

Investigating the impact of investor sentiment on investment decisions of the listed companies in Tehran stock exchange

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ABSTRACT

The major purpose of this investigation is to examine the impact of investor sentiment on investment decisions of the listed companies in Tehran stock exchange. All listed companies in Tehran stock exchange were selected as statistical population during 2008 to 2012 which 326 were picked up based on systematic omission as statistical population and 73 firms were selected as statistical samples through simple random sampling method. Equity Market Sentiment Index (EMSI) is used to measure investors sentiment in this research which is has been developed by Jones (2005) and adjusted with Persawd (1996) model. The research's results indicated that more investments are made in firms with higher investors' sentiments. In these firms, too investments are made than other firms.

KEYWORDS: Investors' sentiment; Investment decisions; Tehran stock exchange.

1- INTRODUCTION

Making investment decisions are considered as the important activity in firms' management. Firms continuously develop and update their facilities and products to keep and maintain the operations. Investment decisions deal with allocating and utilizing resources and wealth in large dimensions (Core et al, 2006). A wrong decision may be a serious threat for a firm's surviving. Hence, accurate assessment is a vital factor in investment decisions. Recent studies have shown, however, managers' investment decisions are not always consistent with shareholders' interests. Empirical findings of Backer et al, (2012) demonstrate that unreasonable stock's prices is factor which impacts on a firm investment through financing channel by sale of shares. This factor motivated by a sentiment investor positively impacts on investment level, especially in firms with wholly dependent on stocks (Dang et al, 2007). In addition to financing channel through sale of shares, a sentiment investor can influence on investor's decision through this channel. Managers may increase the firm investment for optimistic (pessimistic) investors. Managers fulfill their duties to satisfy the firms' owners. People who are hired by the firms assume that to approach toward maximizing shareholders' interests. However, some managers may shrink their responsibility or prefer their financial interests due to agency problems (Giroud et al, 2010). Regardless of how sentiment investor motivates his managers to make decision about over-investment or under-investment, these decisions may harm to the firm. The previous research have found abundant evidences that sound corporate governance mechanisms can lessen agency problems and improve firm performance and shareholders' wealth (Dovren, 2009). Under this approach, the aim of this research is to investigate the impact of investors' sentiment on investment decisions of the listed companies in Tehran stock exchange.

2- RESEARCH METHODOLOGY

2-1- Research method

- There are more new investments in firms with higher shareholders' sentiment.
- There are too investments in firms with higher shareholders' sentiment than other firms.

2-2- Statistical population and sample

All listed companies in Tehran stock exchange were selected as statistical population of the study during 2008 to 2012. The statistical sample will be selected based on the following conditions:

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Table 1-1: Restrictions for Companies

Row	Restriction	Num.
1	Number of firms before restrictions	421
2	They have not been listed in stock exchange before 2008	23
3	Their fiscal year didn't end in 29/3/...	19
4	The firms which changed their fiscal year during the research	15
5	They should not be part of banks, insurance, investment companies, etc.	18
6	Their information was not available during the research	20
	Total remained firms	326

Regarding to the population volume (326 out of 421 listed companies in Tehran stock exchange), the statistical sample of the research is 73 firms which the following equation (random sampling method) is used based on the kind of the variables' index:

$$n = \frac{326(1.96 - \frac{0.05}{2})^2 0.01^2}{(326 + 1)0.05^2 + (1.96 - \frac{0.05}{2})^2 0.01^2} = 73$$

Z1: 95% confidence level

N: Population volume

d: Sampling error

d²: Population variance

2-3- Regression model

Investment decisions_{it} = $\beta_0 + \beta_1$ investment Sentiment_{it} + β_2 Cash Flows_{it} + β_3 QTobin_{it} + β_4 Size_{it} + ε_{it}

Overinvestment_{it} = $\beta_0 + \beta_1$ investment Sentiment_{it} + β_2 Cash Flows_{it} + β_3 QTobin_{it} + β_4 Size_{it} + ε_{it}

Investment Sentiment: Equity Market Sentiment Index (EMSI) is used to measure investors' sentiment.

Cash Flows: There are various methods to calculate this variable, such as earnings before interest and taxes (EBIT), net income or cash flow statement. In this research, EBIT is used to calculate free cash flow (Javad Sheikh et al, 2011).

Overinvestment it: The firms which their investment level is higher than the mean level of all samples firms are considered as over-investment companies, vice versa (Hosseini et al, 2013).

QTobinit: It calculated by the result of dividing market value by book value of total assets in a financial period. Market value of total assets includes sum of market value of equity and book value of total debt in a financial period (Jafari et al, (2008).

Sizeit: Natural logarithm of book value of total assets (Yeganeh et al, 2008).

2-4- Data analysis method

In this research, panel data is used due to year-firm is applied. Firstly, F-Limer test is applied to select between common effects and fixed effects models. If fixed effects model is selected, Hausman test would be used to select between fixed effects and random effects model. As well, error terms test, heteroskedasticity and data normality are examined. To illustrate the explanatory power of the explanatory variables, coefficient of adjusted determination (adjusted R²) will be used to evaluate significant variables, t-statistics and to assess the overall adequacy of the model, Fisher statistical. The statistical analyses will be performed using EXCEL and EVIEWS 7 software.

3- Results

3-1- Examination of heteroskedasticity

To examine heteroskedasticity, Arch error terms test (LM) is performed. The obtained results are as follow:

Table 2-1: LM

Description	Statistics amount	Probability
F-statistic	1.004175	0.092
Obs*R-squared	2.106332	0.092

* 5% error level

Regarding table 2-1, due to the significance level of f-statistics is not significant in 5% error level, homogeneity of variance is confirmed and heteroskedasticity of error terms are rejected.

3-2- Data normality test

Table 3-1: Jarque-Bera test

Variable	Statistics	Significance level
Investors' sentiment	0.715	0.342
Over-investment	1.339	0.174
Under-investment	0.996	0.301
Free cash flow	1.902	0.103
Firm size	1.117	0.146
Q-Tobin	1.529	0.131

* 5% significance level

Regarding to the table 3-1, since significance level is not significant in 5% error level, data are normal.

3-3- First hypothesis test

Table 4-1: Regression and model significance test

Variable	Estimated coefficients	Estimation of deviation	t-statistics	Significance level
Fixed	0.692	0.172	4.024	*0.028
Shareholders' sentiment	0.341	0.062	5.541	*0.012
Free cash flow	1.265	0.315	4.015	*0.024
Firm size	4.663	0.752	6.201	*0.000
Q-Tobin	2.421	0.427	5.669	*0.007
Durbin-Watson	Coefficient of determination	Adjusted coefficient of determination	f-statistics	Significance level
1.776	0.352	0.345	82.416	**0.000

* 5% error level and ** 1% error level

Regarding the table 4-1, the adjusted coefficient of determination is 0.345, indicating independent and control variables of the study can predict 34.5% of the dependent variable's changes. Durbin-Watson statistic test value is determined among 1.5 to 2.5, lack of correlation between errors is not rejected and regression can be used. The impact factor investors' sentiment variable is equal with 0.341, indicating investors' sentiment has positive and direct impact on investment decisions. It can be said that managers consider investors' sentiment factor when they make their investment decisions. H0 is rejected and H1 is confirmed due to t-statistics is less than 5% error level. Hence, it can be said that firms with higher investors' sentiment make more new investments. The empirical model of the research is:

$$\begin{aligned} \text{Investment decisions}_{it} &= 0.692 + 0.341 \text{ investment Sentiment}_{it} + 1.265 \text{ Cash Flows}_{it} + 2.421 \text{ QTobin}_{it} \\ &+ 4.663 \text{ Size}_{it} + \varepsilon_{it} \end{aligned}$$

3-4- Second hypothesis test

Table 5-1: Regression and model significance test

Variable	Estimated coefficients	Estimation of deviation	t-statistics	Significance level
Fixed	1.026	0.236	4.347	*0.013
Shareholders' sentiment	0.554	0.107	5.177	*0.005
Free cash flow	0.921	0.215	4.283	*0.019
Firm size	3.813	0.593	4.432	*0.017
Q-Tobin	2.266	0.457	4.958	*0.014
Durbin-Watson	Coefficient of determination	Adjusted coefficient of determination	f-statistics	Significance level
1.686	0.441	0.432	59.412	**0.000

* 5% error level and ** 1% error level

Regarding the table 5-1, the adjusted coefficient of determination is 0.432, indicating independent and control variables of the study can predict 43.2% of the dependent variable's changes. Durbin-Watson statistic test value is determined among 1.5 to 2.5, lack of correlation between errors is not rejected and regression can be used. The impact factor investors' sentiment variable is equal with 0.554, indicating investors' sentiment has positive and direct impact on investment decisions. It can be said that managers consider investors' sentiment factor when they make their investment decisions. H0 is rejected and H1 is confirmed due to t-statistics is less

than 5% error level. Hence, it can be said that firms with higher investors' sentiment make more new investments than other firms. The empirical model of the research is:

$$\begin{aligned} \text{Overinvestment}_{it} &= 1.026 + 0.554 \text{ investment Sentiment}_{it} + 0.921 \\ &+ 2.266 \text{ QTobin}_{it} + 3.813 \text{ Size}_{it} + \varepsilon_{it} \end{aligned}$$

4- Conclusion and Recommendations

The results of the first hypothesis indicated that firms with higher shareholders' sentiment make more new investments. Furthermore, the results of the second hypothesis showed that firms with higher shareholders' sentiment, higher over-investment is made than other firms. Hence, Chen (2013) proved that there is positive and significant relation between shareholders' sentiment and numbers of new investments and over-investments. *Zho & Howang (2013)* found those firms' managers use shareholders' sentiment in their investment decisions and the intense of this activity is higher when capital market is in chaos. *Grandi & Lee (2010)* indicated that optimistic investors significantly related to investment level and managers' reward has no significant association with investment level. *Galimor & Gary (2002)* showed that shareholders' sentiment is the vital factor in investment decision ability. Regarding to the research results, it can be suggested to investors to invest in over-investment firms, because investment opportunities are recognized and they have usually suitable performance, and investors can decrease their investment risk.

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