

## Evaluation and Performance of the Branches of Saderat Bank in Tehran Using the Multiple Criteria Decision Making (MCDM) Technique

<sup>1</sup>Mina Jamshidi Avanaki, <sup>2</sup>Mohammad Reza Kia and <sup>3</sup>Reza Kia

<sup>1</sup>Department of Business Management,

<sup>2</sup>Department of Management, Islamic Azad University, Central Tehran  
Branch, Tehran, Iran

<sup>3</sup>Department of Business Management, Islamic Azad University,  
Science and Research Branch, Tehran, Iran

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**Abstract:** Studying performance of banks is used for rating work units to allocate operational funds. The main objective of this study is to calculate the performance of Bank Saderat of Iran and in particular, branches in Tehran using Shannon Entropy Weighting Technique and ranking the branches based on TOPSIS Model. In this research, we have attempted to calculate the performance of seven excellent branches in Tehran using TOPSIS technique. The considered data in this study include operational resources (Rial, foreign exchange), operational consumption (profitability), incomes, banking services, transactions and performance evaluation criteria of the branches. The results indicate that in evaluating and ranking banks, measures of operating resources and operating expenses had the highest weights and they were considered to evaluate final performance and rating the excellent branches as indicators.

**Key words:** Efficiency, multi-criteria decision-making, TOPSIS, decision-making units, Iran

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### INTRODUCTION

Efficiency and productivity are concepts that determine the ratio of input and output of an economic system. Inputs are or sources to be used to create outputs. Assessing the efficiency and productivity of units under supervision of an organization is a matter that with particular importance for top and middle level managers, so that it affects future planning such as budgeting, number of personnel, units' development and Evaluating the performance and productivity is a confident way to increase the competitiveness and profitability of banks as well as overcome shortcomings of resources. Increasing productivity is not allowed, except by understanding and analyzing them.

To determine the suitability level of activities in its subsets, each organization requires an evaluation system to assess the utility. But examining available methods of performance evaluation shows that they are experimental methods and contain series of financial ratios that their results are not comparable in different branches due to the lack of standardization and diversity of activities in banks. Therefore, today new techniques like TOPSIS technique are used (Ghalayini *et al.*, 1997).

This technique is considered as a useful tool in assessing the performance of several firms with similar structure. To use this process, analyst should determine the overall aim and select criteria to achieve that objective. The analysis process requires that analyst compares the relative importance of various criteria in mind to achieve the overall objective. Some deficiencies include:

Grading and evaluating the efficiency of branches regardless of procedure and solely based on the outputs of branch that the used resources including personnel, equipment, etc., have no effect on its degree; in other words, there are ignored the costs of branches and consequently, waste of resources.

Common methods of evaluating and ranking are largely empirical without a scientific framework. In conventional methods, the defined factors related to various bank activities in different forms and taking into account the coefficients are combined based on scores of branches. Parameter coefficients generally are determined based on profitability or role of branch managers to increase them in comparison with other parameters which it has its difficulties too (Kang and Lee, 2010).

**Research objectives:** The study aims to evaluate the efficiency using data envelopment analysis. And Secondary objectives include:

- Identifying and weighting indicators, metrics for assessing performance and efficiency of banks
- Ranking efficient branches

**Research questions:** The main question of the research is as follows: what is the ranking of excellent bank branches that are consistent with organizational indicators?

- What are indices of assessing the performance of outstanding bank branches
- How weight and prioritize the effective factors in evaluating performance and efficiency of bank branches?
- How rank outstanding bank branches

**The research literature:** In this era, dramatic developments in knowledge management have had inevitable evaluation system, so that lack of assessment system in using resources and capabilities, goals and strategies and managers and employees is considered as one of the symptoms of deficiencies in organization. Each organization requires evaluation system to determine acceptance level of its activities, particularly in complex and dynamic environments. On the other hand, the lack of evaluation and control system in an organization means lack of communicating with internal and external environment. Occurring the phenomenon of sudden death is not felt by senior managers of organizations but it will make impossible necessary studies for growth, development and improvement of organization's activities. Finally, this is called phenomenon of organization death.

On the other hand, one of the main reasons for lack of success in evaluation programs refers to assessment, measurement and evaluation methods as well as subjective evaluation and assessment of the participants. As an assessment tool for performance management, performance evaluation can be a solid basis for decision-making on various issues in organization. Performance management will have the greatest impact when its objectives it largely transferred to the personnel. Annual turnover performance management effectively increases organization performance. Chief executives in the public sector agencies in America increased employees' productivity dramatically using this method (Athanassopoulos, 1997). In this model (Fig. 1), there have been considered three stages for performance management:

**Performance planning:** It includes determining performance objectives at different levels including identifying the required activities to achieve the expected results and proper organizing by job analysis, capable systems, various components and requirements for planning.

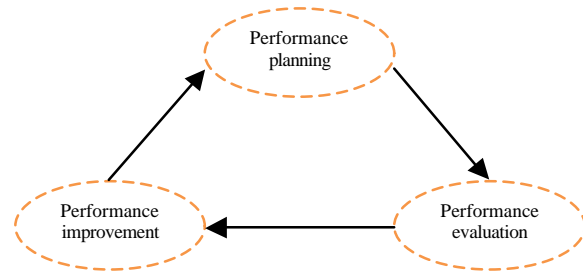


Fig. 1: Framework and research model

**Performance evaluation:** it refers to a set of measures and activities to enhance the efficient use of resources, in order to achieve goals and practices of efficiency and effectiveness. Accordingly, there will be assessed the rate of progress to achieve the considered goals.

**Performance improvements:** improved performance at organizational level leads to improve the organization entirely. Organizational improvement level should be conducted systematically and a comprehensive overview toward the organization.

**Performance evaluation process** is a process that allows organization to identify problems and performs correct operation before they become big problems (Bowlín, 1998). Other performance appraisal systems include the balanced evaluation, Baldrige method, performance excellence model, data envelopment analysis technique etc. These methods overcome the weaknesses of traditional methods (Charnes *et al.*, 1978).

## MATERIALS AND METHODS

Selecting research method allows researchers to determine the best way to achieve faster, more accurate and easier to the desired respond. This study uses a descriptive-applicable method with survey research and considers available conditions and relations, common ideas and expanding processes. The present study is applicable objectively and a descriptive-analytic study in terms of research method. the direct observation, interviews and library services were used as methods to collect data.

There are used SPSS and Excel Software (to calculate equations) to analyze data. Its population consists of all distinguished bank branches in Tehran. Determine sample size is one the most basic steps in every survey research and sample size accuracy ensures the precision of generalizations and conclusions. As this study is an specialized research and only experts can respond to the questionnaire, there has been used from the census method. Totally, there were selected 36 managers who

were expert in this field (senior managers and experts in the privileged branches). Questions are raised as Likert five-point scale. In this study, Cronbach's alpha was used to obtain its reliability.

## RESULTS AND DISCUSSION

The present study was conducted in the winter 2015. In this study, 65% of respondents were male and others were female. To achieve the specific objectives, decision-maker should combine several criteria simultaneously and evaluate different options based on criteria. In fact, Multi Criteria Decision Making (MCDM) technique examines the issue from three perspectives:

- Selective: Selecting the best option among the possible options
- Ranking: Ranking options based on their priority
- Categorizing: Categorizing options in the predefined levels based on their comparison with available references and standards

Huang and Youn proposed the TOPSIS Model. This model is one of the best models of multiple attribute decision-making. This technique is based on the notion that the selected option should have the minimum and maximum distance with the positive ideal solution (the best possible) and the negative ideal solution (the worst possible) respectively. Problem-solving with this method includes a seven-step process.

### TOPSIS executive steps:

- Obtaining decision matrix
- Normalizing decision matrix
- Weighting the normalized matrix
- Determining the positive and negative ideal solution
- Obtaining distance measurements
- Calculating closeness of the main solution to the ideal solution

**Ranking options:** To answer the question 1 of the research on effective factors in evaluating the performance of outstanding bank branches, it should be referred to six final indicators approved by experts in the research that the centrality of the questionnaire is also based on it: operational resources (foreign exchange and Rial) include operating costs (profitability), income, workload, banking services and transactions.

To answer the second question on weighting and prioritizing the effective factors in performance evaluation of outstanding bank branches, the ultimate weight of

Table 1: The ultimate weight of indicators

Rank	Index	The gained weight
1	Operational resources (monetary and currency)	0.2599
2	Operating expenses (profitability)	0.1805
3	Earnings	0.1693
4	Banking services	0.1507
5	Workload	0.1394
6	Transactions	0.1004

Table 2: Ranking models based on the TOPSIS technique

Rank	Model proximity	Branch
1	0.251971891	B
2	0.364019727	G
3	0.576815268	F
4	0.590248172	E
5	0.602421903	A
6	0.677063129	D
7	0.698103557	C

indicators can be determined using Table 1. They show the degree of importance and weight of each performance criteria in ranking banks. The results of weighing by the Shannon entropy method for answering the questions are as Table 2.

## CONCLUSION

Due to issue of entry into the WTO, the entry of foreign banks, activities of private banks and developing activities' field of financial and credit institutions, the country's banking system should assess its performance and attempt for its growth and prosperity to survive and compete in this field.

## SUGGESTIONS

The suggestions of this study is given below:

- Reconstruct on the studied bank branches to optimize using labor and other inputs
- Reconsider the rating bank branches and using performance indicators and efficiency
- Considering objective identification to improve efficiency
- Reengineering the processes of providing services for the branches to improve efficiency

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