

Modeling impact of psychological Factors on the Volume of People's Investments in Tehran Stock marketMohammad Lashkary¹, Homa Mortazi²¹. Department of management, Islamic Azad University, Neyshabur Branch, Neyshabur, Iran². Department of management, Islamic Azad University, Neyshabur Branch, Neyshabur, IranE-mail: homa.mortazi@yahoo.com

Abstract: New financial hypothesis which had relied on two main paradigms- rational behavior of economical factors and efficient markets hypothesis were dominant in financial markets for over half of a century. However, some experimental evidences like the markets exceptions which could not be clarified by common hypothetical models of efficient market, predisposed the creation of hypothesis called behavioral financial. Behavioral financial includes wide range of psychological aspects and social science which has many contradictions with efficient market hypothesis. The idea of absolute rational behavior of investors to legitimize their behavior in the stock market is not sufficient. Many psychological factors make people not act completely rational in their investment decisions. In this article, first we introduce the behavioral financial and then review the psychological factors affecting volume of people's investments. The data analysis approach would be based on regression analysis. The psychological factors affecting volume of person's investment were identified and a questionnaire was designed based on these factors which utilizes Lickert spectrum to review the research variants. The results show that the volume of investment has a direct relation with risk taking and self-confidence and reverse relation with logic and personal habits of people. Eventually, a model was achieved using the result, which shows the relation of volume of investment with degree of risk taking and self-confidence, logic and personal habits.

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Key words: Rational behaviors; behavioral financial; stock market; psychological factor; amount of investment.

1. Introduction

Prior to developing behavioral finance on financial management and economy, the investors' behavior in capital market was being interpreted based on economical desirability theory. However, numerous scientific reviews and studies on behavioral finance identified the importance of psychological factors. Although behavioral finance theories are new and they are originated about a decade ago, but the issue of involvement of person's psychological and behavioral features in purchasing decisions is coming from earlier eras. A huge part of capital market studies is related to the theory of efficient markets to explain the prices behavior. In early 1970s, the theory of efficient market reached to its most frequent application in university studies. Most of financial models at the time were reviewing the relation of assets value and micro economical variables and were trying to relate financial and economical science in an attractive theory using rational expectations theory.

Comparing financial markets studies, behavioral science in financial issues in a new approach. This approach suggests that behavioral and cognitional tendencies can influence person's investment decisions.

Understanding behavioral processes and their implications for financial planners is extremely important and it can considerably help them to

develop strategies and to mobilize and allocate financial resources.

The internal section is like an iceberg above the surface of water and only its summit (external factors) is visible and out of sea surface and the most part of the iceberg (internal factors) is hidden below sea level. Since the stock exchange is one of the pillars of the country's economic and growth and development this organization will result in national economic development, we should identify people's internal thoughts and consequently their external behavior (prospective investment) in a scientific and considerate manner by recognition of psychological factors and provide conditions for optimal detective of investors' viewpoints, attitudes and behaviors and consequently growth and development of the stock exchange.

2. Materials and Methods**Behavioral Financial**

Appearance of behavioral sciences in financial arguments is a new approach in financial markets researches. The approach believes behavioral and cognitional tendencies can affect the people's investment decisions. Behavioral financial as a new and growing field has been the most important financial issue and financial and economical researcher's attention has been drawn to it. In behavioral financial, limiting notions of traditional

paradigm are removed and it is attempted to address modeling in financial area considering real conditions. Existence of numerous psychological factors causes people not to make investment decisions in a completely rational manner.

A brief history of behavioral research in behavioral financial reporting then shows that while these two philosophical perspectives are powerful, they are incomplete. The success of behavioral financial reporting also depends heavily on sociological factors, particularly the comingling of behavioral and traditional researchers within similar departments. (Bloomfield, 2010).

Behavioral finance is a study of the markets that draws on psychology, throwing more light on why people buy or sell the stocks and even why they do not buy stocks at all.

This research on investor behavior helps to explain the various 'market anomalies' that challenge standard theory. This is because this anomaly is persistent. Therefore this behavior exists (Muhammad, 2009).

Over the past decade, behavioral finance has become a household name in the finance industry. Nowadays, many financial institutions offer financial services based on findings grounded in behavioral finance (Baltussen, 2009).

Behavioral finance began as an attempt to understand why financial markets react inefficiently to public information (Bloomfield, 2006).

Taller describes Behavioral financial that: "I easily know Behavioral financial as attitude toward financial knowledge with an open mind".

Behavioral financial is a compound of classic economy and financial with the hypothesis of decision and psychology looking for explanation and analyzing abnormal phenomena found in financial science (Fuller, 2000).

Behavioral financial science as a new paradigm in financial management consists of studying psychological works on investors' behavior and subsequently on behavior of financial markets.

Lintener also defines Behavioral financial science as: "studying the way of influences and reactions of people to information for making knowledgeable decisions".

To elaborate the importance of behavior study in financial matters, Morton's definition is addressed:

"The basis and center of financial hypothesis consist of studying behavior of factors in the way of resources allocation and arrangement from time and place point of view in an unreliable environment."

Generally, behavioral financial is study of psychological effects on people's behavior in financial markets. As Behavioral financial explains

why and how markets might not be efficient is at the center of attentions (Sewell, 2010).

Statman and Shefrin, have conducted research in the area of behavioral finance. Statman (1995) wrote an extensive comparison between the emerging discipline behavioral finance vs. the old school thoughts of "standard finance." According to Statman, behavior and psychology influence individual investors and portfolio managers regarding the financial decision making process in terms of risk assessment and the issues of framing.

Shefrin (2000) describes behavioral finance as the interaction of psychology with the financial actions and performance of "practitioners."

Generally, behavioral financial is study of psychological effects on people's behavior in financial markets. As Behavioral financial explains why and how markets might not be efficient is at the center of attentions (Sewell, 2010).

Fama's criticism to behavioral financial

Behavioral financial subjects like other new subjects have some critics. For example Fama finds two major criticisms to behavioral financial. First, unusual phenomena being experienced in financial markets are mostly due to slight or excessive reaction of investors. In other words, there are always excessive or slight reactions in financial markets. Secondly, unusual phenomena are being excluded gradually or due to research methodology improvement. In relation to first Fama's reason, it can be said that this reasoning represents an incorrect view toward psychological principles of behavioral financial. Because there is no psychological principle propounds people show excessive or slight reactions. It is no wonder that researches on unusual phenomena do not prove such an issue. His second reason is also unconvincing. In fact, the issue that preliminary claims in researches are mostly rejected or adjusted by subsequent researches, is a nature of scientific researches in all scientific fields. Additionally, strict reliance on the matter that unusual phenomena are being eliminated gradually cannot be a reason to state that markets acts strictly rational. Indeed, even if markets act highly irrational, we can still expect that unusual phenomena will be excluded gradually (Shiller, 2003).

The End of Behavioral Finance

Behavioral finance is no longer as controversial a subject as it once was. As financial economists become accustomed to thinking about the role of human behavior in driving stock prices, people will look back at the articles published in the past 15 years and wonder what the fuss was about. I predict that in the not-too-distant future, the term

“behavioral finance” will be correctly viewed as a redundant phrase. What other kind of finance is there? In their enlightenment, economists will routinely incorporate as much “behavior” into their models as they observe in the real world. After all, to do otherwise would be irrational. (Thaler.1999)

Psychological factors affecting volume of investment

Experimental documents obtained from accomplished researches in capital markets represent the fact that investors’ decision-making process and their behavior is very complicated and it is not possible to present a single pattern for foreseeing their behavior in market. Investors’ behavior in stock market is often irrational.

There are many psychological factors affecting investors’ behavior and their volume of investment in stock market. In this article we will discuss 6 psychological factors in details:

1. Risk- taking
2. Self- confidence
3. Logic power
4. Personal habits
5. Conforming buyer’s subjective image and company real image
6. Self-superiority sense

Definition of factors Risk- taking: The degree of risk- taking is one of factors that can influence person. This is the most important factors in financial markets especially stock markets. People are divided into two groups of risk taker and risk avoider. Investors in stock market demand their expected output based on accepting certain rate of risk.

Self-confidence: Self-confidence is the other factor that can influence people’s intention for investing at stock market. People with low level self-confidence, mostly prefer more reliable investments (purchasing lands, short-term savings). Because a person who is more self-confident, makes decisions about issues more reliably and rigidly.

Personal Habits: People have different habits vary in relation to personal characteristics, life style and culture. Most of these habits influence people’s investment decisions. For example many people are used to invest only at the first days of week.

Logic: We can consider logic as affecting factor on people’s investments. Logic is a set of principles that immunizes the mind from mistakes in thinking. Therefore, logic is trying to learn corrects way of describing and reasoning.

Conforming buyer’s subjective image and company real image: From types of internal stimuli can form the person’s behavior is conforming buyer’s subjective image and company real image. Many of investors purchase the companies’ stocks without paying any attention to the company brand or financial statements (dividend, interest division policy and interest growth rate). Actually, such investors become the company stockholder base on their ideal subjective image of products and services. Indeed, these people establish a conformity between their idealistic subjectivity and the real existing image of companies and eventually become the stockholder of a company that its products, services and management conforms with their subjectivities.

Self-superiority sense: Self-superiority sense is another factors can affect person’s investment in stock market. Self-superiority is a psychological feeling exists in most of people. People with such sense in their attitude toward others try to show off themselves to prove their superiority on others.

Stock market introduction and performance: Stock market is an established and official capital market that all types of companies stocks or debenture bonds of the government or other organizations or institutes are being exchanged under special criteria or regulations. In other words, stock market is a reliable and official centre for collection of liquidity and people’s tiny, immense and slumped savings to spend these monies for different types of securities and a reliable and stable income to be achieved. In other hand, economical institutes use these resources to equip themselves financially and utilize them to finance their own capital projects. Generally we can name following functions for the stock market:

- A. Square distribution of revenue and attracting people participation in merchandizing and production activities with sharing ownership of economical units by selling the units stocks to peoples.
- B. Creation of perfectly competitive market with special features including equal and similar presented products, numerous dealers and finally possibility of free entering or leaving of people. Due to these features the supply and demand is the determinant of the price.
- C. Optimized designation of stocks and determination of competitive stock price that moves the financial institute towards more effectiveness and making profit by selecting creative and effective managers.
- D. Providing proper, correct and on time distribution of relevant and reliable information

between stockholders. The conditions of each country stock market can be the indicator of its economical conditions and market performance.

Tehran securities market efficiency

The subject of Tehran securities market efficiency has been discussed by many researchers.

Sinaee (1994) in his research studied the efficiency rate of Tehran securities market in semi-strong level. The results of hypothesis test of his study shows that there was an abnormal and extraordinary output in assembly week of companies that meaningfully rejects zero hypothesis on lack of abnormal output, while in markets with semi- strong efficiency the abnormal output should not exist. It means that after formation of assembly no abnormal output should exist and generally the stocks interest and revenue after general assembly is being increased. But the study shows that Tehran market acts reversely in this case and the price being decreased after assembly declaration. It means that semi-strong efficiency of Tehran securities market is rejected.

After studying the efficiency of the securities market, Kimiagari and Tijari (2006) found that Tehran securities market is not efficient in weak level as well.

They describe the reasons of this matter as follows:

Deficiency and inconsistency of rules and regulations of capital market, incorrect compliance of rules and regulations of capital market, lack of variety in financial assets, lack of institutes related to capital market, superficial transactions, formation of coalitions, not providing information from companies and using confidential data by participants of the company, propagation of false news, issuance of incorrect information from companies.

Khani and Farahani (1999) appraised the efficiency of Tehran securities market. In the study, the efficiency of the securities market the rate of stock price adjustment related to new information issuance was evaluated. The findings shows that Tehran securities market does not utilize available information well for stocks appraisal and comparing with markets like New York, information does not reflect in prices and rate of information reflection in stocks prices is very low. However, the results show that all new and available information for public are being totally reflected in prices.

It should be noted that this reflection happens after sixth day in New York market and seventeenth day in Tehran market. Additionally, prices in NY market reflect 70% of information in the first day but in Tehran market it occurs in twelfth day.

Methodology

Considering the type and nature of issue, objectives and questions of research, this article is descriptive. We use Eviews software to analyze the variables influences. The analysis method is based on regression analysis. Eviews software use to analyze our data. Eviews can be used for general statistical analysis and econometric analyses, such as cross-section and panel data analysis and time series estimation and forecasting.

This article is applicable with a view to objective. The article objective is to scan the influence of psychological factors on the volume of people's investment in securities market.

To extract visionary and theoretical principles Latin articles available in credible e-libraries and also relevant books and valid web sites were used.

According to carried out studies, 6 psychological factors affecting person's volume of investment were identified. Based on these identified factors, a questionnaire are used for collecting 200 with a total 12 questions. 6 psychological factors was measured by 12 questions using a five-point Likert Scaling method (from strongly agree to strongly disagree) and one open question witch investors mention etheir amount of investments.

For the pre-test, firstly 30 questionnaires were distributed that after collection and modifications, finally 200 questionnaires were distributed in accepted securities market companies. A trained investigators distributed questionnaires. Cronbach's alpha coefficient calculated for total sample size is 0.782 indicating high reliability of the research questionnaire.

Hypotheses of Research

The main hypotheses of research are as follows:

- H1: Self-confidence affects the people's volume of investment in stock market.
- H2: Risk taking affects the people's volume of investment in stock market.
- H3: Logic power affects the people's volume of investment in stock market.
- H4: Personal habits affect the people's volume of investment in stock market.
- H5: Self superiority sense affects the people's volume of investment in stock market.
- H6: Conforming buyer's subjective image and company real image affects the people's volume of investment in stock market.

1. Results

The data concerning respondents is shown in Table 1.

Table 1-Data about respondents

Factor	Frequency	Percentage
Gender		
Male	248	%82
Female	54	%18
Age		
25 to 35	96	%32
35 to 45	165	%55
Over 45	39	%13
Degree		
Bachelor	141	%47
Master	105	%35
Phd	54	%18
Phd	54	%18

Test of hypotheses

To test the hypotheses of the research t-Statistic is used. Therefore, in our model, we want to test the meaningfulness of variables. To test the meaningfulness of these variables estimated by software, t-statistic is used. We test H₀ hypothesis against H₁ with t-statistic by independence grade n-k in tolerance percentage of 1, 5 and 10. In case of meaningfulness of variable, the relevant hypothesis with the occasion is confirmed.

The other way that we can test the H₀ is using probability column of H₀ hypothesis approval (Prob) in the software output that states the probability of H₀ hypothesis approval with the zero variable. If this probability is more than 5 percent H₀ cannot be rejected and estimated variable with 95 percent probability is not meaningful. Otherwise the variable with 95 percent certainty is meaningful. Under regression shows the estimation of studied variables. Table 2 indicates each element which defined in software

Table 2-Definition of software dimensions

V	R	F	H
Volume of Investment	Risk	Self confidence	Personal habits

M	N	W
Logic	Conforming buyer's Subjective image and Company real image	Self-superiority sense

$$V = -0.3608 + 0.0099W + 3.1642R + 1.1601F - 0.7929H$$

$$t \text{ (-0.137) (0.034) (11.465) (2.645) (-1.685)}$$

$$-0.5031M + 0.4252N$$

$$(-2.059) (1.232)$$

$$n = 200 \quad R^2 = 0.55 \quad F = 39.81 \quad D.W = 1.68$$

Auto regression Model

To estimate the variables more accurately, we use Auto Regression model. Here we enter the dependant variables into the model with a pause. All affecting factors until a prior period V(-1) is presented in the model.

$$V = -1.8087 - 0.0679W + 3.1361R + 1.1962F - 0.8016H$$

$$t \text{ (-0.679) (-0.237) (11.515) (2.753) (-1.709)}$$

$$- 0.4658M + 0.4600N + 0.1003V(-1)$$

$$(-1.895) (1.314) (2.062)$$

$$n = 200 \quad R^2 = 0.56 \quad F = 35.66 \quad D.W = 1.87$$

Hypotheses testing

First hypothesis testing

H1: Hypothesis testing results show that acceptance probability of H1 hypothesis is %99 and t-statistic is 11.515751. Therefore, the research hypothesis is accepted with certainty level of %99. It can be concluded that person's risk taking has a very great influence on volume of investment in stock market.

Regarding to risk taking variable coefficient, if risk taking increases by 1 unit, the volume of investment will increase by 3.13.

There is a direct relation between risk and volume of investment. As such, whatsoever, person's risk taking is increased, the volume of investment is rising and vice versa.

Second hypothesis testing

H2: Hypothesis testing results show that acceptance probability of H2 hypothesis is %99 and t-statistic is 2.753292. Therefore, the research hypothesis is accepted with certainty level of %99. It can be concluded that person's self-confidence has a very great influence on amount of investment in stock market.

Regarding to self-confidence variable coefficient, if self-confidence increases by 1 unit, the volume of investment will increase by 1.19.

There is a direct relation between self-confidence and amount of investment. As such, what so ever, person's self-confidence is increased; the volume of investment is rising and vice versa.

Third hypothesis testing

H3: Hypothesis testing results show that acceptance probability of H3 hypothesis is %95 and t-statistic is -1.895134. Therefore, the research hypothesis is accepted with certainty level of %95. It can be concluded that person's Logic power has a very great influence on volume of investment in stock market. Regarding to logic power variable coefficient, if logic power taking increases by 1 unit, the volume of investment will decreased by 0.46.

As it can be seen, there is a reverse relation between logic power and volume of investment. As such, whatsoever, person's logic power is increased; the volume of investment is falling and if the logic power is decreased, the volume of investment is increased.

Fourth hypothesis testing

H4: Hypothesis testing results show that acceptance probability of H4 hypothesis is %90 and t-statistic is -1.709607. Therefore, the research hypothesis is accepted with certainty level of %90. It can be concluded that Personal habits have a great influence on volume of investment in stock market.

Regarding to Personal habits variable coefficient, if Personal habits increases by 1 unit, the volume of investment will decreased by 0.80.

As it can be seen, there is a reverse relation between personal habits and volume of investment.

As such, whatsoever, person's personal habits are increased; the volume of investment is falling and if the personal habits are decreased, the volume of investment is increased.

Fifth hypothesis testing

H5: Hypothesis testing results show that t-statistic is 1.314996. Therefore, the research hypothesis is rejected. It can be concluded that Conforming buyer's subjective image and company real image has no significant influence on volume of investment in stock market.

Sixth hypothesis testing

H6: Hypothesis testing results show that t-statistic is -0.237221. Therefore, the research hypothesis is rejected. It can be concluded that Self superiority sense has no significant influence on volume of investment in stock market.

Table 3: Hypotheses testing

Variable	Coefficient	Std.Error
Risk	3.136185	0.272338
Self-confidence	1.196201	0.434462
personal habits	-0.465849	0.245813
Logic	-0.801607	0.468883
Buyer's subjective image	0.460030	0.349833
Self-superiority sense	-0.067956	0.286470

Variable	t-statistic	Prob.	Acceptance Or Refusal
Risk	11.515751	0.0000	Acceptance
Self-confidence	2.753292	0.0064	Acceptance
personal habits	-1.895134	0.0590	Acceptance
Logic	-1.709607	0.0889	Acceptance
Buyer's subjective image	1.314996	0.1900	Rejected
Self-superiority sense	-0.237221	0.8127	Rejected

Considering the obtained results, we can extract following model:

$$V = 1.095 + 3.194R + 1.280F - 0.510M - 0.979H$$

- 2

n=200 $R^2 = 0.54$ F=59.48 D.W= 1.69

R-squared= 0.549

Adjusted R-squared= 0.540

Adjusted R-squared and R-squared numbers are very close and have a slight difference. This indicates the reliability of estimated model.

Conclusion

As it was stated, psychological factors have significant influences on investors' decisions and these factors cause that people to be different from

each other internally. But, sometimes these factors have been less considered by researchers than external factors.

The results analysis show that in the psychological factors, risk and self-confidence have positive influence on volume of investment.

The people are more risks and have more confidence that the investment volume is greater.

When a person never accepts the risk and wants to achieve an output without any risks, he/ she cannot move toward stock market. Because people that invest in stock markets, should accept an amount of risk based on outputs.

A person who is more self-confident, makes decisions about issues more reliably and rigidly and trusts on himself and his capabilities and finally this view enables the person to utilize his strengths and inner potentials in suitable areas (stock market). It

should be noted that we cannot say that people are more confident, can succeed in stock markets or not, it means that initial self-confidence can act like a stimulus for encouraging the person to invest.

While the two factors, personal habits and logic have a negative impact on the volume of investment. Logic is trying to learn corrects way of describing and reasoning. The people are more rational in their investment behavior, the investment volume is reduced. Because all of them are very reasonable and the obsessive attention to this makes the risks involved in their investments than they this will reduce the size of its investment. Many people are also involved in personal habits and behaviors of their investment to reduce the size of their investment.

For example, many people based on individual habits for some days than other days of the week, preferring to invest. This makes the investment volume is reduced.

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References

1. Adam Szyszka. From the Efficient Market Hypothesis to Behavioral Finance. Poznan University of Economics Poland, 2009.
2. Fama, E., Market Efficiency, Long Term Returns and Behavioral Finance, Journal of Financial Economics, 1998; 49, 283_301.
3. Fuller, R. Behavioral Finance and The Source of Alpha, Fuller & Thaler Asset Management, 2002.
4. Guido Baltussen. Behavioral Finance: an introduction Stern School of Business, New York University & Erasmus School of Economics, Erasmus University Rotterdam, 2009.
5. Merton, R.A. Simple Model of Capital Market Equilibrium with Incomplete Information, Journal of Finance, 1987; 42, 483_510.
6. Merton, R. and Z. Bodie, Design Of Financial Systems: Towards a Synthesis of Function and Structure, Journal of Investment Management, 2005;3, 6_28.
7. Nik Maheran Nik Muhammad. Behavioral Finance vs Traditional Finance. Advance Management Journal, 2009; 2 (6), 325-345.
8. Olsen, R. Behavioral Finance and Its Implications for Earning Estimation, Risk Assesment and Stock Returns, Financial Analysts Journal, 1998; 52(4): 37-44.
9. L. Blume and S. Durlauf. Efficient Markets Hypothesis, Journal of Investment Consulting, 2007; 7, 21-44.
10. Lintner J. Security Prices, Risk and Maximal Gains from Diversification, Journal of Finance, December Issue, 1965;20,587-615
11. Markowitz H. Portfolio Selection, Journal of Finance, 1952; 7(1), 77-91.
12. Mossin J. Equilibrium in a Capital Market, Econometrica, October Issue, 1966;34,768-783
13. Othmar M. Lehner. A Survey of Behavioral Finance, Johannes Kepler University, Linz Austria, 2004.
14. Robert Bloomfield. "Traditional Vs. Behavioral Finance". Cornell University, 2010.
15. Robert Bloomfield. Behavioral Finance, Cornell University, 2006.
16. Shefrin, Hersh. Beyond Greed and Fear. Boston, Massachusetts: Harvard Business School Press, 2000.
17. Sheiler, R. From efficient market to behavioral finance, journal of economic prospective, 2003;17(1), 83-105.
18. Statman, M. "Behavioral Finance vs. Standard Finance." Behavioral Finance and Decision Theory in Investment Management, Charlottesville, 1995; VA: AIMR: 14-22.
19. Thaler, R.H, The end of Behavioral Finance, Financial Analyst Journal, 1999;55(6), 12-17.
20. Victor Ricciardi and Helen K. Simon. What is Behavioral Finance? Business Education & Technology Journal. 2000;2(2), 1-9.

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