Advances in Mathematical Finance & Applications, 5(2), (2020), 215-227
DOI: 10.22034/amfa.2020.1880616.1312

Published by IA University of Arak, Iran
Homepage: www.amfa.iau-arak.ac.ir

Investigating the Mathematical Models (TOPSIS, SAW) to Prioritize the Investments in the Accepted Pharmaceutical Companies in Tehran Stock Exchange

Reza Jamei
Department of Accounting, University of Kurdistan (UOK), Sanandej, Iran

ARTICLE INFO

Article history:
Received 08 Augest 2019
Accepted 16 January 2020

Keywords:
The Multi-Criteria Decision Making- performance Evaluation
Pharmaceutical companies'
TOPSIS and SAW Models

ABSTRACT

Considering the importance of decision- making in investment, this study prioritizes the accepted pharmaceutical companies in Tehran stock exchange, during 2013-2017 using the following criteria: the return on investment (ROI), reminded increment (RI), return on sales (ROS) and the earnings per share (EPS). Price per earnings ratio of each share (P/E), return on equity (ROE), return on assets (ROA). After prioritization mentioned companies, they were ranked using mathematical models: SAW and TOPSIS. The object of the study is to encourage financial decision- makers to use math models (SAW, TOPSIS) instead of previous accounting techniques in order to represent the pharmaceutical companies more perfect than before. The comparison between ranked mentioned companies' according to two math models (SAW, TOPSIS) showed that there is not a significant deference between ranks obtained from SAW and TOPSIS. Furthermore, it is found out that the ranking of the involved companies' was not the same during the study. Some had better process while others not only didn't have improvement but also gained worse ranking during the study than before.

1 Introduction

Evaluating companies' performance have been under discussion from long time ago and lots of studies have been done on this issue. Choosing the most valid criterion for evaluating companies' performance is one of the most attractive subjects for researchers and theoreticians [1-4]. Some state that there is not any ideal criterion to assess or evaluate companies' performance, while others believe in existing different methods for measuring and evaluating companies' performance and value, however each has some deficiencies and applying them as criteria, definitely don't lead to companies' real value determination. [6,7,8]. Performance evaluation is a necessity, and to do it, acceptable criteria that's focused on different aspects of activities limitation and possibility of using facilities, must be applied as far as possible. [12]. Performance evaluation actually has owed its meaningfulness to agency theory Mirles and Holmes tron have presented an initial model of agency, used as a reference by accounting researchers in their studies. Then [18] as a result this models deficiencies have been investigated. In this regard it sounds necessary to use mathematic and statistics models instead of the traditional and limited performance evaluation models' to analyse the evaluation of accounting information, to prioritize the pharmaceutical companies'. He wishes that information

**** Corresponding author Tel.:*** *+989128947089*
E-mail address: *r.jamei@uok.ac.ir*

producers be encouraged to use them in order to report and represent an important image of the company's status. The importance of these models lies in their suitability to be used as criteria to cover the most current limitations and barriers to the accuracy of performance evaluation. The investors always consider the priority and companies' economic performance evaluation to reorganize the favourable investment opportunities. The efficient performance of the company will encourage stock holders to invest and save capital in certain activities and also achieving the companies optimal performance depends on companies' management. As a result the stock holders can be sure that if the managers' possess the necessary stimuli, they will make more efficient decisions to increase companies' benefits [17]. It is essential to note that selecting an appropriate criterion for prioritizing and evaluating performance by shareholders which ultimately become the basis for determining managers' rewards, helps to make better investment decisions and also achieve their benefits and goals better and faster by aligning managers' interests [18]. This research is an innovative one since not only decision makers can count on accounting information but also they can highlight the rank of the company to investment in different domains and during different years, using math models (SAW and TOPSIS) [16]. Furthermore, comparing both math models outputs, suggests the most efficient choice to potential investors and other decision makers.

2 Literature Review

Since establishing of the stock companies and separating stock management from its ownership, the performance evaluation issue has been proposed control and supervise the investment management. The managers should be responsible for the way they use the resources of investors. Nowadays, the most important task of managers is increasing the shareholder's wealth. However, should how their performance in achieving this goal be fairly and reasonably measured? Generally, there are several methods for performance evaluation that can be classified in two groups of traditional and modern financial criterions [11]. There are seven important criteria in companies' performance evaluation including: the return on investment (ROI); reminded increment(RI);return of scales(ROS);earnings per share (EPS); price per earnings ratio of each share (p/E); return on equity; and return on assets (ROA) [5]. In the economic model, stock value of a company dependents on strength of existing assets and potential investment and the difference between the rate of return and the cost of company capital. The most important criteria for performance evaluation by using economic criteria include the market's added value and the economic added value [18]. Many researches have been done on the MCDM usage in the education, different industries, Banks, Hospitals, army and other fields applying different approaches, but about finance, the recent researches have been done as follows:

Applying BCC model (the shaft's output with modified values) some researchers attempt to measure the relative performance of commercial organizations in order to do the final ranking, the units of deficient group were ranked based on the score of the tegumentary (cover) data analysis and the efficient organizations were analysed by hybrid model of hierarchical and tegumentary data analysis process. The most important finding of this research was efficient unit identification and planning and performance strategic goal setting using the results of the model [13].

A research objected to measure the effects of investment in the information technology on the performance of the companies' accepted in TSE using of tegumentary (cover) data analysis [1]. The obtained results showed that the tegumentary analysis models of data are appropriate models for ranking and evaluating the performance of decision making units, and also the Charnes, Cooper and Rhodes model (CCR) is technically more efficient than the Banker, Charnes and Cooper model (BCC) [9]. In another study tegumentary data analysis techniques for determining the optimized performance

of accepted companies in Tehran stock exchange. The results showed that among 90 studied companies, just 29 companies that are actually 32 percent of the whole companies were efficient and the rest of them were deficient. [14]. A research has been done to introduce a model to evaluate the selection of investment project by the phasic (AHP) and TOPSIS models. Used criteria included; the net index of present value, the rate of internal return, cost-benefit analysis and the return of invest men's period. The last research has used TOPSIS model as the economic performance evaluation of accepted companies' (13 industries) in Tehran's stock. This study's aim was to measure and rank the performance of accepted companies in the Tehran's exchange based on the TOPSIS multi-criteria decision-making model. For this purpose, 9 indexes that can cover the main aspects of assessment (evaluation) have been chosen. The nine fold indexes (nine indicators) were calculated for about 170 studied companies in 13 industries, and the obtained amounts was calculated in the provided plan of Entropic technique in order to determine the importance of each index (indexes weights). The obtained weights plus the amount of each industry index were entered to the plan of TOPSIS model. The above operations have been done separately for each one of the 13 industries and finally, the ranks of each company were determined in their own industry [15]. The ranking results agreed upon by multiple MCDM methods are more trustworthy than those generated by a single MCDM method. The proposed method is illustrated in a practical application scenario involving an IC packaging company. Four additional numerical examples are provided to demonstrate the applicability of the proposed method. In all of the cases, the results obtained using the proposed method were highly similar to those derived by previous studies, thus proving the validity and capability of this method to solve real-life MCDM problems [21]. By using the nearest weighted interval approximation of the fuzzy numbers we try to extend TOPSIS in fuzzy environment. This paper proposes four new fuzzy TOPSIS methods. Two numerical examples are given to clarify the main results developed in this paper. In these examples we have applied some non-triangular and non-trapezoidal fuzzy numbers too. These methods are evaluated and compared with some other existing methods. We can say that, this is the main advantages of the proposed methods, because, other fuzzy TOPSIS methods can't solve these kinds of problems [22]. The quantitative multiple criteria decision making methods are practical to use in decision support systems. In this paper we analyses the quantitative multiple criteria decision making methods and sensitivity analysis methods usage in decision support systems. Both species of these methods are strongly mathematically based. We take notice of these sensitivity methods for initial data. Monte Carlo method is applied for the generation of initial data. The sensitivity analysis of methods TOPSIS and SAW is presented in this paper [23]. Emphasizes the successful application of MCDA in dealing with complicated issues in the context of cultivation priority planning management. It is anticipated that, the integration of this developed framework in the planning policies of cultivation priority in developing countries as an effective tool for integrated regional land use planning can help in conducting better control over soil, land and environment losses [24]. Among multi-criteria models in making complex decisions and multiple attribute models for the most preferable choice, SAW technique is extended using interval numbers. For this purpose, we first propose a method for extending Entropy method for dealing with interval data, and then the extended SAW method with interval data is proposed by using the interval weights derived by the proposed interval Entropy method. The extended SAW method is an algorithm to determine the most preferable choice out of all possible choices, when the input data are stated in interval [25]. SAW-based and TOPSIS-based MCDA methods and conducts a comparative study through computational experiments. Comprehensive discussions have been made on the influence of score functions and weight constraints, where the score function represents an aggregated effect of positive and negative

evaluations in performance ratings and the weight constraint consists of the unbiased condition, positivity bias, and negativity bias. The correlations and contradiction rates obtained in the experiments suggest that evident similarities exist between the interval-valued fuzzy SAW and TOPSIS rankings [26]. Active companies have in the oil and gas industry stock exchange during the 2002 to 2008 with the multi-criteria techniques have been studied as the analysis of financial statements. The results of using this technique showed a reliable and trustworthy basis for economic businesses ranking [20]. Another research as the study of multi-purpose algorithm performance in order to rank the share has been done. It identified the efficient performance management share of quantities model for determining the most effective factors and their reflection status. The genetic programming with using a simple function objective showed effective techniques with the chosen criteria and also created the models with the multiple factors for ranking the stocks (shares) [19].
In the literature, some researches have done on the commercial units ranking with using the phasic (phase) model, and the quantitative and qualitative variables. The used motivators or criteria include 21 variables that consisted of the strategic assets and financial performance, the evaluation of quantitative management performance evaluation and the competitive situation based on the company's goals.

3 Research Background

Several different scientific and acceptable methods have been developed to help manager's decision-making. These methods are less effective in dealing with decisions that have qualitative parameters and factors. Therefore, it is essential to develop new methods for managers that involve the qualitative factors in their decisions and lead to appropriate decisions. In order to investigate and solve a problem, it is necessary to identify all the qualitative and quantitative factors affecting the problem and to try to convert the qualitative factors into quantitative ones effectively and ultimately obtain the necessary result from the problem solving. Therefore, it can be seen that by incorporating the qualitative factors, a far better response is obtained than when the qualitative factors were not involved. Given the importance of qualitative factors in various issues, especially in decision-making issues in recent decades, a variety of ways have been developed to incorporate these factors. These decision models fall into two major categories: the multi-objective models and multi-criteria models. The multi-objective models are used to design and they apply mathematical optimization techniques to solve the problems; while the multi-criteria models are used to choose the top options. The basis of this research is on the development of approaches for optimal decision-making [12]. The multi-criteria decision-making (MCDM) reflects the conditions in which there aren't conflicted multiple criteria in the decision-making [2]. MCDM consists of two sub-groups: The Multi–Attribute Decision-Making (MADM) in which the decision space is discrete and has few options to choose, and Multiple Objectives Decision-Making (MODM) in that the decision at MO sphere is continuous and there aren't any present options to choose.
There are different categories in the MADM techniques; the most popular category is based on the indexes exchange possibility that divided into two groups of Compensation and Un-compensation methods. The compensation methods consist of methods in which exchanges between indexes are allowed, it means that for example a change (probably small) in an index can compensate by a reverse change in the other index. Generally more complex algorithms are used in the compensation methods to evaluate the alternatives. One of these alternatives is the scoring subtype. Choosing an alternative is based on their utility and their score .Utility and score are used for explaining DM preferences and the option with the highest utility will be chosen. In this method, the value of each indexes convert to a

number between 0 and 1. So the different indexes can be compared to each other. One of the ordinary methods of this subgroup is Simple Additive Weighting (SAW). Simple Additive Weighting is one of the simplest useful methods of multi-attribute decision-making that using indexes weight calculation (W); the best option can be calculated as follows:

$$^{*}\boldsymbol{A} = \{\boldsymbol{Ai}|\boldsymbol{max}\sum \boldsymbol{w_j r_{ij}}\} \quad (1)$$

This method needs similar scales or "unscaled" measurement to compare the alternatives. Another subgroup is the Adaptive subgroup. This method chooses alternatives that are closer to ideal solution; The TOPSIS, MRS, MDS and LINAMP methods are from this group. One of the important methods of prioritization is TOPSIS method. The TOPSIS thesis (hypothesis) is that the indexes are steadily increasing or decreasing .In the traditional TOPSIS, the Euclidean conversion is used for converting and unsealing the indexes amounts, and also the Euclidean conversion is used for measuring the distance between each option's ideal point and negative ideal. Naturally other factors and available mathematical methods for unsealing and measuring the distance of points can be used. Can be used in the modified TOPSIS method, the minimum of each index is used for unsealing, and the block distance is used for measuring the distance of points. In the TOPSIS, using the different methods for converting unsealing, and use the points distance in various ways will lead to the different results in the alternative orders.

4 Research Methodology

According to the previous researches and theoretical foundations of research, the following (Hypothesis) are proposed:

1. The ranks of the pharmaceutics companies' are the same according to TOPSIS model based upon the traditional evaluation criteria
2. The obtained ranks of pharmaceutical companies are similar to the each other using SAW model based upon the traditional performance evaluation criteria.

The research variables are: the return on investment (ROI); reminded increment (RI); return on sales (ROS); the earning per share (EPS); price per earnings ratio of each share (P/E); return on equity (ROE); and return on assets (ROA). The main methods of this research for prioritizing the companies are TOPSIS and SAW.

The scientific method is a combined process of inductive method and deductive reasoning so that at first, the researcher inductively has used his observations to formulate the hypothesis and then with the deductive reasoning deals with the logical usage of the hypothesis. So he can predict the relation between the variables and the hypothesis [10]. Twenty pharmaceutical companies have been chosen, among the accepted pharmaceutical companies in Tehran's stock exchange: Alborzdurg, Irandrug,Pars drug, Zahravi pharmacy, Sobhan pharmacy, Farabi pharmacy, Kowsar pharmacy, Lugman pharmacy, Roz drug, Sina drug that have been active since 2013. The sample size includes 20 pharmaceutical companies that mentioned above.

*The screening method (Elimination method) is used for sample selection. For this purpose, there are 5 criteria as follows:

1. The company must be in stock exchange before the 2013 and be active until 2017
2. The company should not have financial year changes during 2013 to 2017 and its financial year finished at the end of the March.
3. The company must been continually active, and it should be possible to calculate its monthly return.

4. The company should not be one of the groups of investments companies or financial intermediations.
5. The required information of the company must be available.

*In the current article, the Library Collection Method was used to collect data and the archives of the Tehran's stock exchange were used to achieve its financial statements. *Survey method was used here so librarian studies and surveys were used to gather the information in the field of theoretical and experimental model. Then TOPSIS and SAW were used to classify the pharmaceutical companies based on the obtained indexes. *After gathering the information and measuring the criterions like the return on investment (ROI): reminded increment (RI); return on sales (ROS); the earnings per share (EPS); price per earnings ratio of each share (P/E); return on equity (ROE); and return on assets (ROA), the gathered data were analyzed based on the data collection tool and Excel.

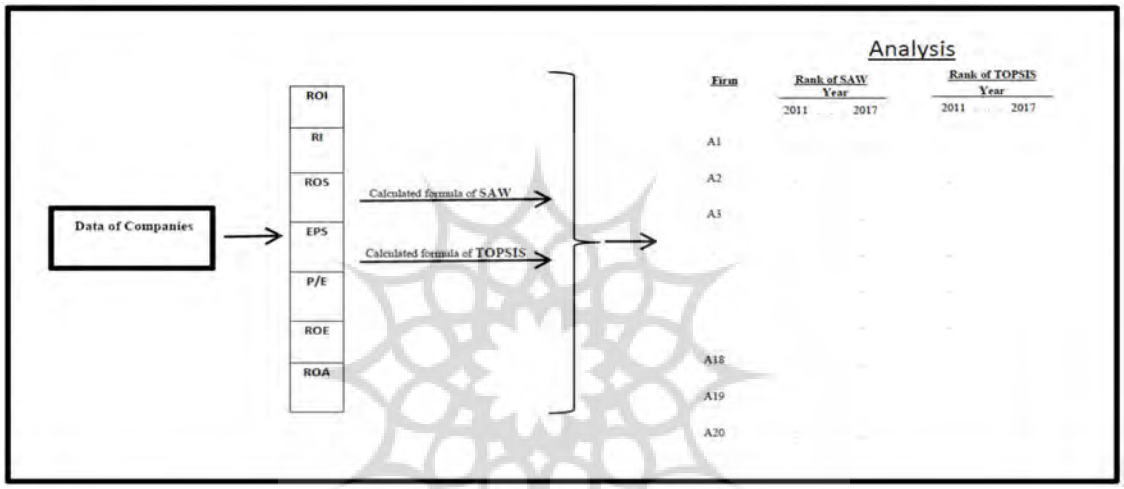

Fig. 1: Conceptual Model of Research

5 Performing the Methodology and Results

The methodology is performed based on two frameworks as follows.
A) The framework of options priority using SAW model (Based on the calculations).
1. Quantifying the decision-making Matrix.
2. Linear non-scaling: All of the indexes have a positive aspect. Quantifying the decision-making. Matrix was done by the linear non-scaling.
3. Calculating weights of indexes' with the Shannon entropy use.
First step: calculating pij →

$$\boldsymbol{p_{ij}} = \frac{\boldsymbol{a_{ij}}}{\sum_{\boldsymbol{i=1}}^{\boldsymbol{m}} \boldsymbol{a_{ij}}} \; ; \; \forall_{\mathbf{j}} \tag{2}$$

Second step: calculating entropy E_j →
K=1/ 1n (m) =1 / LN (24)= 0.314658
Third Step = calculating uncertainty (d_j)→

$$\mathbf{d_{j=1-E_j}} \; ; \; \forall_{\mathbf{j}} \tag{3}$$

Fourth step= calculating Weights →

Table 1: The a_i(s) That are Over Weighted are Given Higher Priorities Than the Other Options.

Weights	Option	Rank
0.806582	A_{14}	1
0.351852	A_{18}	2
0.316854	A_{10}	3
0.208534	A_3	4
0.302589	A_{15}	5
0.148546	A_{13}	6
0.142262	A_{19}	7
0.25698	A_7	8
0.15658	A_6	9
0.12354	A_1	10
0.097825	A_{12}	11
0.098256	A_9	12
0.025897	A_4	13
0.025422	A_{11}	14
0.078256	A_{20}	15
0.0256987	A_2	16
0.078952	A_8	17
0.025892	A_5	18
0.025638	A_{17}	19
0.542581	A_{16}	20

Source: Research Results.

Table 2: The Obtained Ranks in the 2013 to 2017 Using Saw Model.

Company Name	Rank in 2013	Rank in 2014	Rank in 2015	Rank in 2016	Rank in 2017
A_1	4	1	6	5	3
A_2	6	5	7	12	14
A_3	12	16	16	13	11
A_4	10	4	3	2	6
A_5	3	6	9	1	1
A_6	1	2	4	4	5
A_7	17	17	14	15	20
A_8	19	18	19	18	19
A_9	9	13	12	16	2
A_{10}	8	11	8	7	7
A_{11}	12	16	16	13	11
A_{12}	10	4	3	2	6
A_{13}	3	6	9	1	1
A_{14}	1	2	4	4	5
A_{15}	17	17	14	15	20
A_{16}	19	18	19	18	19
A_{17}	9	13	12	16	2
A_{18}	8	11	8	7	7
A_{19}	15	8	15	14	15
A_{20}	12	16	16	13	11

Source: Research Results.

B) The framework of options priority using TOPSIS model.

1. Converting the available decision-making matrix to a "non –scaling" matrix is as follows:

$$T_{xn} = \frac{x_n}{\|x_n\|} = \left(t_n^1, \ldots\ldots, t_n^k\right) \quad (6)$$

So that:

$$\|x_n\| = \sqrt{\sum_{k=1}^{k} (x_n k)} \quad (7)$$

2. Calculating indexes weights using the Shannon entropy:

Table 3: w_i Matrix for 2017 in Topsis Model.

w_1	w_2	w_3	w_4	w_5	w_6	w_7
0.082345	0.045123	0.065956	0.0359911	0.0185512	0.125364	0.682145

Source: Research Results.

3. Obtaining the Harmonic Non-Scaling Matrix:

$$V = N.W_{n.n} \quad (8)$$

4. Determining of the positive ideal solution and negative ideal solution:

(V_{J+}) →Positive ideal solution

=[vector the best values of any matrix index]

(V_{J-}) →Negative ideal solution

=[vector the best values of any matrix index]

The(V_{J+}) and(V_{J-}) in 2010 for the TOPSIS Model .

Table 4: Determination of the Positive Ideal Solution and Negative Ideal Solution

V_{J+}	0.000837	0.001215	0.001141	0.000318	0.004327	0.084123	0.465879
V_{J-}	0.000318	0.004327	0.084123	0.465879	0.001215	0.001141	0.000318

Source: Research Results.

5. Obtaining the shortest distance of each option to the positive and negative ideals:

The distance of each option to the positive and negative ideal is calculated as follows:

$$d_i^+ \sqrt{\sum_{j=1}^{n} (V_{ij} - V_J^+) 2}, i=1, 2\ldots m \quad (9)$$

$$d_i^- \sqrt{\sum_{j=1}^{n} (V_{ij} - V_J^-) 2}, i=1, 2\ldots m \quad (10)$$

6. Determining the Relative Proximity (cl)* of an Option to the Ideal Solution:

$$CL_1^* = \frac{d_i^-}{d_i^- + d_i^+} \quad (11)$$

6. Ranking options: Each option with higher (cl)* is better.

Table 5: Positive and Negative Deviations and Ratings Obtained for 2015 Using TOPSIS Model

d^+	d^-	C l	A_j	Rank
0.476384	0.025771	0.051321	A_1	11
0.48097	0.007483	0.01532	A_2	16
0.47129	0.06251	0.117103	A_3	5
0.476514	0.024799	0.012417	A_4	20
0.480908	0.006046	0.059425	A_5	9
0.475327	0.030031	0.059425	A_6	9
0.474823	0.052732	0.09956	A_7	6
0.48144	0.006931	0.014191	A_8	17
0.477331	0.028262	0.55899	A_9	10
0.473143	0.0899038	0.158379	A_{10}	3
0.476384	0.025771	0.051321	A_{11}	14
0.48097	0.007483	0.01532	A_{12}	13
0.47129	0.06251	0.117103	A_{13}	7
0.476514	0.024799	0.49468	A_{14}	1
0.480908	0.006046	0.012417	A_{15}	4
0.475327	0.030031	0.059425	A_{16}	19
0.474823	0.052732	0.09956	A_{17}	18
0.48144	0.006931	0.014191	A_{18}	2
0.477331	0.028262	0.55899	A_{19}	8
0.476384	0.025771	0.051321	A_{20}	15

Source: Research Results.

As it can been seen in the above table,,A_{14},A_2 ,A_{10} are orderly from the first to the third ranks also A_5,A_{16} $A_{17}$are in the end of ranks.

Table 6: The Option Priority Based on the TOPSIS

Rank in 2017	Rank in 2016	Rank in 2015	Rank in 2014	Rank in 2013	Company Name
20	18	20	11	11	A_1
12	11	11	16	14	A_2
8	1	5	5	3	A_3
19	20	17	12	20	A_4
7	10	9	20	9	A_5
2	5	6	9	4	A_6
4	7	12	6	6	A_7
17	16	13	17	13	A_8
7	10	9	10	9	A_9
2	5	6	3	4	A_{10}
4	7	12	14	6	A_{11}
15	8	7	13	18	A_{12}
20	18	20	7	11	A_{13}
12	11	11	1	14	A_{14}
8	1	5	4	3	A_{15}
19	20	17	19	20	A_{16}
7	10	9	18	9	A_{17}
2	5	6	2	4	A_{18}
4	7	12	8	6	A_{19}
17	16	13	15	13	A_{20}

Source: Research Results.

Table 7: Comparing the Obtained Ranks Using TOPSIS and SAW Models

2013		2014		2015		2016		2017		Company Name
SAW	TOPSIS	SAW	TOPSIS	SAW	TOPSIS	SAW	TOPSIS	SAW	TOPSIS	S
4	5	3	4	2	3	3	3	5	5	A_1
13	12	11	7	17	8	15	15	18	18	A_2
18	20	20	20	18	18	20	20	11	11	A_3
9	9	9	11	10	11	12	12	12	14	A_4
8	6	6	5	1	1	10	8	2	3	A_5
17	17	17	17	20	20	19	19	20	20	A_6
20	19	15	15	14	12	17	16	17	10	A_7
19	18	18	18	19	19	18	18	19	19	A_8
2	2	16	16	12	13	13	13	9	12	A_9
7	8	7	8	8	9	11	11	8	7	A_{10}
15	15	14	14	15	14	8	9	15	15	A_{11}
18	20	20	20	18	18	20	20	11	11	A_{12}
9	9	9	11	10	11	12	12	12	14	A_{13}
8	6	6	5	1	1	10	8	2	3	A_{14}
17	17	17	17	20	20	19	19	20	20	A_{15}
20	19	15	15	14	12	17	16	17	10	A_{16}
19	18	18	18	19	19	18	18	19	19	A_{17}
2	2	16	16	12	13	13	13	9	12	A_{18}
7	8	7	8	8	9	11	11	8	7	A_{19}
15	15	14	14	15	14	8	9	15	15	A_{20}

Source: Research Results.

As it can be seen in the above Table 9, an insignificant difference is averagely seen between the companies' rankings using TOPSIS and SAW models, and the results of two models are similar. For the company sample(AZO), the ranks of the two models were 15 in 2013, and the obtained ranks was 8,9 in 2013and in the other years, there wouldn't be so differences or if it would , it was about one rank.

6 Analysing Research Hypothesis

The results of TOPSIS output for prioritizing the options show that ranks were not averagely similar during the study and some companies had a better process during the study and some companies not only did not have an improvement but also gained worse ranks during the study. For example, the sixth company that was in 14^{th} rank in 2013 reached to the 11^{th} rank by 2013 and continued till reached to the 9^{th} rank in 2015. On the contrary, the fifth company that was in the 11^{th} rank in 2013,it reached to 18^{th} by 2013 and finally got worse and reached to20^{th}rank in 2015.

According to the Table 2 that shows the obtained weights and ranks using the SAW model in 2013 to 2017, it's understood that the options ranking were not averagely same during the study and some companies got no improvement during these years and on the contrary, there were companies that had good ranks during these years and could still keep ranks during the study and some companies had a better process during the research and some companies not only did not have an improvement but also reached of the worse ranks during the research. For example, the company was in 5^{th}rank in 2013 and can stay in its position and keep its rank during the research and also the 5^{th}company that was in the11^{th} in 2013 and its position got worse and reached to the18^{th} and finally20^{th} rank in 2017.

8 Conclusion

The research results help managers and experts of the companies that did not succeed to reach on appropriate ranks during the research to identify their failure causes then by making efficient decisions start to increase the investors' wealth. The obtained results of TOPSIS shows that theA_{14}, A_{18}, A_{10}, options are ordery from first to third and the A_5, A_{16}, A_{17}, are at end of the table.
The results showed the options rankings were not averagely same, some companies had a better process and some others not only did not have an improvement but also gained worse ranks during the study. Finally, the obtained results of weight and rankings of using TOPSIS and SAW showed that there is an insignificant difference between the obtained ranks from two models and the ranks are almost similar. The current research can be developed and expanded in the following cases by applying its results and findings:
1. Using the other research methods of MADM in order to determine and prioritize the independent effective in choosing shares for investment in Tehran's stock exchange.
2. Using these two models for prioritizing the other accepted industries in Tehran's stock exchange.

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