



Reviewing the mediating role of demographic characteristics on relation between investors' features and their behavioral biases in Iran mercantile exchange's supply chain

*Hossein Eslami Mofid Abadi^{*1}, Sudabeh Morshedian Rafiee²,
Zahra Houshmand Neghabi^{*3},*

¹*Department of Accounting & Management, Shahriyar Branch, Islamic Azad University, Shahriyar, Iran E.mail: (hosseineslami62@gmail.com)*

²*Department of Management, Islamshahr Branch, Islamic Azad University, Iran*

³*Department of Management, Islamshahr Branch, Islamic Azad University, Iran E.mail: (houshmand_z@yahoo.com)*

Abstract

Present research is conducted with the aim of reviewing the mediating role of demographic characteristics on relation of investors' special characteristics with behavioral biases of investors in supply chain of companies listed in agricultural products hall in Iran mercantile exchange company. Present research is from descriptive-survey type and its statistical population includes Iran agricultural mercantile exchange with about 384 people in total. Present research is conducted as random sampling method. In this research, in order to measure content validity, opinions of advisors and supervisors have been used. Cronbach's alpha test showed that reliability of all variables is in acceptable domain. In order to gather required data to test research hypotheses, questionnaire is used. For descriptive analysis of data, tables, diagrams and distribution index and for descriptive analysis of statistics, mean-median-frequency, mean of research variables and Kolmogorov-Smirnov test and hypotheses test in SPSS20 software package has been conducted. Generally, research findings indicated that there is a significant relation between investors' special characteristics with behavioral biases of investors among companies listed in knowledge-based agricultural products hall. Also, results indicated that financial knowledge has highest correlation coefficient in the estimated empirical structural model.

Keywords: Agricultural section, Behavioral biases, Investor characteristics, Iran capital market, supply chain.

Introduction

According to rational economical human theory, individuals consider all aspects when investing and make the most rational decision, but sometimes factors cause the occurrence of irrational behavior and influence how individuals make decisions which is the result of financial markets'

inefficiency (Thomas,2003; pp:347-353). In fact, economic elements in behavioral models, unlike neoclassic theories, are not rational and don't behave rational due to their priorities or cognitive mistakes (Farlin, 2006; 1-40). Behavioral financial paradigm indicates how investors behave and how their behavior may influence financial

markets (Kim and Nafsinger, 2008; pp: 1-7). And helps investors learn how should behave rationally (Bhatta 2009; 138-149). In fact, behavioral financial foundation is consisted of harmony between the feeling and decision making of investors. Findings indicate that investors do not always behave rationally and without bias, as the prevalent models show. According to psychologists' theories, human beings tend to keep special events in their mind as images and these mental images sometimes influence individuals' behaviors more than events themselves. Several studies have addressed irrational performance of people in investment and monetary issues (Greenblatt and Han, 2005; 311-339). Behavioral finance is the study of how people interpret information to make informed decisions in investment field. Behavioral finance has two main bases: a) limitation in arbitrage which expresses investors of rational investments may not use arbitrage opportunities; because it requires embracing some risks. B) Psychology that reviews behavior and judgment of some investors and also mistakes that people commit in their judgments (Raii & Fallahipoor, 2004- 2017; 77). Some classifications of behavioral biases include: self-deception or overconfidence, innovating methods and social interaction (ShahrAbadi & Yusefi, 2007; 77-100). In fact, behavioral finance mentions financial and economic theorists to consider human behavior besides other variables. Toller believes that considering human behavior in theories in future will be considered as evident principles. In fact, one of the challenging issues in financial literature field is to understand decision

making process of participators in capital market. One of the major hypotheses discussed in this relation, is the hypothesis of efficient market that refers to the reaction speed of security prices to new information announcement. Generally, in an efficient market, stock price is an accurate and unbiased of future stock values. In other words, investors have rational and informed expectations from future stock prices (Watts & Zimmerman, 1986; 145). One of the main drawbacks of efficient market hypothesis relates to developing a model to determine real return of securities discussed theoretically and practically in several researches (Shiller, 1989; Summers, 1986). This drawback is known in financial literature as market abnormalities; but in behavioral economy, this deficiency in financial markets is attributed to comprehension biases, human mistakes and human reactions (Yao et al. 2014; 247). Of course, different studies have been made in behavioral finance aspect since 1980s and researchers such as Canman & Torski (1972), Slovic (1972), Daniel Kahneman (2000), Shleifer & Vishney (1998) and Daniel Hirshleifer & Subramanyam (1998), Sciller (2000), Barcross (1973), Ritter (2003), Hasan al tamimi (2006), Kim & Nofsinger (2007), Martin Sewell (2007), Zheng et al. (2015), Lakonishok et al. (1992), Zheng et al. (2017), Khan (2017), Darmani, Niesten & Hekkart (2015), Gupta & Debasish (2017), Fallhpour & Abdollahi (2011), Hosseini Chegani et al (2014), Tajmir Riahi, et al (2017) have apprehended the importance and requirement of behavioral finance in financial world. Therefore, it may be said that in behavioral



economy it is assumed that human beings' behavior is incomplete and irrational behavior in decision making may be expressed. One of these behavioral biases is herding behavior. Bias is attributed to every systematic mistake in design, conduction and analysis of study which results in inaccurate estimation of confrontation effect on risk and study illness. In fact, bias means divergence from reality in study or in other words a mistake that differentiates target population from sampled population. Bias is a determinant factor or internal validity of study. Different sources divide bias to several types (Park G.E. 2003, 14). Of course, in behavioral financial literature behavioral biases are defined as systematic mistakes in judgment. This phenomenon is one of the issues studied in cognitive knowledge and social psychology. Different cognitive biases result in behavioral mistakes in individual or social level. Behavioral biases are divided to: 1) based on comprehension; 2) based on feeling; 3) experimental bias and 4) systematic bias (Tajmir Riahi & Dejdard, 2017). When talking about systematic bias in calculation sciences, measurement and statistics is attributed to bias in estimation or measurement method which finally results in non-random mistake. Experimental bias is an unobservable bias which includes the expected result of researcher from a test. In recognition of cognitive biases, experimenter of psychology researcher may himself be trapped in bias. Emotional and perceptual biases may lead to distortion in cognition and decision making by emotional and perceptual factors (Horness, 1993, 19). But another behavioral finance of

individuals is herding behavior, which occurs in capital market when investors act in a way that it seems they imitate others in their actions (Yaw et al. 2014, 239). Christy and Hiang (1995) believe herding behavior occurs when one ignores his beliefs and makes his investment decisions according to collective behavior and participate in herding behavior. Although conducted researches address existence or non-existence of herding behavior in capital markets, factors influencing and intensifying this phenomenon have not been addressed so much in Tehran stock exchange (Soroushyar & Ahmadi, 2016, 148).

Therefore, present research tries to study the relation between specific characteristics of investors and behavioral biases emphasizing the mediating role of demographic features in Iran mercantile exchange and among companies listed in agricultural products hall. In addition, present research has selected key variables (in contrast with other internal researches conducted in this field) to add richness of behavioral financial literature.

Literature Review and Research Background

Investors' behavioral bias, is the first variable that this research addresses and its changes are going to be interpreted and analyzed by investors' characteristics as predicting variable (independent) and its components. Bias is applied to any systematic mistake in design, conduction and analysis which lead to improper estimation of confrontation effect on risk and study illness. In fact, Bias means

distortion from reality in study or in other words is a mistake that differentiates target population from sampled population. Bias is a determinant factor increasing internal validity of a study. Different sources divide bias to different types (Park, J.E, 2003; 14). Generally different behavioral biases are classified in three general groups creating bias in individuals (or investors) thinking and decision making process (Shahrabadi, 2013: 10): a) innovative methods; b) self-deception; c) social interactions. In innovative methods, since human being capacity for information process is limited, individuals embrace deficient decision making or innovative methods that result in fair decision making. This strategy in decision making process is called heuristic (innovative) simplification (Shahrabadi, 2013: 10). Of course, in recent decades, the term meta-heuristic term has been introduced, too. Therefore, in this research investors' behavioral bias in Kanman & Rip (1998) point of view have been measured by components including a) judgment bias, b) preferential biases (preference or priority), c) biases resulting from decision results. According to Pompin (2010) components include a) cognitive, b) sentimental, and Jafari & Dolati measures a) revelation, b) framing, c) abnormal phenomena (economical behavior), d) abnormal phenomena (price and stock return) through questionnaire, and reviewing documents. But the term investors characteristic as the second variable of this research points to some public and private characteristics of investors. Considering numerous opportunities for investment in Iran, and insufficiency of investment by an individual

or some of them, stock exchange may play an influential role in this regard. So, identifying factors influencing investment in stock exchange may be considered as a starting point for attracting public participation. Identifying these factors may be accomplished in the area of natural and legal people or foreign investment (Abzari et al. 2017). Of course, investors' characteristics are considerably dependent on personality characteristics. Personality characteristics are those factors that define people. Two individuals may not have similar individual characteristic matrix and factors such as age, education et al will influence human personality (Shojaii 2012:17). In this relation, Donald and Grable (2010) in a research called customer (investors) characteristics declared that their qualities include financial intelligence, wealth and financial management skills according to their financial risk tolerance. In present research, investors' qualities are measured according to Donald Grable (2010), Aghasi et al. (2016), and Losardi (2012), Mishera & Metilda (2015) model with components consisting of financial intelligence, financial management skill, and wealth through questionnaire, and reviewing documents. Also, we try to utilize demographic variables (investors' general qualities) which in this research include age, gender, education level, and experience in qualitative and quantitative analyses of this research. In internal studies, Mehdi Khoshnood and Tehrani (2004) indicate that partial investors express more irrational behavior in decision making, compared with institutional investors. Saïidi (2006) in his research concluded that investors imagine



market in two conditions and according to this foundation, estimate the efficiency of next period and express their views according to estimated return about stock price and in empirical study section we find that there is a significant relation between changes indicating current behavioral reaction and total return rate. Khademi et al. (2007) in an article concludes that political, psychological, economic and financial factors in company level have the most influence on decisions of shareholders. Dehghan (2008) in his studies indicated that internal (including biorhythmic factors, intrinsic analysis power, being shareholder, harmonizing buyer mental image and real image of company, risk taking and level of self-confidence) and external factors(economic, political, cultural) may influence people purchase process (mental black box of investors), in a way that measuring these factors may lead to more precise knowledge of investors' behavior and provide conditions for development of stock exchange and economy. Baghdar Eram (2013), in his research indicated that herding behavior influences decision of investors. Heidarpoor, TariVerdi and Mehrabi (2013) in their research reported the existence of a significant and positive relation between investors' emotional tendencies with stock return in companies with lowest size, ratio of book value to market and institutional ownership. Ghegani et al (2014) in their research indicated that there is a significant relation between self-control bias, optimism, self-attribution, illusion of control bias, conservatism and investment decisions of investor of Tehran stock exchange and ambiguity aversion bias

has positive and significant influence on investors' investment decisions. Babajani et al (2015) in their research indicated that there is herding behavior between mutual funds active in Tehran stock exchange; herding behavior of mutual funds on shares of smaller companies is greater and herding behavior of common investment fund on growing shares is greater and herding behavior of mutual funds during stock general indices growth in purchase is not more than sale. Herding behavior of mutual funds during reduction of stock general indices in sale is not more than purchase. Narenji Azar (2015) in a research indicated that there is a significant difference between two experienced and not- experienced investors' group, but both investors are not safe in regard to behavioral biases risk and experience factor hasn't been able to keep experienced investors compared to other investors safe in regard to behavioral biases. Shah Mansouri (2015) in his research indicated that investors' behavioral qualities have significant effect on their investment objectives and strategies and performance. There is strong significant relation between level of enthusiasm and risk taking and capital growth objectives. Also, investors with technical strategy have higher enthusiasm level and risk taking, but average efficiency of this attitude is lower than average efficiency level of fundamental strategy. Khalaf, Mo이니 and NasrAbadi (2017) in their research concluded that half of hypotheses will be approved and so behavioral biases of information access, self-control bias, and conservatism affects investment efficiency, while frame cognitive biases, continuing current conditions and

indication doesn't have significant effect on investment efficiency in confidence level under study and moderating role of character type is not accepted either. Tajmir Riahi & Dejdar (2017) in their research found that optimism, modernism and regret aversion biases are the main behavioral biases of investors when they confront nuclear negotiation issues. Bineshian & Dehdar (2018) in their research indicated that variables such as rational behavior, herding behavior, reactive behavior, behavior based on experience and trial and error influence behavioral biases and attitude based on behavior, mental norms of controlling comprehension behavior on financial intelligence and finally investment decisions. The level of influence in behavioral tendencies and financial intelligence were 0.822 and 0.810 respectively and in behavioral tendencies compared to financial intelligence, influence on investment decisions has been greater. Also, among external studies, Daniel Kahneman (2000) the famous psychologist and one of behavioral finance founders, considered investor behavioral biases significant in the field of individual behavior of investors. Hassan Altamimi (2006) in his research found that variables related to the theory of maximizing desirability including profitability growth, cash gain paid to shareholders and benefit of each predicted share are the most important influential variables in intention to buy a share in market. Zhang et al (2017) in their research found that herding behavior of an investor in initial public offering of shares in Taiwan is harmonious with winner curse theory. In addition, investors increasingly tend to

subscription request trend in short term and its result in long term is negative return. Khan (2017) in his research found that gender, education level and those looking forward to heritage and characteristic qualities including achievements, consciousness, negative and positive feeling influence financial risk tolerance. Also, cultural dimensions such as feministic tendencies and avoiding uncertainty influence financial risk tolerance, too. Darmani, Nistan and Hekart (2017) found that investors with high level of investment and management experience and compounded portfolio tend more to investment in generating power from wind energy. Investors' age in this industry is negatively related to investment level and indicates that young individuals tend to invest in this industry. Finally, Gupta & Debasish (2017) indicate a research in which common investment fun is considered a desirable tool among Indian investors due to its security and competitiveness. Binshan & Dehdar (2018) in their research addressed the subject of developing a model for relation between financial intelligence with behavioral orientation and their effect on investment decisions according to the theory of planned behavior in Tehran stock exchange. Results indicate that variables including rational behavior, herding behavior, reactive behavior, experience-based behavior and trial and error influence behavioral orientations and attitude based on behavior, mental norms of controlling comprehension behavior on financial intelligence, and finally investment decisions. Yousef Areiqat et al (2019), During the research the topic of impact of



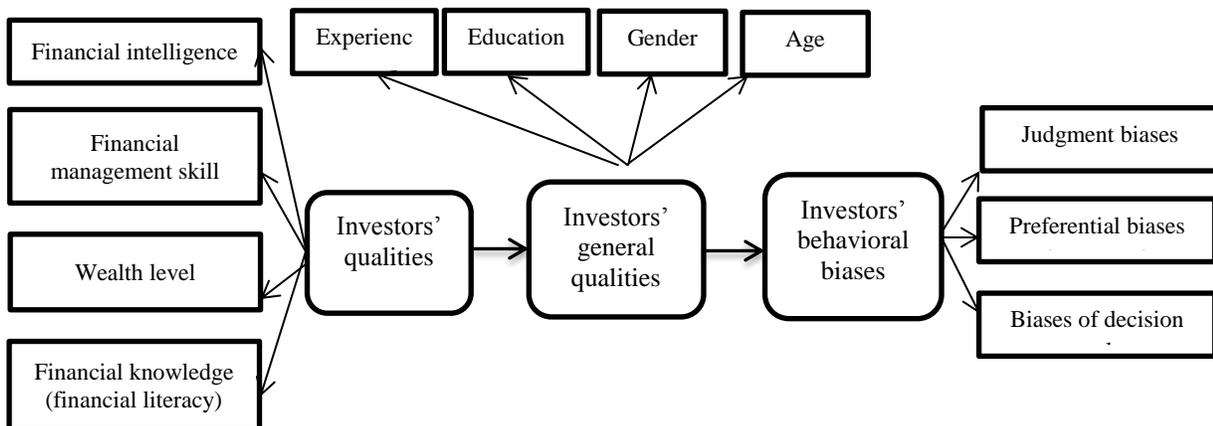
behavioral finance on stock investment decisions with applied study on a sample of investors at Amman Stock Exchange was discussed. The results showed that there was an impact of the behavioral finance at Amman Stock Exchange represented by three behavioral factors affecting the investment decisions of the individual investors which were: overconfidence, loss aversion, and herding, the results also showed that the variable overconfidence had the most relative significance.

Research conceptual model

Research theoretical analysis, is theoretical perspective or attitude that is decided to be accepted for reviewing the problem discussed in the initial question (Qawi, 2003, p.81). Research conceptual model is indicated in graph 1.

Extraction source of model variables:
(Lakonishok et al., 1992; Tversky and

Kahneman,1979; Shleifer & Vishny,1998; Kanman& Rip, 1998; Hasan Altamimi, 2006; Daniel Kahneman ,2000; Ritter, 2003; Khoshnood & Tehrani, 2004; Talangi, 2004; Babjani et al.,2005; Dustar et al. ,2005; Saiidi et al,2006; Kim and Nofsinger, 2007; Khademi et al.,2007; Martin Sevel , 2007; Layalestani& Azizi,2008; Dehghan, 2008; Dolati, 2009; Khosh Tinat & Nadi Ghomi, 2009;Donald Grable, 2010; Pompin, 2010; Mozzafari , 2012; Heidarpoor, Tariverdi& Mehrabi, 2013; NowruzAbad et al., 2013; Jafari; Chegani et al. ,2014; Aghasi et al. 2016; Losardi, 2012; Chegani et al.,2014; Shah Mansouri,2015; Mishera & Tilda, 2015; Jalilvand et al. 2016; Aghasi, Aghasi& Biglari,2016; Narenji Azar, 2015; Moradi, 2017; Gupta & Debasish, 2017; Zhang et al.,2015; Zhang et al, 2017; Khan, 2017;Tajmir Riahi & Dejdard ,2017; Binshan& Dehdar,2018; Yousef Areiqat et al, 2019).



Graph 1: Research conceptual model

Research hypotheses:

1. There is significant statistical relation between financial intelligence and investors' behavioral biases in Iran agricultural products exchange hall.
2. There is significant statistical relation between financial management skill and investors' behavioral biases in Iran agricultural products exchange hall.
3. There is significant statistical relation between wealth level and investors' behavioral biases in Iran agricultural products exchange hall.
4. There is significant statistical relation between investors' quality and investors' behavioral biases in Iran agricultural products exchange hall.

Research Methodology

Present research is applied research in its objective. Applied research includes activities conducted with the aim of practical utilization of scientific theories and knowledge. Therefore, findings of this research may be used in other sections, too. Considering the method of collecting required data, it is descriptive-correlational and since it addresses cause and effect relations between research variables, it is after occurrence in regard to causality.

Statistical population, sampling method and sample size

Statistical population of this research include all statistical population of this research including all individuals active in

Tehran stock exchange, which means all investors active in Tehran stock exchange.

Sampling method and determination of sample size

According to existing statistics, total number of individuals or investors active in Iran agricultural products exchange is not evident. Sample of this research is calculated according to Cochran formula. Random sampling method is classified. Sampling method is explained in the following:
formula (1):

$$n = \frac{N z^2 p q}{(N-1) d^2 + z^2 p q}$$

Each of elements of this formula will be explained in the following:

n= sample size obtained considering error and confidence level, sample size and its variance, in a way that its number has been determined to be 384 (n=384).

N= Size of the statistical population under study

Z= unit normal value which in confidence level equal to 0.095 for two way test is equal to 1.96.

P= the value of existing quality in the society which may be considered equal to 0.5, if not available and in this condition, its variance maximizes. q= percentage of individuals lacking this quality in a society (q=1-p), d= permitted error value (0.05) or confidence degree with desirable probable precision.

According to above formula, if a sample size with population gap 0.5 (it means half of the population) has a specific quality, other half lacks it. We usually consider p and q equal to 0.5. Z value is equal to 1.96. Its value

may be 0.01 or 0.05; of course in this research calculation is made with error level equal to 5 percent. According to calculations made research sample size is equal to 384; for this purpose 400 questionnaire were distributed among respondents. All questionnaires are referred to the researcher. From all completed questionnaires, 16 questionnaires didn't have sufficient information and in order to avoid undesirable results, these questionnaires were omitted from analysis procedure. It may be stated that questionnaire return rate was 100 percent and questionnaire usage rate was 98 percent. Therefore, considering the size of statistical population studied by researcher, in present research, 384 people were regarded as sample according to Cochran formula.

Information gathering method

In this research, gathering required data will be accomplished in three stages: Stage 1 including theoretical foundations of subject and history of researches made, will be performed by library study method, using university books related to subject, articles presented in collection of scientific conferences, theses, and searching information and translation of electronic sources in internet, data networks etc. Of course, in this stage, indexing tools and computer prints will be utilized, too. Stage 2 include gathering data related to variables under study in statistical population using questionnaire. In fact, the main tool of second part of research is questionnaire compiled by researcher.

Validity and reliability of information gathering data:

Validity: in this research, in order to measure validity of data gathering tools (questionnaire), content validity and interview with experts are used and its results will be summarized in chapter 4.

Reliability: In this research, in order to calculate reliability of data collection tools (questionnaire), Cronbach's alpha is used for all research variables. Hence, if Cronbach's alpha in all variables is more than 0.7, it may be claimed that research questionnaire has desirable reliability. Alpha coefficient may be calculated by following formula:

Formula (2):

$$r_a = \frac{j}{j-1} \left(1 - \frac{\sum S_j^2}{S^2} \right)$$

Where:

J= Number of subset of questionnaire

S_j^2 = Variance under J test

S^2 = Test total variance

Normally, confidence coefficient domain of Cronbach's alpha includes 0.0 (lack of reliability) to 0.1 (complete reliability). As obtained values reach to 0.1, questionnaire reliability will be more. Usually for tests with research objectives, reliability coefficients 0.6 to 0.8 will be sufficient (acceptable value in most sources is more than 0.7).

Research analysis method

In order to gather and analyze data, this research utilizes statistical methods and techniques. This data will be arranged and classified in Excel software and its primary indices and diagrams will be extracted by

this software; then statistical software such as SPSS will be used for data statistical analysis. This analysis will be accomplished in two stages by descriptive and inferential statistics. Descriptive analysis is used to explain qualities related to population and statistical samples (demographic qualities) and also for qualities related to variables under study descriptive statistics including graphs, diagrams and central indices and distribution were utilized. Furthermore, inferential statistics (statistical techniques) were used to analyze data of research and each hypothesis was tested by correlation coefficient and linear regression tests.

Data Analysis

Generally, in this research we are going to study mediating role of demographic qualities on relation between investors' specific qualities and investors behavioral biases in Iran mercantile exchange's supply chain in companies listed in Iran agricultural products hall. In this research, while extracting information and details related to above section in the next stage we are going to explain empirical models and finally we will analyze data as descriptive and inferential statistics according to related subjects and variables. As mentioned before, data obtained from questionnaire was processed using SPSS statistical software. Finally, results obtained from questionnaire was summarized and presented with related tables and analyses were made according to tables. In the present chapter, demographic data of statistical population was studied based on data resulting from questionnaire. Then, research hypotheses were assessed one by one.

Data statistical analysis

Using statistical methods in quantitative analysis was accomplished in two forms of descriptive and inferential and regarded as one of the main sections of each scientific research. Using statistical methods depends to method and objective of every research. In other words, using different statistical method is influenced by type, scale, nature, data collection, implementation method and objective of research, Therefore, in this section, statistical qualities of research variables are presented. These qualities include frequency average, visit number and etc. for all variables employed in present research. Obtained results of statistical description related to respondents demographic variables are presented in table no.1. As results indicate, about 57% or 218 respondents were male and 43% or 166 respondents were female. In fact, from 385 respondents about 57% or 218 are male and 43% or 166 are female. Furthermore, statistical description of respondent age distribution indicated that highest absolute frequency of respondents' age related to age group older than 45 years and lowest absolute frequency related to age group younger than 25 years. Statistical description of respondents' education distribution indicated that highest absolute frequency was related to group one which was diploma; furthermore, results of statistical description of respondents' activity experience distribution suggest that highest absolute frequency was related to activity experience higher than 25 years and lowest absolute frequency was related to activity experience less than 10 years. Finally,

results of statistical description related to field of study demographic variable highest absolute frequency related to humanities and

lowest absolute frequency related to other fields of study.

Table 1. statistical description of data related to respondents' demographic variables

Row	Research Variable Name		Absolute frequency (N)	Frequency percentage	Cumulative frequency	Cumulative frequency percentage
1	Gender	Male	218	57%	218	57%
		Female	166	43%	384	100%
2	Age	Under 25	8	0/02	8	0/02
		25-35	102	0/27	110	0/29
		36-45	119	0/31	229	0/60
		Over 45	155	0/40	384	1/00
3	Education	Diploma	14	0/04	14	0/04
		Associate degree	18	0/05	32	0/08
		Bachelor	153	0/40	185	0/48
		Master's degree	148	0/39	333	0/87
		PhD	51	0/13	384	1/00
4	Experience level	Less than 10 years	6	0/02	6	0/02
		10-14	78	0/20	84	0/22
		15-19	14	0/04	98	0/26
		20-25	132	0/34	230	0/60
		Over 25	154	0/40	384	1/00
5	Field of study	Basic science	31	0/08	31	0/08
		Humanities	166	0/43	197	0/51
		Technical engineering	91	0/24	288	0/75
		Science	84	0/22	372	0/97
		Other fields	12	0/03	384	1/00
Total			384	1	0	0

Source: Research Findings

Kolmogorov-Smirnov test:

This test is accomplished to study normal distribution of data related to questionnaire with following statistical hypotheses. H_0 : Data has normal distribution. H_1 : Data doesn't have normal distribution. Hence, in order to study mentioned hypothesis test Kolmogorov-Smirnov test was utilized. Results of Kolmogorov-Smirnov test is presented in table 4. Results obtained for normal review of questionnaire data is presented in table 4; as is seen in table (2),

test statistical significance (sig) in all research variables is more than 5%. So, when in comparison with critical value in error level of 5%, it is observed that test statistical value in H_0 acceptance region is established. As a result it may be argued that data is normally distributed.

Cronbach's alpha calculations to measure reliability and validity of questionnaire

Generally, we may determine reliability and validity related to research data according to

Cronbach's alpha test. If results obtained are higher than 0.70, we may rely on reliability and validity of research data. In this research, reliability and validity of questionnaire related data distribution are measured using following statistical hypotheses: H_0 : Data has normal distribution. H_1 : Data doesn't have normal distribution. In order to study mentioned

hypothesis, Cronbach's alpha test was utilized and its results are presented in table no.(2). Hence, in this research, after data was collected from initial sample, data was entered in SPSS statistical software and its Cronbach's alpha coefficient was calculated and intended coefficient for questionnaire was determined to be nearly 0.817.

Table 2: statistical description of Cronbach's alpha Kolmogorov-Smirnov test calculations for measuring reliability and validity of questionnaire

Row	Research Variables	Number of questions	Questions no.	Alpha level	Kolmogorov-Smirnov test level (z)	Level of significance	H_0 is approved	
1	Investors' behavioral biases (Y)	1-5	8	0.855	1.186	.124	H_0 is approved	
2	Financial intelligence (X_1)	6-10	8	0.756	1.213	.393	H_0 is approved	
3	Financial management skill (X_2)	11-16	8	0.714	1.396	.147	H_0 is approved	
4	Wealth level (X_3)	17-21	8	0.714	1.746	.715	H_0 is approved	
5	Financial knowledge (financial literacy) (X_4)	22-26	8	0.703	1.564	.642	H_0 is approved	
6	Demographic variables (X_5)	Age	27	8	0.732	1.236	.539	H_0 is approved
		Gender	28	1	0.819	2.509	.891	H_0 is approved
		Education	29	1	0.726	1.635	.763	H_0 is approved
		Experience	30	1	0.834	1.541	.839	H_0 is approved
7	Questionnaires total	30	50	0.817	-	-	H_0 is approved	
Source: Research Findings								

So, according to results obtained for Cronbach's alpha for determining validity and reliability of questionnaire presented in table (2), it may be concluded that questionnaire questions have required validity and reliability for measuring data related to research, because coefficients of

above test for each dimension of variables is higher than mentioned value.

Data analysis and testing research hypotheses

In this research t-student and sample two-way Fisher test, and to study research hypotheses, correlation level test and ANOVA and to study differences in sample means for research hypotheses were utilized.

Pearson correlation coefficient was used to measure correlation or intensity of the relation between two variables which is normally measured by correlation

coefficient is used for expressing hierarchical correlation between research variables and in the following research hypotheses will be studied.

Table 3. Results of research regression test related to research empirical model

Model input variables / omitted variables ^b										
Definition of variables and symbol	Instrumental variable	Omitted variables	Method	Model summary	Hypothesis	R	R Square	Adjusted R Square	Std. Error of the Estimate	Hypothesis Result
X _{it} ^a (IQFin)	No	No	Input	Model (1)	Hypothesis (1)	.7310 ^a	.535	.528	5.520	Confirm
X _{it} ^a (Skil Fin)	No	No	Input	Model (2)	Hypothesis (2)	.723 ^a	.552	.515	4.581	Confirm
X _{it} (Wealth)	No	No	Input	Model (3)	Hypothesis (3)	.726 ^a	.528	.520	4.556	Confirm
X _{it} ^a (KF)	No	No	Input	Model (4)	Hypothesis (4)	.737 ^a	.543	.536	4.481	Confirm
X _{it} ^a (DVariables)	No	No	Input	Model (5)	Hypothesis (5)	.747 ^a	.558	.548	4.423	Confirm

a=predicting variables (dependent) (fixed coefficient X_{it}) b= all input variables: dependent variable: Behavioral biases; Y_{it} : investors behavioral biases

Source: Research Findings

Table (3) explains the results of regression test related to research main model, in a way that it expresses: there is a significant statistical relation between investors' qualities with their behavioral biases with the moderating role of demographic qualities in Iran agricultural products exchange hall. In fact the results of this hypothesis indicates that there is a significant statistical relation between investors' qualities with their behavioral biases with the moderating role of

demographic qualities in Iran agricultural products exchange hall, because determination coefficient resulting from regression test included in table no. (3) suggests that respondents believe that variables related to investors' qualities (independent variables) in sample under study from first to fifth hypothesis respectively 53.50, 55.20, 52.80, 54.30, 55.80 explain percentage of investors behavioral biases in Iran agricultural products exchange hall.

Table 4. Results of research regression test

Coefficients ^a						
Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
Independent,	(Constant)	-19.797	2.937		-6.741	.000

dependent and demographic variables of research	Financial intelligence (X_1)	.575	.241	.149	2.388	.017
	Financial management skill (X_2)	-.311	.147	-.115	-2.116	.035
	Wealth level (X_3)	.367	.164	.132	2.234	.026
	Financial knowledge (financial literacy) (X_4)	.751	.232	.212	3.239	.001
D-variables (respondents demographic variables)	Gender (AX_1)	-.135	.283	-.039	-.476	.635
	Age (AX_2)	-.113	.049	-.083	-2.306	.022
	Education (AX_3)	1.404	.276	.333	5.081	.000
	Experience (AX_4)	.748	.319	.211	2.344	.020
	Filed of Education (Ax_5)	.020	.029	.025	.699	.485
a. Dependent Variable: Y						

Source: Research Findings

Table 5. Results of research variables correlation coefficient test

Correlations											
Research Variable Name		Investors' behavioral biases (Y)	Financial intelligence (X_1)	Financial management skill (X_2)	Wealth level (X_3)	Financial knowledge (financial literacy) (X_4)	Gender (AX_1)	Age (AX_2)	Education (AX_3)	Experience level (AX_4)	Filed of Education (Ax_5)
Investors' behavioral biases (Y)	Pearson Correlation	1	.568**	.418**	.517**	.632**	.502**	.098	.653**	.521**	.151**
	Sig. (2-tailed)		.000	.000	.000	.000	.000	.056	.000	.000	.003
Financial intelligence (X_1)	Pearson Correlation	.568**	1	.298**	.284**	.500**	.233**	.045	.813**	.226**	.180**
	Sig. (2-tailed)	.000	.000	.000	.000	.000	.000	.384	.000	.000	.000
Financial management skill (X_2)	Pearson Correlation	.418**	.298**	1	.695**	.636**	.609**	.114*	.457**	.675**	.172**
	Sig. (2-tailed)	.000	.000	.000	.000	.000	.000	.025	.000	.000	.001
Wealth level (X_3)	Pearson Correlation	.517**	.284**	.695**	1	.691**	.723**	-.097	.424**	.722**	.193**
	Sig. (2-tailed)	.000	.000	.000	.000	.000	.000	.057	.000	.000	.000
Financial knowledge (financial literacy) (X_4)	Pearson Correlation	.632**	.500**	.636**	.691**	1	.728**	.038	.588**	.761**	.184**
	Sig. (2-tailed)	.000	.000	.000	.000	.000	.000	.458	.000	.000	.000
Gender (AX_1)	Pearson Correlation	.502**	.233**	.609**	.723**	.728**	1	-.051	.389**	.901**	.160**
	Sig. (2-tailed)	.000	.000	.000	.000	.000	.000	.320	.000	.000	.002
Age (AX_2)	Pearson Correlation	.098	.045	.114*	-.097	.038	-.051	1	-.001	-.017	.026
	Sig. (2-tailed)	.056	.384	.025	.057	.458	.320	.992	.734	.609	
Education (AX_3)	Pearson Correlation	.653**	.813**	.457**	.424**	.588**	.389**	-.001	1	.387**	.243**
	Sig. (2-tailed)	.000	.000	.000	.000	.000	.000	.992	.000	.000	
Experience (AX_4)	Pearson Correlation	.521**	.226**	.675**	.722**	.761**	.901**	-.017	.387**	1	.141**
	Sig. (2-tailed)	.000	.000	.000	.000	.000	.000	.734	.000	.000	.006
Filed of Education (Ax_5)	Pearson Correlation	.151**	.180**	.172**	.193**	.184**	.160**	.026	.243**	.141**	1
	Sig. (2-tailed)	.003	.000	.001	.000	.000	.002	.609	.000	.006	.000

	N	384	384	384	384	384	384	384	384	384	384
**. Correlation is significant at the 0.01 level (2-tailed).				*. Correlation is significant at the 0.05 level (2-tailed).							

Source: Research Findings

Considering the results obtained from assessing Pearson coefficient test of research models discussed in table no (5), it may be stated that obtained correlation coefficient and calculated level of significance approves that there is significant correlation between investors' quality with their behavioral biases in Iran agricultural products exchange hall. So, null hypothesis is rejected and research hypothesis is approved. It may be expressed that in error level of 0.05 percent

there is statistically significant relation between investors' specific qualities and investors' behavioral biases in Iran mercantile exchange market supply chain among companies listed in Iran agricultural products hall with mediating role of demographic qualities and also, results of this test may be generalized with 95% confidence to all statistical population of present research or all investors in Iran mercantile exchange.

Table 6. Results of variance analysis to compare research model coefficient average

ANOVA ^b						
Model	Sum of Squares	df	Mean Square	F	Sig.	
Regression	9250.733	9	1027.859	52.552	.000 ^a	
Residual	7315.013	374	19.559			
Total	16565.746	383				
a. Predictors: (Constant), AX5, AX2, AX4, X1, X2, X3, X4, AX3, AX1						
b. Dependent Variable: Y						

Source: Research Findings

Table (6) indicates results of ANOVA in the sample related to empirical research model of present research and suggests that regression test results in 95% level of confidence and error level of 5% and comparison made with level of significance (sig=0.000) is significant. In general, statistical results of research empirical model state that test statistical value in level of significance, for independent variables is less than test error or 5% and so, this variable is significant and research results are approved. Generally, statistical results of research empirical results explain that test statistical value for independent variables is in level of significance less than test error or 5%. So, this variable is significant and

research hypothesis will be approved. As said, independent variables have significant influence on dependent variable. In other words, there is significant statistical relation between investors' specific qualities and investors' behavioral biases in Iran mercantile exchange market supply chain among companies listed in Iran agricultural products hall with the mediating role of demographic qualities. Also, results obtained from regression test relate to empirical model of present research. Correlation coefficients from first to fifth hypotheses indicate nearly 73/10, 72/30, 72/60, 73/70, and 74/70,percents. So, results obtained from this research may be generalized to present total statistical

population which is all investors active in Iran mercantile exchange.

Conclusion

Data analysis is a process with several important stages during which all data of a scientific research, a research gathered in different ways, are summarized, classified and finally processed to provide background for establishing different analyses and relation between data to test compiled hypotheses of a research. In this process, data is extracted from both conceptual and empirical aspects; in a way that different statistical methods (descriptive and inferential play important role in inferences and generalizations. So, present chapter presents summary of descriptive statistics and hypotheses statistical report of hypotheses and analysis of its results.

Generally, statistical results of research empirical results explain that test statistical value for independent variables is in level of significance less than test error or 5%. So, this variable is significant and first research hypothesis will be approved. As said, independent variables have significant influence on dependent variable. In other words, there is significant statistical relation between financial intelligence and investors behavioral biases in Iran mercantile exchange. Also, it has significant effect on it. Furthermore, results obtained from regression test related to research first model indicate correlation coefficient nearly 73/10% . Results of research second model test explain that test statistical value for independent variables is in level of

significance less than test error or 5%. So, this variable is significant and second research hypothesis will be approved. As said, independent variables have significant influence on dependent variable. In other words, there is significant statistical relation between financial management skill and investors' behavioral biases in Iran mercantile exchange. Also, it has significant effect on it. Furthermore, results obtained from regression test related to research second model indicates correlation coefficient nearly 72.30%.

Results of research third model test explain that test statistical value for independent variables is in level of significance less than test error or 5%. So, this variable is significant and third research hypothesis will be approved. As said, independent variables have significant influence on dependent variable. In other words, there is significant statistical relation between wealth level and investors' behavioral biases in Iran mercantile exchange. Also, it has significant effect on it. Furthermore, it indicates correlation coefficient nearly 72.60%.

Results of research fourth model test explain that test statistical value for independent variables is in level of significance less than test error or 5%. So, this variable is significant and fourth research hypothesis will be approved. As said, independent variables have significant influence on dependent variable. In other words, there is significant statistical relation between financial knowledge (financial literacy) and investors' behavioral biases in Iran mercantile exchange. Also, it has significant

effect on it. Furthermore, it indicates correlation coefficient nearly 73.70%.

Results of research fifth model test explain that test statistical value for independent variables is in level of significance less than test error or 5%. So, this variable is significant and fifth research hypothesis will be approved. As said, independent variables have significant influence on dependent variable. In other words, there is significant statistical relation between variables demographic and investors' behavioral biases in Iran mercantile exchange. Also, it has significant effect on it. Furthermore, it indicates correlation coefficient nearly 74.70% which is the same square of correlation coefficient or determination coefficient (level of variability in dependent variable which may be explained by regression). However, estimation standard error which measures point distribution around regression line in two-dimensional space indicates that greater indices will result in higher distribution around regression line. Also, results of this test may be generalized with 95% confidence to all investors active in Iran mercantile exchange and listed companies of agricultural products hall.

Research practical suggestions

Considering that results of this of research hypotheses with 95% level of confidence indicated that demographic qualities' mediating role has statistically significant effect on relation between specific qualities of investors with behavioral biases of investors in supply chain of listed companies in Iran mercantile exchange of agricultural

products hall, mentioned companies are suggested to pay required attention to items such as financial knowledge (financial literacy), wealth, financial management skill, financial intelligence and demographic variables to reduce control of Tehran stock exchange investors behavioral biases in order to play an efficient role in optimizing performance of financial department and also increasing performance of all mentioned companies.

Practical suggestions for future research

Considering the results of research, students are suggested to fulfill subject of research in following grounds:

- Studying factors influencing investors decision making
- Studying mental factors influencing individuals' intent to invest stocks in Tehran stock exchange and compare and analyze its results with results of present research.
- Study the issue of factors influencing mental accounting of individuals for investment in Tehran stock exchange and compare and analyze its results with results of present research.
- Study factors influencing herding behavior and behavioral biases of individuals investing in Tehran stock exchange and compare and analyze its results with results of present research.

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