

## Providing a Logistic Model to Predict Individual Trading Behavior in Tehran Stock Exchange

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### Abstract

Information is like a strategic decision-making tool in which the quality of decisions will merely depend on the information used at the time of making those decisions. The purpose of this research is to assist individual investors in Tehran Stock Exchange by providing them a logistic model enabling them to predict their trading behavior. The data in this research has been collected from the statistical population of the study through variables, believed to have effects on the investors' process of decision making. Therefore, in order to achieve the statistical data, 2400 transactions in the form of 100 transactions, including buy and sell of stock shares from March 2017 until February 2019 have respectively been collected as samples. Based on the results of the logistic

regression test, the behavior of institutional investors, as well as the volume of stocks traded have a significant positive impact on the behavior of individual investors (the probability of buying shares by them) versus the Beta, earnings per share, and dividends per share that have a negative effect on the probability of purchasing shares by individual investors. The analysis of the results suggests that individual investors are mainly subject to collective behavior which in particular is the same behavior of institutional investors. On the other hand, they tend to invest in stocks with low beta (defensive stocks) along with factors such as earnings per share and dividends per share which have less impact on the probability of stock purchases by individual investors.

**Keywords:** Logistic Model, Prediction of Individual Trading Behavior, Behavior of Institutional Investors.

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## Introduction

Nowadays investors consider a number of factors when choosing an investment. Based on some existing approaches, investors' decision-making is not always rational and technical (Vadie & Shokouhizadeh, 2012). In the asset pricing theories, such as the asset and arbitrage pricing models, it is assumed that if the asset is not properly priced, all or at least the majority of investors will quickly trade it in large quantities and this action makes the prices adjust to the point of equilibrium. In fact, in the efficient market hypothesis, which is one of the most fundamental financial theories, investors cannot make abnormal returns by predicting prices. However, in the last three decades, market efficiency has been challenged with the emergence of anomalies and the emergence of a new field of financial science called behavioral finance. In fact, many investors are looking for abnormal returns by predicting price trends in the markets (Badri & Azzabadi, 2015).

Searching for information by individual investors is an important part of their investment decision making process. Investors are not able to respond appropriately when they are in emotional conditions and have behavioral biases by which they are affected. Factors such as; public news, corporate governance information, fear or excitement, television analysis, gender, personality type and etc. (Drakos, 2010; Jiang & Zaman, 2010). According to studies in foreign and domestic literature based on the evidence of market inefficiency and behavioral biases, individuals have different decision making traits for security trading which are proportional to the factors that influence their trading decisions.

In other words, the results of researches on the behavior of investors in the stock market indicates the existence of trading strategies and various influential variables for investing. In recent empirical studies which investigate the trading activities of a variety of investors, it has been found that investors follow a variety of transaction patterns as rules or market anomalies, such that many of them are traders who adopt a reverse or momentum strategy, and sometimes they need to behave collectively; in other words, the results of studies in emerging markets have shown that institutional investors are more likely to buy past loser stock and sell past winning stocks (reverse trading strategy) and individual investors perform differently in terms of trading timing and stock selection by collective behavior.

The next and most important in the behavioral biases is “the conservatism bias” which is cognitive in its origin and causes investors to react less to new information and consequently price movement sequences with respect to the past price, so-called momentum phenomenon (Grundy, 2001). On the top of what was mentioned above, when the stock market fluctuates a lot, investors come to know about those who have more information, and as a result they can take collective actions.

Bikhchandani and Banerjee (1992), have discussed that information flow is the source of the formation of a collective behavior and is also the observation of different kind of behaviors of other investors which transmits information to the individuals. Information flow creates collective behavior in the capital market. Georgi and Stoz (2012), found that individual investors adopt the same techniques like those of institutional investor behaviors (by examining daily trading on the Germany's Stock Exchange to estimate the probability of buying shares by individual investors and their relationship to institutional investor transactions).

The knowledge of decision-making models is limited to investors, and their understanding about the way individuals make their decisions is not easy. Thus, identifying, explaining and predicting human behavior affect decision quality and reduce the cost of information processing by both individuals and investors. In short, formulating behavioral models can help better understand capital markets and eliminate some of the bottlenecks caused by uncertainties (Darabi & Chenari, 2015). Based on the above, in order to help investors predict the market, this study has aimed to derive a model for predicting the type of individual investors' decision by logistic regression method.

## **Literature Review**

### **Theoretical foundations**

Studies of investor's behavior, securities price changes, and other variables underlying investor decision making have led to the formation of financial

theories. The main paradigm of financial theories is two basic assumptions of economic rationality and efficient market theory. The extent to which these assumptions are accepted or confirmed, makes it possible to separate financial theories from each other. Researches in the area of financial theories can be briefly classified as follows (Heibati et al., 2011).

In the 1950s, most financial studies used to focus on the mathematical analysis and the quantification of financial concepts, including Markowitz's study of explanation of the mean-variance rule. Studies in the 1960s sought to generalize the analytical framework presented by Markowitz to financial markets in order to provide equilibrium models for the purpose of explaining investor's behavior that later on resulted in the design of a capital asset pricing model, as well as the studies of efficient markets. In the 1970s, efficient market theory reached its highest level of influence in academic studies. The dominant financial models in this decade had examined the relationship between asset prices, macroeconomic variables and then attempted to link the financial sciences with the entire economy by using the rational expectations theory. Arbitrage pricing theory was also one of the financial theories in the same decade. The studies in 1980s examined the compatibility of efficient market theories for the entire stock market, using econometric models by examining the properties of time series of prices, cash profits, and earnings. In the late 1980s, the theory of efficient markets (without comprehensive study) had effectively linked the stock market fluctuations to its underlying variables, which had ultimately caused the focus of research studies to shift to a new form of financial theories. Thousands of research papers had been undertaken to either accept or reject the validity of both the assumption of rationality of economic agents and the theory of efficient markets. After this decade, unwilling investors, un-attracted of arbitrage opportunity, as well as the replacement of expected utility theory with perspective theory was declared as the most important fundamentals of modern financial theory (behavioral finance). Despite the arbitrage opportunity for investors in an inefficient market, the use of this opportunity may be limited or seem less attractive to investors for the following reasons:

- Fundamental Risk: Bad news about stocks fundamental variables can cause a significant reduction in the share price.

- Noise Trader Risk: Undervaluation of stock prices due to the pessimistic market sentiments and short-term horizon investors.

- Implementation Costs: Implementing the arbitrage opportunity utilization strategy may be accompanied by problems and eventually constraints with restrictions on borrowing sales or repurchasing borrowed shares sales.

- Model Risk: Errors in intrinsic share valuation higher than the current market share price due to errors in various intrinsic share price valuation models.

The most important concepts of perspective theory that has led to investors' behavioral biases are as follows:

- Loss Aversion: It refers to the fact that people are sensitive to loss of their capital, and this fact is more than adding to their wealth.

- Mental Accounting: The concept refers to the mental feature that individuals want to organize their world into separate mental accounts. Investors tend to treat each element of their investment portfolio separately. This can lead to an ineffective decision making.

- Self-Control: It actually indicates that investors choose appropriate investment options that is suitable for them and when it becomes necessary, they can impose restrictions to control their account(s).

- Regret Aversion: This occurs when people want to avoid the discomfort of making poor decisions. Regret aversion encourages investors to maintain poorly performing stocks to avoid identifying losses.

- Self-deception: In self-deception theory, in addition to discussing investors' over-confidence in their knowledge and abilities, mechanisms are explored in which individuals seek ways to justify the outcome of their decisions and thereby gain the respect of others.

### **Empirical studies**

Kanojia, Singh and Goswami (2018) by investigating the factors influencing individual investors in the Indian stock market and examining the most referred biases in the related literature including overconfidence, herd behavior, cognitive dissonance, disposition effect, representative bias, mood and cultural bias residing in the capital city of the country, found that investors become highly influenced by representative bias, followed by overconfidence, cognitive dissonance and disposition effect.

Sarkar and Nath Sahu (2018) by collecting data from 400 randomly selected individual investors of stock market from various districts of West Bengal using a structured questionnaire on five point Likert scale, found that Demographic Factors, Awareness and Perceived Risk Attitude significantly influence investment behavior of individual investors of stock market.

Joshi and Batra (2017) by investigating factors affecting "Investment Decision" in Bombay Stock Exchange found that factors like Price Earning (P/E) Ratio and Earnings Per Share (EPS) are given the top importance as compared to market share, company's prestige, liquidity and likewise, and in case industrial factors are considered, the government policies and growth rate of industry will then play a more important role.

Farooq, Afzal, Sohail and Sajid (2015) by gathering evidence from equity fund managers and individual investors in Pakistan concluded that heuristics, use of financial tools and firm level corporate governance have positive and

significant impact on investment decision making, whereas “risk aversion” has negative and significant impact on investment decision making.

Talebnia and Takhtai (2014) have discussed about the existence of a significant relationship between financial information including earnings per share, dividend per share and company capital with investor trading behavior.

Talane, Mahmoudi, and Sharafi (2013) found that there is a significant relationship between the volume of trading data and future stock returns.

Erfani and Gol arazi (2012) by examining stock trading in 36-month period ending in July 2012, concluded that there is a balance between trading volume of a company's stock and market trading volume.

Phansatan and Powell (2012) using data from the daily trading of four categories of Thai stock market investors during 1999-2004 and presenting a self-regression model, found that individual investors often follow collective behavior.

Saeedi and Bagheri (2010) analyzed the profitability of a reverse transaction strategy by using the data of seventy companies listed in Tehran Stock Exchange during 2002 to 2007. The results showed the usefulness of this strategy in Tehran Stock Exchange.

Keshavarz Haddad and Rezaei (2010) found the evidence of collective behavior among institutional investors in Tehran Stock Exchange by studying the weekly, monthly and seasonal return data of the major stockholders of the companies listed in Tehran Stock Exchange and applying the data from the years of 2006 to 2008.

Goetzman and Kumar (2008) proved that US investors own collections of low diversity securities, so that the level of diversification is lower for younger investors with lower income, less education, and less experience.

Peng and Xiong (2005) stated that investors tend to process markets and segments information rather than company-specific information.

Griffin, Harris and Topaloglu (2003) studied the daily cross-sectional relationship between stock returns and transactions of institutional and individual investors in Nasdaq 100 by using a quantitative analysis. The results showed that the institutional investors sought to gain return by buying the winning stocks and selling the losing ones.

Grinblatt and Keloharju (2000) analyzed the behavioral differences based on the past performances of various groups of investors using the two-year data of the Finnish Stock Exchange. The results showed that individual investors behaved collectively.

## Research methodology and models

### Research methodology

This is an applied research in terms of purpose and in terms of data type, it is a descriptive-analytical study of empirical research which falls into the category of quasi-experimental research, because it uses historical information.

The statistical population of the study consisted of all trading data of stocks traded in Tehran Stock Exchange. The sample was randomly selected with 100 trading transactions per month from March 2017 until February 2019. So, a total of 2,400 securities trading transactions were sampled. Data on research variables, were collected using the library method and review of various databases available on Tehran Stock Exchange's website, CDs published by the Stock Exchange, Stock Exchange's Brokers Database, and Survey Market trends; all of them were used for the basis of logistic model extraction to predict the daily trading behavior of individual investors.

### Models and variables

In this study, the predictive model is extracted by using logistic regression analysis. This is a very common regression analysis in which the probability of a two-category (two-valued) outcome is related to the number of potential predictor variables. Data were analyzed using Excel and SPSS 22 software.

The general equation of logistic regression is as follows:

$$\text{Log} [p / (1-p)] = \beta_0 + \beta_1 x_1 + \beta_2 x_2 + \dots + \beta_k x_k$$

P: The probability of a first type outcome  
 Log [p / (p-1)]: Dependent variable  
 (ratio of probability of occurrence of type I to type II) (1)  
 $\beta_0$ : Width of origin  
 $\beta_1, \beta_2, \dots, \beta_k$ : Regression coefficients of independent variables  
 $X_1, X_2, \dots, X_k$ : Independent variables

Therefore, the proposed model of research will be as follows:

$$\text{TRADE} = \text{LOGIT} (\alpha + \beta_1 \cdot F_1 + \beta_2 \cdot F_2 + \beta_3 \cdot F_3 + \dots + \beta_m \cdot F_m) \quad (2)$$

Trade: The dependent variable is the type of transaction made by individual investors. This is a buy or sell on a trading day that has a qualitative nature and has a nominal measurement scale. In measuring this variable, the individual investors' decision to buy the securities is assigned to number one and to the decision to sell them (zero).

$F_m$ : Independent variables; The independent variables of this research are based on the research background as well as the results of a recent research by Zandi et al. (2019), on identifying the factors affecting the behavior of individual investors in Tehran Stock Exchange are as follows:

#### Stock Price Volatility:

The change in the daily stock price in the form of a decrease or an increase is called stock price volatility. In this study, the definition of stock price volatility is as follow:

$$P\text{-volit} = [(\max_{pit} - \min_{pit}) / (\max_{pit} + \min_{pit}) / 2]^{(1/2)}$$

P-volit: stock price volatility i, in month t  
 $\max_{pit}$ : Maximum stock price i, in month t  
 $\min_{pit}$ : Lowest stock price i, in month t

(3)

#### Behavior of Institutional Investors:

Due to the extent and volume of financial resources, institutional investors have a significant impact on the financial markets. In this research, using daily stock trading statistics of the individual and institutional investors (extracted from the stock exchange's website), the ratio of the volume of shares traded by institutional investors to the total volume of trading of selected stocks has been calculated.

#### Daily Trading Volume of Stocks:

The daily trading volume of stocks determines the amount of individual investors' attention to market transactions (Barber & Odean, 2008). This index is calculated by the trading volume of the share on the trading day against the average trading volume of that share in the previous month.

#### Stock Return Trend:

Average daily stock returns over the past month have been used to collect information on stock returns trends (Georgi & Stoz, 2012; Jagadeesh & Titmian, 1993). The daily return on stocks is also the percentage of the daily stock price change (given yesterday's price).

#### Beta Coefficient of Stocks:

Beta is the criterion of market risk. The beta coefficient is obtained by dividing the covariance between stock return and market return on market return variance.

#### Estimated Earnings per Share:

The income attributable to each shareholder is obtained by dividing the net income attributable to ordinary shareholders by the number of ordinary shares (in the simple capital structure). The earnings information for each share was collected using interim financial statements published by joint stock companies on the Stock Exchange and Securities databases (including the Codal website).

#### Realization of Earnings per Share:

Realization of Earnings per Share indicates the percentage of realized earnings



per share. This variable is calculated by using the actual information about Earnings per Share in the interim financial statements; in other words it is calculated by dividing the earnings per share in the interim financial statements by the expected earnings per share. The expected earnings per share (first expected earnings per share) is obtained from the Tedan website (a subset of the Codal website) as one of the announcements in the case of anticipated profit and loss statement for the companies listed in the Stock Exchange.

Dividends per Share:

Dividends per Share (DPS) is part of the after-tax profit per share that paid by the company. This variable was extracted by using the data published in the Stock Exchange database, and entered into the regression model.

### Research findings

In order to collect data on variables considered in this study, 100 transactions per month from the March 2017 until February 2019 were randomly selected. So, 2,400 transactions were selected and after deducting 132 cases from outliers or missing data on research variables, finally, 2,268 transactions were analyzed. The dependent variable was determined due to the major type of trades made by individual investors (buying or selling) of the stocks selected on the given day, it was determined by one order to buy and zero to sell. As the majority of transactions made by individual investors out of 2,268 selected trades, 1,450 were buying traded and 818 were selling traded. Descriptive statistics of the data collected for the independent variables are as table (1).

Table 1. Descriptive Statistics of the Data Collected for the Independent Variables

Title	number	mean	standard deviation
Trading Volume of Stocks	2268	1/12	1/36
Stock Price Volatility	2268	0/31	0/12
Stock Return Trend	2268	0/00	0/11
Estimated Earnings per Share	2268	585/96	832/58
Realization of Earnings per Share	2268	-0/49	7/84
Beta Coefficient of Stocks	2268	0/78	2/94
Behavior of Institutional Investors	2268	0/97	0/21
Dividends per Share	2268	542/86	246/97

**Model significance tests**

In logistic regression analysis, the chi-square statistic ( $\chi^2$ ) indicates the influence of independent variables on the dependent variable and generally determines the fit of the model (model significance). Omnibus and Hosmer tests were used for this purpose.

**Omnibus test**

The chi-square statistic ( $\chi^2$ ) in this test was 216.39 with a significance level zero (less than 5 percent). Therefore, the independent variables affect the dependent variable and represent a good fit.

Hosmer and Lemeshow test: The chi-square statistic ( $\chi^2$ ) of this test was 13.00 with a significance level of 0.112 (more than 5 percent). So the hypothesis  $H_0$  which represents a good and significant fit to the model is accepted.

**Predictive accuracy test**

The next step in logistic analysis is to determine how accurate the model prediction is. The accuracy of the model prediction can be achieved by using the results of the classification table.

Table 2. Classification of Predictability

Observed			Predicted		
			Buy or sell		Percentage Correct
			.00	1.00	
Step 1	Buy or sell	.00	239	579	29.2
		1.00	176	1274	87.9
	Overall Percentage				

a. The cut value is .500

The results of the predicting classification table show that out of 1,450 purchase transactions observed, 1,274 were correctly predicted which is 87.9 percent; also out of 818 sales transactions observed, 239 were correctly predicted at 29.2 percent. So the prediction accuracy of the model is 66.7 percent overall.

**Significant determination of independent variables coefficients**

According to the final output of the logistic regression, as table (3), the variables affecting the dependent variable were determined.

Table 3. Significant Determination of Coefficients of Independent Logistic Regression Variables

Title	B	S.E.	Wald	Sig.	Exp(B) (odd ratio)
Trading Volume of Stocks	.457	0.256	23.319	.010	1.580
Stock Price Volatility	.290	0.380	.579	.44	1.336
Stock Return Trend	.362	0.316	1.309	.253	1.436
Estimated Earnings per Share	-.789	0.287	.931	.000	0.454
Realization of Earnings per Share	.380	0.394	10.540	.335	1.462
Beta Coefficient of Stocks	-.641	0.278	35.516	.000	0.527
Behavior of Institutional Investors	.699	0.248	7.954	.005	2.012
Dividends per Share	-1.076	0.358	18.917	.015	0.341
Constant	.813	.531	2.343	.126	2.254

According to the Wald statistic and its significance, variables of stock trading volume, estimated earnings per share, beta, institutional investor behavior and dividend per share are significant at 5 percent error level.

### Model sensitivity

To determine the sensitivity of the model, the Nagelkerke index value is used in the model summary table. According to table (4), 12.5 percent of the dependent variable changes can be explained by independent variables.

Table 4. Model Summary

Step	-2 Log likelihood	Cox & Snell R Square	Nagelkerke R Square
1	2749.251a	.091	.125

### Predictive model extraction

Considering the significant table of independent logistic regression coefficients, logit model can be presented as follows:

$$\ln(p/1-p) = 0/457.VOL - 0/789.EPS - 0/641.BETA + 0/699.INSTITUT - 1/076DPS \quad (4)$$

Or:

$$(p/1-p) = e^{+0/457 VOL} * e^{-0/789EPS} * e^{-0/641BETA} * e^{+0/699 INSTITUT} * e^{-1/076DPS}$$

(p / 1-p): Odd ratio, probability ratio of occurrence (stock purchase) to probability of event not occurring (stock sale)

VOL: Trading Volume of Stocks

EPS: Estimated Earnings per Share

(5)

BETA: Beta Coefficient of Stocks  
 INSTITUT: Behavior of Institutional Investors  
 DPS: Dividends per Share

**Interpretation of extractive logistic model**

When the coefficient of the independent variable ( $\beta$ ) in the logit regression is positive, its exponential function is greater than one, indicating the effect of the independent variable on increasing the probability ratio and probability of occurrence. Where the coefficient of independent variable ( $\beta$ ) is negative in logit regression, its exponential function is less than one and indicates the effect of the independent variable on reducing the probability ratio and probability of occurrence. But if this coefficient is zero, its exponential function is equal to one and, as a result, that independent variable has no role in increasing or decreasing the probability of an event occurring. If the odd ratio is more than one, it indicates that the probability of occurrence is more than 50 percent, if the odd ratio is less than one, it indicates that the probability of occurrence is less than 50 percent. If the odd ratio is equal to one, the probability of an event is 50 percent, and there is no difference in the occurrence or non-occurrence of the event.

According to the above explanation and the extraction model, the positive coefficients of stock trading volumes, as well as the behavior of institutional investors indicate the positive relationship between these variables on the probability of event (stock purchase). On the other hand, the negative coefficients of earnings per share, beta and dividends per share indicate their negative relationship with the probability of event (stock purchase). In order to rank the mentioned variables, in terms of severity of impact on the odd ratio (probability of event or type of investor decision), attention to beta coefficient (regression coefficients) of the independent variables is necessary. So the final independent variables of this study can be rated as table (5).

Table 5: Ranking the Impact of the Independent Variable on Buying Shares Probability

Independent variable	coefficient	Odd ratio	Impact rating on buy stock probability*
Behavior of Institutional Investors	0/699	2/012	1
Trading Volume of Stocks	0/457	1/580	2
Beta Coefficient of Stocks	-0/641	0/527	3
Estimated Earnings per Share	-0/789	0/454	4
Dividends per Share	-1/076	0/341	5

\*Rank 1 indicates the highest impact and rank 5 represents the least impact on the probability of buying shares.

## Conclusions and discussion

### Conclusions

The purpose of this research is to assist the decision making of individual investors in Tehran Stock Exchange by providing a logistic model to predict their trading behaviors. According to the results of logistic analysis and output related to the table of significance of independent research variables; the following five variables affect the behavior (trading decision) of individual investors.

- Trading Volume of Stocks
- Estimated Earnings per Share
- Beta Coefficient of Stocks
- Behavior of Institutional Investors
- Dividends per Share

According to the ranking of the impact of these variables on the probability of buying shares, based on their coefficient in the extractive logistic model (Table 5), the variables of institutional investor behavior and stock trading volume, respectively, have the most impact on the probability of individual investors buying shares. On the other hand, the variables of beta coefficient of stocks, predicted earnings per share and dividends per share, respectively, have the least impact on the likelihood of individual investors buying shares.

### Results and discussion

Based on the findings of this study and the section 5.1, the results can be interpreted as follows;

#### Behavior of Institutional Investors:

Institutional investor behavior has greatest impact on individual investors' purchase of shares, as the more stocks bought by institutional investors and the greater volume of shares traded, the more individual investors tend to invest in that stock. In other words, individual investors consider the behavior of institutional investors as one of the most important and consistent factors in decision making. This behavior of individual investors can be considered consistent with the concept of agency theory in financial theories, where in the financial markets this phenomenon occurs when individual investors are looking to buy high yielding stocks and want to avoid stocks that have performed poorly recently. Therefore, the intuition of the agency that leads to hyperactivity appears, so that if the published information relates to certain classes (institutional investors) investors feel it is appropriate.

**Trading Volume of Stocks:**

The second factor affecting the likelihood of individual investors buying shares is the volume of stock trading, as the higher trading volume of shares than previous days and the higher the demand for the respective stocks, the greater likelihood of other investors investing in that stock. In other words, individual investors are subject to collective behavior when buying stocks.

**Beta Coefficient of Stocks:**

The higher the beta of a share, the less likely it is to be purchased by individual investors (Beta reflects the intensity of a share's performance relative to the market), and as the prices fluctuate, it exceeds the market average or so-called offensive stocks. The likelihood of that share being purchased by individual investors is minimal. Basically, individual investors tend to invest in defensive stocks, and consequently they sell offensive stocks. The desire for conservatism among individual investors, based on the theoretical foundations of the research, can be attributed to the loss avoidance feature and the fact that individuals are susceptible to decrease in their wealth, and this is more than their wealth increases.

**Estimated Earnings per Share:**

The higher estimated earnings per share (compared to its previous history or other stocks) the lower likelihood of individual investors buying shares. In other words, given the negative impact of earnings per share on the likelihood of buying shares by individual investors, it can be concluded that earnings per share have little effect on the likelihood of buying by individual investors.

**Dividends per Share:**

The higher dividend per share (compared to its previous history or other stocks), the lower likelihood of individual investors buying shares. In this case, it can be concluded that the dividend per share has the least effect on the probability of acquiring investors, and given the similar effect of earnings per share on the individual investor decision, it can be concluded that the financial variables of earnings per share and dividend per share have little effect on the buying decision of the individual investor.

**The results of this study compared to previous studies**

The result of this study in case that individual investors consider the behavior of institutional investors as one of the most important factors in decision making, is in line with the results of Georgi and Stoz's research based on institutional investors' adoption of trading strategy by individual investors in Germany's Stock Exchange.

Also, considering the positive effect of stock trading volumes on the probability of buying shares in the present study, the results of researches by Saeedi et al., Grinblatt, Phansatan and et al., in case of the collective behavior

of individual investors are confirmed.

The small effect of earnings and dividends per share on the probability of buying shares in this study is also consistent with the results of Marilyn Clark. In her research, she has concluded that criteria such as dividends, price-to-earnings and returns has less importance to individual investors than price changes, stock market status, and so on. On the other hand, Peng and Xiong, have stated that investors are more inclined to process market and segment information than company-specific information.

### **Suggestions for future work**

Future researchers are suggested based on the classification of accepted companies on Tehran Stock Exchange (on daily, weekly, monthly basis) in terms of stock trading volume, percentage of stock trading by institutional investors, stock beta coefficient, earnings per share, dividends per share and realization of earnings per share to compare those companies' returns and eventually provide a model for predicting security returns.



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