

The Effect of Investors' Optimism on the Price Bubble

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Abstract:

The purpose of this research is to evaluate the impact of investors' optimism on the price bubble, and the number of transactions and Volume of transactions were considered as criteria for investors' optimism. Causal and simultaneous relationships, the number of transactions, Volume of transactions and price bubble have been investigated in this study. The results of the hypotheses show that the number of transactions has a negative impact on the price bubble, that is to say the price bubble decreases with the increase in the number of transactions. But, the Volume of transactions does not have any significant influence on the price bubble. In addition, the ratio of the book value to the market value has a negative impact on the price bubble, and the size of the company has a direct impact on the stock price bubble.

Keywords: Number of Transactions, Volume of Transactions, Price Bubble

1. Introduction

A Stock Exchange as a financial market has an important role in the economy of each country. Therefore, any factor that could disrupt the appropriate distribution of capital and financial resources in the economy of the country will cause companies and industries that need financial resources to face a crisis, even beyond that it disrupts the development of investment. One of the factors that destroy and devastate the capital market is the formation of a burst price bubble in the stock exchange. In fact, when irrational factors come into the market, a kind of madness comes in the market and leads to a rise in prices and formation of the price bubble. (Shenkman and Zhang, 2003)

These incentives, i.e. hope of maximizing the profit and minimizing the loss in an investment, are considered as the main criteria for and as criteria that affect the mobility of investors in the stock market like any other markets. When people think that tomorrow's market prices will be higher than today's, market participants' optimism is strengthened, and for this reason, forming an additional demand leads to the growth of prices, and due to this occurrence, people think that their guess was true, and this movement and trust strengthen the bubble formation process. The bubble formed in the market will cause critical conditions in the country's economy, because these bubbles will not last forever, prices cannot have ascending rise forever, and time will come that this ascending growth will give its place

to descending growth and this is when fatal blows will hit the society.

Therefore, the aim of this study is to investigate the effect of the number of transactions and Volume of transactions on the price bubble in the companies listed on the Tehran stock exchange. Because, the price bubble ruins the economic stability, and then the stock exchange will not be a safe place for investment.

2.Theoretical Principles

Price Bubble:

The concept of the bubble has been entered into the economy literature since the early seventeenth century. So that, the term; tulip mania indirectly refers to the existence of bubble in an economy. In 1593, the first bulb of tulips was imported to the Netherlands from Turkey and quickly became a symbol of wealth and the Kingdom. Therefore, trading tulips in Amsterdam became a public excitement, and due to the influx of people, a high rise in demands and intervention of non-specialists and their swing trading, the price of tulip bulbs increasingly grew day by day, and became an economic bubble. Eventually in February 1637, no tulip bulb was sold, therefore the price bubble burst and the price of tulip bulb reached its real value. Therefore, the most important feature of a bubble is its instability. So far many examples have been mentioned as periods of price bubbles, such as: a 20 percent decline in the Dow Jones index, the financial crisis of the United States in October 1987, the crisis of Southeast Asia and Mexico in 1990s, the crisis of September 11 and other similar crises. In Iran, it can be said that the first and most serious historical record of the price bubble and the collapse of prices was in 2004. Price fluctuations are part of the market nature, but sometimes these fluctuations are out of their ordinary form

and give their place to uncontrollable rises and sudden falls. Irrational changes in stock prices will form bubbles in stock prices.

Charles Kindleberger (1987) defined a bubble this way: "A bubble may be defined loosely as a sharp rise in price of an asset or a range of assets in a continuous process, with the initial rise generating expectations of further rises and attracting new buyers—generally speculators interested in profits from trading rather than in its use or earning capacity. The rise is then followed by a reversal of expectations and a sharp decline in price, often resulting in severe financial crisis—in short, the bubble bursts." Conducted studies have focused on the specific aspects of the above definition, as follows:

- 1) A rapid rise in prices (Baker, 2002)
- 2) Unrealistic expectations of further rises (Case and Schiller, 2003)
- 3) The deviation of price from the intrinsic value (Angela Beck)
- 4) A sharp decline in price, after the bubble has burst (Siegel 2003)

Investors' optimism and price bubble:

Investors are generally optimistic toward future incidents. They also care more about the knowledge they get, especially when they correctly predict about a business, or the future price of a stock, their self-confidence increases and they consider themselves as masterminds (Hirshleifer, 2014). When prices rise, a flood of people start buying a particular stock, which leads to an increase in the volume of transactions. This increase in demand is caused by the thought of investors proceeding from the high return of a stock in the past and their optimism about receiving the yield in the future. Therefore, we conclude that for securities that are positive in the net supply, the high return in the past is related to the increase in its

subsequent transactions in the future (Jervis and Edin, 2001).

In this regard, a model was introduced by Copland (1976) and was developed by Jenning et al. (1981). In this model, traders are divided into two categories; optimistic and pessimistic. Also, it is assumed that short-term trading is more expensive than long-term trading. Thus, investors who buy and sell in short-term, are less sensitive to price changes. They showed that in general when traders are pessimistic, the volume of transactions is less than in the time when traders are optimistic.

The study of the relationship between the volume of transactions, price changes and stock price bubble is one of the issues which have been greatly regarded by financial and economic researchers since 1959 till now. The importance of this relationship is such that proverbs have been formed in Wall Street, about the relationship between the volume of transactions and price changes. It has sometimes been seen in capital markets, that many retail traders do not ignore the movements of the volume of transactions and/or price changes for their immediate and short-term decisions, and they consider the price changes and volume of transactions to be the results of the news and information about which they might have not been informed.

There are two important proverbs in the stock market of Wall Street: 1. This is the volume of transactions that causes price changes. 2. The volume of transactions is relatively heavy in thriving markets and is relatively light in stagnant markets. Conducted studies in this area have well been able to test these two proverbs. A large number of empirical studies confirm the relationship between the volume of transactions and absolute value of price changes (first proverb) and the positive relationship between the volume of transactions and price changes (second proverb).

A review of the research background

Kumar et al. (2013) in a paper entitled "Factors affecting the price bubble" investigated the determinants of price bubbles in New York Stock Exchange. They investigated the effect of the volume of transactions and fluctuations of stock price on the formation of bubble, using the information of 589 companies from January 1, 1998 to December 31, 2008, and concluded that among 9 sectors including; Electricity (90 companies), Energy (44), Banks (73), Engineering (44), Financials (86), Food (37), Production (89), Health Care (41), Basic Materials (85), only 4 sectors namely Electricity, Energy, Financials and Banks had statistically significant effects on bubbles in terms of the volume of transactions. But, there is no strong evidence of a significant relationship between fluctuations of stock prices and bubble for the companies. They also classified companies in 4 different sizes, and through estimation using a cross-sectional regression model, found out that there are statistically significant negative relationships between the fluctuations of the stock price and bubble only for small size companies.

Stephen (2011) in his article titled "Investor Optimism, False Hopes and the January Effect" stated that the January effect, to some extent, can be explained in a conceptual framework. He concluded in his research that due to investor optimism in uncertain conditions, the price of a share would grow to a higher level.

Atash (2007) by examining "The Impact of Investors' Religion and Optimism" concluded that 69% of investors were optimistic, investors thought that, in the future, they will have higher returns than the market average, and also in the decision-making process, 45% of investors have been influenced by religion.

Ofek and Richardson (2003) proved that the stock exchange shares, in its turn, were more unusual than historical standards, during the years before the collapse of 1929 in the United States. In addition, during the dot-com bubble years in the late nineties, stock dividends allocated nearly 20% of the trading volume in the stock market to themselves. It was also observed that at the peak of the dot-com bubble, Internet stocks had 3 turnovers dissimilar to the dot-com stocks. They, for example, expressed a situation in which, in February 2000, Internet companies allocated 6% of market share and 19% of trading volume to themselves.

The results obtained from a study by Johnson, Lindblom and Platan in 2002 about the bubble of IT companies in 1990s, show that the behavior of market participants during the bubble period was somewhat irrational and the combination of investments had changed due to the existence of speculative bubbles. During the rapid increase in the market value of companies in the stock exchange, information released by companies was the most important factor affecting the investments of both natural and legal entities.

Wang (1994) in an equilibrium model developed the stock transactions, in such a way according to which investors performed rational transactions, due to informational and/or non-informational reasons. In his model, transactions are always combined with price changes, because investors are risk-averse. When information symmetry increases, uninformed traders who buy shares from well-informed people want more discounts in the share price. Therefore, it can be concluded that in order to protect themselves from hidden information, uninformed investors cover their risk in this way, and as a result; the trading volume always have a positive relationship with the absolute value of the price changes and this

correlation increases with an increase in information asymmetry.

Harris and Raviv (1993) stated that traders receive common information, but they differ in their analysis and interpretation, so that each of them believes that their analysis is valid. According to Harris and Raviv, there are two types of natural risks, and accordingly there are two types of traders. These two categories are compatible in the significance of information, but they disagree in the extent of importance of news, which ultimately leads to a positive relationship between the absolute value of the price changes and trading volume.

The Research Hypotheses

- 1) The number of transactions effect on the stock price bubble.
- 2) The Volume of transactions effect on the stock price bubble.

Research methodology

This research is in the field of positive research in accounting that empirically studies the effect of the number of transactions and Volume of transactions on the stock price bubble. This research in terms of purpose is practical and in terms of nature is a causal -correlation study, and data analysis is performed using multiple linear regressions. The data necessary for testing the research hypotheses have been collected and extracted from the relevant library documents and websites and by referring to the database related to the companies' performance and Internet sites belonging to the [Stock Exchange and announcements of codal.ir website](http://codal.ir).

Historical information about the number and price of the traded shares of companies during the last trading day of the year is used to calculate the number of transactions and Volume of transactions.

The independent variables of this study are the number of transactions and Volume of transactions, and the dependent variable of this study is the price bubble, and control variables include: the ratio of book value to market value, size of the company and financial leverage, and the calculation method for each of them will be separately explained later on.

The statistical population, sampling method and sample size

In this study, the statistical population includes all publicly traded companies listed on the Tehran stock exchange. The research time period is from 2007 to 2013. The statistical sample is selected using systematic elimination method and by considering the scope of time and place. Therefore, the statistical sample of this research includes those companies which are listed on the Stock Exchange, which have the following conditions:

- 1) They should have been listed on the Tehran Stock Exchange until March 21, 2007.
- 2) They should have been present during the fiscal years from 2007-08 to 2013-14.
- 3) They should have not belonged to investment companies, insurance companies, banks and financial intermediaries.
- 4) The end of their fiscal year should have been on March 20 each year, and they should have not changed their fiscal year during the mentioned period.
- 5) Their necessary information and data should have been available, at the end of each fiscal year which was being studied.
- 6) They should have not had more than 3 months trading pause, during the fiscal years from 2007-08 to 2013-14.

After eliminating companies which did not meet the above-mentioned features, 89 companies remained, which have been selected as the sample companies.

Measuring the variables

- **The dependent variable**

The price bubble (B): is the result of difference between the market value and intrinsic value.

$$B = (P-I)$$

P = The actual value of shares on the average transaction of the whole year.

I = Intrinsic value, for whose calculation Olson Model (modified in 2007) was used, and the Fama–French three-factor model was used to calculate the expected return (1993).

- **The independent variable**

The number of transactions (NUM): The actual information on the average of the whole year.

Volume of transactions (VOL): The actual information on the average of the whole year.

- **Control variables**

The ratio of book value to market value (BM): is the ratio of book value of the shareholders equity to the market value of the company at the end of each year.

The size of the company (SIZE): is the natural logarithm of the market value of the company at the end of each year.

The financial leverage (LEV): This index is calculated by dividing the book value of the total debt by the total assets.

The model being used for studying the relationship among the variables of the research:

Relation (1-1) is used to analyze data and investigate the relationship among the variables, which assess the influence of the number of transactions and Volume of transactions on the stock price bubble after controlling the other control variables.

Relation (1-1)

$$(B)_{i,t}$$

$$= \alpha_0 + \alpha_1 NUM_{i,t} + \alpha_2 VOL_{i,t} + \alpha_3 BM_{i,t} + \alpha_4 SIZE_{i,t} + \alpha_5 LEV_{i,t}$$

the year t, $SIZE_{i,t}$ = size of i company in the year t, and $LEV_{i,t}$ = the financial leverage of i company in the year t.

Descriptive statistics:

Wherein $(B)_{i,t}$ = The stock price bubble of i company in the year t, $NUM_{i,t}$ = The number of transactions, $VOL_{i,t}$ = The Volume of transactions, $BM_{i,t}$ = the ratio of book value to market value of i company in

Information about the mean, median, maximum, minimum, and standard deviation of each variable are shown in Table 1:

Table 1- Descriptive statistics

Name of Variable	Symbol	Mean	Median	Maximum	Minimum	Standard deviation	Observation
Price Bubble	B	5659	3459	45969	408	6534	624
f transactions	NUM	793966	25000	100255805	1	6195994	624
Volume of transactions	VOL	278000000	5058412	462330503	934	18700000000	624
Book value to Market value	BM	0.56	0.42	2.49	0.01	0.44	624
Size of company	SIZE	8.91	8.89	11.64	7.40	0.68	624
Financial leverage	LEV	0.57	0.58	0.96	0.11	0.17	624

Research Hypothesis Testing:

In table (2), the results of the tests carried out on the research are shown together.

$(B)_{i,t} = \alpha_0 + \alpha_1 vol(u)_{i,t} + \alpha_2 vol(p)_{i,t} + \alpha_3 BM_{i,t} + \alpha_4 SIZE_{i,t} + \alpha_5 LEV_{i,t}$				
Descriptive variable		Test results of the test		
Name of Variable	Symbol of Variable	Coefficient	T-statistic	Significance level
y-intercept		-16677	-4.4962	0.0000
Number of transactions	NUM	-0.0001	-2.372	0.0180
Volume of transactions	VOL	2.760	0.987	0.3239
Book value to Market value	BM	-5056	-9.313	0.0000
Size of company	SIZE	2849.7	7.625	0.0000
Financial leverage	LEV	-289.5	-0.2193	0.8265
F-Limer Statistics	6.611	Significance level	0.0000	
F-statistic	31.35	Significance level	0.0000	
R^2	0.36	R^2 – Adjust	0.34	
Durbin–Watson statistic		2.17		

Given that, F statistic of all models in the error level of 1% is significant; the panel data method is preferred on the fusion data method for using in the regression model.

F-test was used to assess the significance of the entire model. Given that the probability of the calculated F statistic is equal to 0.0000

and this number is less than 0.05, so the fitted regression model is significant.

Durbin–Watson test was used to check the independence between the remainders in the regression model. The calculated value for Durbin–Watson in this model is 2.17.

Since the calculated value of d is in the confidence interval, it can be said that there

is no self-correlation problem between the remainders.

According to the test results, it is proved that the coefficient of determination is equal to 0.36 which shows that about 36% of changes in the stock price bubble are explained by the regression model.

As mentioned in the previous section, relationship (1-1) is used to test the hypotheses of the study. T-statistic at the error level of $\alpha = 0.05$ was used to determine the significance of the correlation coefficient. According to the test results, it can be seen that the significance level of α_1 is equal to 0.0180, and since this value is less than 0.05, the first research hypothesis is confirmed ($c = -0.0001$, $t = -2.372$). Statistical results indicate that the number of transactions has negative impact on the price bubble. This means that, as the number of transactions increases, the price bubble decreases, and vice versa; as the number of transactions decreases, the price bubble increases. Also, according to the test results, it can be seen that the significance level of α_2 is equal to 0.3239, and since this value is greater than 0.05, the second research hypothesis is rejected ($c = -2.760$, $t = 0.987$). Statistical results indicate that the Volume of transactions has no significant impact on the price bubble. Therefore, it can be stated that the Volume of transactions cannot increase or decrease the price bubble.

The effect of control variables on the price bubble

The significance level of α_3 is equal to 0.0000, and since this value is less than 0.05, it indicates that the ratio of book value to market value has a significant impact on the price bubble, and due to the negativity of ($\alpha_3 = -5056$), it can be concluded that when the ratio of book value to market value increases, stock price bubble will decrease. In fact, there is an inverse effect.

The significance level of α_4 is equal to 0.0000, and since this value is less than 0.05, it indicates that the size of a company has a significant impact on the price bubble, and due to the positivity of ($\alpha_3 = 2849$), it can be concluded that the size of a company has direct effect on the stock price bubble.

The significance level of α_5 is equal to 0.8265, and since this value is greater than 0.05, it indicates that the financial leverage has no significant impact on the price bubble.

Summary, conclusion and recommendations:

The purpose of this study is to evaluate the impact of investors' optimism on the price bubble, and the number of transactions and Volume of transactions were considered as criteria for investors' optimism. According to the results of the linear regression, it was shown that the number of transactions had a negative impact on the price bubble, that is to say the price bubble decreased with the increase in the number of transactions. But, the Volume of transactions did not have any significant influence on the price bubble. In addition, the ratio of the book value to the market value had a negative impact on the price bubble, and the size of the company had a direct impact on the stock price bubble. Theoretical foundations of the research also confirms such a conclusion, and this result is in accordance with the results of the researches conducted by Kumar et al. (2013), Stephen (2011), Ofek and Richardson (2003).

According to the results of this study, it seems that with an increase in the number of transactions performed on a stock, the information symmetry decreases. So, it can be expected that the inherent prices (intrinsic values) and the stock market price come closer to each other, and the gap existing between them gradually decreases, and as a result the price bubble decreases. Finally, in

order to determine their desirable and successful investment decisions, it is recommended that investors choose stocks that have higher numbers of transactions, because such stocks are safe from encounter with the price bubble and also have higher liquidity.

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