

Consequences of human behaviors' in Economic: the Effects of Behavioral Factors in Investment decision making at Tehran Stock Exchange

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Abstract—recent literature in empirical finance is surveyed in its relation to underlying behavioral principles, principles which come primarily from psychology, sociology and anthropology. In this study I investigated the role of behavioral finance and investor psychology in investment decision-making at the Tehran Stock Exchange with special reference to institutional investors. Using a sample of 23 institutional investors, the Behavioral factors discussed are: representativeness, overconfidence, anchoring, gambler's fallacy, loss aversion, regret aversion and mental accounting affected the decisions of the institutional investors operating at the TSE.

Keywords; Behavioral finance, institutional investor, Tehran Stock Exchange, Heuristic decision, Prospect theory

I. INTRODUCTION

Theories of human behavior from psychology, sociology, and anthropology have helped motivate much recent empirical research on the behavior of financial markets. Behavioral finance attempts to explain human behaviors' in markets, importing theories of human behavior from the social sciences (Shiller, 1998). However, the EMH increasingly failed to explain market behavior, perhaps most dramatically, being unable to explain why US share prices fell by over 30% during the 2-month period that preceded the crash of October 1987. Behavioral finance attempts to better understand and explain how emotions and cognitive errors influence investors. Many researchers (e.g., Shiller, 1998; Olsen, 1998; Rockenbach, 2004; Gao and Schmidt, 2005) believe that the study of psychology and other social sciences can shed considerable light on the behavior of financial markets as well as explain many stock market anomalies, market bubbles and crashes. A famous example, for instance, is the evidence that the weather in the trading location influences equity prices (Saunders, 1993; Kamstra et al, 2000), presumably by affecting traders' emotional state. The role of emotions may be particularly important in situations of risk and Uncertainty, which are pervasive in finance (Loewenstein et al, 2001).

Most behavioral finance studies have been carried out in markets behavior of Europe and the USA (Odean, 1999; Rockenbach, 2004; Caparrelli et al., 2004; Fogel and Berry, 2006). Only a few studies have been completed in emerging markets (for example, Mansor and Lim, 1995; Lai et al.,

2001). This paper adds to the research by investigating how behavioral factors affect the decision-making process of institutional investors in the Iran context. Studies on the TSE show weak form efficiency.

This study attempts to explain how investors make investment decisions in Iran, an emerging market; it addresses the following objectives:

- To determine the main behavioral factors influencing investment decisions at the TSE.
- To investigate the impact of these behavioral factors on investment decision-making

II. EMOTIONAL FACTORS INFLUENCING INVESTOR DECISION-MAKING

Under the paradigm of traditional financial economics, decision makers are considered to be rational and utility maximizing. In contrast, cognitive psychology suggests that human decision processes are subject to several cognitive illusions. These can be grouped into two classifications, illusions due to heuristic decision processes. Heuristics refer to rules of thumb which humans use to made decisions in complex, uncertain environments. The second groups of illusions which can impact on decision processes are conveniently grouped in Prospect Theory (Kahneman and Tversky 1979). This theory proposes a descriptive framework for the way people make decisions under conditions of risk and uncertainty and embodies a richer behavioral framework than that of subjective expected utility theory which underlies many economic models.

TABLE 1

Heuristic decision	Representativeness	Refers to the tendency of decision makers to make decisions based on stereotypes. that is to see patterns where perhaps none exist. Representativeness also arises in the guise of the 'law of small numbers' whereby investors tend to assume that recent events will continue into the future.
	Overconfidence	Leads investors tend to overestimate their 'predictive' skills and Believe they can 'time' the market.
	Anchoring	Arises when a value scale is fixed or anchored by recent observations. This can lead investors

		to expect a share to continue to trade in a defined range or to expect a company's earnings to be in line with historical trends, leading to possible under reaction to trend changes.
	Gamblers' fallacy	When people inappropriately predict that a trend will reverse. This tendency may lead investors to anticipate the end of a run of good (or poor) market returns
Prospect theory	Loss aversion	Is based on the idea that the mental penalty associated with a given loss is greater than the mental reward from a gain of the same size. If investors are loss adverse, they may be reluctant to realize losses.
	Regret aversion	It includes the pain of feeling responsible for the decision which gave rise to the loss.
	Mental accounting	Investors tend to treat each element of their investment portfolio separately. This can lead to inefficient decision making. It has been noted that people are often not consistent in making their investment decisions.

III. IMPACT OF INSTITUTIONAL INVESTOR BEHAVIOUR ON TRADING

The influence of institutional investors on the trading volumes of equity markets is widely recognized and well documented in the literature. For example, in 1989, it was estimated that nearly 70% of the trading volume on the New York Stock Exchange (NYSE) was due to trading by institutional investors and their member firms (Schwartz and Shapiro, 1990). There are also several theories on whether their trading moves markets away from the equilibrium level of prices. For example, Chan and Lakonishok (1993) show that institutional trades have a substantial effect on the prevailing market prices. Other studies show that in seller-initiated block trades, both mean temporary and permanent price effects are present, whereas in buyer-initiated block trades, only permanent price effects are observed (Krauss and Stoll, 1972; Ryngaert, 1988). Gompers and Metrick (1998) found that institutional investors are not homogeneous in their trading activity. The results indicated that institutional investors affect the short-term equilibrium share prices, but some institutions are better than others in timing their trading strategies. Maintaining the Integrity of the Specifications

IV. DATA

We surveyed the fund managers of institutional investors to establish their decision-making processes. The population in the study included all the 40 institutional investors operating at the TSE as on 5 August 2010 (Table 2). This was followed by a covering letter and a questionnaire. Data were analyzed using the SPSS software package. Internal consistency of the multi-item scales was tested using Cronach's alpha. In this study, all the alpha values obtained were above 0.6, and therefore, considered acceptable. Skewness and Kurtosis tests confirmed that the sample was drawn from a normal population. Factor analysis was used to

test the reliability of the items in the multi-item scales, while the t-test was used to test for significant differences between the factor means.

TABLE 2

Type of institutional investor	No.	Percentage
Insurance firms	15	37.5
Investment banks	12	30.0
Mutual funds	8	20.0
Other banks and listed companies	5	12.5
Total	40	100.0

V. RESULT

A. Behavioral factors affecting investment decision-making:

This section reports the results of the behavioral factors that affect investment decision-making by institutional investors at the TSE.

TABLE 3

Behavioral factors (Heuristic theory)	Yes	No	Yes (%)
Representativeness			
You buy 'hot' stocks and avoid stocks that have performed poorly in the recent past.	13	10	56.5
You use trend analysis to make investment decisions.	15	8	62.5
Overconfidence			
You use your predictive skills to time and outperform the market.	16	7	69.2
Anchoring			
Your trading is affected by recent experiences in the Market.	18	5	78.2
You use the purchase price of stocks as a reference point in trading.	20	3	80.0
Gambler's fallacy			
You are normally able to anticipate the end of good or poor market returns at the TSE.	18	5	78.2

- Use of heuristics theory: The use of heuristics was determined by the presence or absence of the following behavioral characteristics: representativeness, overconfidence, anchoring and gambler's fallacy. Using 'Yes' or 'No' type questions, respondents were asked to indicate whether these factors influenced their investment decision-making process.

The behavior of over 76% of the respondents can be explained by heuristic theory. There is a significant difference between the respondents who exhibited this behavior and those who did not ($t = 4.8538, P = 0.001$). Anchoring also featured prominently, more so in benchmarking against the purchase price (80%), but also in relation to recent experience (78%). A strong incidence of

Gambler's fallacy was also presented with 78% of respondents believing that they could anticipate changes of trends in stock prices. Overconfidence was exhibited by 69% of the respondents. These findings also underscored the fact that overconfidence was by no means limited to individual investors, but affects institutional investors. Over 50% of the sample exhibited representativeness behavior in both forms questioned.

- Use of prospect theory: Prospect theory was evidenced by the presence or absence of the following three behavior characteristics: loss aversion, regret aversion and mental accounting. Using the 'Yes' or 'No' type questions, respondents were asked to indicate whether these factors influenced their investment decision-making process.

TABLE 4

Behavioral factors (Prospect theory)	Yes	No	Yes (%)
Loss aversion			
When faced with a sure gain, you are risk averse	16	7	69.2
When faced with a sure loss, you are a risk taker	0	23	0.0
Regret aversion			
You avoid selling shares that have decreased in value	14	9	60.8
You sell shares that have increased in value faster	9	14	39.
Mental accounting			
You tend to treat each element/account in your investment portfolio separately	18	5	78.2
Mental accounting (selling losing investment of portfolio)	9	14	39.1

Only 47% of the behavior of the investors can be explained by prospect theory. Moreover, the difference between the means of those exhibiting this behavior and those that do not is not significant ($t = 0.25$, $P = 0.8051$). Mental accounting (separate elements) ranked highest (78.2%) followed by regret aversion (avoid selling losing shares). None of the respondents exhibited loss aversion (with a sure loss) behavior. Regret aversion (quickly selling gaining shares) was displayed by 39.1% of the respondents as was mental accounting (selling-losing investment portfolios). Most investors were unwilling to sell a losing investment even when the account reflected a loss position. It is interesting that different measures of the same factor show opposite results. For example, 60.8% of the respondents indicated that they avoid selling shares that have decreased in value, while only 39.1% of the respondents indicated that they sell shares that have increased in value faster. Yet, these two measures relate to the same factor, regret aversion.

The mean number of respondents exhibiting Heuristic behavior (17.4, Table 3) is significantly greater ($P = 0.0429$)

than prospect theory behavior (11, Table4). We, therefore, conclude that the Heuristics theory is dominant in explaining the behavior of institutional investors investing on TSE listed securities.

B. Impact of behavioral factors on investment decision-making:

This section examined the extent to which behavioral factors affect investment decision-making by institutional investors operating at the TSE. Respondents were asked to rate on a five-point scale the effect of certain factors on decision-making as shown in Table 5. Market information has the highest impact on investment decision-making. Over 95% of the respondents reported that information has a very high/high impact on their investment decisions. Fundamentals of underlying stocks ranked second with 90% of the respondents indicating a very high/high impact on their investment decisions. This finding confirms our earlier findings that fundamental analysis was more widely used in investment decision-making than technical analysis (past trends of stocks).

TABLE 5

Factor	Very high impact	High impact	Moderate impact	Little impact	No impact
Price changes		10	11		2
Information	14	8	1		
Past trends of stocks		10	8	4	
Fundamentals of underlying stocks	10	11	2		
Focus on popular stocks		2	12	2	7
Seasonal price cycles		3	10	5	5
Customer preference	1	3	10	5	7
Over-reaction to price changes	3	8		3	9
Under reaction to price changes	3	8	2	1	9

More generally, market information, fundamentals of the underlying stock and the stock price change leading to either an over- or under-reaction to the price change were found to have the highest impact on investor decision-making behavior. The very high impact/high impact of information on investment decision-making behavior may be linked to the impact of the focus on popular stocks and other attention-grabbing events at the TSE, as the latter relied on information released into the stock market. Over 90% of the respondents indicated that price change of stocks has a moderate to high impact on their investment behavior. Sixty percent of the respondents admitted to focusing on popular stocks. Past trends of stocks had a low impact on the institutional investor decision-making behavior. Only 43% of the respondents reported that technical analysis had a high impact on their decision-making.

VI. CONCLUSIONST

The findings show that behavioral factors do influence the investment decision-making process. Heuristic processes and prospect theory were evident, with heuristics strongly dominating prospect theory in explaining the behavior of institutional investors operating at the TSE. Anchoring and gamblers' fallacy were most prominent.

This study supports the view that the behavior of the institutional investors operating at the TSE is affected by various factors. The impact of these factors on the institutional investor decision-making behavior is in varying degrees from very high impact to little or no impact. Market information and the fundamentals of the underlying stocks had the highest impact on investment decision-making.

Most of the findings are consistent with those of studies carried out in the major economies. Factors such as cultural differences, the issues around emerging economies, varying levels of governance, and size of the markets may have been expected to influence the findings. Further research may be specifically directed at some of these issues in undertaking a more nuanced study or to explore why behavioral theories that relate to developed markets are applicable in emerging arkets. Research may also be directed towards the investigation of the behavior of individual investors at the TSE, since individual investors behave differently (Lehenkari and Perttunem, 2004).

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