

The Effect of Price Changes in the Short-Term Trades In Tehran Stock Exchange

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Abstract: The relationship between the number of transactions, price changes and stock returns are topics that have been of interest to economic and financial researchers since 1950. Stock Market and Capital Market are young markets in Iran, but sometimes, some traders use the motions of transaction or the price changes for immediate and short-term decisions and consider it as the result of news and information that they were probably not aware of. This study examined the relationships of total transactions with price changes and stock returns. The research sample includes firms listed in Tehran Stock Exchange. This study consisted of four hypotheses which used Pearson's correlation, and Kolmogorov – Smirnov test is used to test the normality of data. According to the results, research hypotheses have been approved with confidence level of %95 and the significant correlation between the number of companies trading, and a stock return has been tested.

Key words: *number of trades, Stock returns, price changes, the behavior of investors, security of trades, value of trades*

INTRODUCTION

Stock market is a place for two classes of investors. One class includes suppliers and another class includes appliers. The expectations of these two classes in one spot indicate the differences and similarities of investors' expectations toward a stock in the future. When appliers have more positive expectations, then stock prices may also be higher.

The reason for the difference between investor's expectations toward a stock in the future is related to the interpretation of the data by investors. Some investors may have a good interpretation from some news while others may have bad interpretations of that news. Therefore the interpretation of data can have very different effects on the stock price.

It can be concluded that the data entry and Stakeholders behaviors can be essential in determining the price and the stock price changes. The changes in Stakeholders behaviors are found in the volume of trades or the number of trades in a day. High variation in the size and number of trades reflects differences in the shareholder expectations and therefore could be faced with significant price changes.

The main purpose of the present study is further understanding the mentality of the Tehran Stock Exchange and shareholders behavior in the market.

Review of Literature:

According to Karpov (1987) there are at least four reasons for the importance of the relation of trading volume and stock price:

1. Some models are discussed in financial markets which anticipate the relationship between trading volume and stock price due to the amount of data entry into the market, how to spread information, as listed transactions for short-term market conditions. So clarifying the relationship between trading volume and stock returns through a variety of tests, makes the views clear regarding the financial markets and identifying (discriminate) different assumptions about market structure.
2. The knowledge of the relationship between the number of transactions and stock price which use the combination of data on the number of deals and their prices for their interpretations is so important. Determining the transaction price and volume increase the diagnostic power of such tests. In other tests, the price changes are influenced by market valuation news but changes in the transaction volume mean the agreement or disagreement of traders on high quality of the new information. In any case, providing a test and the validity of the results depends on the joint distribution of price volatility and trading volume.
3. The relationship between stock prices and trading volume and number of issues related to the empirical distribution of speculative prices is essential. In a period when the data is sampled at intervals such as daily, the rate of return compared with the normal distribution has a more stretched distribution. It could also be due to the distribution of rates of return assumption with infinite variance and can also be due to the different distribution of the statistics produced by different variances. (Hypotheses of combining distribution or MDH)

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4. The quality of volume and number of transactions and changes in prices has important consequences for futures markets. Changes in price, volume and number of transactions may affect the futures contracts, in fact it covers the theory that if promissory notes act as a stabilizing factor of price or disrupts the stability of future prices. Delivery times in Futures contracts affect on the volume and number of transactions and through this change, the price may change.

Research Objectives:

One of the most important issues in capital markets is their study with the aim of identifying the degree of efficiency of such markets. This knowledge undoubtedly influences on investors decisions and the security of stock exchanges and capital and also on managers and administrators understanding to improve the operation of markets and to direct it toward authentic development.

In the current study, we study the performance of the Tehran Stock Exchange for certain financial events that may affect the market and achieve an acceptable identification of sensitivity and effectiveness degree using Principles and scientific methods and based on market test and its analysis and we also want to develop the mechanisms and performances which affect on stock .

The overall objectives of this research are:

1. Identifying psychological factors in the Tehran Stock Exchange market and investors' behavior and how they react to the information.
2. Studying the effect of price changes and trends in the number of transactions.
3. Helping investors in predicting future price trends.
4. Studying the process of changing prices on the Tehran Stock Exchange.

Due to the changes in stockholders' investment approach in recent years in Tehran Stock Exchange and due to the scientific process of transactions, the results can guide stakeholders in conducting transactions and also it can be a field for future research in capital markets.

Research Hypotheses:

The research hypotheses which have been formulated in line with the research objectives are designed to find a logical answer to the research questions include four main hypotheses as follows:

1. The relationship between the number of transactions and price changes are positive.
2. The relationship between the number of transactions and the absolute price change is positive
3. A dynamic relationship exists between the number of transactions and stock returns
4. The number of transactions explains that the output is unstable.

Research Methodology:

This is a correlation and post events study. In this study, the relationship between the variables is discussed. The study of the relationship between variables is done by Pearson's correlation coefficient. Both library and field research will be used to collect information.

Operational Definition of Variables:

Definition of each of the variables in the study is as follows:

Stock Returns: the total gains (losses) from investments in a given period to the investment which has been spent in that period

Number of transactions: in fact it means the number of transactions during a trading day

The number of annual transactions was used in this research in order to investigate the relationship between the number of concurrent transactions and stock returns and the study is inspired by the studies of Chen, Michael Firth and Oliver Roy (2001) and the following model is tested.

Equation 1

$$v_t = \alpha_0 + \beta_0 R_t + u_t$$

$$v_t = \alpha_1 + \beta_1 |R_t| + u_t$$

V_t is the number of transactions and R_t is efficiency. This model is based on a simple OLS regression and is a comprehensive model of Timothy Brailesford (1994) and Jean and Joe (1998).

Referring the variable R_t is important. In most studies that have been examined changes in prices and output are considered as equivalent are shown in R_t which is introduced under the natural logarithm of the price changes (returns) and is calculated using the following formula:

$$R_t = \ln\left(\frac{P_t}{P_{t-1}}\right)$$

The same variable is used in this study to evaluate the relationship between the growing number of transactions and price changes.

In tests, the number of transactions on the efficiency front, or vice versa, is the topic discussed in the framework of Granger causality (1969) (Assuming that the future can not affect on the past).

Granger causality relationship based on vicariate VAR model is used to investigate the relation transaction numbers and stock return. This study used the following two-variable model to investigate the relation of trading and stock returns.

Equation 2

$$v_t = \alpha_0 + \sum_{i=1}^m \alpha_i V_{t-i} + \sum_{j=1}^n \beta_j R_{t-j}$$

$$R_t = \alpha_0 + \sum_{i=1}^m \gamma_i R_{t-i} + \sum_{j=1}^n \delta_j V_{t-j}$$

Here R_t is efficiency, V_t is the transaction volume, m and n are the number of the optimal lags of the model which will be determined by academic criteria (AIC) and Schwarz Bayesian (SBC).

When β_j is significant, efficiency values of the past and transaction volumes give a better estimate of the future of transactions. Thus, the efficiency factor is the number of transactions. When δ_j is significant the past values of the number of transactions and efficiency give a better estimate of future returns by that quantity. It is said that the efficiency factor is the number of transactions and if both are not zero (if significant), there will be a feedback of the relationship between the number of transactions and the returns.

Sampling Methodology:

From the total companies listed in Tehran Stock Exchange, which were classified in 36 industry groups the total number of transactions in the company has calculated during 5 years. And in each industry group, companies were classified in a descending order based on total number of transactions for five years. Finally, using the variable probability sampling (companies that have a higher number of transactions, have a better chance of being selected) from all industry groups, a sample of 36 companies was selected. Since the selected companies often have had the highest number of transactions during the period of study, it is expected that these are companies which have been considered by investors in the stock market more than others. The research data has been evaluated in terms of normality using the Kolmogorov – Smirnov test.

In two hypothesis of this study that examines the number of trades and price changes, this relationship has been tested on a daily basis, and 4 days were randomly selected as sample for each year of the study, a total of 20 days in each of the selected companies is investigated for 5 years.

Normality Test of Data:

According to the results of the Kolmogorov – Smirnov test it is noted that the significance level for data was higher than 0/05. So it can be said that the data are normally distributed.

Table 1: The results of Normality test of data.

Significance level	The variable
0/102	The number of daily transactions
0/144	Changes in Stock Price
0/190	The number of annual transactions
0/200	Annual stock returns

Hypothesis Testing:

The results of testing three research hypotheses are as follows in table 2:

Table 2: The summary of the results of hypotheses testing.

The test result	The significance level	The correlation coefficient	
Hypothesis H1 is fixed	0/033	0/356	The first hypothesis
Hypothesis H1 is fixed	0/048	0/252	The second hypothesis
Hypothesis H1 is fixed	0/031	0/360	The third hypothesis

With regard to the first three hypotheses, there is a significant relationship between the number of transactions and price changes and also the number of transactions and stock returns, and all three have had a positive correlation. It can be said that by increasing the number of annual transactions, the stock return will increase and by reducing the number of annual transactions stock returns will decrease. In fact, there will be a significant relationship between the annual number of transactions and the volatility of stock returns changes. So we study the variation of annual stock returns and the number of annual transactions.

Due to the large number of annual transactions than the stock returns the Square conversion method ($\sqrt{x+0.5}$) is used.

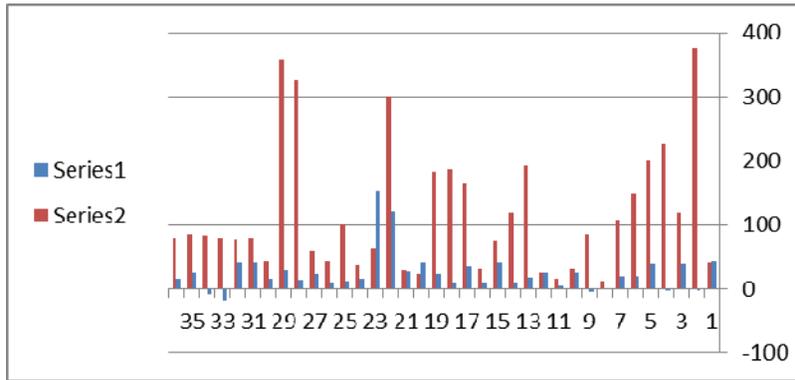


Fig. 1: The comparison of stock returns and the number of transactions.

Conclusion:

After testing the research hypotheses, their validity in the Tehran Stock Exchange was approved and a significant relationship was found between the number of transactions and stock returns. It can be seen from the Tehran Stock Market by looking at the investors’ decisions. In other words, the basis for decision is the movements of stock returns and the number of trades. This may be due to the excessive attention of shareholders to the number of trades changes and stock returns in their decisions. It can be said that the majority of people who are engaged in the stock market fluctuations and do not access to a lot of information and usually pay much attention to the factor of the transaction numbers, and so one reason for the positive answer of this question due to the exchange behavior.

It can also be concluded that data entry and stakeholders’ behaviors can be essential in determining the price and the stock price change. The changes in stakeholders’ behaviors are apparent in transaction volumes "Or the number of shares that can be traded in a day". And large changes in the number of transactions represent a major difference in the expectations of shareholders.

Suggestions About the Results:

The results show that differences in how information flows in emerging markets are important to the extent that they could affect the stock valuation process and it indicates the need for doing more research and understanding the information flow.

1. Because shareholders react against the volatility of the number of trades in the market, The Tehran Stock Exchange must have more information related to the cause of these fluctuations.
2. Changes in the number and price of shares in the Tehran Stock Exchange trades can result from speculative movements of short-term buying and selling, and these changes suddenly create many queues for buying and selling. As a result the Exchange Organization can establish limits on short-term investments with higher commissions Sale with more studies.
3. With regard to the increasing attention of stock organization to the development of stock corporations, the Increase of the number of shares and qualitative monitoring of few trading companies, it seems essential to Increase the free float of stocks of companies and remove the companies which make loss In order to clear transactions in Tehran Stock Exchange.
4. Regarding the relationship between stock returns and the number of transactions, the managers are suggested to show more sensitivity to the number of transactions.
5. The information is provided by each of the financial variables, is different from the rest and none of them provide complete information to the decision makers. It is recommended that investors pay more attention to the number of transactions as well as other variables.

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