private bank’s performance level is higher than foreign banks, foreign banks have the weakest performance results based on customer satisfaction level with a negative financial outcomes in local countries and finally, state-owned banks with their strong assets serve the customers in expected manner.

Originality/value – Generating sales revenue based on effective customer services and quality improvement requires prompt response to changing competitive conditions and customer demands. Effective customer service in performance evaluation process has a strategic role in adopting competitive strategies. The originality of the study is to evaluate the performance results of the customer satisfaction using the hybrid approach under the fuzzy environment.

Keywords AHP, Banking, Customer satisfaction, Fuzzy, VIKOR

Paper type Research paper

1. Introduction

Today’s complex business environment requires competitive skills and talents for global business organizations. Meeting customer needs and expectations with these unique and company specific talents determine the success of market-driven strategies. The negative impacts of the 2008-2009 financial crisis in advanced economies once more illustrated the importance of proactive corporate strategy implementations which promote the best services meeting customer expectations.

Many customers report that the existence of key staff, that predicts the customers’ expectations and promotes the services in accordance with the current and potential business environments, mainly affects priorities and preferences of the customers during the decision making process. Employees that are actively engaged with customers have a great role to be able to look at from the perspective of customers.
and service position. The material and spiritual motivation in the transactions with customers to improve the performance of the employees will be effective in increasing efficiency. Therefore, to meet exactly the needs of the customer, many arguments such as cross-selling, strategies on the product diversity, are frequently used by the staff in connection with customers (Evans et al., 1999).

Most of the studies demonstrated the fact that great advantages for companies in terms of quality improvement and productivity have been provided by the active participation of customers for products and services. Together with the wider usage of the internet, significant increase in the participation of customers, especially in the service sector, has been observed (Ple, 2006). Customers from a passive audience have begun to be an active player. In this way, the increased participation of the customers in the product and service development has been seen as an expected result (Prahalad and Ramaswamy, 2000). As expressed by Nambisan (2002) and Trott et al. (2007), the client has to play an active role at every stage of a new product and service development process.

The customer that is an active user of the process and the bank-customer’s interaction are important issues to be considered at this point. The participation profile of the customer is measured through the use of five different parameters that are in people’s interest against an object, their pleasure, pointed value, the possibility of stagnant buying, and the importance of the perceived negative outcomes (Howcroft et al., 2007). As mentioned, it is clearly seen that customers play an active role in serving at every stage of the new product and service development process (Trott et al., 2007). Customers also have different effects on each point in the process. In particular, customers as a source are largely involved in the idealization process of innovation. It is natural that the customer is collaborative and creative with companies during the design and development phase. At the same time, through providing feedback that is required for products and services development from customers and testing, the structure that is kept at the forefront of customer requirements provides differentiation in competitive environments and so it is seen as the most effective way of being in the forefront in the dynamics of a new economy (Nambisan, 2002).

Due to the nature of this structure, a question comes up. What’s new with the emergence of new products and services? Who might come in handy in the most competitive environment? In this respect, the balance of mutual benefit between the company and the customers and ultimately, the main objectives of the companies are to maximize the market value. Thus, the cost-benefit relationship for both customers and the company will emerge as the optimal result.

For this reason, not only are financial items essential indicators for market success, but also the performance results based on customer satisfaction, which are prominent for a competitive environment.

The hypothesis is that effective customer service in performance evaluation process has a strategic role in adopting competitive strategies which affect the performance results of the banks in Turkey based on the level of customer satisfaction and service quality. The fuzzy VIKOR and AHP method has been applied to analyse the performance levels of Turkish banks registered in Borsa İstanbul. In order to obtain the dynamics of data, the customer satisfaction competencies have been identified as the reference points for experts.

The study begins by a literature review of customer satisfaction in banking sector. In the following, the Fuzzy VIKOR and AHP method has been conducted.
Finally, the result of this study will be discussed and recommendations will be provided for managers and scholars.

2. Literature review
In the banking sector, the efficient selection of the target customer and specific selection criteria for customer segmentation are necessary conditions for the identification of competitive strategies and efficient service delivery. It is focused on outputs rather than inputs in much of the competitive strategy. Competitive advantage becomes the main subject in all matters about the market and especially, the value to the customer appears to be an important factor at this point. Determination of the customers who are the indicators of competitive strategies, depending on the selection criteria such as financial information for strategic purposes, plays a major role in conducting the appropriateness and diversity of the customers (Devlin, 2002).

In terms of technology-oriented operations, today’s service market is mainly expressed as activities based on the results of service technologies. Many studies have been conducted on the properties and the dynamics of the interaction between service providers and customers. In particular, customer satisfaction and brand preferences are important components in which the interaction between customers and service providers. Individuals can express themselves by choosing brands reflecting the personality. Therefore, the decision on what to purchase in the market is largely given by the user personalities. Through the purchase and use products of the current clients; the physical, psychological, and behavioral aspects of social identification that may affect behavior, beliefs, and habits may give the opportunity to change and improve the provision of the service and product as well as business structure.

The ability of self-assessment raises some significant questions on consumer behavior. Previous research on the ability of self-assessment shows that there are positive correlations between brand preference and purchase intentions. In addition, it is also seen as a predictive to measure the customer’s satisfaction after purchasing. Therefore, in most of studies, there appears to be a strong relationship between brand preference and the level of customer satisfaction (Jamal, 2004). Therefore, the banking sector is similar to all service sectors should uncover the level of the customer’s satisfaction with the ability to self-assessment.

Typically, a high level of service quality occurs as a result of the approach that continuously estimates and satisfies the customers’ needs and expectations. Each customer can identify in a different way the quality based on demographic characteristics such as the education, life style, age, and gender. Therefore, banks should respond to the needs of customers in due time and carefully adopt a customer-focused approach, in order to keep at the forefront of quality concept in financial system (Howcroft, 1991).

Most of the banks in the financial sector such as other financial service providers began to face more demanding customers as a result of economic uncertainty, fierce competition in volatile market conditions and novel technologic capabilities. At this point, what is going on bearing issues of the customer satisfaction or dissatisfaction in banking sector should be analyzed in detail (Mishra, 2009). For this purpose, several authors have examined customer expectations in the field of retail banking with using different methods. Nevertheless, studying the subject from different angles may contribute to the works on customer satisfaction. Thus, in this study, a hybrid method that is AHP and VIKOR method with fuzzy approach is used for evaluating outcomes
of the comparative customer satisfaction between state-owned, foreign and private banks. Table I lists the various methods and elements used by researchers for customer satisfaction in banking sector (Arbore and Busacca, 2009).

3. Methodology

3.1 Fuzzy VIKOR and AHP method

3.1.1 The analytic hierarchy process approach. The analytic hierarchy process was first described in the 1980s by Satty and the method is mostly used in the application of multi-criteria decision making. It is possible to uncover the judgments of decision makers and to derive criteria weights via the AHP (Saaty, 1980; Wang and Chen, 2007; Gao and Hailu, 2012; Kutlu and Ekmekçioglu, 2012; Yu et al., 2011).

The process is examined in three main steps:

- **Step 1.** Construct a pair-wise comparison decision matrix that relatively determines criteria weights:

  \[
  A = \begin{bmatrix}
  a_{11} & a_{12} & a_{13} & \cdots & a_{1n} \\
  a_{21} & a_{22} & a_{23} & \cdots & a_{2n} \\
  a_{31} & a_{32} & a_{33} & \cdots & a_{3n} \\
  \vdots & \vdots & \vdots & \ddots & \vdots \\
  a_{n1} & a_{n2} & a_{n3} & \cdots & a_{nn}
  \end{bmatrix}
  \]

  In this step, the relative weights of criteria are built and the basic scale of pair-wise comparison of verbal judgments is used for multiple pair-wise comparisons in Table II (Saaty and Vargas, 1991).

  The elements \( a_{ij} (i, j = 1, 2, \ldots, n) \) in the matrix show the relative weights and \( C_1, C_2, \ldots, C_n \) defines the set of criteria (Yu et al., 2011), and where \( a_{ij} (i, j = 1, 2, \ldots, n) \) is:

  \[
  a_{ij} = \frac{1}{a_{ji}}, \quad a_{ii} = 1, \quad a_{ij} > 0.
  \]

- **Step 2.** Normalize the decision matrix. A set of \( n \) numerical weights \( w_1, w_2, \ldots, w_i \) are created:

  \[
  AW = \lambda_{\text{max}} W
  \]

  \( \lambda_{\text{max}} \) is equal to \( n \) and the rank of matrix \( A \) is \( n \), \( A \) is consistent (Yu et al., 2011).

- **Step 3.** Calculate the consistency index (CI):

  \[
  CI = \frac{\lambda_{\text{max}} - n}{n - 1}
  \]

  \( n \) in the equation indicates the number of criteria. For the test consistency, consistency ratio (CR) should also be considered. The calculation of the CR is:

  \[
  CR = \frac{CI}{RI}
  \]
<table>
<thead>
<tr>
<th>Competencies</th>
<th>Characteristics</th>
<th>Studies</th>
<th>Methods</th>
</tr>
</thead>
<tbody>
<tr>
<td>Timing and functionality</td>
<td>Transaction speed, web site functionality, online connection speed, ease of use,</td>
<td>Levesque and McDougall (1996), Winstanley (1997), Jamal and Naser (2003), Jones (2004), Nduibisi</td>
<td>Factor analysis, comparative analysis; multiple regression</td>
</tr>
<tr>
<td></td>
<td>queuing time</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Physical facilities</td>
<td>Working hours, parking facilities, distance to city center, number of ATMs,</td>
<td>Levesque and McDougall (1996), Oppewal and Vriens (2000), Jamal and Naser (2002, 2003), Jones</td>
<td>Factor analysis, comparative analysis, multiple regression</td>
</tr>
<tr>
<td></td>
<td>décor and atmosphere of the branch, hygiene, free space for customers, size of the</td>
<td>(2004), Manrai and Manrai (2007), Wakefield and Blodgett (1999), Vivekanandana and Jayasenab</td>
<td></td>
</tr>
<tr>
<td></td>
<td>branch, staff clothing</td>
<td>(2012)</td>
<td></td>
</tr>
<tr>
<td>Competitive profits</td>
<td>Competitive charges and interest earnings, price fairness</td>
<td>Levesque and McDougall (1996), Varki and Colgate (2001), Nagar and Rajan (2005), Matzler et al.</td>
<td>Semi-structured interviews, comparative analysis, structural equation model, multiple regression</td>
</tr>
<tr>
<td>Operational convenience</td>
<td>Data security, IT infrastructure, solving operational problems, compensating for</td>
<td>Johnson et al. (1996), Levesque and McDougall (1996), Winstanley (1997), Mihelisa et al. (2001),</td>
<td>Multiple regression, factor analysis, comparative analysis</td>
</tr>
<tr>
<td></td>
<td>mistakes, capacity away from the conflict</td>
<td>Nduibisi (2006), Manrai and Manrai (2007), Gil et al. (2008), Yoon (2010), Vivekanandana and</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>Jayasenab (2012)</td>
<td></td>
</tr>
</tbody>
</table>

Table I. Customer satisfaction competencies in banking sector

Source: Adapted from Arbore and Busacca (2009) and Yoon (2010)
The table of random index (RI) shows the measurement for the different count of criteria (Saaty, 1980) (Table III).

While CR is less than 0.1, the judgements can be acceptable and matrix A is consistent. Otherwise, it should be turned to step 1 to test the consistency.

### 3.1.2 VIKOR method

The method that is entitled in Serbian as VlseKriterijumska Optimizacija I Kompromisno Resenje (VIKOR) was first conducted by Opricovic in 1998. This method focuses on the multi-criteria optimization and compromise solution. Thus, selecting from a set of alternatives and ranking can be possible via the VIKOR method. The compromise solution is the closest one to the ideal solution and it shows that an agreement reached by mutual concessions (Yucaenur and Demirel, 2012; Ju and Wang, 2013; Fu et al., 2010; Shaverdi et al., 2011; Wu et al., 2009; Ramezaniyan et al., 2012; Mohaghar et al., 2012).

In the method, the alternatives are indicated as $A_1, A_2, \ldots, A_m$ and all criteria is denoted as $C_1, C_2, \ldots, C_n$. The main steps of the VIKOR method can be listed as:

- **Step 1.** Calculate the best $f_j^*$ and worst $f_j^-$ of all criteria:
  \[
  f_j^* = \max_i x_{ij}, \quad \text{and} \quad f_j^- = \max_i x_{ij}.
  \]

- **Step 2.** Calculate the values of $S_i$, $R_i$ by the following equations:
  \[
  S_i = \sum_{j=1}^{n} w_j \left( \frac{f_j^* - x_{ij}}{f_j^* - f_j^-} \right)
  \]
  \[
  R_i = \max_j \left[ w_j \left( \frac{f_j^* - x_{ij}}{f_j^* - f_j^-} \right) \right]
  \]

where $w_j$ are the weights of criteria, expressing the decision makers’ preference as the relative importance of the criteria. $S_i$ is $Ai$ with respect to all criteria calculated by
the total of the distance for the best value, and $R_i$ is $Ai$ with respect to the $j$th criterion, calculated by maximum distance of the best value.

- **Step 3.** The index value ($Q_i$) is calculated by:

$$Q_i = v(S_i - S^*)/(S^- - S^*) + (1 - v)(R_i - R^*)/(R^- - R^*),$$

where $S^* = \min_i S_i$; $S^- = \max_i S_i$; $R^* = \min_i R_i$; $R^- = \max_i R_i$ and $v$ is presented as the weight of the strategy of maximum group utility, whereas $1 - v$ is the weight of the individual regret.

- **Step 4.** The values $S$, $R$ and $Q$ in decreasing order are sorted. Propose a compromise solution the alternative ($A(1)$) which is the best ranked by the measure $Q$ (minimum) when the two conditions are satisfied:

  **C1.** Acceptable advantage:

  $$Q(A^{(2)}) - Q(A^{(1)}) \geq 1/(j-1),$$

  where $A^{(2)}$ is the second position in the alternatives ranked by $Q$ (minimum).

  **C2.** Acceptable stability in decision making.

  The alternative $A^{(1)}$ must also be the best ranked by $S$ or/and $R$. This compromise solution is stable within a decision making process, which could be the strategy of maximum group utility (when $v > 0.5$ is needed), or “by consensus” $v \approx 0.5$, or “with veto” ($v < 0.5$).

  If one of the conditions is not satisfied, a set of compromise solutions is selected. The compromise solutions are composed of:

  - Alternatives $A^{(1)}$ and $A^{(2)}$ if only condition C2 is not satisfied; or
  - Alternatives $A^{(1)}$, $A^{(2)}$, ..., $A^{(M)}$ if condition C1 is not satisfied. $A^{(M)}$ is calculated by the relation:

$$Q(A^{(M)}) - Q(A^{(1)}) < 1/(j-1)$$

for maximum $M$ (the positions of these alternatives are close) (Wang and Tzeng, 2012; Opricovic and Tzeng, 2007; Bazzazi et al., 2011; Shemshadi et al., 2011; Yucenur and Demirel, 2012).

### 3.2 The proposed model

The uncertainty and relative factors have made it difficult for decision making process, thus, evaluation indicators cannot be measured precisely in these complicated situations. As a result, the fuzzy approach makes it easy and more flexible to conduct these data sets, especially in uncertain judgments and reflects decision makers’ preferences (Opricovic, 2011; Kahraman et al., 2003; Kaya and Kahraman, 2010, 2011).

The modified fuzzy VIKOR and AHP model can be shown in the following steps:

- **Step 1.** The criteria and alternatives are determined by the experts in the industry and academicians.

- **Step 2.** AHP approach is used for the weights of the criteria.
• Step 3. Chosen linguistic variables are conducted for the rating of alternative via fuzzy approach.
• Step 4. The weighted normalized fuzzy decision matrix is constructed.
• Step 5. Fuzzy best value \((\tilde{f}_j^*)\) and fuzzy worst value \((\tilde{f}_j^-)\) of all criterion functions are determined.
• Step 6. \(\tilde{S}_i, \tilde{R}_i\) and \(\tilde{Q}_i\) values are calculated.
• Step 7. Defuzzied \(\tilde{Q}_i\) values are listed from the minimum to maximum of \(\tilde{Q}_i\).

3.3 An application on the Turkish banking sector

This application can be summarized in seven consecutive main steps for the ranking alternatives with fuzzy-VIKOR and AHP method. In step 1, a group of decision-makers identifies the main performance criteria for evaluation. In step 2, the criteria weights are calculated via AHP (Table IV). In steps 3 and 4, appropriate linguistic variables for the weights of the alternatives are selected for the weighted normalized fuzzy decision matrix (Table V). In the following steps, the fuzzy best and worst values of all criterion functions are constructed (Table VI), and \(\tilde{S}_i, \tilde{R}_i\) and \(\tilde{Q}_i\) values are calculated (Table VII) and defuzzied \(\tilde{Q}_i\) values are listed for the final ranking of the alternatives (Table VIII). The performance evaluation process of the modified fuzzy VIKOR and AHP model can be detailed into the following steps.

| Criteria C1 C2 C3 C4 C5 Weights |
|-----------------|---|---|---|---|---|
| Timing and functionality (C1) | 1 | 1 | 1/5 | 0.333 | 3 | 0.1147 |
| Communication and interaction (C2) | 1 | 1 | 3 | 1/5 | 5 | 0.1606 |
| Physical facilities (C3) | 5 | 1/3 | 1 | 0.111 | 5 | 0.1806 |
| Competitive profits (C4) | 3 | 5 | 9 | 1 | 7 | 0.5038 |
| Operational convenience (C5) | 1/3 | 1/5 | 1/5 | 1/7 | 1 | 0.0403 |
| Consistency ratio | | | | | | 0.0057 |

Table IV. Pair-wise comparison matrix and weights

| Linguistic variables Fuzzy numbers |
|-----------------|---|---|---|---|
| Worst (W) | 0 | 0 | 2.5 |
| Poor (P) | 0 | 2.5 | 5 |
| Fair (F) | 2.5 | 5 | 7.5 |
| Good (G) | 5 | 7.5 | 10 |
| Best (B) | 7.5 | 10 | 10 |

Table V. Linguistic scales for the rating of alternatives

<table>
<thead>
<tr>
<th>Variables</th>
<th>The fuzzy best value</th>
<th>The fuzzy worst value</th>
</tr>
</thead>
<tbody>
<tr>
<td>C1</td>
<td>6.6667</td>
<td>9.1667</td>
</tr>
<tr>
<td>C2</td>
<td>7.5</td>
<td>10</td>
</tr>
<tr>
<td>C3</td>
<td>6.6667</td>
<td>9.1667</td>
</tr>
<tr>
<td>C4</td>
<td>6.6667</td>
<td>9.1667</td>
</tr>
<tr>
<td>C5</td>
<td>5.8333</td>
<td>8.3333</td>
</tr>
</tbody>
</table>

Table VI. The fuzzy best and worst values
The alternatives in the study indicate banks based on ownership. There are three main groups that are state-owned banks, privately owned banks and foreign banks. Three state-owned banks, 12 privately owned banks and 16 foreign banks are considered to create the groups that imply alternatives in the study. The banks have been accumulatively evaluated in their own group by their overall performance.

However, the decision makers cover two different groups that are ten experts in the banking sector and ten academicans in the field of finance and banking. The decision makers have an average of five years of work experience in banking and finance. Nevertheless, the academicans have structured the main problem for the ranking the alternatives. The groups include 20 decision makers that have been assigned for selecting and evaluating the criteria and alternatives. By the way, the relative importance of the criteria and the ordering of the alternatives could be determined by the decision makers (Figure 1).

Five essential criteria based on literature are detected to evaluate the customer satisfaction by the decision makers. These are identified as timing and functionality, communication and interaction, physical facilities, competitive profits, operational convenience. The selected criteria, pair-wise comparison matrix and calculated weights have been stated in Table IV.

Subjective information with fuzziness is often expressed by fuzzy sets and is processed by linguistic methods (Ma et al., 2010). Linguistic variables are parameters with lingual expression as their values and the possible values indicate the importance of the variables in their own scales. Decision makers can use these linguistic variables for conducting their judgments.

Each linguistic variable is shown by a triangular fuzzy number. There are several kinds of triangular fuzzy numbers in use. In this study, linguistic variables defined by triangular fuzzy number for the rating of alternatives are given in Table V (Chen and Wang, 2009; Chen and Huang, 1992).

After rating each alternative under each criterion by the decision makers and the constructed the fuzzy decision matrix through the linguistic variables. The weighted normalized fuzzy decision matrix is constructed. Extracted the fuzzy best and worst values can be shown in Table VI.

The values of $\tilde{S}_i$, $\tilde{R}_i$ and $\tilde{Q}_i$ are computed as seen in Table VII.

<table>
<thead>
<tr>
<th>Alternatives</th>
<th>$\tilde{S}_i$</th>
<th>$\tilde{R}_i$</th>
<th>$\tilde{Q}_i$</th>
</tr>
</thead>
<tbody>
<tr>
<td>State-owned banks</td>
<td>0.4962</td>
<td>0.4962</td>
<td>0.4962</td>
</tr>
<tr>
<td>Privately owned banks</td>
<td>0.4429</td>
<td>0.5038</td>
<td>0.5038</td>
</tr>
<tr>
<td>Foreign banks</td>
<td>0.5202</td>
<td>0.5038</td>
<td>0.5038</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Ranking</th>
<th>$Q_i$</th>
<th>$S_i$</th>
<th>$R_i$</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>State-owned banks</td>
<td>Privately owned banks</td>
<td>State-owned banks</td>
</tr>
<tr>
<td>2</td>
<td>Privately owned banks</td>
<td>State-owned banks</td>
<td>Privately owned banks</td>
</tr>
<tr>
<td>3</td>
<td>Foreign banks</td>
<td>Foreign banks</td>
<td>Foreign banks</td>
</tr>
</tbody>
</table>

Table VII.

Table VIII.

The ranking of the banks by the value of $S_i$, $R_i$ and $Q_i$.
Triangular fuzzy number of $\tilde{Q}_i$ is defuzzified and the alternatives ranked by the values of $Q_i$ listed in ascending order.

The best ranked bank by the measure $Q$ (minimum) must provide the two conditions (Wang and Tzeng, 2012; Opricovic and Tzeng, 2007; Bazzazi et al., 2011; Shemshadi et al., 2011; Yücenur and Demirel, 2012).

The first condition is expressed in an equation (11).

However, Chen and Wang (2009) consider 0.25, instead of $1/(j - 1)$, for acceptable advantage if the alternatives are less than four items.

Thus, it is seen that the result ($0.4935 - 0.2245 \geq 0.25$) complies with this consideration. The second condition is that the first alternative must also be the best ranked by $S$ or/and $R$. As seen in Table VIII, results also conform to this condition.

Finally, the performance results based on customer satisfaction in the Turkish banking sector with fuzzy VIKOR and AHP technique demonstrate that state-owned banks have the first rank by the values of $Q_i$ and $R_i$. Privately owned banks rank for the second in customer satisfaction. Nevertheless, privately owned banks are in first place by the value of $S_i$. When considering the overall performance of the banks, the study denotes that state-owned banks are better than the other banks to meet customer needs.

4. Conclusion
The results of this study illustrate that the hypothesis of a significant relationship between customer satisfaction and bank performance with positive impacts on the
stock market performance, is confirmed. The traditional approach to the performance evaluation consists of financial parameters while it generally omits non-financial parameters such as behavior factors. The major contribution of this study is to develop a hybrid model which correlates the customer satisfaction and performance evaluation together with financial and non-financial parameters. With this novel method, it has been illustrated that the performance results of the banks vary based on customer satisfaction level and ownership types. The fundamental conclusion clarifies:

- the facilities of the state-owned banks are suitable for meeting customer expectations;
- private banks’ performance level is higher than foreign banks;
- foreign banks have the weakest performance results based on customer satisfaction level with a negative financial outcomes in local countries; and
- finally, state-owned banks with their strong assets serve the customers in expected manner.

The limitation of this study is that the model covers the relative importance of the financial and non-financial criteria for the performance evaluation process with experts’ choices. All experts’ choices in assessment process have been selected from Turkey. The major constraint on this selection process stems from the lack of opportunity for communicating with the best experts from advanced economies as Turkish banking sector covers the foreign banks. It was also difficult to locate experts with an interdisciplinary background. This study could be further widened to consider other evaluation methods such as TOPSIS and PROMETHEE which could have been applied for the ranking of the banks. In addition, the study can be expanded for comparative analysis between developed and developing markets. The obtained results have important consequences for effective investment decision making processes for portfolio selection strategies.

References


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