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STUDYING THE EFFECT OF COMPETITION BETWEEN INVESTORS AND THE IMPACT OF INFORMATION ASYMMETRY ON STOCK RETURNS

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ABSTRACT

The main objective of this study is to examine the effects of information asymmetry between investors competition on stock returns of the Tehran Stock Exchange firms. The population of this study includes the firms listed in Tehran Stock Exchange. Systematic elimination method was used to sampling that from 2006 to 2011 a total of 79 companies were selected of the companies listed in Tehran Stock Exchange. In this research, for the analysis of data and mining results, the software Eviews6 and Excel have been used. The research hypothesis was tested in the combined data level. Results and statistical analysis showed that on the one hand, there is negative information asymmetry on stock returns on the other hand competition between investors on the stock return is negative and information asymmetry and competition between investors has negative impact on stock returns.

Keywords: Competition, Information Asymmetry, Return on Equity, Risk, Ratio of Book Value to Market, Stock Turnover

INTRODUCTION

All investors and creditors and other stakeholders are demanding the release of accurate and unbiased information. To achieve this goal, each of the organizations and bodies involved in the standard setting process are trying to facilitate the provision of information to the users of accounting information. However, it seems in addition to large groups trying to influence the process of accounting information provision and manipulating the data, specific characteristics of accounting information (i.e. free using of it) has made clear, unbiased access to information difficult.

The latter, which is free using of data, require special attention because due to free using of data, in the absence of binding rules, less information is generated and as a result, investors and other stakeholders are unable to provide the information needed to evaluate the performance of the markets and this leads to extensive information asymmetry and capital market failure, and being away from the market for the investors (Vakilifard and Rostami, 2010).

One of the factors affecting the cost of capital will be the reported risk data or in other words, information asymmetry that is old favorite of many corporate executives, so investors are interested in estimating the future expected return on investment (cost of capital) by using the data reported by the company. They expect an appropriate return for the opportunity cost and acceptance of investment risk (Rahmani and Fallahnezhad, 2010).

Meanwhile, what is of particular importance for investors is determining the cause of informational asymmetry; this indicates the need for further studies in this field. Thus, factors that influence the cost of capital and the information asymmetry necessitate more than ever. Since investors as the main suppliers of resources of companies, need complete and correct information, information asymmetry between investors, proposed the wrong choice in determining the right price. Considering the importance of this issue, determining the factors that affect the asymmetry of information seems necessary.

Given the issues raised above, this study seeks to answer the question that is investors' competing for access to information and information asymmetry affecting return of the stock in listed companies in Tehran Stock Exchange? Does increasing investors' competition for access to information affect the relationship between information asymmetry and stock returns in listed companies in Tehran Stock Exchange?

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Theoretical Foundations
Investors can be divided into three categories in terms of risk acceptance:
- Risk adverse people: these people have conservative strategy. A risk-averse person prefers to achieve certain efficiency and when luck will not be considered. In summary it can be stated that the risk aversion is the fact that investors do not accept risky projects unless the expected return is too high (Tehrani, 2009).
2- Risky individuals: these people have bold strategy; and a person in this state is willing to accept the risk and likes to test his luck. Such people in facing with a safe investment and an unsafe investment with equal efficiency choose an uncertain investment. The reason for these people is mental pleasure of risk not merely efficiency gains.
3-risk-neutral individuals: the third group of people is who are called risk-neutral. These people know the value of money to the nominal value. Risk neutral behavior is often seen in people who are too rich (Shahrabadi and Yousefi, 2007).
Most people in the capital market are risk averse people. They desperately seek to minimize the risk of their investments, at a certain level of efficiency. To reduce the risk of investment, people should have enough information about the investment of their own; As a result, they are highly seeking confidential and non-confidential information related to a company in the market. This will lead to competing among investors for earlier access to information about a company.
Competition among investors is among the important factors affecting the information asymmetry and thus the cost of capital. When the market is not competitive, informed traders are risk-averse. Thus, the data are disclosed less. The private information between informed investors, increases expected return of unaware investors to the perfect competition and decreases price information content to the perfect competition.
In other words, when the capital market is not competitive, firms with a high degree of information asymmetry, have higher cost of equity to the firms with low degree of information asymmetry. When the market is competitive, at any time, buyers and sellers are aware of the price of shares. The risk aversion degree of aware investors in this market is low and since the prices are efficient in terms of information, earnings per investment are low. This leads the stock price of the company to be affected by expectations of all investors in cash flow. In other words, the more competitive stock market, firms with a high degree of information asymmetry, will have minor differences in the cost of equity than firms with low degree of information asymmetry. Therefore, information asymmetry won't be the determining factor in determining the cost of equity. Thus, with increasing competition in the market, it is assumed that the information available to investors, with less degree of influence affect prices and, therefore, Information asymmetry will have less effect on the cost of capital (Khani and Qajavand, 2012).

Review of Literature
Martins and Paulo (2014) in a research entitled "information asymmetry in stock exchange, financial and economic characteristics of the Brazilian stock market and corporate governance" began to study the issue of information asymmetry in stock market. To address this issue, they selected stock exchanges of 194 companies listed on the Brazil stock exchange. Their primary research showed that the information asymmetry in stock exchange is related positively with the risk, return and liquidity of the shares. Also the information asymmetry is negatively correlated with abnormal stock returns.
- Akins *et al.,* (2012) in a study entitled "Competition among investors over the information and content of information asymmetry" studied the impact of investors' competition on the relationship between information asymmetry and capital costs. Their results and findings show that competition among investors effect the relationship between information asymmetry and cost of capital significantly.
- Armstrong *et al.,* (2011) conducted a study titled "how the competitive market affects the relation between information asymmetry and cost of capital?" The results showed that, when the capital market is in perfect competition, information asymmetry wont impact on the cost of capital; but if capital markets are in imperfect competition, information asymmetry affects capital separately and there is a positive relation between information asymmetry and cost of capital. They also found that the degree of market

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competition in order to consider the relations of information asymmetry and cost of capital is an effective variable.

- Lambert & Verrecchia (2010) in a study entitled "how the quality of disclosure affects information asymmetry l" studied the impact of quality of disclosure on information asymmetry. Results of their study indicate that the interaction between financial markets and information asymmetry is resulted from the role of information in the cost of capital.

- Brown & Hilligaist (2007) in a study titled "How the quality of disclosure affects information asymmetry" studied the impact of the quality of disclosure on information asymmetry. The results and findings suggest that there is a negative correlation between the quality of disclosure and information asymmetry.

- Hughes *et al.,* (2007) in a study titled "Information, diversification and cost of capital," studied the effect of information and diversification of stock on the cost of capital. Their results and findings show that the quality of the information does not have any effect on the cost of capital.

- Heflin & Shaw (2000) in their research entitled "institutional shareholders and liquidity of shares of the company" reviewed this issue in NYSE that can shareholders of a company increase the liquidity of the company's shares.
They found that increasing the number of major shareholders is related to increase the difference between the purchase and selling price of stock.

- Kini & Mian (1995), in their study entitled "the difference between buying and selling price and the capital structure" studied the difference between the sales price and the relationship between capital structures. They couldn't find evidences of a positive relationship between major shareholders and buying and selling stock price difference.

- Rahimian *et al.,* (2012) in a study entitled "studying the relationship between earnings quality and lack of information asymmetry in firms listed in Tehran Stock Exchange" used two models of Dechow and Diechow (2002) and Slovan (1996) to evaluate earnings quality and for information asymmetry they used effective measure of the price gap in the first hypothesis and used measure of price percentage in the second hypothesis. The research results show that there is a significant relationship between earnings quality and information asymmetry and reducing earnings quality leads to a rise in information asymmetry.

- Khani and Ghajavand (2012) in a research entitled "The impact of competitive landscape of the market on the relationship between information asymmetry and cost of equity" have examined the impact of competitive landscape of the market from imperfect competition to perfect competition on the relationship between information asymmetry and cost of common stock. The results show that in the level of perfect competition, standards of measurement of information asymmetry are not significantly related to the cost of capital, the results show that market of imperfect competition can be as a factor influencing the relationship between information asymmetry and cost of capital.

- Kazemi and Mohammadnezhan (2011), in a research entitled "studying the relationship between institutional ownership with information asymmetry and financial performance of companies", studied the effect of ownership structure on information asymmetry and financial performance. Research findings suggest that there is a negative and significant relationship between institutional investors' ownership and information asymmetry. In this study, the relationship between institutional shareholders ownership and return on equity has been approved and it has positive relationship with the company's financial performance.

- Vakilifard and Rostami (2010), in a research entitled " Analysis of the gap of information asymmetry between professional members, suppliers and users of accounting information based on qualitative characteristics of accounting information and financial reporting" characterized the preferred quality features to improve the quality of financial reporting in the current state of the field ssuch as financial reporting that this gap is deeper.
The results indicated that there is a significant difference between producers, consumers and professional users' understanding of priority of accounting information quality features.

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- Mehrani and Rassaiean (2009), in their research entitled" studying the relationship between stock liquidity measures and annual returns of stocks in Tehran Stock Exchange" examined the relationship between measures of liquidity and the annual return on equity in Tehran's Stock Exchange. Hypothesis test results on 156 companies, in the period from 1381 to 2007 indicate that there is no significant relationship between stock returns and price differences between buying and selling stocks, shares circulation of the company, monetary transaction volume and number of transactions. The results suggest that there is no significant relationship between annual returns of stocks and percent of transaction days.

- Ahmadpour and Rasaiean (2007) in the article entitled" The effect of lack of information asymmetry on the buying and selling price difference of stock exchange" studied the effect of information asymmetry on the buying and selling price differences from a theoretical perspective. They say transactions based on final data, impose actual costs on stock markets through reducing liquidity and increasing capital costs and they are incorrect choices.

- Ghaemi and Vatanparast (2005) in a research entitled "the role of accounting information in reducing information asymmetry in Tehran Stock Exchange" studied the presence of the level of information asymmetry and its impact on the stock price and trading volume in estimated earnings per share. The results of this study indicate that during the study period, there has been information asymmetry among investors in Tehran Stock Exchange and this in the period before the earnings announcement is far more than the period following the announcement. It was also noted that information asymmetry has been associated with trading volume and stock price so that in the period before the announcement of earnings the trading volume increased and stock price was fluctuated.

Hypotheses

The research hypotheses are as follows:
- Information asymmetry affects stock returns.
- Competition between investors effect on stock returns of companies listed in Tehran stock exchange.
- Competition between investors and the impact of information asymmetry affects stock returns of companies listed in Tehran stock exchange.

Population and Sample of the Study

Statistical population will include listed companies in Tehran Stock Exchange and the research period will be from 2006 to 2011. Systematic method has been used for sampling and its conditions are defined as follows:

- Presenting from 2006 to 2011 in Tehran Stock Exchange,
- End of financial year is 29 Esfand (19 March) of each year,
- During the scope of the study fiscal year does not change,
- The data are available,
- Institutional investors percent is 20% and higher,
- Their activity is not Investment and financial intermediaries.
- According to the above conditions and restrictions, a total of 79 companies were selected from the listed companies in Tehran Stock Exchange.

Research Variables and Measures of Evaluating Them

Research variables and the method of calculation are as follows:

A) The Dependent Variable

The dependent variable of this research is the adjusted return that according to Akins *et al.,* (2012) is used as an indicator of stock returns.

$R_{i,t+1}$ QUOTE is adjusted return based on company size I QUOTE in the year t+1 that its calculation is:

At first the sample companies based on market value at the end of the fourth month following the fiscal year that is the end of the Persian date Tir 31 (22 July) (market value per share multiplied by the number of shares) are arranged in order from smallest to largest. Then the monthly return for each of the companies in each year is calculated. Calculating return for a period of 12 months is from after the fifth month of the financial year to next year's quarter. After this stage, the classification of companies is done to form portfolio. Sample companies must be divided to four quartiles (portfolio). To determine any of the

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companies is in which quartile, first row of each quartile must be calculated. Quartile row specifies breakdown point of each quarter from the next quarter. So there will be three breakdown points.
Quartile row can be obtained by equation (1):

Equation (1) $(a = 1,2,3) C_{Qa} = \frac{an}{4} + \frac{1}{2}$

N: number of samples and Q: the breakdown point of each quarter from the next quarter. After determining quartile (the portfolio) and specify the number and monthly returns of each quartile companies, Geometric mean of return of the stock of each company in each quarter is calculated for a 12 month period by equation (2):

Equation (2) $R_{E,t} = \prod_{m=1}^{12}(1 + R_{E,t(m)}) - 1$

$R_{E,t(m)}$ QUOTE is stock return of company I in month m and in year t and $R_{E,t}$ QUOTE is Geometric mean of stock returns for a period of 12 months.

Then the weighted monthly returns for each portfolio (quartile) should be calculated. Weighted monthly returns for each portfolio can be obtained by equation (3):

$$R_{st} = \sum_{i=1}^{n} X_i R_i$$

Equation (3)

X_i $QUOTE$: is the percent of the market value of each company in each portfolio relative to the total market value of the same portfolio and R_i: QUOTE is monthly stock returns for each company. After calculating the weighted monthly returns for each portfolio, weighted return geometric mean of each portfolio for a period of 12 months must be calculated by the equation (4):

$$R_{\bar{s},t} = \prod_{m=1}^{12}(1 + R_{\bar{s},t(m)}) - 1$$

Equation (4)

$R_{\bar{s},t}$ QUOTE: is geometric mean of weighted returns of portfolio for a period of 12 months and $R_{\bar{s},t(m)}$ QUOTE is monthly weighted portfolio returns.

Finally, in order to control the size effect on stock returns of each company, adjusted return is calculated on the basis of the relation (5) (Foroughi *et al.,* 2012):

Equation (5) $R_{E,t}^{size-adj} = R_{E,t} - R_{\bar{s},t}$

B)   Independent Variable

The first independent variable of research

The first independent variable of research, is information asymmetry, the indicator of this variable in this study is $IAspread_{i,t}$ QUOTE.

To calculate the gap between the buying and selling gap the used equation in research of Izadinia and Rasaiean (2010) is used that is describe as the relation (6):

$$IAspread_{i,t} = \frac{AP_{i,t} - BP_{i,t}}{\frac{AP_{i,t} + BP_{i,t}}{2}}$$

Equation (6)

$IAspread_{i,t}$ QUOTE: is information asymmetry. The indicator of this variable in this research is gap of buying and selling price of stocks. $AP_{i,t}$ QUOTE: Highest price offered for selling shares i QUOTE at time t and $BP_{i,t}$ QUOTE: is highest price offered for buying shares i QUOTE at time t. The reason for selecting this measure is that in conditions of high information asymmetry, incentives are creating for traders to recognize not disclosed information to discover the benefits of the transaction that leads to more informed trading and losses in trading with informed traders. As a result they will respond by increasing the difference between the buying and selling price (Bagehot, 1971). The values of these variables were

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extracted from the information of the stock exchange on the Stock website and from financial statements of the report of the Board to the General Assembly of Shareholders.

The Second Independent Variable

The second independent variable in this study is competition of investors that indicator of variable in this study, is the Herfindahl concentration index that will be calculated based on the equation (7):

Equation (7) $\text{HerfInst}_i = -1 \times \sum_{j=1}^{N} \left(\frac{\text{investor}_{i,j}}{\text{investor}_i} \right)^2$

In which:

HerfInst_i QUOTE: The focus index of competition between investors

$\text{investor}_{i,j}$ QUOTE: Number of shares {i QUOTE} which is owned by institutional investors {j QUOTE}. According to Bush 2, institutional investors, are large investors such as banks, insurance companies, investment companies, a large volume of their operation relates to shares trading.

investor_i $QUOTE$: The numbers of institutional investors who hold shares {i QUOTE} the higher the index, the more investors are competitive.

C)   Control Variables

Control variables are those variables that affect the dependent variable and should be considered when examining the relationship between the dependent and independent variables to control the effects of these variables on the dependent variable.

To better clarify regression model of the study, a series of variables affecting stock returns will be used as follows:

1- Systematic risk: The beta coefficient is used to calculate this variable. Beta coefficient is a measure for the assessment of systemic risk which measures the sensitivity of a share to the total market. Beta value can be calculated by equation (8).

$$\beta_j = \frac{\text{Cov}(R_m, R_j)}{\text{Var}(R_m)}$$

Equation (8)

In this equation β_j $QUOTE\ is$ systematic risk of share j, R_j QUOTE is return on equity j, R_m $QUOTE$ is market returns (Eskandari and Yaghoobi, 2000). Market return can be obtained by equation (9):

Equation (9):

$$R_m = \frac{I_t - I_{t-1}}{I_{t-1}}$$

{I_t QUOTE} : Price index at the end {t QUOTE}

{I_{t-1} QUOTE} Price index at the end {$t - ١$ QUOTE} (Sheikhi, 2010)

Systematic risk values were obtained with the application of tact processor.

2- Company Size: The natural logarithm of the market value of equity of firm i in year t in stock market.

Size= *LOG* (Market value of equity)

To calculate this variable, the market value of equity is extracted from outcomes modern software and the natural logarithm of the values is used as variables of the company size.

3- Ratio of book value to market value of firm stock i in year t.

4- Circulating shares i QUOTE at the time *t* QUOTE. This variable is as a measure of liquidity of the company's shares that is obtained by dividing the total number of traded shares on an average of the shares issued in the same year (Stivers *et al.,* 2009).

Research Model

In the process of model fitting and hypothesis testing, at first regression general provisions will be examined, then the fitted models and the coefficients of the independent variables will be calculated. Also to determine the fitting adequacy of the model and the explanatory of independent variables, the R2

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statistic will be used and if the regression correlation and coefficient α is significant, the research hypotheses are not rejected.

The First Hypothesis Testing

The first hypothesis of this study is as follows:

Asymmetric information affects stock returns. To test the hypothesis, multivariate regression in equation (10) is used:

Equation (10)

$$R_{i,t+1} = \alpha_0 + \beta_1 Risk_{i,t} + \beta_2 Size_{i,t} + \beta_3 BTM_{i,t} + \beta_4 Turnover_{i,t} + \beta_5 IAspread_{i,t} + \varepsilon_{i,t}$$

In the above model, $R_{i,t+1}$ QUOTE is the company's stock return, according to Akins et al., (2012), adjusted returns is used based size is used as an indicator of returns.

$IAspread_{i,t}$ QUOTE: Asymmetry of information, the indicator of variable in this research is the gap of buying and selling price of stocks.

$Risk_{i,t}$ QUOTE: Is the systematic risk and beta coefficient is used to calculate these variables.

$Size_{i,t}$ QUOTE: Firm size that equals the natural logarithm of the market value of the firm equity

$BTM_{i,t}$ QUOTE: The ratio of book value to market value of shares of the company.

To test the first hypothesis the significance of information asymmetry coefficient variable ($\beta5$) in the first model is used. Given that the data used in this study are the combined (year-company) data and the combined data are panel and combined data, so in order to choose between panel and integrated data in estimating model, the limer F test has been used. To review the F-Limer test results, if the probability of F statistics is more than 0.05, combined data method must be used. Otherwise, the panel data method is used. F-Limer test results show that the p-value equals 0.48 and more than 0.05, as a result, combined data method is accepted. In the present study D-W test has been used to detect the presence or absence of autocorrelation. Due to the D-W statistic that equals 1.89, so the model has not autocorrelation. To evaluate the residual variance homogeneity the White Test has been used. With respect to the p-value obtained for the White test that equals to 0.10 and is more than the significance level of 0.05, null hypothesis (homogeneity of variance) is accepted that shows there is no volatility of residuals. In this study, to investigate the stability of variables for the combined data, Fisher-ADF test has been used. P-value of Fisher-ADF test for all variables has been less than 0.05, therefore, all the variables are static (stationary).

Testing the model results is presented in Table 1.

Table 1: Results of the analysis of data to test the first hypothesis

p-value	T statistics	SD	Coefficient	Variable
0.04	2.05	18.84	38.65	*C*
0.39	0.87	0.95	0.83	*BETA*
0.11	-1.58	3.21	-5.07	*SIZE*
0.00	-4.02	0.62	-2.51	*BTM*
0.77	-0.29	0.03	-0.01	*TURNOVER*
0.00	-3.20	0.15	-0.48	*IASPR*
3.01	F statistics	0.52	The coefficient of determination	
0.00	Prob(F-statistic)	0.49	Adjusted coefficient of determination	

With respect to the p-value obtained for the F statistic that is equal to zero (p-value ≤ 0/05), the hypothesis H0 is rejected and this indicates that all the regression coefficients are not simultaneously zero. Therefore there is a significant relationship simultaneously between all independent variables and the dependent variables. According to the above table and the t-statistic p-value for the variable of

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information asymmetry (IASPR) which is equal to zero and less than the error level of 0.05 (p-value ≤0 / 05), the null hypothesis (assuming no effect of asymmetry of information on stock returns) will be rejected and it is concluded that information asymmetry impact on stock returns. As a result, the research hypothesis is not rejected. Also according to the information asymmetry variable coefficient that is negative and equal to -0.48 it is concluded that information asymmetry has opposite effect on stock returns. According to the t-statistic p-value for the control variables, the ratio of book value to market is significant and affects stock returns. Model Adjusted R^2 value is equal to 0.49, which indicates 49% of changes in the dependent variable are explained by the independent variables; in other words, 49% of the variation in the dependent variable is related to the independent variables.

Test of the Second Hypothesis

The second hypothesis of the study is as follows:

"Competition among investors affects stock returns." To test the hypothesis, the following multivariate model based on equation (11) is used:

Equation (11)

$$R_{i,t+1} = \alpha_0 + \beta_1 Risk_{i,t} + \beta_2 Size_{i,t} + \beta_3 BTM_{i,t} + \beta_4 Turnover_{i,t} + \beta_5 IAspread_{i,t} + \beta_6 Competition_{i,t} + \varepsilon_{i,t}$$

In the above model, $R_{i,t+1}$ QUOTE is stock return according to Kins et al., (2012), adjusted return on equity is used as an indicator of stock returns.

$IAspread_{i,t}$ QUOTE: is information asymmetry. The indicator of this variable in this research is gap of the price of buying and selling stocks.

$Competition_{i,t}$ QUOTE: Competition of investors that the index of this variable in this study is the Herfindahl concentration index.

$Risk_{i,t}$ QUOTE: is the systematic risk that beta coefficient is used to calculate this variable.

$Size_{i,t}$ QUOTE: Firm size is the natural logarithm of the market value of equity of the company.

$BTM_{i,t}$ QUOTE: The ratio of book value to market value of shares of the company

To test the second hypothesis significance of competitive variable coefficient of investors ($\beta 6$) in the second model is used. Given that the data used in this study is combined (year-company) and combined data are in two forms: panel data and combined data, so in order to choose between panel data and the combined data model, the F-Limer test is used. To review the F-Limer test results, if the probability of F statistics is more than 0.05, combined data methods must be used. Otherwise, the panel data method is used. F-Limer test results show that the p-value equals to 0.54 and more than 0.05, as a result, data combined method is accepted.

In the present study DW test is used to detect the presence or absence of autocorrelation. Due to the DW statistic that is equal to 1.85, so the above model has not autocorrelation. To evaluate the residual variance homogeneity White Test has been used.

Due to the p-value obtained for the White test that is equal to 0.98 and significance level is 0.05, null hypothesis (homogeneity of variance) will be accepted to show that there is no residual heteroscedasticity problem.

In this study, to investigate the stability of variables for combined data, Fisher-ADF test has been used. The p-value of Fisher-ADF test for all variables has been less than 0.05, therefore, all the variables are static (stationary). Testing the model results are presented in Table 2.

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Table 2: Results of the data analysis to test the second hypothesis

p-value	T statistics	SD	Coefficient	Variable
0.11	1.60	21.24	33.96	*C*
0.45	0.76	0.99	0.75	*BETA*
0.10	-1.64	3.54	-5.81	*SIZE*
0.00	-3.88	0.72	-2.79	*BTM*
0.44	-0.77	0.05	-0.04	*TURNOVER*
0.00	-3.74	0.10	-0.36	*IASPR*
0.00	-4.37	0.80	-3.49	*COMP*
2.5	F statistics	0.48	The coefficient of determination	
0.00	Prob(F-statistic)	0.41	Adjusted coefficient of determination	

With respect to the p-value obtained for the F statistic that is equal to zero (p-value $\leq 0/05$), H0 hypothesis is rejected and this indicates that all the regression coefficients are not simultaneously zero. Therefore there is a significant relationship simultaneously between all independent variables and the dependent variable.

According to the above table and the t-statistic p-value for the variable of competition among investors (COMP), which is equal to zero and less than the error level 0.05 (p-value $\leq 0 / 05$), null hypothesis (hypothesis of competition between investors on stock returns) will be rejected and we conclude that competition among investors affects stock returns. As a result, the second hypothesis is not rejected. Also, due to the variable coefficient of competition between investors that is negative and equal -3.49, it is concluded that competition between investors has the opposite effect on stock returns. According to the t-statistic p-value for the control variables, among the variables, the ratio of book value to market is significant and affects stock returns. Adjusted R2 value is 0/41, which indicates that 41% of the variance of the dependent variable is explained by the independent variables; In other words, 41% of the variation in the dependent variable is for the independent variables.

The Third Hypothesis Testing

The third hypothesis of this study is as follows:

"The effect of competition between investors and the impact of information asymmetry on stock returns"

To test the hypothesis the multivariate models based on the following equation (12) is used:

Equation (12)

$$R_{i,t+1} = \alpha_0 + \beta_1 Risk_{i,t} + \beta_2 Size_{i,t} + \beta_3 BTM_{i,t} + \beta_4 Turnover_{it} + \beta_5 IAspread_{i,t} + \beta_6 Competition_{i,t} + \beta_7 Competition_{i,t} \times IAspread_{i,t} + \varepsilon_{i,t}$$

In the above model, $R_{i,t+1}$ QUOTE is stock return, according to Akins et al., (2012) adjusted return on equity is used as an indicator of return on equity.

$IAspread_{i,t}$ QUOTE: Information asymmetry, the indicator of this variable in this research is the gap of buying and selling stock.

$Competition_{i,t}$: QUOTE: is the competition of investors that the index of this variable in this study is the Herfindahl concentration index.

$Risk_{i,t}$ QUOTE: Systematic risk, that the beta coefficient is used to calculate these variables.

$Size_{i,t}$ QUOTE the firm size, which equals the natural logarithm of the market value of equity of the company.

$BTM_{i,t}$ QUOTE the ratio of book value to market value stock of the company.

To test the third hypothesis significance of variable coefficient of multiplying information asymmetry and investors competition ($\beta7$) in the third model is used.

Given that the data used in this study are combined (year-company) data and combined data includes panel data and combined data, so to choose between using panel data and the combined data in evaluating

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the model, the F limer test is used. To review the results of F limer test, if the probability of F statistics is more than 0.05, combined data method must be used. Otherwise, the panel data method is used. Limer F test results show that the p-value is 0.54 and is greater than 0.05, thus the combined data method is accepted.

In the present study D_W tests have been used to detect the presence or absence of autocorrelation. Due to the DW statistic that is equal to 1.85, so the model has not autocorrelation. To evaluate the residual variance homogeneity, White Test has been used.

With respect to the p-value obtained for the White test that is 0/88 and is greater than significance level of 0/05, null hypothesis (homogeneity of variance) will be accepted to show that there is no residual heteroscedasticity problem. In this study, to investigate the stability of combined data, Fisher-ADF test has been used. The p-value of Fisher-ADF test, for all variables has been less than 0.05, therefore, all the variables are static (stationary). The fitting model results are presented in Table 3.

Table 3: Results of the analysis of data to test the third hypothesis

P-Value	T Statistics	SD	Coefficient	Variable
0.10	1.63	20.90	34.04	*C*
0.47	0.72	1.06	0.76	*BETA*
0.10	-1.67	3.48	-5.83	*SIZE*
0.00	-3.87	0.72	-2.79	*BTM*
0.44	-0.77	0.05	-0.04	*TURNOVER*
0.98	-0.02	3.49	-0.09	*IASPR*
0.00	-4.06	0.86	-3.51	*COMP*
0.03	-2.20	1.30	-2.88	*IASPR*COMP*
6.5	F statistics	0.45	coefficient of determination	
0.00	Prob(F-statistic)	0.40	Adjusted coefficient of determination	

With respect to the p-value obtained for the F statistic that is equal to zero (p-value $\leq$ 0/05), the hypothesis H0 is rejected and this indicates that all the regression coefficients are not simultaneously zero. Therefore simultaneously there is a significant relationship between all independent variables and the dependent variable.

According to the above table and the p-value of t-statistic for the variable of information asymmetry and investors competition (IASPR * COMP) which is equal to zero and less than the error level of 0.05 (p-value $\leq$0.05), zero hypothesis (hypothesis of no impact of information asymmetry and investors' competition on equity) will be rejected and it is concluded that the asymmetry of information and investors' competition affect stock returns. As a result the third research hypothesis is not rejected. So given the variable coefficient of information asymmetry and investors' competition that is negative and equal to -2.88 it is resulted that information asymmetry and investors' competition have an opposite effect on stock returns. According to the p-value of t-statistic for the control variables, among the variables, the ratio of book value to market is significant and affects stock return. Adjusted R2 value of the model is 40/0, it indicates that 40 percent of variability of the dependent variable is explained by the independent variables; In other words, 40% of the variation in the dependent variable is related to the independent variable. The following table summarizes the results of testing hypotheses. As can be seen every three research hypotheses were confirmed.

Table 4: Results of testing hypotheses

Result	Title	Hypothesis
Not reject the hypothesis	information asymmetry affects stock returns	first
Not reject the hypothesis	Competition among investors affects stock returns	second
Not reject the hypothesis	Investors' Competition effects of information asymmetry on stock returns	third

Review Article

Conclusion and Recommendations

The first hypothesis of this study was tested in the combined data level. The results and statistical analysis showed a significant correlation between stock returns and information asymmetry and information asymmetry affects returns. So the hypothesis won't be rejected. Also according to the variable coefficient of information asymmetry that is negative, the results show that there is an inverse relationship between information asymmetry and stock returns.

The result of the research are consistent with results and findings of Martins and Paulo (2014) and Akins *et al.,* (2012) and also indirectly with Rahimian *et al.,* (2012). Second hypothesis was tested at combined data. The results and statistical analysis showed that there is a significant correlation between stock returns and investors' competition and competition between investors affects returns. So the hypothesis isn't rejected. Also, due to the variable coefficient of competition among investors that is negative, the results show that there is an inverse relationship between stock returns competition among investors.

This result is consistent with research results and findings of Akins and colleagues (2012) and Armstrong *et al.,* (2011) and also indirectly with the findings of Khani and Qajavand (2012). The third hypothesis of this study was tested at the combined data.

The results and statistical analysis showed that there is a significant correlation between the information asymmetry and competition among investors with stock returns and information asymmetry and investors' competition affect stock returns. So the hypothesis isn't rejected. Also given the variable coefficient of information asymmetry and investors' competition that is negative, the results show that there is an inverse relationship between information asymmetry and investors' competition with stock returns. The result is consistent with the research results and findings of Akins *et al.,* (2012) and Armstrong *et al.,* (2011) and also indirectly with findings of Rahimian *et al.,* (2012) and Khani and Qajavand (2012). According to the results of hypothesis testing it is recommended it is suggested that corporate managers to evaluate their investment projects and to achieve efficient (optimal) level of investing pay more attention to the information asymmetry.

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