

# Application Multiple Attribute Group Decision Making in Evaluation and Selection problems Investors in Iran's stock exchange

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*Stock exchange investors confront numerous problems. These problems vary in legal and real points of view. Investors' problems assessment, effective factors on problems which separated to real and legal parts and prioritizing stock exchange investors' problems solving methods by using multi criterion decision making methods can aid managers of various stock exchange and investment fields. This research has identified factors significance rate by group AHP method and used figure methods for prioritizing the effective methods of problem solving. The results show that the most important problem of the investors in real section is lack of information explicitness in some firms and in the legal section is some private information in market.*

Key words; stock exchange, Group Decision Making, Borda Method

## 1. Introduction:

Establishing a coherent and efficient stock exchange market in the manner that preparing durable and internal economic growth; necessitate culturing, investment primary concepts training to investors, efficient adjustment and control framework and organizations that undertake investors and a just dealing with all capital suppliers. The adjustment and control framework must be explicit and fairs. and make confidence in investors that in addition to fairs, implement the game rules equivalently and effectively. Therefore capital market attendants favor to culturing and training basic concepts among the various addressees in different levels and investors' problem solving can prepare stock exchange progress procedure among different kinds of people. And this fact is interpreted as a factor to absorb more investors in stock exchange. It is obvious that necessary prerequisite miscellany for shaping of Iran stock exchange is not provided. So assessment necessity in this case and specially recognizing the investors' problems is very important. Thus investors' problems

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assessment in stock exchange is practiced in this survey. The researcher observed various problems on different cases during three month study in stock exchange and interview with expert investors that are as follow: lack of investment consultation institute, lack of appropriate analysis in market for actually and potentially stock holders, lack of derived tools in market, lack of efficiency training places at essential analysis level for investors, lack of information explicitness related to firms, existing some private information in the market, non-observance of the stock holders' rights except in front of principle stock holders in some firms.

Each one of these problems in turn is important in decision making situation and investors planning. Studying and solving the investors 'problems in stock exchange cause s the following issues:

- Increasing competition in the capital market and on the one hand access to complete information of stock exchange firms that causes timely investors 'reaction and thus to be usefulness of the capital market.
- If it is be in company with knowledge increase toward stock exchange, it would decrease investment risk and cause investors to invest their capitals in the capital market and stock exchange certainly, and these all occasion desired access to new capital, lower capital cost, higher stock price, and thus much interest for investors.

The following questions were set forth for this survey:

1-what are the investors 'problems in stock exchange? And how much is the effect coefficient of each problem in real and legal section?

2-what are the effective factors on causing difficulty in real and legal section? And how much is their effect coefficient in real and legal section?

3-how much is the problem significance and effective factors on causing difficulty in real and legal section?

4-what are the effective strategies on decreasing or solving investors 'problems in stock exchange?

5-in what order are effective strategies on decreasing and solving the problems in real and legal section?

## **2. Literature review:**

Pagano and Roel (1996) revealed that market explicitness Must decline informal dealers' payable costs toward formal agents. In addition Naik, Neuberger and Viswanathan (1999)

have developed a model in which with emphasizing on capital market clarification, we can improve the stock risks and decline stock applying costs. In this direction, Flood, Huisman, koedjick and Mahieu (1999) showed empirical evidences that clarifying before the transaction can decline differentiation between proposal prices and requesting prices. Most of theorist analyzers (Bessembinder, Max well, William) expect that lower market clarification may increase liquidity. In the past decade, most of the world stock exchange, enacted laws against the transactions depend on overt information. In many countries, penal laws against offenders were enacted. And then pursue the offenders. Bhattacharya (2001) in empirical survey around the transaction standards based on overt information showed that up to the year 1998, 100 percent of developed countries stock exchange and 80 percent of developing countries stock exchange have had laws which prohibit transaction rely on information. But what is important is the manner of implementing these laws. Although, according to Hazem Daouk and Upta Bhattacharya investigations (2001), of total 103 countries that have stock exchange, 87 laws enacted which inhibit transaction based on overt information. In 2005, Durnev and Nian accomplished a comprehensive investigation about usefulness laws around transactions depend upon overt information. The results show that restricting laws cause to decrease the transactions based on internal information. But, when information control is been wholesale stockholder monopoly, then the efficiency of transactions inhibiting laws based on overt information decrease. Also, the investigations that have been accomplished by Mahdi Elm-Al Hoda in 2007 reveal that the transactions based on overt information have been a good and destructive phenomenon and decline the capital market efficiency. Parviz Piri 'investigation results around investors training evaluation in provincial stock exchange in 2009 have showed that investors ' primary training array leads investors 'successfulness and therefore create confidence toward the capital market.

### **3. Research Methodology:**

This investigation is descriptive and gauging. Because it seeks for solving problems and we can use its results practically, it is counted as a functional investigation. Statistic 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), 30 people was selected as sample on satisfaction basis in comprisal section. 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 also people who was available for consecutive study and four period 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 section were determined by Likert scale factoring analysis. Third, pair comparisons were used. And problem solving strategies prioritizing was practiced via Borda mathematical method in the second section of the third stage.

#### 4. Survey findings after analysis data:

Current survey findings include types of information as follow. Determination of investors' problems in stock exchange on real and legal sections shown in table 1.

Table1. Definition investors' problems in stock exchange

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

\* Effectiveness degree From 100

Results showed in table.1 that all 10 problems were effective in real section. And Lack of derivative instruments in market, Inadequacy of capitalization consulting institutions and Existence of classified information in market were altogether effective in legal section. Determination of effective factors in cause problems and their influence coefficient on legal and real sections showed in tables 2 and 3.

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

Table 3. Determination of effective factors in cause problems in real section

Real investors problems	Effective factors in causing problem	Samples**	legal section*	real section*
Lack of suitable analyzer in market	Lack of analyzers' absolute commitment	15	19.91	84.61
	Non application of financial management	14	48.86	66.25
	Lack of agents' continues evaluation	14	19.90	66.21
	Lack of scientific awareness in agents	14	22	81,36
Lack of efficient educational places in fundamental analysis level	Play down of monetary and financial market functions	17	14.41	59.99
	Lack of timely and proper	17	36.98	60

	budget allocation			
	Lack of knowledge about Securities industry	14	45	85.21
Violation of stockholders' rights except in main stockholders	Lack of proper legal structure	12	20.11	58
	Using power and take stock exchange control by a few of shareholders	12	16.16	59
Deficiency of expert forces in capitalization consulting	Lack of investment development in securities exchange	12	36.68	78.31
	lack of expert educational places for training skilled forces	17	40	80
Deficiency of transparent information in some firms	Lack of proper legal structures	17	25.32	78.12
	Lack of proper auditing structures	16	36.69	69.19
Lack of professional dealers who experience market's fluctuations repeatedly	Deficiency of all stock exchange transactions	19	30.13	60.11
	Inexperience dealers	21	18.89	84.14
	Lack of investment incitement because of economy service nature	15	17.68	83.13
Lack of stock holding culture among common people	Lack of public training	18	39	59.91
	Immaturity of investment industry	16	25.84	68.54
	Minimizing stock exchange advantages	17	24.41	70

\*Effectiveness degree from 100, \*\* N=30

#### 4-1-determination of each problem weights in real section

One of the MADM methods is the hierarchy analysis process (AHP) which is applied to decide and select one option among several options regarding to indexes determined by decision maker in the following steps: Modeling, Preferential, judgment Relative weights calculation, create multiply pair comparison matrix, calculating the compatibility index and calculating the compatibility ratio. In this method related decision making elements hierarchy is became the question and the decision making objective. Decision elements include decision making index and decision options. In table 4 shown the comparison between various decision options accomplish base on pair comparison among indexes.

Table4. Preferential Matrix for each problem weights in real section

	Lack of stock holding culture	Lack of dealers	Deficiency of transparent information	Deficiency of expert forces	Violation of share holders rights	Violating suitable educational places	Lack of analyzing in market
Lack of stock holding culture among common people	1	2.83772	0.48141	0.61225186	0.64123028	1.85949172	0.47464
Lack of professional dealers	0.35223	1	0.385974	0.43145971	0.42767404	0.85360940	0.4158
Deficiency of transparent information in some firms	2.07588742	2.590475147	1	1.251033	1.2784	2.31348063	1.21553453
Deficiency of expert forces in capitalization consulting	1.63197	2.317667	0.93424	1	1.01121965	2.08112013	1.0533
Violation of stockholders' rights except in main stockholders	1.55890159	2.337995433	0.67591987	0.98885536	1	1.92532850	1.06928614
Lack of efficient educational places in fundamental analysis level	0.53767915	1.13153394	0.37353206	0.48050	0.51939188	1	0.51078620
Lack of suitable analyzer in market	2.105286	2.2789611	0.897696	0.9398	0.800155	1.95776	1
Sum	9.261961	14.49435	4.74878	5.703983	5.67813	11.9907	5.739498

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

Calculation of cohort comparison compatibility ratio reveals that its ratio is less than 0.1 which means good comparisons compatibility. This means comparison priorities are credible. The above table shows that Deficiency of transparent information in some firms have the

greatest weight so take the first priority and remaining are respectively : 2- Lack of suitable analyzer in market ,3-Deficiency of expert forces in capitalization consulting, 4- Violation of stockholders' rights except in main stockholders, 5- Lack of stock holding culture among common people, 6-Lack of efficient educational places in fundamental analysis level, 7-Lack of professional dealers in market. Determination of weights effective factors in cause problems on real sections shown in below tables (5-11):

Table5. Determination first Problem on real sections

Final weight	Effective factors in causing problem	priority
0.55789	Lack of proper legal structures	1
0.44211	Lack of proper auditing structures	2

Table6. Determination Second Problem on real sections

Final weight	Effective factors in causing problem	priority
0.387119	Lack of agents' absolute commitment	1
0.280739	Non application of financial management	2
0.180012	Lack of agents' continues evaluation	3
0.152129	Lack of scientific awareness in agents	4

Table7. Determination Third Problem on real sections

Final weight	Effective factors in causing problem	priority
0.64267	Lack of expert educational places for training skilled forces	1
0.35733	Lack of investment development in securities	2

Table8. Determination Fourth Problem on real sections

Final weight	Effective factors in causing problem	priority
0.666671	Using power and take stock exchange control by a few of shareholders	1
0.333329	Lack of proper legal structures	2

Table9. Determination Fifth Problem on real sections

Final weight	Effective factors in causing problem	priority
0.3555	Minimizing stock exchange advantages	1
0.33916	Lack of public training	2
0.30534	Immaturity of this industry	3

Table10. Determination Sixth Problem on real sections

Final weight	Effective factors in causing problem	priority
0.439815	Government Play down toward monetary and financial market functions	1
0.426349	Lack of knowledge about Securities industry	2
0.133835	Lack of timely and proper budget allocation	3

Table11. Determination Seventh Problem on real sections

Final weight	Effective factors in causing problem	priority
0.61798	Lack of investment incitement because of economy service nature	1
0.21401	Deficiency of all stock exchange transactions	2
0.16801	Inexperience dealers	3

#### 4-2- Determination of weights effective factors in cause problems on legal sections:

According evaluation and selection problems Investors in real sections by used AHP method. We determined of weights effective factors in cause problems on legal sections. Table 12 shown main factor, Effective factors in causing problem and Priority of problem.

Table 12. Determination of weights effective factors in cause problems on legal sections

Priority	Factor	Final weight	Effective factors in causing problem	Final weight	Priority
1	Existence of classified information in market	0.770368	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	0.138618	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	0.091014	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

**5-Suggest Strategy for decrease stock exchange investors' problems:**

For determining effective guidelines to decrease or resolve stock exchange investors' problems, 18 strategy ( table 13) were gathered by an interview with stock exchange experts on stock exchange investigators problems.

Table 13. Suggest Strategy for decrease 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 equipments	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 reveal information correctly 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

Borda mathematical is best method for group decision making in evaluation and selection indexes in real models. Ranking effective strategy to decrease real problems using borda approach in real section will be shown in equation 1-4, and legal section in equation 5-7 :

$$Max (Z_{real}) = \sum_{i=1}^{18} \sum_{t=1}^{18} q_{i.t} . h_{i.t} \quad (1)$$

S.T :

$$\sum_{i=1}^{18} h_{ij} = 1, \quad , t = 1, \dots, 18 \quad (2)$$

$$\sum_{t=1}^{18} h_{ij} = 1, \quad , i = 1, \dots, 18 \quad (3)$$

$$h_{i.t} = \begin{cases} 1 \\ 0 \end{cases} \quad (4)$$

$$Max (Z_{legal}) = \sum_{i=1}^{18} \sum_{t=1}^{18} P_{i.t} . h_{i.t} \quad (5)$$

S.T :

$$\sum_{i=1}^{18} h_{ij} = 1, \quad , t = 1, \dots, 18 \quad (6)$$

$$\sum_{t=1}^{18} h_{ij} = 1, \quad , i = 1, \dots, 18 \quad (7)$$

$$h_{i.t} = \begin{cases} 1 \\ 0 \end{cases} \quad (8)$$

So result with resolving this function via LINGO software we have in table 14.

Table 14. Selection Ranking Possible Strategy in real and legal section

Possible Strategy	Selection Ranking	
	Real Section	Legal Section
increase in quality of firms Financial Statement	1	3
Increase stock exchange and agents' proficiency and electronic equipments	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	5	10

via setting up educational boards		
Carrying on expert and complementary educational programs	6	9
Government's Focus on monetary and financial market functions	7	13
analysts' absolute commitment and interest creating agents and	8	14
Supervision on right execute of provisions to force firms to reveal information correctly 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 in counties	17	16
timely and proper budget allocation	18	18

## 6. Conclusion:

Results reveal that Deficiency of transparent information in some firms is the most important problem of stock exchange investors. Transparent information brings up informational applicability as the most important element in market decision making. And activists' rights defined by reaching this goal. And again Existence of classified information in market is investors' most important problem. Lack of derivative instruments and Inadequacy of capitalization consulting institutions are next priorities, respectively .propagating classified information can affect investors' decisions and whom have not accesses to this information will be damaged. Lack of efficiency in capital market is the most effective factor in Existence of classified information in market. Exclusiveness of stock market by a few of shareholders and excessive demand of stock exchanges' managers are next priorities, respectively. If enough information exists in the market and reflects quick and in time on prices then efficiency in capital market will be feasible . the most effective factors on Deficiency of

transparent information are Lack of proper legal structures and Lack of proper auditing structures , respectively. for instance , stock exchange regulations is the only supervisor at firms registration phase and in principal hasn't any supervision on common stock company after public offer and investors and insignificant share holders' support .the most effective guidelines to decrease/resolve stock exchange investors' problems in real section is increase in quality of firms Financial Statements. Increase in quality of firms Financial Statements can increase their confidence toward firm's financial information. The most effective guidelines to decrease/resolve stock exchange investors' problems in legal section is Supervision on right execute of provisions to force firms to reveal information correctly and restrict their secret bargaining.

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