

An application of multiple attribute group decision making in ranking investors' concerns: A case study of Tehran Stock Exchange

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ABSTRACT

During the past few years, stock exchange investors confront numerous problems in terms of legal, environmental issues, etc. In this paper, we present an empirical study to detect important issues as barriers for investment in Tehran Stock Exchange. The study has categorized the issues into two groups of real world and legal issues. Since there are different issues involved as major barriers, the study uses analytical hierarchy process to rank them. The study extracts 18 important factors, which influence investors' participation in Tehran Stock Exchange and using Borda method, prioritize them. The results of the survey indicate that in terms of real issues, Increase in quality of firms Financial Statement is number one priority followed by Increase stock exchange and agents' proficiency and electronic equipment, Unchangeable investment market rules and bounding organization managers to flow them and Strict supervision on agents' activities. In terms of legal issues, good supervision of provisions to force firms to reveal information correctly and restrict their secret bargaining is the most important factor followed by Using indirect investment guideline instead of direct investment, Increase in quality of firms' Financial Statement and Investors' training toward their rights.

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1. Introduction

One of the most important issues in any economy is to direct people's saving into stock exchange in order to boost the economy. In fact, when people participate in investing through stock exchange, they contribute to global economy. In United States, over 70% of people's savings are held as investment on shares traded in stock market. However, in Iran, many people are unwilling to invest their savings in Tehran Stock Exchange and they prefer to direct their money into real-state, gold, etc. Therefore, it is important to learn more about the possible barriers or lack of motivation and plan for possible actions to remove them.

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During the past few years, there have been different studies associated with major issues surrounding Tehran Stock Exchange. VakilAlroaia et al. (2012), for instance, performed an empirical investigation on relationship between forward-backward factors on stock return, using Price-Earnings ratio (P/E) and stock fluctuation based on monthly time series pattern over the period 2006-2010. They described that the independent variables could influence on the research's dependent variable, which indicated that the impact of company's systematic risk and markets risk on companies' stock return were positive. Khodaei Valahzaghari and Salehi (2012) did another survey on the effect of the corporate governance characteristics and ownership on earnings quality in Iranian banking sector.

Sohrabi Araghi and Attari (2013) studied the impact of accruals and operating cash flows on users' decisions on financial statements for a case study of firms listed in Tehran Stock Exchange. They performed an investigation on the effect of accruals and operating cash flows in decisions of financial statement users for some companies whose shares were traded on Tehran stock exchange. They suggested that there was a difference between accruals and operating cash flows data content in terms of various decision-making criteria. Nelson (2005) performed an empirical investigation on corporate governance practices, CEO characteristics and firm performance.

Panahian et al. (2008) investigated the relationship between discretionary accruals quality as well as innate accruals quality and portion of non-executive board of directors, concentration of ownership ratio and board size in Tehran Stock Exchange. They reported that an increase on non-executive members positively could impact on discretionary accruals quality and negatively influenced innate accruals quality. They also explained that concentration of ownership ratio positively impacted on discretionary accruals quality and negatively influenced on innate accruals quality. Based on their survey, size of board of directors negatively impacted discretionary accruals quality and positively impacted on innate accruals quality. Ștefănescu (2011) investigated the level of disclosure ensured by corporate governance codes in force in European Union member states and explained that common law regime could ensure the biggest level of transparency through corporate governance requirements.

2. The proposed study

This investigation is classified as descriptive, gauging since it seeks to solve problems, we can use the results practically, and it is counted as a functional investigation. Statistical society in this survey includes direct reference to expert investors, with regard to expertise indexes, in stock exchange. Regarding to undetermined investors in under evaluation society and lack of accessibility (for resources limitation), a sample of 30 people was selected. Standard levels were selected for each index in this method, at least M.A. education, at least 5 years' experience in stock exchange, at least 100 transactions in stock exchange and people who were available for consecutive study and four periods questionnaire distributions. The option score in each index must not be lower than the standard level for acceptance. The researcher ' questionnaire is the used tool in this survey. At the first stage of questionnaire, Likert scale factoring analysis has been used for determining investors' problems. Second, the effective factors of investors' problems creation and their effect coefficients in real and legal issues were determined by Likert scale factoring analysis. Third, pair comparisons were used and problem solving strategies prioritizing were practiced via Borda mathematical method in the second section of the third stage.

3. Survey findings after analysis data

Current survey findings include types of information as well as determination of investors' problems in stock exchange on real and legal sections are shown in Table 1.

Table 1
Definition investors' problems in stock exchange

Factors	Legal section*	Real section*
Lack of professional business man who experience market's fluctuations repeatedly	45.55	77.777
Lack of stock holding culture among common people	26.66	92.55
Deficiency of transparent information in some firms	36.66	92.5
Deficiency of expert forces in capitalization consulting	24.44	85.111
Violation of stockholders' rights except in some firms' main stockholders	25.555	55.555
Existence of classified information in market	85.11	56.66
Lack of efficient educational places in fundamental analysis level	36.66	62.22
Lack of derivative instruments in market	91.1	50.12
Lack of suitable analyzer in market	34.4	84.4
Inadequacy of capitalization consulting institutions	92.22	70

* Effectiveness degree out of 100

According to the results of Table 1, all 10 problems were effective as real issues and lack of derivative instruments in market, Inadequacy of capitalization consulting institutions and Existence of classified information in market were altogether effective as legal issues. Determination of effective factors in cause problems and their influence coefficients on legal sections are shown in Tables 2.

Table 2
Determination of effective factors in cause problems in legal section

Legal investors problems	Effective factors in causing problem	Samples**	legal section*	real section*
Existence of classified information in market	Lack of efficiency in capital market	16	59.98	79.21
	Excessive demand of stock exchanges' managers	16	74.39	61.36
	Exclusiveness of stock market	15	45.6	58.56
Inadequacy of capitalization consulting institutions	Immaturity of Security exchange	17	34.45	81.11
	Lack of equilibrium between industry and university	16	55	78.32
Inadequacy of capitalization consulting institutions	Lack of defined academic courses relating capitalization consulting	18	50.26	77.15
Lack of derivative instruments in market	Lack of literature about this instrument and its substructure	19	36.62	71.58
	Lack of cognition toward derivative instruments	19	54.52	80.1

*Effectiveness degree from 100, ** N=30

Analytical hierarchy process (AHP) (Saaty, 1992) is one of the most popular multiple criteria decision making problems. The proposed model of this paper uses AHP to rank different alternatives. We have considered different criteria including Modeling, Preferential, Judgment and we have calculated relative weights and calculated the consistency ratio. Table 3 shows the comparison among various decision options accomplish base on pair comparison among indexes.

Table 3
Preferential Matrix for each problem weights in real section

	1	2	3	4	5	6	7
Lack of stock holding culture among common people (1)	1	2.83772	0.48141	0.61225	0.64123	1.85949	0.47464
Lack of professional dealers(2)	0.35223	1	0.385974	0.43146	0.42767	0.85361	0.4158
Shortage in providing transparent information in some firms (3)	2.07589	2.59048	1	1.251033	1.2784	2.31348063	1.21553
Lack of professionals for capitalization consulting (4)	1.63197	2.31767	0.93424	1	1.01121965	2.08112013	1.0533
Violation of stockholders' rights except in case of main shareholders (5)	1.55890	2.337996	0.67591987	0.98885536	1	1.92533	1.06929
Lack of efficient educational places in fundamental analysis level (6)	0.53768	1.13153	0.37353	0.48050	0.51939	1	0.51079
Lack of suitable analyzer in market (7)	2.10529	2.27896	0.897696	0.9398	0.800155	1.95776	1
Sum	9.26197	14.494	4.74878	5.703983	5.67813	11.9907	5.739498

*Analysis by AHP approach, CI=0.01165, CR=0.0088

The results of Table 3 reveal that consistency ratio is within an acceptable limit of 0.1, which means we can rely on our findings. The results indicate that Shortage in providing transparent information in some firms is the most important factor, followed by Lack of suitable analyzer in market, Lack of professionals for capitalization consulting, Violation of stockholders' rights except in case of main stockholders. In addition, Lack of stock holding culture among common people, Lack of efficient educational places in fundamental analysis level and Lack of professional dealers in market are in the lower priorities.

Table 4

Determination of effective factors in cause problems in real section

Real investors problems	Effective factors in causing problem	Samples*	legal section*	real section*	AHP rank
Lack of suitable analyzer in market	Lack of analyzers' absolute commitment	15	19.91	84.61	0.387119
	Non application of financial management	14	48.86	66.25	0.280739
	Lack of agents' continues evaluation	14	19.90	66.21	0.180012
	Lack of scientific awareness in agents	14	22	81.36	0.152129
Lack of efficient educational places in fundamental analysis level	Government play down of monetary and financial market functions	17	14.41	59.99	0.44
	Lack of timely and proper budget allocation	17	36.98	60	0.133
	Lack of knowledge about Securities industry	14	45	85.21	0.426349
Violation of stockholders' rights except in case of main stockholders shareholders	Lack of proper legal structure	12	20.11	58	0.333
	Using power and take stock exchange control by a few of shareholders	12	16.16	59	0.667
Lack of professionals for capitalization consulting	Lack of investment development in securities	12	36.68	78.31	0.357
	lack of expert educational places for training	17	40	80	0.643
Shortage in providing transparent information in	Lack of proper legal structures	17	25.32	78.12	0.55789
	Lack of proper auditing structures	16	36.69	69.19	0.44211
Lack of professional dealers who experience market's fluctuations repeatedly	Deficiency of all stock exchange transactions	19	30.13	60.11	0.21401
	Inexperience dealers	21	18.89	84.14	0.16801
	Lack of investment incitement because of	15	17.68	83.13	0.61798
Lack of stock holding culture among common people	Lack of public training	18	39	59.91	0.33916
	Immaturity of investment industry	16	25.84	68.54	0.30534
	Minimizing stock exchange advantages	17	24.41	70	0.3555

*Effectiveness degree from 100, ** N=30

Table 5 shows details of the implementation of our AHP method for ranking various items associated with legal issues.

Table 5

The results of prioritizing legal issues

Priority	Factor	Weight	Effective factors in causing problem	Final weight	Priority
1	Existence of classified information in market	0.7704	Lack of defined academic courses relating capitalization consulting	0.698832	1
			Lack of equilibrium between industry and university	0.159348	2
			Immaturity of Security exchange	0.141821	3
2	Lack of derivative instruments in market	0.1386	Existence of records on derivative instruments in market and its substructures	0.6341	1
			Lack of cognition toward derivative instruments	0.363	2
3	Deficiency of investment consulting institutions	0.0910	Non application of capital market	0.652135	1
			Exclusiveness of stock market toward a few of share holders	0.19619	2
			Excessive demand of stock exchanges' managers	0.151675	3

Based on the results of the Table 4 and Table 5, we can summarize the following strategies for possible actions to reduce investors' problems summarized in Table 6. Borda is a well-known mathematical method for group decision making in evaluation and selection indexes in real-world problems and the proposed model of this paper uses this mathematical model for ranking barriers.

Table 6
Suggested strategies for decreasing stock exchange investors’ problems

Strategy	Rank
Promoting investment culture among common people via setting up educational boards	1
Carrying on expert and complementary educational programs	2
Increase stock exchange and agents’ proficiency and electronic equipment	3
Strict supervision on agents’ activities	4
Increase in quality of firms financial statement	5
Unchangeable investment market rules and bounding organization managers to flow them	6
Supervision on right execute of provisions to force firms to disclose information properly and restrict their secret bargaining	7
Focus on monetary and financial market functions in economy	8
Increase auditors’ proficiency	9
Bounding agents to have analyzing license	10
Using indirect investment guideline instead of direct investment	11
Offering derivative instruments in investment market	12
Development of common investment fund in counties	13
Agents continues evaluating	14
Using collective voting system	15
Timely and proper budget allocation	16
Analyzers’ absolute commitment and interest creating agents and	17
Investors’ training toward their rights	18

Ranking effective strategies to decrease real and legal problems using Borda approach (Hamidi et al., 2012) in real section are demonstrated in Eqs. (1-4) as follows,

$$(Borda Model) \max(Z) = \sum_{i=1}^{18} \sum_{t=1}^{18} q_{i,t} \cdot h_{i,t} \tag{1}$$

subject to

$$\sum_{i=1}^{18} h_{ij} = 1, \quad j = 1, \dots, 18 \tag{2}$$

$$\sum_{j=1}^{18} h_{ij} = 1, \quad i = 1, \dots, 18 \tag{3}$$

$$h_{ij} = (0, 1) \tag{4}$$

The proposed Borda model presented from Eq. (1) to Eq. (4) is a mixed integer programming, which could be solved for real and legal parts, separately. Table 7 demonstrates details of our findings.

Table 7
Selection Ranking Possible Strategy in real and legal section

	Real Section	Legal Section
Increase in quality of firms Financial Statement	1	3
Increase stock exchange and agents’ proficiency and electronic equipment	2	7
Unchangeable investment market rules and bounding organization managers to flow them	3	8
Strict supervision on agents’ activities	4	11
Promoting investment culture among common people via setting up educational boards	5	10
Carrying on expert and complementary educational programs	6	9
Government’s focus on monetary and financial market functions	7	13
Analyzers’ absolute commitment and interest creating agents and	8	14
Supervision on right execute of provisions to force firms on disclosing information properly and restrict their secret bargaining	9	1
Using collective voting system	10	17
Investors’ training toward their rights	11	4
Increase auditors’ proficiency	12	6
Bounding agents to have analyzing license	13	12
Agents continues evaluating	14	15
Offering derivative instruments in investment market	15	5
Using indirect investment guideline instead of direct investment	16	2
Development of common investment fund	17	16
Timely and proper budget allocation	18	18

As we can observe from the results of Table 7, in terms of real issues, Increase in quality of firms Financial Statement is number one priority followed by Increase stock exchange and agents' proficiency and electronic equipment, Unchangeable investment market rules and bounding organization managers to flow them and Strict supervision on agents' activities. In terms of legal issues, good supervision of provisions to force firms to reveal information correctly and restrict their secret bargaining is the most important factor followed by Using indirect investment guideline instead of direct investment, Increase in quality of firms' Financial Statement and Investors' training toward their rights.

6. Conclusion

In this paper, we have performed an empirical investigation to find important issues as barriers for investment in Tehran Stock Exchange. The study has categorized the issues into two groups of real-world and legal issues. Since there are different issues involved as major barriers, the study has implemented AHP to prioritize them. We have also extracted 18 important factors, which could influence investors' participation in Tehran Stock Exchange and using Borda method, we have prioritized them. The results of our survey have concluded that in terms of real issues, Increase in quality of firms Financial Statement is number one priority followed by Increase stock exchange and agents' proficiency and electronic equipment, Unchangeable investment market rules and bounding organization managers to flow them and Strict supervision on agents' activities. In terms of legal issues, good supervision of provisions to force firms to reveal information correctly and restrict their secret bargaining is the most important factor followed by Using indirect investment guideline instead of direct investment, Increase in quality of firms' Financial Statement and Investors' training toward their rights.

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