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# The Behavioral Bias of Informed Investors and Future Stock Returns

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## ABSTRACT

The purpose of this study is to investigate the effect of behavioral biases of informed investors on the future return of stocks and the role of large institutional ownership in this regard. The statistical population of the research consists of all companies listed on the Tehran Stock Exchange during the years 1392 to 1397 that 155 companies have been active in the stock exchange throughout the research period and have been studied. The reason for using the current course is access to audited and stable data in terms of fluctuations. The research data were analyzed using regression models using the combined data method. Findings of regression models of the study showed that in general, there is no significant relationship between the behavioral biases of knowledgeable investors and future stock returns, but by separating this effect for the group of companies with large institutional ownership and companies with small institutional ownership, it was found that If the ownership of shares in the hands of knowledgeable shareholders is large, it will have a positive effect on the future stock returns of companies.

## Keywords:

Behavioral Bias, Informed Investors, Future Stock Returns.

## 1. Introduction

Informed investors enter into trading for a variety of reasons. The most well-known motivation for their profitability is based on their access to confidential information about the company's prospects. Evidence and empirical research show that informed investors make abnormal returns after their trades (Agrawal and Cooper, 2015; Huddart et al., 2007; Ke et al., 2003). Informed investors may also trade for non-profit reasons. They may sell their stocks to diversify their wealth risk or meet the need for money for their personal use (Huddart et al., 2007; Kallunki et al., 2009). Recent research by Cohen et al. (2012) classifies informed investor trades into opportunistic and routine trades and finds that return predictability appears only in opportunistic trades.

Other evidence of motivation for investor-conscious transactions is their biases and behavioral biases (Lee and Piqueira, 2019). Some studies have shown evidence of behavioral biases of public investors or managers in corporate decisions, but there are very few studies that document the behavioral biases of knowledgeable investors in transactional activities. The fact is that the knowledgeable investors in the companies may have private information. Better information or the ability to predict the company's prospects leaves no room for doubt about their behavioral biases. However, knowledgeable investors may not have complete information about the core value of the company. In this regard, Feng and Seasholes (2005) show that the complexity and experience of investor trading on the one hand reduces the unwillingness of investors to lose, but on the other hand, the willingness of investors to make a profit still exists.

Behavioral finance has emerged as a key field of study in the field of investment management. Examines the inexplicably rational behavioral aspects of individuals and entities trading in financial markets. The increasing investment activity of retail participants in the recent past has made understanding of such behavioral aspects much more important (Seth et al., 2020). In this regard, researchers have observed that two distinct sets of factors guide the decision of microfinance to invest:

(A)rational factors related to traditional finance (Aggarwal et al., 2021) and (B) irrational factors that fall into the behavioral domain. Finance (O'Donnell et al., 2021)

Traditional finance assumes that investors consider the available information and act rationally when making decisions (Okories et al., 2021). In contrast, behavioral finance examines the impact of emotions and cognitive errors on financial decision making (Talwar et al., 2021).

However, no evidence has been found in the transactions of informed investors in the Iranian capital market. In the sense that the present study contributes to the previous literature on behavioral finance and informed business.

In this study, to examine the behavioral biases of knowledgeable investors in companies, the contrast between buying and selling stocks by institutional shareholders has been used as the net purchase ratio. This index is introduced by Beneish (1999) and Lakonishuk and Lee (2001) and it is the difference between buying and selling of informed investors that is done in all trades of a certain period. The existence of prospective bias in financial markets has been confirmed in many studies and is known as financial consequences (Baker et al., 2019; Musa and Ramieh, 2017). People with hindsight bias, albeit erroneously, tend to believe that they have predicted the probability of an event, such as fluctuations in a particular stock, and accurately predicted its true outcome. Such a tendency to overestimate their ability to predict stock price movements may cause investors to overreact by engaging in high trading activities. Accordingly, the present study examines the important issue of what effect do the behavioral biases of informed investors based on the net purchase ratio have on future stock returns?

## 2. Theoretical Framework and Research Background

According to the research literature on investor behavior, investors are expected to be aware of the proximity of prices to their minimum and maximum values over a period of time, but the type of this reaction depends on the relationship between transaction awareness and the behavioral biases of knowledgeable investors (Lee and Piqueira, 2017). Initially, it seems that the advantage of having information and on the other hand the behavioral biases and biases in the trades of conscious investors mutually neutralize each other, this means that knowledgeable traders are not affected by behavioral

biases (Lewellen, 2011). In other words, the transactions of informed investors should not be influenced by their behavioral biases, because they have access to private information. There is another view of the various aspects of the information advantage of knowledgeable investors that they not only benefit from the advantage of private information, but also have a greater ability to schedule their transactions using public information (Li and Yu, 2012). Informed investors, on the other hand, can engage in behavioral bias. Although they have an information advantage, their data set can be incomplete. In the case of corporate institutional investors, they may not have complete information or skills about the company's prospects and market value analysis (Watson and Funck, 2012). Informed investors may be willing to buy stocks when the stock price is close to its highest point during the period and to sell stocks when the price is close to its lowest level during a given period. In this case, such biased trades may make it difficult to predict the returns of informed investors (Hong et al., 2015).

On the other hand, the ratio of net stock purchase by institutional investors shows a difference of opinion among informed investors of the company. In this case, the hypothesis of behavioral bias among informed investors is reinforced. Because if the trades made by informed investors are based on their information advantage over the future prospects of the company, there will be a unity of procedure in stock trades among this group of shareholders (Hirshleifer and Jiang, 2010). On the other hand, given the volume of shares held by large and knowledgeable shareholders of the company, it is far from expected that trading by this group (which is usually done with a high volume), due to the use of wealth for personal matters of the investor. Therefore, by increasing the net purchase ratio in the transactions of knowledgeable investors, it can be found that these transactions are most likely based on the behavioral biases of knowledgeable investors (Lee and Pikoyira, 2019). However, it should be noted that the effectiveness of the behavioral biases of this group of shareholders depends on the degree of ownership of their shares. As long as conscious but smaller shareholders commit behavioral biases, as expected, their behavioral biases will have a smaller share return, while behavioral biases caused by conscious and large shareholders can have stronger effects on stock returns.

Many existing studies have shown that informed investor trades predict subsequent abnormal returns. Many studies have emphasized the relationship between volume and meta-confidence; In some studies, such as Oakri et al. (2021), trading volume is considered an indicator of Over Confidence and the volume of equations and abnormal returns. Researchers' studies on the effects of tendencies show that the price offered by sellers, both in a market stagnation and in a market boom, is influenced by the tendency effect. This factor manifests itself in the financial markets as a change in trading volume. Investors' attention is one of the lesser-known biases. Ian (2015) study on investor attention shows that increasing attention to share increases the volume of transactions and also affects stock returns.

If informed investors are subject to anchoring biases, however, their trades may not be followed by abnormal returns when the purchase (sell) price is near (far) above its maximum during the period. Hence, the type of trading transactions of informed investors, depending on the distance between the price and its maximum value during the period, can be based on their behavioral biases or their private information, and as a result, due to the general anchoring behavior of micro-investors in the capital market, unusually higher returns are created for the share. Therefore, predicting future stock returns based on the behavioral biases of knowledgeable investors is not far from expectation. In this regard, Lee and Pikoyira (2019) in a study examined the behavioral biases of informed investors based on 52-week price peaks. The results of this study show that domestic investors are not able to predict future returns and even investors who follow this group may irreparably damage to capital loss. Findings show that knowledgeable investors, despite having access to specific information, are prone to behavioral bias. Lee and Pikoyira (2017) in a study examined the role of 52-week peaks and price trends in stock trading. The results of this study show that the existence of price maxims in 52-week periods is one of the main points of support for shareholders to sell stocks. According to the results of this study, the 52-week trends in the maximum and minimum stock price points have determined the type of investors' strategy for buying or selling. Edelen et al. (2016) in a study examined the relationship between institutional investors and corporate stock return anomalies. The results of this study show that corporate institutional

investors are more affected by behavioral biases than other investors, and the transactions of this group of shareholders in the capital market cause higher abnormal returns and more anomalies in corporate stock returns. Hong et al. (2015) in a study examined the effect of the 52-week high stock price on industry information. The results of this study show that the sharp changes in stock prices in various industries have taken place in the repetition periods of the highest 52-week prices. The results also show that the type of investor reliance on the highest 52-week prices in foreign exchange-dependent industries was lower than other industries, and they attributed it to the high systematic risk in this industry. In a study, Li and Yu (2012) examined the relationship between investor attention, anchoring behavioral bias, and predicting stock returns. The results of this study show that investors have a significant reliance on past events in share prices and, according to the theory of anchoring in behavioral biases, these events are the basis for their transactions. The results of this study show that anchoring can not lead to accurate forecasts of stock returns, and investors who trade on this basis, suffer significant losses. George and Huang (2004) also show that informed investors are reluctant to buy stock that has grown well enough or sell stock that has declined significantly, but when such trades occur in these price ranges, large positive and negative returns for stocks are formed due to the anchoring behavior of real and micro investors.

Among the researches conducted in the country, Moradi (2016) has studied the behavior of investors in the Tehran Stock Exchange with a system dynamics approach. In this research, using the system dynamics method and considering the economic concepts, the Tehran Stock Exchange as a dynamic system is analyzed and in the form of two scenarios, the behavior of capital market participants and its impact on stock prices have been analyzed. According to the results of the scenario; First, normal analysts sometimes behave irrationally and only follow the latest trend and do not pay attention to stock prices. According to the results of the second scenario, the role of fundamental analysts to adjust the stock price according to its fundamental value and market stability was determined. Japolghi (2016) has studied the factors affecting the decisions and behavior of private investors in the Tehran Stock Exchange. The results of this study show that according to personal investors, the price-to-earnings ratio is the most important reason for buying a company's stock. The amount of dividends of the company and its trend has the least impact on the purchase of a share. The results show that investors tend to choose a definite profit when they are in a position to earn a good return, or in other words, a secure profit, rather than accepting a higher return with risk. Sharif (2015) in a study has examined the effect of the behavior of various investors in the trading process of the stock exchange. The results of the final model of this research have shown that the behavior of various real and legal investors has affected the trading process and by studying this behavior, it is possible to predict the trading situation and the movement of the stock exchange index. Ghasemi (2014) research on factor-based modeling of investor behavior. In order to study and test the subject and hypothesis of the research, while modeling the behavior of these two important groups of investors in the Tehran stock market, the impact of the expectations of each of them on the final price of the total index has been determined. The modeling results show that, firstly, more than 80% of the thoughts and expectations of investors in the Tehran stock market are diagrammatic expectations, and this can be one of the reasons for the sharp fluctuations in the market in the last two decades. Secondly, the demand for charters is higher than that of fundamentalists, and therefore their reaction to changes in index prices is higher, and therefore this is another reason for market fluctuations. Kalhor (2010) in a study has investigated the relationship between investors' reactions and stock prices with the pattern of earnings adjustments per share. The result shows that, in Tehran Stock Exchange, due to the informal meeting of information before adjusting earnings, investors trade before observing a small pattern (which is important in this earnings adjustment) and no significant buying or selling activity was observed after the announcement of profit adjustment. Also, before adjusting the company's profit (positive and negative), investors' trading activity was observed significantly in the first 10 days before adjustment. In the case of negatively adjusted earnings adjustments, strong sales activity was observed before the announcement of negative earnings adjustments and strong purchasing activity was observed before positive earnings adjustments were announced which shows that investors have access to financial information of companies through

informal sources and have conducted their trading activities based on it. Therefore, there was no evidence to confirm the trading behavior of investors based on the Burberry, Schleifer and Vishnie models. This shows that investors' belief in continuing the profitability trend is not reinforced by successive positive earnings adjustments. Goodarzi (2009) in a study has tested the effects of investors' behavioral biases on the efficiency of the Tehran Stock Exchange using trends and stability in the financial performance of companies. The results show that the trend of companies' financial performance has been effective in the formation of behavioral biases in investors and as a result of their extreme and deviant reactions to the published information, therefore, in this way, the trend of changes in stock returns in future periods can be predicted. This result is evidence of market inefficiency and the predictability of behavioral financial theories. On the other hand, in this study, sufficient and strong evidence on the effect of stability in the process of financial performance as well as the presence of consistent and inconsistent signs in the financial performance of companies, on market predictability is not provided. Therefore, in this case, the effect of behavioral distortions on predictability and consequently market efficiency can not be acknowledged.

## 3. Research Hypothesis

Based on the issues mentioned in the theoretical framework as well as reviewing the empirical literature of the research, it seems that the behavioral biases of knowledgeable investors will lead to significant changes in the future return of stocks. On the other hand, because the power of informed investors to influence stock returns is affected by the degree of ownership of them, it seems that the level of stock ownership owned by this group of shareholders can affect the effect of their biased transactions on stock returns. Therefore, the research hypotheses in order to explain the relationship between the behavioral biases of informed investors and future returns are formulated as follows:

Hypothesis 1: There is a significant relationship between the behavioral biases of informed investors and the future return on the company's stock.

Hypothesis 2: The degree of ownership of knowledgeable investors modulates the relationship between their behavioral biases and the future return on the company's stock.

## 4. Statistical Community and Sampling

In the present study, a statistical sample including companies that have sampling conditions was used in a systematic elimination method. Sampling conditions in the present study are:

- To select a homogeneous sample, companies must have been listed on the Tehran Stock Exchange before 1392 and their shares have been traded on the stock exchange since the beginning of 1392.
- In order to select active companies, the transactions of these companies during the years 1392 to 1397 in the stock exchange have not been interrupted for more than four months.
- In terms of increasing comparability, the financial period of companies should end in March.
- Do not change their activity or change their fiscal year between 1392 and 1397.
- Do not belong to financial and investment institutions such as banks, insurance companies and investment funds.

By applying the above restrictions, 155 companies remained among the companies in the period 1392 to 1397, which were the basis of the analysis.

## 5. Research Method and Model Specification

In terms of purpose, this research is one of the applied research projects and in terms of method, it is a descriptive research based on regression analysis in which the GMM method is used. The required data have been collected from the financial statements of the companies published by the Stock Exchange and Securities Organization on the Kedal website. In order to test the research hypotheses, the following regression models have been used:

Equation (1)

$$ret_{i,t+1} = \alpha_0 + \alpha_1 NPR_{i,t} + \alpha_2 ret_{i,t} + \alpha_3 Lnmcap_{i,t} + \alpha_4 BMratio_{i,t} + \alpha_5 Illiq_{i,t} + \varepsilon_{i,t}$$

It is clear that according to the concepts of regression patterns, we have stocks for the expected number of future returns:

Equation (2)

$$ret_{i,t+1} = \alpha_0 + \alpha_1 NPR_{i,t} + \alpha_2 (NPR_{i,t} \times INST_{i,t}) + \alpha_3 ret_{i,t} + \alpha_4 Lnmcap_{i,t} + \alpha_5 BMratio_{i,t} + \alpha_6 Illiq_{i,t} + \varepsilon_{i,t}$$

In this model,

$ret_{i,t+1}$: is the stock return of the company at the end of the period is t + 1, which is calculated from the natural logarithm of the ratio of the final share price at the end of the period to the final share price at the beginning of the period.

$NPR_{i,t}$: Behavioral bias of investors is aware of company i in period t. In this research, in order to measure the behavioral biases of aware investors, the opposition of buying and selling stocks by the institutional shareholders of the company is used. Therefore, the behavioral biases of knowledgeable investors are obtained from the following phrase:

Equation (3)

$$NPR_{i,t} = \frac{Inst\ Pur_{i,t} - Inst\ Sell_{i,t}}{Inst\ Pur_{i,t} + Inst\ Sell_{i,t}}$$

In this regard, $Inst\ Pur_{i,t}$ is equal to the number of shares purchased by the institutional owners of company i in period t and $Inst\ Sell_{i,t}$ is equal to the number of shares sold by institutional shareholders.

$Lnmcap_{i,t}$: Is equal to the natural logarithm of the value of shares issued by company i in period t.

$BMratio_{i,t}$: Is equal to the ratio of book value to market equity of company i in period t.

$Illiq_{i,t}$: AMIHOUD (2002) is the criterion of non-liquidity, which is calculated from the absolute average value of stock returns relative to the volume of stock transactions of the company.

$INST_{i,t}$: The imaginary variable is large institutional ownership, and if the ratio of institutional ownership of the company is greater than the institutional ownership of all companies, it is considered equal to 1, otherwise it is equal to zero.

The analysis of research data was performed using Ivyus software version 9 and at a significance level of 1, 5 and 10%. In order to describe the data, mean concentration indices and standard deviation indices, minimum and maximum have been used. In order to test the research hypotheses, first the Chow test was used to detect cross-sectional effects in the models and the research models were fitted using panel data method with fixed effects. Sargan test was used to test the correlation between the instrumental variables of the model and the error components.

## 6. Research Findings

Central indicators and distribution of research variables are presented in Table (1). The difference between the minimum and maximum of the data indicates the appropriate range for the use of variables.

According to the mean values obtained for each of the variables, it is observed that the average stock return of companies during the research period is equal to 0.2999 percent and the average index of behavioral bias of knowledgeable investors is estimated to be 0.0062. The average market value of companies in logarithmic scale was equal to 14.311 and the average institutional ownership ratio of companies was equal to 0.4365. Also, the average ratio of book value to the stock market of companies was equal to 0.5365 and the average AMIHOUD criterion as a measure of non-liquidity of corporate stocks was equal to 10-7 57 2.57. Before fitting the main research model, the significance of cross-sectional effects in the model was tested by Chao and Hausman test. Table (2) shows the results of this test.

**Table 1: Descriptive statistics of variables**

| Standard Deviation | Minimum | Maximum | Mean | Average | Variable |
|---|---|---|---|---|---|
| 0163/1 | 9137/0- | 421/14 | 0392/0 | 2999/0 | Stock returns |
| 4581/0 | 9889/0- | 9988/0 | 00577/0 | 00626/0 | Behavioral bias of informed investors |
| 6360/1 | 1173/10 | 9400/19 | 0520/14 | 3117/14 | Stock market value |
| 3227/0 | 3124/0 | 9893/0 | 3950/0 | 4365/0 | Institutional ownership |
| 5403/0 | 0082/0 | 9738/9 | 4352/0 | 5365/0 | Book value to market ratio |
| $05/6 \times 10^{-6}$ | 0 | 000199/0 | $17/5 \times 10^{-9}$ | $57/2 \times 10^{-7}$ | AMIHOUD criteria |

**Table 2: Results of Chow and Hausman diagnostic tests**

| Hausman Test | | | Chow Test | | | Model |
|---|---|---|---|---|---|---|
| Significance level | Degrees of freedom | Statistical value | Significance level | Degrees of freedom | Statistical value | |
| ۰/۰۰۰ | (۱۵۴ ،۷۶۹) | ۲/۳۲۳۲ | ۰/۰۰۰ | (۱۵۴ ،۷۷۰) | ۲/۳۱۹۴ | Test model of the first hypothesis |
| ۰/۰۰۰ | ۴ | ۳۱۱/۷۷۵ | ۰/۰۰۰ | ۵ | ۳۱۱/۰۳۴ | Test model of the second hypothesis |

According to the results of this test, the significance of cross-sectional effects in both research models has been confirmed and the results of Hausman test with a significance level of one percent indicate the stability of cross-sectional effects in research models. Therefore, regression models were fitted using panel data method with fixed effects.

In order to estimate the models, considering that the first interval of the dependent variable exists between the explanatory variables of the model, the generalized torque method has been used. Due to the fact that in order to control the correlation of explanatory variables with the error values of the model, the first-order differentiation method is used, there is no fixed value of the regression model in this model. Table (3) shows the results of fitting the model of the first research hypothesis.

Considering the significant level obtained from the effect of behavioral distortions of informed investors on the future return of stocks (0.0751), it can be concluded that the behavioral distortions of informed investors had a significant effect on the future return of shares at the level of 10%. While the lack of liquidity of stocks has an inverse effect on future returns and the return of the period has also shown a significant and inverse effect on future returns. Accordingly, the first hypothesis of the research has not been confirmed at the error level of 0.05. Also, the significance level of Sargan, Erlano and Band tests was greater than 0.05, which indicates the lack of correlation between instrumental variables with error components and also the absence of serial autocorrelation between error components. Jark-Bra test with a significance level greater than 0.05 indicates that the distribution of model error sentences is normal. The findings of this hypothesis can be considered consistent with the results of research by Li and Picouira (2019) and Li and Yu (2012) and inconsistent with the findings of Edlen et al. (2016). In justifying the results of this hypothesis, it can be stated that the behavior of investors in the capital market in general has not been affected by the behavioral biases of conscious investors.

As expected, micro-investors buy or sell stocks, following the knowledgeable and institutional investors of the company. The findings of this hypothesis reflect the impact of other side factors on returns, in addition to which factors, the behavioral biases of knowledgeable investors can not stimulate micro-investors and as a result, changes in future stock returns. However, according to the cases stated in the explanation of the hypotheses, the degree of ownership of knowledgeable shareholders on the extent of their impact on returns can be different, and in order to further explain the results of this hypothesis, the effect of behavioral biases of knowledgeable investors on returns for two groups of Large and small institutional shareholders were tested under the second hypothesis, the results of which are described in Table (4).

**Table 3: Value Results of the First Hypothesis Model**

| Significance | T | Error | Coefficient | Explanatory variable |
|---|---|---|---|---|
| ۰/۰۴۶۱ | -۱/۹۹۷۴ | ۰/۰۲۱۴ | -۰/۰۴۲۸ | Stock returns |
| ۰/۰۷۵۱ | ۱/۷۸۲۱ | ۰/۰۴۲۲ | ۰/۰۷۵۳ | Behavioral bias of informed investors |
| ۰/۰۰۰ | -۱۲/۰۱۱۲ | ۰/۰۹۹۶ | -۱/۱۹۷۰ | Market value |
| ۰/۶۷۵۷ | ۰/۴۱۸۴ | ۰/۱۲۹۴ | ۰/۰۵۴۱ | Book value to market |
| ۰/۰۰۰ | -۱۲/۶۸۹۳ | ۳۲۷/۴۵۴ | -۴۱۵۵/۱۷۸ | AMIHOUD criteria |
| ۲۸/۵۷۷ (۰/۰۹۳۷) | | | | Sargan test (significance) |
| -۱/۸۳۶۸ (۰/۰۶۶۲) | | | | Arlano and Bond test (significance) |
| ۱/۳۶۸۹ (۰/۱۵۳۱) | | | | Jark-Bra test (significance) [i] |

**Table 4: Value Results of the Second Hypothesis Model**

| Significance | T | Error | Coefficient | Explanatory variable |
|---|---|---|---|---|
| ۰/۰۰۰ | -۴/۰۸۹۶ | ۰/۰۱۷۵ | -۰/۰۷۱۹ | Stock returns |
| ۰/۰۷۸۷ | -۱/۷۶۰۹ | ۰/۰۶۰۶ | -۰/۱۰۶۷ | Behavioral bias of informed investors |
| ۰/۰۲۴۲ | ۲/۲۵۸۸ | ۰/۰۸۴۲ | ۰/۱۹۰۲ | Market value |
| ۰/۰۰۰ | -۹/۲۰۲۰ | ۰/۰۹۱۸ | -۰/۸۴۴۷ | Book value to market |
| ۰/۵۴۳۰ | -۰/۶۰۸۶ | ۰/۱۶۲۹ | -۰/۰۹۹۱۷ | AMIHOUD criteria |
| ۰/۰۰۰۲ | ۳/۷۷۱۴ | ۶۵۱/۶۶ | ۲۴۵۷/۶۸۳ | Sargan test (significance) |
| (۰/۰۸۵۲) ۳۱/۸۵۷۹ | | | | Arlano and Bond test (significance) |
| (۰/۰۶۱۲) -۴/۰۸۹۴ | | | | Jark-Bra test (significance) |
| (۰/۰۷۴۳) ۳/۴۱۰۷ | | | | |

Considering the significant level obtained from the effect of behavioral distortions of informed investors on the future return of stocks in this model (0.0877), it can be concluded that behavioral bias of knowledgeable investors has had a significant impact on the future return of the stock at a significant level of 10%, but its interaction with large institutional ownership in the model was significant (0.0242) and shows that if the institutional ownership of the company is large, the behavioral biases of knowledgeable investors of the company can have a direct impact on future returns. Therefore, it can be concluded that large institutional ownership modulates the size of the relationship between the behavioral biases of informed investors and the future return of stocks, and the second hypothesis of the research has been confirmed at the error level of 0.05. In this model, stock returns, market value and share liquidity criteria have also shown a significant impact on future returns. Also, the significance level of Sargan, Arlano and Band tests was greater than 0.05, which indicates the lack of correlation between instrumental variables with error components and also the absence of serial autocorrelation between error components. Jark-Bra test with a significance level greater than 0.05 indicates that the distribution of model error sentences is normal. Since previous research in this area has not examined the role of institutional ownership size in this regard, there is no similar study to compare the findings, however, in explaining the results, it can be stated that conscious investors, although they have private information, they also suffer from behavioral biases, and these biases will have a significant and positive impact on future returns if they take place in companies with large institutional ownership, that is, if the share of investors is aware of the shares of the large company.It is not unreasonable to expect that this increase in returns due to behavioral biases, which is certainly transient, could also affect abnormal stock returns.

## 7. Conclusion

In this study, the relationship between behavioral biases of informed investors and future stock returns was studied. The results showed that informed investors, despite having confidential information, also suffer from behavioral biases, and these biases alone can not affect the future return of the stock. But if behavioral biases are made by large and knowledgeable shareholders, it can have a positive impact on stock returns. Because behavioral biases are measured by the difference between the proportion of shares bought and sold by the company's institutional shareholders, an increase in these biases indicates an increase in share purchases by institutional shareholders, which indicates a positive signal for share purchases. Therefore, its direct impact on future returns has not been unexpected. These results show that in the capital market, not all knowledgeable investors play a significant role in determining market behavior, but only a group of knowledgeable shareholders influence the overall market behavior with greater power.

In other words, the mass behavior of micro-investors follows the transactions of large institutional shareholders, whether these transactions are based on the behavioral bias of investors, or based on their careful evaluation of the company's future prospects. Therefore, it is suggested that in deciding on stock trading in the capital market, not only the general behavior of the market, but also the type and timing of trades made by knowledgeable and large investors should be examined. Because informed and large

investors not only have confidential information about the future prospects of the company, but also the volume of transactions made by them can also affect the overall trend of price change.

The contribution of the present study should be evaluated in the light of three limitations: First, the study is based on a cross-sectional data collection approach that may allow the detection of biases associated with heterogeneous statistics of variance. With the knowledge of this issue, the determined processes and statistical tests have been followed in this research in order to minimize the research biases and thus increase the robustness of the results. In this study, a quantitative follow-up study was performed to evaluate the consequences of the findings. Second, data were collected for analysis only from companies that met the sampling requirements, which may limit the generalizability of the findings.

However, this is the first study to examine companies in terms of investor decisions in the field of behavioral bias, this research provides a basis for future iterative studies in different geographies to regulators and companies related to decision-making inputs. Finally, our study focuses on a limited sample of companies that may again limit the generalizations to larger companies. However, since it has been diagnosed, future researchers can test the findings of the present study by examining the effect of gender and other demographic variables on investor behavioral bias. In addition, future researchers can test for biases such as mood, cognitive dissonance, and financial literacy by referring to researcher and other classifications.Regarding investors' behavior, it is expected that informed investors react to the proximity of the price to its minimum and maximum values in a certain period, but the type of this reaction depends on the relationship between the in formativeness of the transaction and the behavioral biases of informed investors. is at first, It seems that the advantage of having information and on the other hand biases and biases in the transactions of knowledgeable investors mutually neutralize each other, which means that knowledgeable traders are not affected by behavioral biases, in other words, capital transactions Informed investors should not be influenced their behavioral biases, because they have access to private information. There is another view about the different aspects of the information advantage of informed investors that they not only benefit from the advantage of private information, but also have a greater ability to time their trades using public information. On the other hand, Informed investors can engage in behavioral biases. Although they have an informational advantage, their information pool can be incomplete. In the case of institutional investors of companies, they may not have complete information or skills about the company's prospects and market value analysis. When the stock price is close to its highest value during the period, they tend to buy the stock and when the price is close to its lowest value during a certain period, they tend to sell the stock. In this case, such biased trades may make it difficult for informed investors to predict trade returns On the other hand, the ratio of net purchase of shares by institutional investors shows a difference of opinion among informed investors of the company. In this case, the hypothesis of the existence of behavioral bias among informed investors is strengthened. Because if the transactions made by informed investors are based on their informational advantage over future prospects If so, there will be unanimity in conducting stock transactions among this group of shareholders. On the other hand, considering the amount of shares held by the large and knowledgeable shareholders of the company, it is far from expected that transactions by this group (which are generally done with a high volume) are due to the use of wealth for the personal issues of the investor. Therefore, by increasing the ratio of net purchase in the transactions of informed investors, it can be realized that these transactions were most likely based on the behavioral patterns of informed investors. However, it should be noted that the effectiveness of the behavioral trends of this group of shareholders depends on the amount of ownership of their shares. As long as informed but smaller shareholders commit behavioral distortions, As expected, the effect of their behavioral biases on stock returns will be smaller, while the behavioral biases caused by knowledgeable and large shareholders can have stronger effects on stock returns.

Many existing studies have shown that the trades of informed investors predict subsequent abnormal returns. If informed investors are subject to anchoring biases, however, their trades may not be followed by abnormal returns when the buy (sell) price is close (far) from its maximum during the period. Therefore, the type of buying and selling transactions of informed investors, according to the distance between the price

and its maximum value during the period, can be based on their behavioral tendencies or based on their private information, and as a result, according to the anchoring behavior of the general capital. Retail investors in the capital market, higher abnormal returns are created for the share. Therefore, predicting the future returns of stocks based on the behavioral patterns of knowledgeable investors is not far from expected.

The results of the test of this hypothesis showed that informed investors, despite having confidential information, also suffer from behavioral distortions and these distortions alone cannot affect the future return of the share. If behavioral changes are made by large and knowledgeable shareholders, it can have a positive effect on the share yield. Since the behavioral biases are measured through the difference in the ratio of bought and sold shares of the company's institutional shareholders, the increase of these biases means an increase in the purchase of shares by institutional shareholders, which indicates a positive signal for buying shares. Therefore, its direct impact on future returns was not far from expected. These results show that in the capital market, All informed investors do not play a significant role in determining the behavior of the market, but only a group of informed shareholders influence the overall behavior of the market and have a higher power. In other words, the mass behavior of retail investors follows the transactions of large institutional shareholders, whether these transactions are based on the behavior of informed investors or based on their accurate evaluation of the company's future prospects.

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