



The influence of culture on investors' financial decision-making styles and unplanned decisions to avoid uncertainty, power distance

Hamed falamarzi

PhD Student of Accounting Department of Accounting, sirjan Branch, Islamic Azad University, sirjan, Iran
hamed.falamarzi2013@gmail.com

Zadallah Fathi

Associate Professor of Accounting Department of Accounting, Tehran Branch, Islamic Azad University, Tehran, Iran
z_fathi46@yahoo.com

Hossein Shafie

Associate Professor of Accounting Department of Accounting, sirjan Branch, Islamic Azad University, sirjan, Iran
Email: hossein.shafii@gmail.com

Submit: 26/06/2021 Accept: 13/07/2021

ABSTRACT

Currently, any organization's effectiveness depends not only on the organization's technological efficiency but also on the management's broad perspective towards decision making. It is more important to know that a manager has a significant task of decision-making in any organization and accordingly, any organization can be successful and or not. In this study, the researcher uses Hofstede's view to find an answer to how culture influences Financial decision-making styles and unplanned decisions. We used an exploratory data mining method in this research in order to examine the cultural dimensions of Hofstede and its relationship with four decision-making styles. We have used SOM software to analyze collected data, the possibility of using survey data, and realizing four alternative clusters applying the self-organizing network clustering method among stock exchange investors indicated the difference in cultural evaluation. Analyzing four different clusters explained that the effects of decision-making styles were different.

Keywords:

Investor decision-making style, Hofstede cultural framework, unplanned decisions

1. Introduction

Currently, investors have highly considered numerous issues and it becomes impossible to control environmental issues due to the development and growing complexity of decision-making criteria, continuous technological advancement, increasing volume of activities, lack of resources, increasing competition, and the existence of various risks threatening personal monetary objectives and policies (Saltana, 2010). For this end, it is essential to have an effective typological framework as an integral part of the decision-making system. Typology of dimensions related to the framework of the individuals' decision-making culture is a dynamic system that comprises various kinds of risks and deviations from policies and procedures. Evaluating and designing decision-making typology have vital components. Real investors are required to recognize sufficiently the decision-making styles, decision-making space, and cultural decision-making environment (Pop et al., 2012). In fact, it is possible to evaluate real investors' decisions by designing a cultural typology framework. We discuss common weaknesses and explain them in the individual's decision to invest and its effects and the weaknesses of the decision. Each of the individual's activities is related to the decision-making issue. Decision-making is the most challenging task related to an individual and this task will become even more difficult if people go beyond national borders and cultures and this happens because people with different cultures have different perceptions of the same issues. It is possible that a decision or decision-making process that is effective in one culture to be not effective in another culture (Lee et al., 2008). Consequently, it is required that individuals, particularly investors to have sufficient knowledge and understanding of the target culture in the field of global competition and attempt to understand them. But what is culture? Anthropologists and sociologists have defined culture as a lifestyle that has been created by a group of people and transferred from one generation to the next generation. Social institutions such as the family, education, religion, government, and business develop culture during the time. Culture includes conscious, unconscious values, ideas, attitudes, and symbols that form human behavior and are transferred from one generation to the next generation. Accordingly, culture does not include the innate and instinctive responses related to individuals

and does not include solutions to solve unique problems. Also, the culture does not include temporary fashions and interests but is transferred from one generation to the next one. It is essential to state that it is possible that society to have multiple subcultures that require investors to make decisions in that special culture. It is highly significant to recognize cultural factors and currently, it is considered the code of success in the field of competition, and it is required to act globally. Accordingly, it is inevitable to understand the differences between cultures in a global system and make decisions according to that culture. Accordingly, the researcher tries to find a solution to explain the way that culture affects decision-making styles and unplanned decisions in this research that accordingly, we apply current research and studies to examine and analyze the relationship between cultural factors (avoiding uncertainty, power distance).

Theoretical foundations of research

It is possible to form some differences and inconsistencies in the expression of values. It is natural to happen value conflicts among cultures and it is normal that people in society, consciously or unconsciously approve only their own cultural values and criteria, and accordingly, evaluate the values of other cultures, and it is fundamental that confirm only values of their environment and recognize other values as invalid or at least unusual (Luthans, 1985). Managers in cultures that believe in "dominating destiny," observe most situations as issues that should be solved and they try to improve through change. On the other hand, managers tend to accept situations as they are and do not attempt a change in societies that believe in the philosophy of determinism. Decision-makers accurately evaluate various solutions before making a final decision in some cultures. Decision-makers use a step-by-step or gradual approach in other cultures. Also, people in some cultures take more risks compared to people in other cultures. For example, it is possible that decision-makers in cultures with a higher risk-taking ability prefer a riskier method such as production abroad (Rodriggers, 2001). Culture plays a highly pervasive role in human activities. Culture significantly affects social behavior related to economics, politics, and affairs related to society. Consequently, culture is an acquired behavior caused by human activities. Since culture has such an instrumental effect on social activities, it is required to

understand obviously the nature of culture and the way it influences such activities (Jabbarzadeh, 2010). Hofstede believes that culture is the common thought of members of a group or class that separates them from other groups, and subsequently, culture is defined as a set of models of social behavior, arts, beliefs, customs, and other human products and intellectual features of a society or a nation (Zarei, 2007).

Power distance

Hofstede believes that the power distance index is a measure that determines the differences in distributing power among individuals in society and reflects the degree of inequality in distributing power according to the weak individuals' perspective in organizations. Subordinates are extremely dependent on their superiors in places with high power distance (Hofstede, 1983).

Avoiding uncertainty about the future

It is a measure that indicates the level of an individual's anxiety and concern in a society or organization on future unpredictable and unknown situations. Avoiding uncertainty and ambiguity implies that people in society are interested in reducing ambiguities and uncertainties (Hofstede, 1983).

The influence of culture on decision making

Culture is a system of common beliefs and includes the visible symbols, norms, values, and beliefs available in a society (Shine, 1992). People understand culture as an interactive set of common features that influence a group's reaction to its environment (Hofstede, 1980) and features are different from one group to the next group, hence, possibly, individuals with different cultures have different preferences for a particular state of affairs, specific social processes (Tessie, 1988). Consequently, individuals with different cultures observe conditions differently and react individually to them. It is possible to see some things reasonable in a culture and that issue may be considered irrational in another culture, and vice versa.

Making decisions on investment

The issue of decision-making was one of the problems to purchase and sell optimal stocks that investment experts and investors have considered during the years.

Currently, it is required to have the expertise, knowledge, and experience for financial market shareholders, especially investors in a competitive market. Investors try to make the best possible choices by observing the criteria that are effective in the investment decision and considering their personal preferences and minimize the risk for a certain return and also include their preferences to some extent such as the degree of risk aversion (Hagen, 2001).

Examining the decision-making behavior in Iran

It is possible that decision-making in Iran to be considered a function of the qualities of Iranian national culture. Hofstede (1980) has conducted the most comprehensive comparative study on the cultural features of Iranian people.

Power Distance Index in Iran

Conducted studies indicate that Iran has a power index of 58 and is in the class of countries with a high-power distance index. Consequently, it is predicted that decision-making behavior in Iran will be powerful and patriarchal. In this culture:

- Managers make decisions powerfully and patriarchally.
- Subordinates are more satisfied with dominants who are authoritative and persuasive.
- Managers like to regard themselves generous and philanthropic decision-makers.
- Employees are scared to oppose their boss (Hofstede, 1980; translated by Movahedi 2004: 99).

Index of avoiding uncertainty in Iran

The index of avoiding uncertainty is 59 in Iran and based on the calculated average of the ambiguity aversion index of 39 countries in the world, which is equal to 64, Iran is one of the countries with a low index of avoiding uncertainty. Table 1 shows that according to (Hofstede and Bond, 1988) if ambiguity aversion is low in the culture, decision-making behavior will be participatory.

Hofstede realized that societies with medium to strong rank in terms of ambiguity aversion feel difficult in situations of uncertainty and ambiguity and prefer to be organized and orientated by their superiors (because

another person accepts the ambiguity involved in decision making, it can be possible that these subordinates prefer authoritative decision-making behavior). Conversely, in societies with low ambiguity aversion, they demand high independence of action and low structuring due to their tolerance of ambiguity. Consequently, they prefer participatory decision-making behavior (Rodriggers, 2001: 349). Hofstede regards the features of organizational behavior in such a culture as follows:

- Managers have less business orientation and are less flexible in their management style.
- Managers tend more to make individual and risky decisions.
- Organizational employees are more ambitious (Hofstede, 1980; translated by Movahedi 2004: 100).

According to Meson De Bravo, decision-making styles are classified as follows:

**** Directive:** A person who has a directive decision-making style has little flexibility in experiencing ambiguity and complexity, and relies on technical issues and law in decision-making. This decision-making style is more magisterial and needs high power by individuals because limited information is considered in this decision-making style and few options and solutions are created, these people typically made quick decisions and satisfactory solutions. In general, these people prefer structure and are interested in administering specific issues and objectives. They are more interested in internal organizational issues and short-term issues, although they are effective but require security and stability, they stress achieving results and objectives and also want to dominate others (Mirsepasi and Danaei, 2006).

**** Analytical:** A person with an analytical decision-making style is more flexible in experiencing ambiguity and uncertainty than a person with a directive decision-making style, and this complexity resulted in higher cognition and these people examine more information and create more solutions. People with an analytical decision-making style concentrate on technical decisions and need more to control, therefore, it is possible to state that these people are also autocratic with little indifference (Mirsepasi and Danaei, 2006).

Conceptual: A person with a conceptual decision-making style pays attention to both employees' human

relationships and emotional requirements and has a higher cognitive complexity to tolerate ambiguity that enables him/her to collect information from many different sources and considers many solutions. It is possible to observe good relationships between subordinates and managers in this style of decision-making. The people in this group are idealistic and ethical oriented and values are significant to them. These people are generally creative and can understand complicated relationships. They emphasize long-term and high organizational commitment (Mirsepasi and Danaei, 2006).

Behavioral: People with behavioral style obtain low scores on the cognitive complexity, but are greatly interested in the organization and its human resource development. This issue makes them highly sensitive, accountable, and supportive in dealing with employees of the organization, they create a warm and friendly consulting atmosphere in the organization that accepts people's suggestions and encourages simple communication. Empathy, cooperation, encouragement, and compromise are more significant in these organizations and they accept less control. These people get limited information as input; hence, they pay more attention to the short term and utilize meetings to communicate. These people avoid conflict and treat people really humanistly (Mirsepasi and Danaei, 2006).

Research background

Farnbacher et al. (2018) conducted a study entitled "The influence of culture and cultural framework on investment decisions" and showed that cultural studies in business and economic research is still limited to specific cultures. This paper aims to investigate the issue of emphasizing commitment and cultural framework in a new cultural environment in Germany and Vietnam. They realized that Vietnamese participants were highly willing to invest supplementary resources and approved that information with a negative framework increases commitments.

Bracha et al. (2014) conducted a study entitled "The influence of culture on the investment frequency of institutional investors" and studied and compared the influence of intercultural differences on the investment frequency of institutional investors at the national level for several countries. They discovered that there is less frequency of the cultural gap/distance

between investors and increasing the assets of institutional shareholders of commercial enterprises.

Adapa (2008) conducted a study and examined the relationship between financial decision-making behavior, cultural considerations in India and Australia, and the tendency of financial decision-making with Hofstede's cultural dimensions. The results revealed that there is an inverse relationship between the variables of individualism and long-term tendency with risky financial decision-making in India and there is a direct relationship between power distance and ambiguity aversion and masculinity/androphilia and financial decision making. Whereas there is a direct relationship between the variables of individualism, long-term tendency, and masculinity in Australia, and there is an inverse relationship between distance power and ambiguity aversion and risky financial decision making and returns.

Godivagal (2009) highlights the role of culture in e-commerce, the roles of trust, ambiguity aversion, having information about financial issues, and reputation as effective factors in the perception of the target group for financial decision making in a research.

Triaton et al. (2017) conducted a study entitled "Big data, analytical culture, and evidence related to analytical decision making in Australia" and indicated that how managerial decision-making is affected by big data analytically and in terms of analytical culture. The results obtained by a cross-sectional survey on (163 people) of senior IT managers confirm that analyzing big data motivates managers to make their decisions mostly based on analytical insights.

Abbasi Rikani and Imani Brandagh (2017) have conducted a study entitled "Examining the relationship between culture and decision-making behavior of stock buying and selling in selected regional stock exchanges in Iran" with a sample of 100 shareholders for the period of 2014. The results revealed that there is a relationship between the culture and behavioral theories accepted by shareholders in their decisions to purchase and sell stocks.

Vaseghi et al. (2016) conducted a study entitled "Examining the relationship between organizational culture and decision-making styles related to managers in government offices in Ardabil city" and the statistical population of this study includes 285 managers of government offices in Ardabil. The

research results indicated that a significant relationship was observed between organizational culture and its components (participatory culture, adaptation culture, compatibility culture, and mission culture) and managers' decision-making styles.

Mirsepasi and Danaeifard (2006) examined the relationship between organizational culture and decision-making style and providing an optimal model". Studies conducted on 61 organizations in Khorasan Razavi province indicate the relationship between different decision-making styles (directive, analytical, behavioral, and conceptual), different organizational cultures (task-oriented, power-oriented, support-oriented, and success-oriented), and organizational performance.

Akbari and Zadeh Nasir (2013) conducted a study entitled "The relationship between national culture and strategic decision-making to internationalize companies" have collected and analyzed the dimensions of the strategic decision-making process in previous research. Also, they examined definitions and concepts related to multinational companies and reviewed the dimensions of the internationalization process of these companies, and finally, they examine the relationship between the dimensions of national culture and the strategic decision-making process for internationalization. Examining past studies indicates that there is a relationship between the dimensions of culture and the strategic decision-making process and they are intertwined.

Research questions

This study tries to answer the following questions after studying the theoretical foundations and background:

- 1) How is the influence of culture on Investment financial decision-making styles and unplanned decisions?
- 2) What is the relationship between cultural factors and investment financial decision-making styles?

Statistical population and statistical sample

Active investors in Tehran Stock Exchange include the statistical population of this research. The research sample is randomly selected by referring to the stock exchange hall on different days which are investors

related to financial and investment issues. The mean test is performed between the two variables (based on the research framework) using SPSS software according to the normality of the data. There is an unknown size of the statistical population of this study at the beginning due to the large number of companies in Iran. Accordingly, we calculate the number of statistical samples based on the following formula:

$$n = ((Z^2_{\alpha/2} \times S^2) / d)$$

The most significant parameter that requires to be estimated in this formula is S^2 , which is the variance of the prototype. The value of $2\alpha / 2 Z$ is a constant value that depends on the confidence interval and the error level (α). The value of d is considered based on the same error level or equal to 0.05.

Research methodology

This research is applied in terms of the objective and descriptive survey in terms of method. This research is used due to objective and is descriptive in terms of the method and is cross-sectional research considering the time factor. This research is a branch of quasi-experimental research and post-event research. A library study has been utilized in this research in order to study the texts and literature of the research, and a questionnaire has been applied to collect information and extract data. The research questionnaire has been set based on a five-point Likert scale. This scale includes five parts: very low, low, partial, high, and very high. Excel 2013 and Viscosity Somine software were used to analyze data. We use the self-organizing network algorithm (SOM) to cluster the components of the internal control structure in this study that reveal a specific level of internal control efficiency. We used Viscosity SOMine software to run the self-organizing network algorithm. We clustered using self-organizing network algorithm of clustered cultural scoring maps in this study, after collecting completed questionnaires related to cultural dimensions, and we used two indicators of Hofstede Cultural Dimensions questionnaire, including avoiding uncertainty and power distance and then four types of decision-making styles, including 1) directive decision-making style; 2) analytical decision-making style; 3) conceptual decision-making style; 4) behavioral decision-making style to relate to the map. In other words, we first clustered the types of cultures of stock market

investors, and then examined four decision-making styles with clusters of effects.

Research variables

Independent variable:

Cultural Dimensions: Hofstede (1980) Cultural Dimensions Questionnaire with 11 items is applied in order to measure the cultural dimensions that aims mainly to examine the dimensions of cultural attitudes (avoiding uncertainty and power distance).

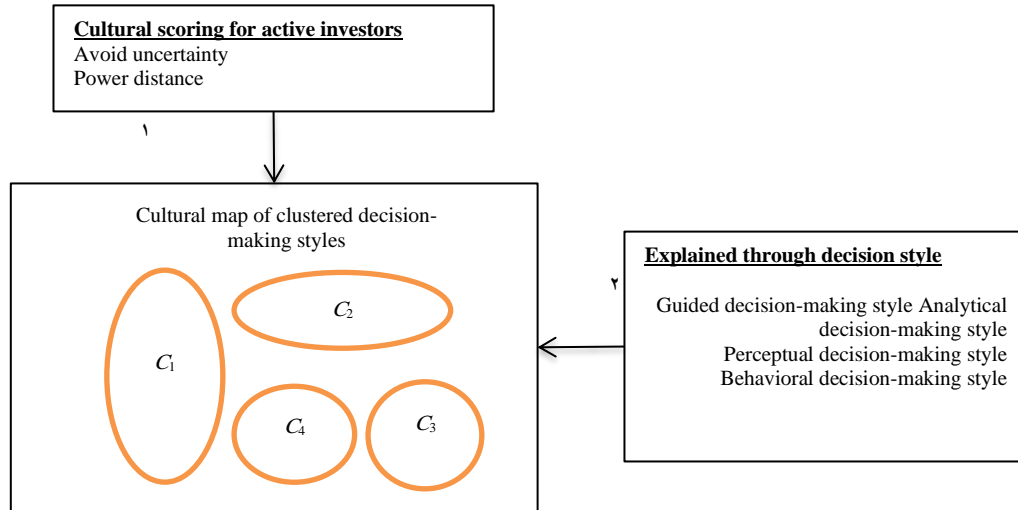
Dependent variable:

Decision-making style: Raw and Manson Decision Making Investment Analysis Questionnaire (1987) including 18 questions and 4 dimensions is used to measure the investors' decision style.

Research Findings

The final learned map (Figure 2) distinguishes two different groups (or clusters) on the stock exchange based on their decision-making style, which means that we could find four different clusters with different investment decision-making models using the identified clusters in our network. Using visual designs enabled us to identify the features of each cluster of stock exchange investors in more detail. These visual designs determine the approximate features of the variables in each specific field of the map that is specified using a color shade that high values are highlighted in dark colors and low values are highlighted in light colors. The methodological framework is shown in Figure 1. This figure shows that the cultural scoring maps clustered first (1) using the indicators of the Cultural Dimensions Questionnaire include: 1) Avoid uncertainty and 2) Power distance trained and then (2) Four types of decision-making styles include: 1) guided decision-making style; 2) analytical decision-making style; 3) perceptual decision-making style; and 4) behavioral decision-making style are related to the map. In other words, we first clustered the different cultures of stock market investors, and then examined four decision-making styles with impact clusters. In this way we were able to freely examine our own network of ten to identify different forms or combinations of effectiveness, and Then we examine the internal control structures separately, thus identifying the cultural structures that underlie a particular level of decision-making.

Figure 1, the framework of clustering methodology of cultural components and decision-making style

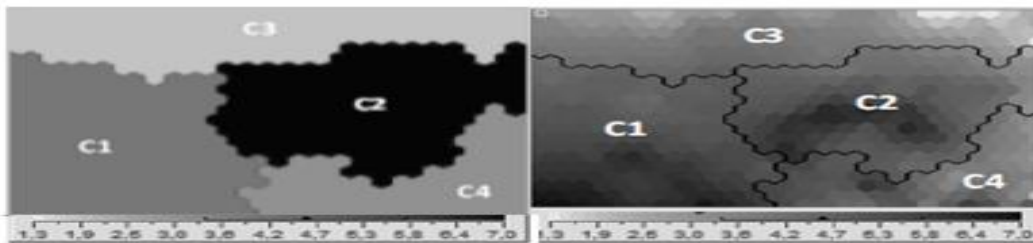


Source: Researcher's Findings

Figure (2) Features of the map related to the two learned variables from avoiding uncertainty and power distance.

We used a one-way analysis of variance in order to validate the model clustering. The difference at the level of 0.000 was significant for all clusters. Tukey

HSD test revealed that there were significant differences between the variables in all four clusters. Consequently, it is possible to conclude that the clusters are definitely distinct from each other and are also internal, hence, the clustering of the map is confirmed.



Source: Researcher's Findings

Cronbach's alpha was calculated in this study after organizing a questionnaire to guarantee the reliability of the indices in the two preliminary and final stages that the average reliability or trust of the indices has been achieved 83% using Cronbach's alpha coefficient. A Cronbach's alpha value of higher than 70% for each scale indicates that the items on that scale have been measured with high accuracy.

We used various methods to calculate the reliability coefficient, including re-implementation (retest method), parallel method (counterpart), bisection method (halving the questionnaire questions

and calculating the correlation of scores between the two categories), and the Kuder-Richardson method. The reliability of the questionnaire can be measured using SPSS software and Cronbach's alpha test with the following formula and the close percentage to 100% shows that questionnaire is more reliable.

Table 1: Cronbach's Alpha

Reliability coefficient	Dimensions	Variable
۰/۸۴۷	avoidance of uncertainty	Culture
۰/۸۳۳	Power distance	
0/739	Guided decision-making style	Decision-making style
0/834	Analytical decision-making style	
0/912	Perceptual decision-making style	
0/733	Behavioral decision-making style	

Source: Researcher's Findings

Cluster Description and Analysis

In Table 3, we can assess the data specifications in a cluster applying data due to the outside of training process. For instance, following table indicates that investors placed in cluster 3 are poorly known. Thus, perceptual decision-making style due to avoidance of uncertainty can be investigated. On the other hand, investors located in cluster 1 have evaluated the power gap in a high degree, indicating that investors are satisfied with the behavioral decision-making style. It also shows the difference in variables of each cluster from the average. The higher the data in a cluster, the more scattering it indicates. For instance, in cluster 4, the component represents a considerably lower power distance than the average of other clusters.

Table 2: Descriptive statistics of Kozo framework variables

Max	Min	Standard deviation	Average	Number	Cluster	Variable
5	3	0.37	4.6	58	C1	avoidance of uncertainty
5	3	0.54	4.1	43	C2	
5	3	0.46	4.2	50	C3	
4	1	0.68	2.9	30	C4	
5	1	0.76	4.1	180	Total	
5	3	0.49	4.0	58	C1	Power distance
5	2	0.62	3.5	43	C2	
3	1	0.61	2.4	50	C3	
5	1	0.72	3.1	30	C4	
5	1	0.87	3.3	180	Total	

Source: Researcher's Findings

Table 3: Descriptive grading of cultural dimensions

Power distance	avoidance of uncertainty	Cluster
high	high	C1
low	Average	C2
Average	Average	C3
Average	low	C4

Source: Researcher's Findings

A one-way variance analysis test indicated that the distances among clusters at the level of 0.000 were statistically significant. After TUKEY's HSD test, we

found that cultural dimensions' values in cluster 1 were statistically significant. Table 4 shows it.

Table 4: Descriptive statistics of indicators related to each cluster

Maximum	Minimum	Standard deviation	Average	Number	Cluster	Variable
5	1	0.57	4.09	58	C1	Guided decision-making style
5	1	0.61	3.79	43	C2	
5	1	0.71	3.59	50	C3	
5	2	0.68	3.64	30	C4	
5	1	0.67	3.81	180	Total	

5	2	0.75	3.64	58	C1	Analytical decision-making style
5	1	0.83	3.34	43	C2	
5	1	0.84	3.14	50	C3	
5	1	0.81	3.30	30	C4	
5	1	0.83	3.37	180	Total	
5	2	0.56	3.72	58	C1	Perceptual decision-making style
5	2	0.66	3.36	43	C2	
5	1	0.73	3.19	50	C3	
5	1	0.69	3.31	30	C4	
5	1	0.69	3.42	180	Total	
5	2	0.50	3.85	58	C1	Behavioral decision-making style
5	1	0.62	3.38	43	C2	
5	2	0.63	3.26	50	C3	
5	2	0.64	3.39	30	C4	
5	1	0.64	3.50	180	Total	

Source: Researcher's Findings

Descriptive statistics of indicators related to every cluster

Analysis in Table 5 revealed that cluster 2 was higher than cluster 3 values in perceptual decision making style, behavioral decision making style, analytical decision making style and guided decision making style .

Four groups of decision-making styles can be distinguished from each other:

- 1) The highest correlation between guiding decision making and avoidance of uncertainty (38%)
- 2) Avoid low uncertainty in analytical decision making style (10%);

Table 5 indicates a strong correlation in effectiveness between cultural dimensions

	UN	PD	LD	AN	PC	BH
UN	1	0.227	0.343	0.154	0.169	0.159
PD	0.331	1	0.144	0.124	0.198	0.155
LD	0.384	0.106	1	0.075	0.102	0.11
AN	0.102	0.131	0.208	1	0.08	0.144
PC	0.187	0.159	0.124	0.134	1	0.192
BH	0.289	0.158	0.166	0.186	0.182	1

Source: Researcher's Findings

Table Number 7: Symbol of Variables

UN	Uncertainty Avoidance
PD	Power Distance
LD	Leading Decision making Style
AN	Analytical Decision making Style
PC	Perceptual Decision making Style
BH	Behavioral Decision making Style

Source: Researcher's Findings

Conclusion and Discussion

The validity of the decision-making process as a version of decision-making behavior is affected by culture. Culture is defined as an interactive collection of usual characteristics which affect a group's reaction to its environment. Because the features vary from

group to group, so people in various cultures probably have multiple preferences than a special state of affairs, certain social processes, general rules for selective attention, interpretation and interpretation of environmental signs and reactions. Hence, people in various cultures see things differently and react

differently to things. What appears rational in one culture may be regarded irrational in other, and vice versa. Decision makers in some cultures rely on first-hand facts and data as decision bases. Besides, unplanned method to decision making can be applied in these cultures. At the same time, in many cultures, decision makers do not attach much significance to real data and information, and instead emphasize their inner talents as the basis for decision-making. Because decision makers in these cultures emphasize on intuition, the title is not receptive to the unplanned decision-making process. Ellerner (1981) notes that belief in just judgment is influenced by one's culture and indirectly in individual reactions to events (specific events are showed in these cultures, a sense of personality can influence decision-making processes. In common, these models turn to propose various typology of decision making styles. Some research also indicate that the tendency towards a special gender (male and female) proposes multiple views on fair and unfair decision-making. Since decision-making in collectivist societies generally needs group consensus, it takes a long time. In some cultures, decision makers carefully assess various solutions before making final choices. In other cultures, decision makers apply a step-by-step or gradual method, they discuss solutions in a pre-planned sequence, and make decisions in parallel with the passage of time. Moreover, in some cultures, people accept more risks than others. For instance, in deciding the strategy of entering a foreign market, decision makers in cultures that are less risky may choose the export method that is less risky. Decision makers in cultures with higher risk-taking may select a more risky method such as production abroad. The possibility of applying survey data and discovering four alternative clusters utilizing clustering method of self-organization networks among stock exchange investors indicated the difference in cultural evaluation. Analysis of four different clusters revealed that the impacts of decision-making styles are different. Analysis of clusters proposes that one cultural dimension may be at a high level of cultural score (such as maleism versus femurism) while another dimension can have less effectiveness (e.g. power distance). In addition to evaluating cultural dimensions (Pop and Speckle, 2012), the researchers' results indicate that cultural dimensions and decision-making styles have a more comprehensive concept

than a one-dimensional phenomenon. We found that those investors who had the most effective cultural component scored the most in four decision-making styles. However, the four lowest values in Cluster 3 showed that maleism was the lowest against femurism, but collectivism was too average against individualism and avoidance of uncertainty. This finding indicates that the components are related to each other and are consistent with the results of Kalam and Watson (2009). In summary, the findings indicate that the relationship between four decision-making styles and cultural dimensions is not desirable and expected.

Cluster 1: The highest avoidance of uncertainty, the guiding decision-making style is located in cluster 1. Avoiding uncertainty of decision making styles and its components is very high compared to other clusters. This cluster indicates that there is a decision making style for the theoretical framework of 4 components in this cluster.

Cluster 2: In cluster 2C, the mean values in the dimension of avoidance of uncertainty and especially the power distance are low. Besides, decision styles in this cluster are also below average, especially for perceptual decision-making styles. The characteristics of cluster 2C raise the question of whether decision styles can really be analyzed in this cluster.

Cluster 3: Avoid uncertainty of the features of this cluster. The profile of cluster 3C is reflective, as avoidance of uncertainty is low. The values of decision styles in this cluster are far below average, so in terms of decision styles, this cluster is the weakest. Thus, overall effectiveness is still better than cluster 4C. The profile of cluster 3C raises the question of whether low scores in decision-making styles affect cultural dimensions.

Cluster 4: The lowest overall effectiveness in decision making styles is due to cluster 4C. Regarding cultural dimensions, it is the weakest cluster. Especially in terms of power distance and avoidance of uncertainty is much lower than average. The values of decision styles are also weak. In general, cluster 4C is the smallest cluster, this cluster acts within the framework of decision-making styles.

Based on the finding provided in this research, the suggested items in order to promote planning for predicting investors' decisions are as follows:

- The results showed that clustering method improves the prediction of decision making styles based on cultural characteristics,

financial managers, consultants and stock marketers are recommended to use clustering method in order to better predict investors' decision-making behavior, because the findings suggest that clustering method enhances the predictive structure of decision-making styles. The basis becomes cultural characteristics.

- The results also indicated that among the components of clustering approach, analytical and process decision making styles had the highest score, so analysts are advised to pay more attention to these two decision styles.

Suggestions for future research

Sankhology enables analysts to enhance the effectiveness of predicting investors' behavior. According to the findings of typology, Tehran Stock Exchange should more complexly assess the predictive structure and analysis of investors' behavior and effectively control the obstacles. Assessment of investors' decision making styles can be applied to form a classification and analysis strategy. We encourage stock exchange management to concentrate on the presented findings and work to improve the efficiency of internal analysis in its subsidiaries. Experts can also apply the results to connect with investors on financial advice issues.

References

- a. Akbari, Mahnaz and Zahrazadeh Nasir, 2013, The Relationship between National Culture and Strategic Decision Making in Internationalization of Companies, 2nd International Conference on Management, Entrepreneurship and Economic Development, Qom, Payame Noor University.
- b. Amani Sari Begloo, Javad, GholamAli Lavasani, Masoud, Ejei, Javad, Khezri Azar, Heyman (2011) "The Relationship between Cultural Values and Individual Variables with the Amount of Computer Use in Students", Behavioral Sciences Magazine, Vol. 5, No. 1, pp. 1-10
- c. Abbasi Rikani, Mahsa, and Mohammad Imani Brandagh, 2017, investigating the relationship between culture and decision-making behavior of buying and selling stocks in selected regional stock exchanges in Iran, 2nd International Congress on Humanities, Cultural Studies, Tehran, Center for The Empowerment of Cultural and Social Skills of Society.
- d. Mearspasi. Nasser, Danai Fred, Hassan. (2006). Investigating the relationship between organizational culture and decision-making style and providing an optimal model, futures studies of management, (Pippy 68), Spring 2006 No. 1, pp. 23-46.
- e. Vaseghi, Ali, Samad Jabbari Asl and Masoud Emaminejad, 2016, Investigating the relationship between organizational culture and decision-making styles of managers of ardebil city government departments, 3rd Scientific-Research Conference on New Findings of Management Sciences, Entrepreneurship and Education of Iran, Tehran, Association for the Development and Promotion of Fundamental Sciences and Technologies.
- 2) -Adapa, S. Y. "Adoption of Internet Shopping: Cultural Considerations in India and Australia". Journal of Internet Banking and Commerce, ۱۲(۲,)۳۵۱-۳۶۶.
- 3) -Arciniegas, I., Daniel, B. and Embrechts, M.J. (2001), "Exploring financial crises data with self-organizing maps (SOM)", in Allinson, N., Yin, H., Allinson, L. and Slack, J. (Eds), Advances in Self-Organizing Maps, Springer-Verlag, London, pp. 39-46.
- 4) -Bishop, C.M. (1995), Neural Networks for Pattern Recognition, Avon, Oxford University Press.
- 5) -Deboeck, G.J. (1998), "Software tools for self-organizing maps", in Deboeck, G.J. and Kohonen, T. (Eds), Visual Explorations in Finance using Self-Organizing Maps, Springer-Verlag, pp. 179-194.
- 6) -Eklund, T., Back, B., Vanharanta, H. and Visa, A. (2003), "Using the self-organizing map as a visualization tool in financial benchmarking", Information Visualization, Vol. 2 No. 3, pp. 171-181.
- 7) -Eklund, T., Back, B., Vanharanta, H. and Visa, A. (2008), "Evaluating a SOM-based financial benchmarking tool", Journal of Emerging Technologies in Accounting, Vol. 5 No. 1, pp. 109-127.
- 8) -Fehrenbacher, D., Roetzel, P. and Pedell, B. (2018), "The influence of culture and framing on investment decision-making", Cross Cultural &

30 / *The influence of culture on investors' financial decision-making styles and unplanned ...*

- Strategic Management, Vol. 25 No. 4, pp. 763-780.
- 9) -Ghada, R. & Galal, H) .۲۰۰۹“ (The role of culture in e-commerce use for the Egyptian consumers”. Business Process Management Journal, ۱۵) ۱, (۳۴-۴۷.
- 10) -Han, J. and Kamber, M. (2001), Data Mining: Concepts and Techniques, Academic Press, San Diego, CA.
- 11) -Hitosugi, C.I .۲۰۰۹ .Effects of culture on online initial trust: individual level analysis. A doctoral dissertation of philosophy in communication and information sciences, University.
- 12) -Hofstede, G .۲۰۰۱ .Culture's consequences: Comparing values, behavior, institution and organizations across nations .۲nd ed .Thousand Oaks, CA: Sage Publications.
- 13) -House, R.J.; Javidan, M.; Hanges, P.J. & Dorfman, P.W) .۲۰۰۲“ (Understanding Cultures & Implicit Leadership Theories Across the Globe: An Introduction to Project GLOBE”. Journal of World Business, ۳۷, ۳-۱۰.
- 14) -Hsiu-Jen Fu., (2006). “Effects Of FinancialInformation Transparency On InvestorBehavior In Taiwan Stock Market”
- 15) -Ilagan, S. V .۲۰۰۹ .Exploring the impact of culture on the formation of consumer trust in internet shopping, A thesisfor the degree of master of arts in Communication, Department of Communication and Journalism and The Graduate School of the University of Wyoming.
- 16) -Jarvenpaa, S. & Tractinsky, N) .۱۹۹۹ .(“Consumer trust in an Internet store: A crosscultural”. Journal of Computer-Mediated Communication, ۹. Retrieved on February ۱۸, ۲۰۰۸ .
- 17) -Kiviluoto, K. (1998), “Predicting bankruptcies with the self-organizing map”, Neurocomputing, Vol. 21 Nos 1/3, pp. 191-201.
- 18) -Länsiluoto, A. and Eklund, T. (2008), “Comparison of the suitability of the self-organizing map for analyzing the macro and firm environment – an empirical field survey”, benchmarking: An International Journal, Vol. 15 No. 4, pp. 402-419.
- 19) -Lee, S.C., Suh, Y.H., Kim, J.K. and Lee, K.J. (2004), “A cross-national market segmentation of online game industry using SOM”, Expert Systems with Applications, Vol. 27 No. 4, pp. 559-570.
- 20) -Sarlin, P. and Eklund, T. (2011), “Fuzzy two-level clustering of the self-organizing map: some applications on financial time series”, in Laaksonen, J. and Honkela, T. (Eds), WSOM 2011, LNCS, 6731, Heidelberg: Springer, pp. 40-50.
- 21) -Thirathon U., Wieder B., Matolcsy Z., Ossimitz M.-L.(2017), Big Data, Analytic Culture and Analytic-Based Decision Making Evidence from Australia, Procedia Computer Science, 121 , pp. 775-783 .
- 22) -Wang Z., McNally R., Lenihan H. (2019), The role of social capital and culture on social decision-making constraints: A multilevel investigation , European Management Journal, 37 (2) , pp. 222-232 .
- 23) -Yoon, C. (۲۰۰۹). “The effects of national culture values on consumer acceptance of ecommerce: Online shoppers in China”. Information & Management. ۴۶ (۲), ۲۹۴-۳۰۱.