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Research Article

INVESTIGATING THE EFFECT OF INFORMATION ASYMMETRY ON THE EXCESS RETURNS ON THE MARKET (EVIDENCE FROM TEHRAN STOCK EXCHANGE)

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ABSTRACT
The main purpose of this research is to study the impact of information asymmetry on the excess returns on the market in the listed companies in Tehran Stock Exchange. For analysis, a sample of 202 companies listed in Tehran Stock Exchange for the period of 7 years (since 2005 to 2011) were studied. Results showed that information asymmetry has a significant and positive impact on the excess returns on the market in the sample companies of the research. In other words, when an increase (decrease) in the information asymmetry occurs, simultaneously the possibility of obtaining the excess returns on the market increases (decreases).Theoretically this issue will provoke the irregularities in the market and represents the market inefficiency. Moreover, results showed that only in high levels of excess returns on the market and high levels of information asymmetry, information asymmetry has a positive and significant impact on excess returns on the market; while a significant linear effect was not observed at other levels.

Keywords*: Information asymmetry - Excess returns on the market - Stock Exchange*

INTRODUCTION
Tehran Stock Exchange has passed many ups and downs in recent years, in a way that a small group got rich while many investors have lost their money. These events cause uncertainty among investors toward the stock exchange and transactions. On the other hand, due to the specific mechanisms of securities markets and because the benefit of all users of business information and financial statements are not the same; so there is not the possibility of obtaining excess returns on the market for some of them in the future. That is, some investors have been able to obtain excess return for their own business due to the lack of information of other investors that are not reflected in real stock prices. Accordingly, if investors be aware of all the information, excess return on the capital market is reduced to the extent and market efficiency will increase. Those who have access to this information, can use it to predict stock prices and to achieve excess returns on the market. In order to obtain a consistent excess returns, must constantly have confidential information or have a particular ability to obtain a consistent excess returns based on general information than other investors have. Hence, the excess return on the market occurs when all investors do not have the same information or there is an information asymmetry between them; which shows the inefficiency of Stock Exchange. Therefore, the most important issue for users of financial statements, is their attention to information content of financial statements for profit forecast and maximizing the expected return on the one hand and preventing from losses due to fluctuations in stock market.
In Iran's newfound capital market ,more information asymmetry can be seen due to the inefficiency and existence of internal information in the hands of a few participants on the market; planners and legislators have always tried to eliminate barriers to information asymmetry to provide equal rights and equality for market participants. Therefore, in Iran's inefficient capital market, it is essential to investigate the effects of information asymmetry on excess returns on the market to identify factors influencing the emergence of excess returns on the markets. The main question in this study is: can information asymmetry affect excess returns on the market?

According to the above questions, the following research hypotheses were developed as follows:

1. Information asymmetry has a significant impact on excess returns on the market.
2. There is a significant difference between information asymmetry of companies at different levels of excess returns on the market.
3. There is a significant difference between excess returns on the market of surveyed companies in different levels of information asymmetry.

However, after the second and third hypotheses testing, the impact of information asymmetry on excess returns on the market at different levels of studied variables were tested as well.

The general purpose of this research is to investigate the impact of information asymmetry on excess returns on the market. Since this is an applied research, its results can be useful for stock exchange officials, audit organization, investors, stock broker maintenance companies, analysts, students and professors and generally for financial researchers.

In this research, we address the question of whether there is information asymmetry in the capital market of Iran. If yes, whether information asymmetry caused excess returns on the market for investors and inefficiencies in Iran's capital market?

Literature review and research background

In financial literature, unusual gap between proposed price for sale and acquisitions of securities can be considered as a symbol of information asymmetry between buyers and sellers of securities.

Distance range between proposed price to buy and stock selling, indicates the level of information asymmetry between the transaction and it is and t is assumed that by distributing the information in the market in a more unequal way and using more informal channels, the scope of information asymmetry would be greater and the gap between bid and offer prices of the stocks would be higher (Ghaemi & Vatanparast, 2005).Which this case is shown in the following equation:

Degree of information asymmetry = | proposed bid - proposed price for sale |

In such a situation, the owners of the final and confidential information according to this information, exchanged and attempting to gain efficiencies in excess returns of the market, the result is that prices are not based on the actual quality of securities, but on the basis of false excitement of the market which not represent the true value of the securities and their intrinsic value is far beyond of their exchange price. And in these markets, most traders except a minority who have access to confidential information, will lose because of adverse selection due to inability to make sound decisions. Therefore it is expected in the financial literature that between information asymmetry and acquisition excess returns on the stock market is a direct correlation.

Also, the information asymmetry between informed and uninformed investors will cause agency costs that increases the expected returns to investors. Therefore any company stakeholders looking for mechanism to decrease information asymmetries (Khoddami pour & Ghadiri, 2010).

Research background

According to investigations, so far, no direct research related to the subject of this study has been done in Iran and abroad. Therefore in the following, we mention research summaries that cover some aspects of the study.

Wang and Chiang (2006), investigated the relationship between information asymmetry and investor's behavior around the profit announce time. Although the results confirmed that if profit announcement, reduce information asymmetry, representative of information asymmetry will be less in the period before the announcement than the period after the announcement, but the results were not too strong to confirm that, on the other hand the evidence showed that in a quarter of the cases, profit announcement will reduce company's information asymmetry, especially for company's bad news. It is perhaps because companies are reluctant to disclose information about bad news than good news before the profit announcement (Wang, Chiang, 2006).

Moerman (2006), investigated the role of information asymmetry and financial reporting quality in debt transactions. Research findings indicate that the secondary market for loans, provides unique information in relation to private loan transactions. And difference between bid and offer range in loan transactions has positive correlation with information asymmetry related to loan and company. In addition, the findings suggest that timely recognition of economic losses in the financial statements of borrowers, reduces the difference between bid and offer range that loan transactions are carried out on the basis of them. (Moerman, 2006)

Bacchetta et al. (2008), have studied the relationship between earnings quality and information asymmetry in listed companies on the New York Stock Exchange. They found that by reduction in earnings quality, information asymmetry increases. Information asymmetry increases the risk of incorrect selection for liquidity providers that it would cause reduction in announced prices and therefore reduction in the liquidity.

Furthermore, they found that companies with poor earnings quality will experience higher asymmetry when they declare their profit.(Bacchetta, P., et al, 2008)

Caiet al (2008), have studied the effect of asymmetric information on the mechanisms of corporate governance (monitoring intensity of the board of directors, market discipline (based on anti-analytic), and susceptibility pay for senior management performance). They found that companies with greater information asymmetry, have less tendency to use monitoring of board of directors, more market discipline and higher senior management performance (Cai et al, 2008).

Ahmadpoor Kasgry and Ajam (2010), investigated the relation between accruals quality and information asymmetry in companies listed in Tehran Stock Exchange. The aim of this study is to determine whether accruals quality has an important and significant effect on firms' information asymmetry, hence, 346 firms estimated profit announcements, were examined during the years 2002-2008. The quality of accruals as the independent variable and the difference of proposed price to buy or sell shares as dependent variables were calculated. In order to test the hypotheses, Pearson correlation coefficient and paired test were used. The results show that accruals quality of listed companies in Tehran Stock Exchange has no significant effect on the level of information asymmetry.

Hassani and Taheri (2010), studied the relationship between earnings management and information asymmetry. In this study, the study population consisted of listed companies in Tehran Stock Exchange from 2004 until the end of 2009 and with applied conditions and restrictions, eligible samples were considered as study sample. Results showed that there is no correlation between earnings management and information asymmetry of companies listed in Tehran Stock Exchange. There is information asymmetry in Tehran Stock Exchange that its amount is more in the period after the earnings announcement compared with the period before earnings announcements. This means that estimated earnings announcements have informational content and can affect the degree of information asymmetry.

Mehrazin et al. (2011), investigated the relationship between information asymmetry with investment efficiency in Tehran Stock Exchange. This study has been done of 90 companies listed in Tehran Stock Exchange, based on the information contained in corporate financial reports between the years 2008 and 2009.Hypothesis testing was performed in a linear and nonlinear methods that the results of this study showedthere is no significant linear and nonlinear correlation between the variables.

AbdullahKhani and Ghejavand (2011), studied the relationship between information asymmetry and its relation tocommon stock capital cost in competitive markets. The results showed that criterion of information asymmetry cannot explain common stocks cost by itself and, to an extent depending on the market competition degree.

Rahimian et al. (2012), investigated the relationship between earnings quality and information asymmetry. Studied population in this research consisted of companies listed in Tehran Stock Exchange and the sample consisted of 59 companies in the period between 2004 till 2009.The results showed that there was significant correlation between earnings quality and information asymmetry, which reduction in profit quality increases information asymmetry.

RESEARCH METHODOLOGY

This research is an applied one. The purpose of applied research is, practical knowledge development and its practical application in a particular field. The research method is descriptive study of regression and correlation. This study uses historical data to test hypotheses and it is a causal research. Also research data analysis is based on quantitative data analysis.

The statistical sample and population

According to its application, the research population is companies listed in Tehran Stock Exchange, from the beginning of 2005 until the end of 2011. Research sampling is purposeful; thatof all existing companies, unqualified companies removed and the remaining companies will be selected for testing.

These conditions are:

The companies be present in the stock during the research period.

Their shares were traded on the exchange during the research period, and their transactions were not interrupted for a long time.

The information about bid and offer prices for companies stocks were accessible.

Regarding to these criteria, of all listed companies on the Stock Exchange, 202 companies were selected as sample and their data was collected during a 7 years period. As a result, number of observations related to research variables were 1414 company-year observations.

Research Methodology and Data collecting tools

Required information for this study is a secondary information and data were collected through libraries and organizational documents. The theoretical foundations and research background were collected through Persian and English books and magazines in the library. Required data for this study were extracted from financial statements, audited explanatory notes taken from the Securities and Exchange website and by using informationalprograms in the Tehran Securities and Exchange library.

Research Model

According to the general hypothesis concerning the effect of information asymmetry on the excess returns on the market, the following overall regression model was examined:

$$EMR_{i,t} = \beta_0 + \beta_1 IA_{i,t} + \beta_2 RISK_{i,t} + \beta_3 EFE_{i,t} + \beta_4 EQ_{i,t} + \beta_5 LEV_{i,t} + \beta_6 SIZE_{i,t} + \beta_7 GROWTH_{i,t} + \beta_8 DP_{i,t} + \varepsilon_{i,t}$$

Research Variables

The dependent and independent variables of the study are the excess return on the market and information asymmetry. Since stock returns may be affected by other factors, in order to examine the impact of information asymmetry on the excess returns on the stock market more accurately, possible affecting variables such as risk, earnings forecast error, earnings quality, leverage, size, growth and dividend percentage were entered into the model to control their effects and hypothesis be tested more accurate.

Dependent Variable

$EMR_{i,t}$: excess return on the market is the difference between company stock returns and market returns. Market returns can be obtained through price index and cash returns (TEDPIX) which is the difference between price index and cash returns at the beginning and end of the financial period divided by price index and cash returns at the beginning of the financial period. To calculate the excess returns on the market the following equation is used:

$$EMR_{i,t} = R_{i,t} - R_{m,t}$$

Independent Variable

Symmetry means that both transaction parties be aware of exchanged commodity quality and the terms of trade in the market to an extent.Information asymmetry refers to a condition in which one party has less information about the product or market conditions than the other;In other words, the distribution of information between the two parties is heterogeneous.

$IA_{i,t}$: information asymmetry refers to the difference between buy and sell stock offer price. To calculate information asymmetry, difference between the averages of buy and sell stock offer price divided on their mean. In order to the calculation, the information related to the best buy and sell price per share for each day of the financial year is collected and their means are calculated. Then by using the following formula; the difference between buy and sell stock offer price is calculated. The big domain difference between buying and selling stock price shows more information asymmetry between informed and uninformed investors.

$IA_{i,t}(SPREAD_{i,t})= (AP – BP)/ ((AP + BP)/2)*100$

Control Variables

$RISK_{i,t}$: Systematic risk that will be measured by stocks beta .

$EFE_{i,t}$: Earnings forecast error is, the actual profits per share minus the predicted profits per share divided by the predicted profits per share. This large ratio indicates a large error in predicting earnings per share.

$EQ_{i,t}$: Earnings quality, which is the ratio of operating cash flow to operating profit. The convergence of the numerator and denominator of this ratio represents proximity of operating cash flow to operating profit, and in fact reflects the high quality of earnings.

$LEV_{i,t}$: Financial leverage is the debt ratio to assets.

$SIZE_{i,t}$:Firm size is company's stock market value logarithm.

$GROWTH_{i,t}$:The company's growth is the market value ratio to book value of equity.

$DP_{i,t}$:Dividend percentage is ratio of dividend to the amount of stock approved and declared earnings.

Research findings

First research hypothesis testing:

In the first research hypothesis, the impact of information asymmetry on the excess returns on the market have been tested. Accordingly, the dependent variable is the excess returns on the market, information asymmetry is independent variable and other variables such as systematic risk, earnings forecast error, earnings quality, financial leverage, firm size, company's growth and dividend percentage were considered as control variables in order to control other possible affecting factors. To test this hypothesis, panel data regression model was used. The results of the model are presented in figure 1.As can be seen in this figure, the relationships are presented in three models. In model (1) the impact of information asymmetry on excess returns on the market has been tested. In model (2) the impact of control variables on the relationships were tested too. Finally, in model (3), significant variables in prior models have been examined again. The investigation results of combined or integrated model showed that in models (1), (2) and (3) according to Lymer F-statistic and its probability (Statistic probability is more than 5% error level), using integrated model has no appropriate effects. Since in these cases there is no need to do effects selection test so there is no information about this. Fisher-F statistic and its probability in models(1), (2) and (3) indicate that all regression models are significant (Statistic probability is less than 5% error level);Durbin-Watson statistic in different models (between 5/1 to 5/2) implies the model residuals independence; In other words, there is no correlation between models residuals. Jarque-bera-statistic and its probability showed that models residuals quantities (Statistic probability is less than 5% error level) do not have a normal distribution. It is associated with the abnormal distribution of study variables.

Figure 1: The study results about the impact of information asymmetry on the excess returns on the market

EMR :Dependent variable					
Description			Model (1)	Model(2)	Model(3)
Explanatory variables	*C*	*Coefficient* *(T-statistic)* *(T-statistic probability)*	-0.084106 (-3.561488) (0.0004)	-0.631973 (-1.658905) (0.0974)	-0.648214 (-1.684232) (0.0924)
	IA	*Coefficient* *(T-statistic)* *(T-statistic probability)*	0.196857 (7.392418) (0.0000)	0.216341 (5.153804) (0.0000)	0.214109 (5.183461) (0.0000)
	RISK	*Coefficient* *(T-statistic)* *(T-statistic probability)*		-0.005797 (-1.277232) (0.2017)	
	EFE	*Coefficient* *(T-statistic)* *(T-statistic probability)*		0.003672 (1.395241) (0.1632)	
	EQ	*Coefficient* *(T-statistic)* *(T-statistic probability)*		-0.001962 (-2.394857) (0.0168)	-0.001824 (-2.010908) (0.0445)
	LEV	*Coefficient* *(T-statistic)* *(T-statistic probability)*		-0.201957 (-2.761859) (0.0058)	-0.204427 (-2.781144) (0.0055)
	SIZE	*Coefficient* *(T-statistic)* *(T-statistic probability)*		0.028671 (1.999262) (0.0458)	0.029094 (2.018148) (0.0438)
	GROWTH	*Coefficient* *(T-statistic)* *(T-statistic probability)*		-0.025356 (-2.145815) (0.0321)	-0.025307 (-2.137390) (0.0327)
	DP	*Coefficient* *(T-statistic)* *(T-statistic probability)*		-0.000221 (-0.008821) (0.9930)	
Investigation of model significance		Fisher –F statistic (*statistic probability)*	56.00159 (0.000000)	10.83176 (0.000000)	15.59388 (0.000000)
Investigation of model explanatory power		Determined coefficient (adjusted)	0.038279 (0.037595)	0.058962 (0.053519)	0.052790 (0.049405)
Investigation of model residuals independence		Durbin-Watson statistic	1.594137	1.836488	1.840034
Investigation ofmodel residuals normality		Jarque-bera-statistic *(statistic probability*)	25.83463 (0.000002)	20447.94 (0.000000)	20540.84 (0.000000)
Investigation ofcombined or consolidated model		Lymer F-statistic *(statistic probability*)	0.669545 (0.9998)	0.797293 (0.9779)	0.794881 (0.9796)
Investigation of fixed or random effects model		Chi-squared statistic *(statistic probability*)	- -	- -	- -

Results of the study according to T-statistic and its probability indicates significant coefficient of the impact of information asymmetry on the excess returns on the market model (Statistic probability is less

than 5% error level).Since this is the sign of positive coefficient, evidences show significant and positive impact of information asymmetry on the excess returns on the market. This means that increasing of information asymmetry leads to increasing of the excess returns on the market. Theoretically this issue will provoke the irregularities in the market and represents market inefficiency. Generally in the first hypothesis of the research, the impact of information asymmetry on excess returns on the market was investigated. Evidences showed that information asymmetry has a positive and significant effect on excess returns on the market. This means that the first research hypothesis is accepted and it indicates the inefficiency of Tehran Stock Exchange.

Second research hypothesis testing:

In the second hypothesis of the study, the significant difference between the information asymmetry of the reviewed companies in different levels of return on the market has been tested. For this reason, the excess returns on the market variable is divided into three groups: negative, positive, and the median, and then, a comparison was performed between companies' information asymmetry in different levels of excess returns of the market based on the mean equality test. In this part, the descriptive statistics of the variables were examined separately at different levels of market excess returns so the arrangement order of variables be acquired. Results showed that at high levels of excess returns on the market, values of higher information asymmetry was observed. This suggests a direct impact of information asymmetry on excess returns on the market. Furthermore, the results of the mean comparison variables at different levels of excess returns on the market are presented in table 2.The evidence showed that the average excess return on the market at different levels according to theF-statistic and probability(Probability statistic is less than 5% error level) are not equal and there are significant differences between the mean. Significant differences between the mean values of these variables implies the right corporate separation based on excess returns of the market at different levels.

Table 2: Test results of the comparison of variables at different levels of excess returns on the market

Measure resolution of the company*EMR*					
variables	mean values at different levels			Comparison of the mean test	
	low	Average	high	The F-statistic	Statistic Probability
EMR	-0.751567	0.061434	0.934708	1145.911	0.0000
IA	0.442984	0.682418	0.693731	23.42883	0.0000
RISK	1.320380	0.304910	0.143182	1.617125	0.1988
EFE	-0.045686	-0.478922	0.070152	2.297520	0.1009
EQ	1.498007	0.706482	0.527949	0.599192	0.5494
LEV	0.627089	0.611645	0.586066	2.720583	0.0662
SIZE	26.73468	26.56970	26.91348	5.885103	0.0028
GROWTH	2.574708	1.807916	1.679491	6.033303	0.0025
DP	0.740992	0.620232	0.706955	2.193651	0.1119

The results of the comparison of information asymmetry averages showed that the mean values of the asymmetry of information in three distinct groups based on different levels of excess returns of the market, according to F-statistic and its probability(statistic probability is less than 5% error level), are not equal and there are significant differences between the means. As a result, the second research hypothesis was accepted.

After ensuring that there is no significant difference between the information asymmetry of surveyed companies at different levels of excess returns on the market, the expected relations of separated

companies in three distinct groups were examined. Due to the separation of companies, regression analysis was used for data analysis. In this analysis, resources such as testing the model variance anisotropy waste, waste serial correlation model test, the overall significance of the model coefficients test and significant explanatory variable test, residue testing independence model, the normal distribution of waste models test and determining explanatory power of the model test were performed. Test results of information asymmetry on the excess returns on the market in different levels of excess returns on the market are presented separately in table 3.Fisher F-statistic and it's probability only at high level(positive) of excess returns of the market showed significant regression (statistical probability of less than 5% error level) ,whereas evidence of total significant regression models in terms of linear relationships (the statistic probability is more than 5% error level) were not found. Also Durbin-Watson statistic indicates model residues independency only at positive level of excess returns on the market (between 7/1 and 3/2).

Tables 3: results of practicing the effect of information asymmetry on the excess returns on the market at different levels model

Dependent variable: EMR					
Description			**Different levels of EMR**		
			Low	Average	High
Explanatory variables	*C*	Ratio (t-statistic probability)	-0.704686 (0.0019)	-0.011309 (0.9443)	-0.305767 (0.5636)
	IA	Ratio (t-statistic probability)	-0.019230 (0.4104)	0.009475 (0.4739)	0.149817 (0.0318)
	RISK	Ratio (t-statistic probability)	4.40E-05 (0.9531)	0.000962 (0.7349)	-0.015061 (0.0000)
	EFE	Ratio (t-statistic probability)	0.000901 (0.8588)	0.002191 (0.0819)	-0.003793 (0.9599)
	EQ	Ratio (t-statistic probability)	-0.000666 (0.2948)	0.000233 (0.8092)	-0.000659 (0.6032)
	LEV	Ratio (t-statistic probability)	-0.080821 (0.1331)	-0.061117 (0.0942)	-0.022049 (0.8841)
	SIZE	Ratio (t-statistic probability)	0.000539 (0.9484)	0.003592 (0.5423)	0.040943 (0.0235)
	GROWTH	Ratio (t-statistic probability)	0.002480 (0.4252)	0.003996 (0.3008)	-0.023597 (0.1300)
	DP	Ratio (t-statistic probability)	-0.010380 (0.2201)	0.000798 (0.9669)	0.122451 (0.5519)
Investigation of model significance		Fisher F statistic (statistic probability)	1.005147 (0.431214)	1.232330 (0.278074)	4.330287 (0.000048)
Investigation of model explanatory power		The coefficient of determination (adjusted)	0.017556 (0.000090)	0.021208 (0.003998)	0.070177 (0.053971)
Investigation of model residuals independence		Durbin-Watson statistic	0.038706	0.045413	2.181758
Investigation ofmodel residuals normality		Jarque-bera statistic (statistic Probability)	10.56382 (0.005083)	22.15205 (0.000015)	22763.60 (0.000000)
Investigation ofmodel residuals variance inequality		Breuscht, Pagan and Godfrey test F-statistic (statistic Probability)	1.099702 (0.3620)	0.386733 (0.9277)	0.613368 (0.7669)
Investigation of model residuals serial correlation		Breuschtand Godfrey test F- statistic (statistic Probability)	4526.435 (0.0000)	9945.629 (0.0000)	1.757822 (0.7016)

According to Jarque-berastatistic and its probability (probability of statistic is less than 5% error) standardized model residues values are not distributed normally at all levels of excess returns of the market. Breuscht, Pagan and Godfreytest's f-statistic and its probability in all models suggest the homogeneity of practiced model's residues variance. F-test statistic brush and Godfrey and its probability indicate the absence of serial correlation of fitted model residues only in the models related to high levels of excess returns on the market (probability of statistic is more than 5% error level). In models related to the other levels, serial correlation between the model residues was observed (probability of statistic is less than 5% error level) and the result of this was confirmed by the Durbin– Watson test. Due to the lack ofa significant regression in these levels, there is no solution to eliminate serial correlation between the Residues of this model.

The results showed that only in the high levels (positive) of excess returns on the market, a significant and positive impact is established by the information asymmetry on excess returns on the market; meanwhile in other areas, significant effects were not observed. Interestingly, the effect of information asymmetry on the excess return on the market, only results related to high levels (positive) of excess returns on the market is consistent with the results of the general model and in other levels the results were inconsistent. in the high levels (positive) of excess returns on the market, systematic risk and size variables affect the excess return on the market as well; in such a way that the effect of systematic risk on excess returns on the market was negative and significant, while the size effect on excess returns of the market was positive and significant. This means that companies with less risk, but with a larger degree, have earned higher returns than the market return. Also, companies with a higher degree of risk, but with a smaller size, have earned lower returns compared to market returns.

The third hypothesis testing research

In the third hypothesis of the study, a significant difference between the excess return on the market under study is examined in different levels of information asymmetry. For this purpose, the information asymmetry variables is divided into three groups: low, medium and high split and then based on the test for equality of mean, a comparison between excess returns on the market at different levels of information asymmetry was applied. The information obtained from the test for equality of mean, confirmed the results of the study of the first hypothesis test.In other words, with the increase (decrease) of information asymmetry, excess returns of the market has also increased (decreased).In the following, the results of the average comparison of the variables in different levels of information asymmetry are presented in table 4.The evidence showed that the mean values of the asymmetry of information at different levels, according to f-statistic and its probability (the probability of statistic is less than 5% error), are not equal, and there is a significant difference between the mean. Significant differences between the mean values of this variable, indicates the accurate separation of the companies based on different levels of information asymmetry.

Table 4: comparison of test results from different levels of information asymmetry variables

Separation of companies Criterion: IA					
variables	Mean values at different levels			Mean comparison test	
	Low	Average	High	TheF statistic	The probability of statistics
EMR	-0.026435	0.013685	0.257790	14.82714	0.0000
IA	0.034849	0.370270	1.421106	3744.361	0.0000
RISK	0.757522	0.467267	0.532701	0.092089	0.9120
EFE	-0.015993	-0.107868	-0.331328	0.719093	0.4874
EQ	0.769524	1.011198	0.948721	0.035278	0.9653
LEV	0.587064	0.631828	0.605698	3.206077	0.0408
SIZE	26.85904	26.37460	26.98380	21.06069	0.0000
GROWTH	2.603798	1.884148	1.574044	7.197634	0.0008
DP	0.813560	0.626238	0.627876	6.612934	0.0014

In the following research for the third hypothesis test, the results of a comparison of the average excess returns on the market showed that the average excess return on the market in three distinct groups companies based on different levels of information asymmetry according to F-statistic and its probability (the probability of statistic is less than 5% error), are not equal, and there is a significant difference between the means. Therefore, the third research hypothesis was accepted.

Table 5: The results of practicing the effect of information asymmetry on the excess returns on the market at different levels model.

Dependent variable: EMR					
Description			**Different levels of IA**		
			low	Average	High
Explanatory variables	*C*	Ratio (probability of statistic T)	-0.117743 (0.8494)	-0.651454 (0.3921)	-0.674931 (0.3670)
	IA	Ratio (probability of statistic T)	0.272996 (0.4883)	-0.420141 (0.0573)	0.473342 (0.0002)
	RISK	Ratio (probability of statistic T)	-0.006313 (0.1919)	0.003201 (0.7807)	0.006942 (0.7344)
	EFE	Ratio (probability of statistic T)	0.158549 (0.0033)	0.010689 (0.6172)	0.000360 (0.8767)
	EQ	Ratio (probability of statistic T)	-0.003640 (0.3983)	-0.002374 (0.1806)	-0.000688 (0.8054)
	LEV	Ratio (probability of statistic T)	-0.214235 (0.1672)	-0.205711 (0.0792)	-0.073375 (0.7149)
	SIZE	Ratio (probability of statistic T)	0.009946 (0.6589)	0.032836 (0.2506)	0.011149 (0.0183)
	GROWTH	Ratio (probability of statistic T)	-0.007310 (0.4535)	0.001712 (0.8922)	-0.035764 (0.0008)
	DP	Ratio (probability of statistic T)	-0.040072 (0.0103)	0.135260 (0.1659)	0.113221 (0.3342)
Investigating Overall significance of the model		Fisher F statistic (probability of statistics)	3.275522 (0.001205)	1.836900 (0.068355)	5.843730 (0.000000)
Examine the explanatory power of the model		The coefficient of determination (modified)	0.053895 (0.037441)	0.031488 (0.014346)	0.093546 (0.077538)
Examine the independence of model residuals		Durbin-Watson statistics	1.813859	1.922870	2.150161
Examine the normality of the model residuals		Jarque-berastatistics (probability of statistics)	323.1994 (0.000000)	21666.55 (0.000000)	3963.781 (0.000000)
Examine the variance anisotropy Model residuals		F-testbrushstatistic, Pagan and Godfrey (probability of statistics)	0.445674 (0.8933)	0.665423 (0.7221)	1.403864 (0.1924)
Examine the serial correlation of model residuals		F-test statistic of brush and Godfrey (probability of statistics)	2.333291 (0.0981)	1.605730 (0.2019)	1.408811 (0.2455)

After ensuring that there is a significant difference between surveyed excess returns of company markets at different levels of information asymmetry, expected relationships were examined in three distinct groups of separated companies. According to a separation of company, Cross-sectional regression analysis of data was used to perform the analysis. In these analyzes, features such as model's residues variance inequality test, model's residues serial correlation test, model's overall significance test, model's explanatory variables coefficients significance test, model's residues independence test, model's residues normal distribution test and model's explanatory power determination test were performed. Test results on the impact of information asymmetry on the market excess return divided in different levels of information asymmetry are presented in table 5.Fisher F statistics and probability in the low and high levels of information asymmetry indicates significant regression models (statistical probability is less than 5% error level), while moderate levels of evidence of significant regression model in terms of linear relationships (statistical probability is more than 5% error level) were not found. Durbin-Watson test at all levels of information asymmetry (between 7/1 and 3/2) implies independence of model residuals. The standardized quantities of residue models, considering Jarque-bera statistic and its probability(probability statistic error of less than 5%) at all levels of information asymmetry are not normally distributed .F-test Breuscht Statistic, Pagan and Godfrey and the probability in all models, indicate homogeneity of residue fitted models variance (the probability statistic greater than 5% error level). F-test of Breuscht and Godfrey test and the probability of them at all levels of information asymmetry, indicates the absence of serial correlation residue fitted models (the probability statistic is greater than 5% error level).

The results showed that only in the high level of information asymmetry, a significant and positive impact of information asymmetry is established on excess returns on the market; how ever there was no significant effect in other areas. Interestingly, the effect of information asymmetry on the excess returns on the market only the results related to high levels of information asymmetry is consistent with the results of the overall model, and the other levels were inconsistent. In high levels of information asymmetry, variables of size and growth also had an impact on the excess returns on the market, in such a way that the effect of size on the excess returns on market was positive and significant, while the effect of the growth on the excess returns on market was negative and significant. This means that companies with larger but lower growth, have earned higher returns compared to market returns. Also smaller companies with higher growth, have earned lower returns compared to market returns. Although at low levels of information asymmetry, significant effect from information asymmetry on the excess returns on market was not observed. But at lower levels of information asymmetry, profit forecasts error and dividend percentage variables were affecting the excess return on the market; So that the effect of earning prediction errors on excess returns on the market was positive and significant, while the effect of the dividend efficiency on excess returns on the market was negative and significant. This means that companies with greater earning prediction errors, but lower dividend efficiency have gained more compared to market returns. Also, companies with lower profit prediction errors but higher dividend percentage have gained a lower return in comparison to the market return.

THE CONCLUSION

The first hypothesis examined the impact of information asymmetry on the excess returns on the market of total companies in the research sample. The results of testing the hypothesis showed that information asymmetry has a significant effect on excess returns on market at total level of research sample companies. Evidence showed that due to Positive coefficient of information asymmetry in the model, information symmetry had significant positive impact on excess returns on the market. In other words, parallel to the increase (decrease) information asymmetry, the possibility of obtaining excess efficiency on the market increases (decreases). Theoretically this issue causes irregularity in the market and indicates market inefficiency. According to the results, the first research hypothesis was accepted. The results showed that the company size has significant positive impact on excess returns on the market.

While the variable quality of earnings, financial leverage and growth opportunities have negative significant impact on excess returns on the market. For other variables, although the results showed that the influence of income prediction error variable is positive, and the impact of systematic risk and the dividend percentage variables are negative, but from a statistical point of view no evidence was found that shows a significant impact on the variables mentioned. In the second hypothesis of the study, the significant difference between the information asymmetry of surveyed companies at different levels of excess returns on the market was tested.

The comparison of the results of information asymmetry showed that information asymmetry in the mean values of three distinct groups of companies based on different levels of excess returns on the market are not equal and there is a significant difference between the means. Therefore, the second research hypothesis was accepted. In the third hypothesis of the study, the significant difference between excess returns on the market of surveyed companies at different levels of information asymmetry were examined. Results related to the comparison of excess returns on the market averages showed that the excess return on the market averages are not equal in three distinct groups of companies based on different levels of information asymmetry and there is a significant difference between the averages. Consequently, the third research hypothesis was accepted.

Abstract results of the research hypothesis

In this study, three hypothesis were discussed and tested. The overall results of this hypothesis test were mentioned in the previous section. In this section, the final results of hypothesis testing are presented in table 6.

Table 6: The overall results of testing hypotheses

Hypothesis	Description of hypothesis	Result
First	Information asymmetry has a significant impact on returns in excess of market.	Accepted
Second	There are significant differences between information asymmetry of surveyed companies at different levels of excess returns.	Accepted
Third	There are significant differences between excess returns of surveyed companies at different levels of information asymmetry.	Accepted

In addition to stating the results of research, general conclusions about the impact of information asymmetry on excess returns on the market research sample companies and the levels of the main variables are presented in table 7:

Table 7: The first hypothesis test results at different levels of the variables

Dependent variable: EMR														
Explanatoryvariable	Criterion of Companies													
	Total Companies		Excess returns on the market						Information asymmetry					
			low		**Average**		**High**		**Low**		**Average**		**High**	
IA	✔	+	✗		✗		✔	+	✗		✗		✔	+

Comparing the results of explanatory power of the various models of the main variables showed that the strongest impact of information asymmetry on excess returns on the market isassociated in high levels of information asymmetry.

Research suggestions

Recommendations based on research findings

This study examined the impact of information asymmetry on excess returns on the market. The results showed that the information asymmetry has a significant and positive effect on excess return on the market at a general level of research sample companies. In other words, as the information asymmetry increases (decreases), the possibility of gaining excess returns on the market increases (decreases).Theoretically this issue causes the market's irregularity and also represents market inefficiency. In fact, the main reason for the formation of excess returns on the stock market underlies in the stock pricing method. It means that the prices are priced lower than the intrinsic value of the stock. Therefore reducing information asymmetry may reduce incorrect priced stocks and also alleviate concerns of potential investors about fluctuations of stock prices in future periods so this will lead to their optimal decisions. It is recommended to investors and financial analysts to have sufficient attention to the results of this study and analyze issues of disclosure and information asymmetry in a way that prevents wrong interpretation of the business unit so that it leads to rational behavior of the investment market, and finally to prevent being harmed by crass people. Also the results of this research can help The Tehran Stock Exchange, in order to create incentive policies and legal obligation to disclose complete, accurate and timely information to the users and legal punishment of the offenders. Also it can be helpful to develop policies and set guidelines to prevent using internal information on legal transactions, such as stock trading for people who have inside information. Theoretically it is recommended to the auditing organization as the reference for formulating accounting standards to focus on those parts of financial data which has more ability for managing and manipulating and those standards that are more susceptible to this topic, in order to stop the establishment of information asymmetry in the stock market, and consequently to help the capital markets to achieve the ultimate goal, which is a fair division through appropriate assessment. In general, current research will help responsible organizations in formulation of appropriate standards and enriching those standards by clarifying conceptual aspects produced by the different conceptions of industry members, consumers and producers of accounting information.

Suggestions for future researches

Following cases are offered as suggestions for future research:

- Examine the relationship between excess returns and investment efficiency.
- Examine the relationship between the excess return over the investment trust.
- Examine the relationship between excess returns and over reactive investors.
- Examine the relationship between excess returns and investment's ups and downs.
- Examine the relationship between information asymmetry and the investment sensibility to cash flows.
- Examine the relationship between information asymmetry and inefficient investment.
- Examine the relationship between excess returns and the corporate Governance.
- Examine the relationship between information asymmetry and earnings management.
- Examine the relationship between information asymmetry and agency costs.
- Examine the relationship between information asymmetry and the excess returns on themarket on companies' life cycle.

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