Websites:
http://www.nbmedicine.org
http://www.sciencepub.net/nurse

Emails:
editor@sciencepub.net
nbmeditor@gmail.com

Biomedicine and Nursing

MARSLAND PRESS
Multidisciplinary Academic Journal Publisher

Investigation The Impact Of Trading Halt On Liquidity And Price Volatility

Fereshteh Shahbazin

Master of Financial Management, Alzahra University, Tehran, Iran

Abstract: This research has the comparative inductive methodology which is applied according to the objective. It is also among the library studies in terms of data collection. This study is conducted for trading halt periods of each company in statistical population of companies listed on Tehran Stock Exchange during 2006-2011. Sampling method is purposive and approximately 150 companies are selected as the sample. It has 4 variables including the equity turnover, price volatility, market depth, and Bid-ask Spread. Student's t test indicates that the research variables including the equity turnover, market depth, and Bid-ask Spread have a significant relationship with trading halt. Only the price volatility has no significant relationship with trading halt. Furthermore, Friedman test indicates that ranking the research variables according to descending order includes the equity turnover, Bid-ask Spread, price volatility, and market depth. According to the results of factor analysis (PLS), with one unit increase in equity turnover, Bid-ask Spread, and market depth, the rate of trading halt is reduced to 0.263, 0.456, and 0.591, respectively. Moreover, the price volatility has no effect on trading halt.
[Fereshteh Shahbazin. **Investigation The Impact Of Trading Halt On Liquidity And Price Volatility**. *Biomedicine and Nursing* 2022;8(1):45-52]. ISSN 2379-8211 (print); ISSN 2379-8203 (online). http://www.nbmedicine.org 7. doi:10.7537/marsbnj080122.07.

Keywords: Equity turnover, price volatility, market depth, Bid-ask Spread

1. Introduction

In relatively efficient markets, the asset price reflects all available information and the prices are only changed based on the new disseminated information. Thus, the creation of artificial disorders has slight effects on price volatility. However, the organized stock exchanges have adopted the specific rules and procedures in line with such these issues which lead to the dramatic changes in asset price. These types of procedures and rules have also been welcomed. Some of these proposed procedures include trading halt symbols and constraints of price volatility in order to support the market. While, the trading halt has itself the other impacts on stock indices of relevant company. The main objective of all legislators and regulators in securities markets is to ensure that the securities markets are fair, efficient and transparent in order to support the investors. Furthermore, the misuse of information advantage according to the confidential information is the legislators' main concern in stock market and other financial markets. There are different theories about the effects of trading halt and no positive or negative effects, resulting from the trading suspension, have been definitively proved and there is no unified theory in this regard. The effectiveness of trading halt is subject to the discussion among the regulators, market participants and academics. Therefore, research in this regard is useful and important in the field of decision-making and investment strategy formulation for stock exchange officials as well as the investors. In recent years, the Trading Halt criteria have been qualitatively conducted according to the stock exchange officials and experts' view point (Ghalibaf-asl and Askari Firouzjaei, 2011). The importance of trading halt status in liquidity and price volatility is one of the most important factors which should be taken into account by authorities and especially the investors. On this basis, it is indicated that it is essential to conduct the research in the field of trading halt effect on the liquidity and price volatility which is not taken into account properly. Furthermore, Tehran Stock Exchange has the same status and thus this plan which is initially conducting in Iran is more pronounced. The main objective of this study is to investigate the impact of trading halt on the price volatility and liquidity. Subsidiary objective of this research is to study the effect of trading halt on turnover, Bid-ask Spread and market depth.

2. Literature review

2.1 Theoretical principles

Trading halt is a mechanism which is applied widely in exchanging the information in the market. Supporters of this mechanism believe that the trading halt provides an opportunity for exchanging the new information and it will cause a market order (Steven, Reuben, 2011). Trading halts are the tools which are applied in normal and potential disorders

and orders of market. Through the trading halt, the risk of market disorder is decreased and when market disorder is emerged, the trading halts provide the conditions to restore the order to the market (Lee, Seguin, 2009). Trading halts are classified into the automated and voluntary categories. Voluntary trading halts basically refer to the market directors or supervisory authorities' practices for trading halt of a security or a group of securities in the market or relevant legal field (Chen, et. al, 2003). Automated trading halt refers to a trading halt which is based on predetermined parameters. When high volatility is made in the price of a security or the whole market and the market order is generally endangered, the automated trading halt suspends the trading. Duration of automated trading halt is usually less than the voluntary trading halt (Tan, Yeo, 2003).

Four key reasons of voluntary trading halts include: (Engelen, Kabir, 2006)

1. Trading halt due to the main information disclosure
2. Trading halt due to the suspected activities to the fraud or manipulation
3. Trading Suspension due to observing the accepted standards or the continuous disclosure requirements by the one who disseminates
4. Closing the market due to the unforeseen events. Furthermore, the parameters and conditions which make automated trading halts are presented in the laws and regulations and applied by market operators.

Two main types of automated trading halt include: 1. Limited price, and 2. Market Halt (Rashid, et.al, 2008). Specific definitions in this regard are presented as follows.

Trading halts

It is a temporary pause in trading on a trading symbol on the Stock Exchange until the new information and news dissemination (Ghalibaf-asl, 2011).

Bid-ask Spread

Bid is the highest rate which a seller proposes for a particular currency at the same time and Ask is the lowest reasonable rate for purchaser. Difference between these two is called the Spread (Frino, 2011).

Market Depth

Market depth refers to the existence of purchasing and sales orders around the current market price (Frino, 2011).

2.2 Research Background

Hopewell et al (1978) were the first researchers who investigated the temporary trading suspension in NYSE Securities. These two found that the halts which lead to the information dissemination are longer and the stock price volatility (towards the halts related to an imbalance in orders) is higher. Different studies are conducted after it based on specific objectives in different countries and each of them have investigated the dimensions of possible effects by trading halt on stock market. Several samples of this research are noted as follows. Investigating 267 cases of temporary trading suspension in 133 companies during 2001 to 2005, Jalaldoust Astaneh (2005) concluded that the stock turnover and volatility of stock returns is increased through the trading halt and the process of price discovery is done after applying the trading halt on stock exchange market. He also stated that the hypothesis of turnover and price discovery reflects the effectiveness of trading halt mechanism on Tehran Stock Exchange and the hypothesis of stock returns volatility rejects it. Badri et al (2010) expressed in their studies that the turnover is a dependent variable; thus, it is necessary to pay special attention in order to select data of turnover. In less developed markets such as Tehran Stock Exchange, procedures called the automated halts are applied in order to control the stock volatility. Tehran Stock Exchange also applies the base price volatility range and Market Making in order to control the price volatility and uses the instructions for removing the trading node in order to cope with the trading queues. In a research entitled as "The effects of trading halt on the stock turnover, volatility and price discovery on Tehran Stock Exchange", Ghalibaf-asl et al (2011) investigated the positive and negative effects of trading halt on Tehran Stock Exchange through the statistical tests such as comparing two statistical populations. In this paper, they concluded that the stock turnover and volatility of returns in abnormal periods (15 days before and 15 days after the trading halt) were increased through applying the trading halt, and the price discovery is done through decreasing the abnormal returns in the period after the trading halt. In a research entitled as "The effects of trading halts on price discovery for NYSE stocks", Chen et al (2003) studied the trading halt of NYSE in order to investigate its effect on the studied price discovery process and their results indicate that the

trading halt helps the information dissemination and facilitates the price discovery process. Furthermore, the use of trading halt reduces the price volatility. Tan, et al (2003) studied 470 cases of voluntary trading suspensions on Singapore Stock Exchange during 1986-1995 and found that the comparison of pre and post-trading halt periods and study of information disclosure indicate that the stock turnover and volatility of returns are increased after ending the trading halts. Engelen et.al (2006) investigated the effectiveness of temporary trading suspensions in disseminating new information among the market participants on Euronext Brussels. Their results indicate that there is an immediate but complete price adjustment through new information dissemination during the period of trading suspensions. These two also found that the stock turnover is increased after trading suspensions and there is no significant change in volatility before and after trading suspensions. Kim, et.al (2007) studied the performance of trading halt compared with the price limits on Spanish Stock Exchange. According to the results, both mechanisms increase the trading activity, but the performance of trading halt on the liquidity is better than the price volatility limit. The gap between offered trading prices is decreased and trading depth is increased in temporary trading suspensions, but it is totally opposite in price volatility limit. Moreover, the evidence suggests that the prices fully reflect the information in temporary trading halts. Through investigating Bursa Malaysia, Rashid, et.al (2008) found that the temporary trading halts lead to the positive price reaction, increased stock turnover and price volatility. This study indicated that the trading halt helps the information dissemination and facilitates the price discovery process. In a research entitled as "The efficiency of trading halts: Evidence of market", Bacha et.al (2008) investigated the new findings as the result of price volatility in trading halt during the years 2000 to 2004 in the daily market of Malaysia. They argued that the trading halt will lead to the positive feedback, increased volume and price volatility. They provided the evidence of information leakage resulting in a significant difference between news dissemination about mandatory and voluntary halt during the trading halt process. They concluded that the duration of trading halt is relatively trivial in price and volatility. In an article entitled as "Volume volatility and New York Stock Exchange trading halts" Changes, Lee C.M et.al (2009) stated that the trading halt increases the volume and volatility instead of decreasing. They indicated that the volatility after a complete halt trading in a working day is 230% higher than the quasi-trading halt. When the eliminated halt volatility was removed, the volume changes and its increase were truly seen in the third day. They argued that the validity of these results is investigated on different types of market halts, and news and information. In an article entitled as "The impact of trading halts on liquidity and price volatility: Evidence from the Australian Stock Exchange", Frino et.al (2011) concluded that according to the quasi-halt method by Lee and Seguin (1994) the market halt increases the market volume and volatility and the market become well known for rivals and it reduces the market depth. In contrast, the research results indicate that the trading halt acts as a great range of electronic order instead of improving the market quality.

This study was conducted in Iran for the first time with the aim to investigate the effect of Tehran Stock Exchange trading halt on the liquidity and price volatility. Domestic previous studies, noted in Research Background section, have focused more on description and nature of trading halt and have not investigated the effects of this activity on other variables such as the equity turnover and price volatility. It can be concluded that the previous research has more focused on the trading halt literature and none of them have provided the comprehensive analysis on the impact of these activities.

3. Research Methodology

This study is inductive-comparative in terms of conducting the research. Furthermore, the research method is applied in terms of objectives. Finally, this research has the library type in terms of data collection. This research was conducted for trading halt courses of each company in the statistical population during the working years 2006-2011. Moreover, this study is conducted on the companies listed on Tehran Stock Exchange. Meanwhile, companies with trading halts and available information for researchers were applied for statistical population. In this study, the information related to the theoretical literature is collected through referring to articles, books, and conducted research on the issue, and theses. Therefore, data is collected through the library method in this study. Furthermore, the information related to the research variables are extracted through referring to the stock indicators, the Stock Exchange library SEC, financial documents, reports of stock companies, data of accounting software "Tadbir Pardaz" and "Rahavard-e-Novin", as well as the data of website www.Rdis.ir; thus the data collection method is the library with document branch.

3.1 Determination of statistical population and sample and sampling method

Sampling method in this study has purposive type. Therefore, from 457 companies of Tehran Stock Exchange the ones with the following provisions are selected as the samples.

- The financial information of sample companies should be available.
- Their financial year ends at the end of March in each year.
- Data of financial statements should be available from the beginning of financial year 2006 to 2012.
- Their financial course should not be changed during the research period.
- Selected companies should not be faced with the losses during the study period.
- The companies should not be the member of investment industries, banks, holding, insurance, monetary institutions and financial brokers.

Applying the above provisions, approximately 150 companies are selected as the samples.

3.2 Research Variables

This study has four variables including the turnover, price volatility, market depth and Bid-ask Spread. Turnover is considered as the total volume of shares traded during each interval. Price volatility is determined through the highest price divided by the minimum trading price. Bid is the maximum price offered by the seller for a particular currency at the same moment, and Ask is the minimum acceptable price by buyer and this study studies the difference between these two called the Bid-ask Spread. The market depth refers to the existence and presence of purchasing orders and at the same time the sell orders; thus the market depth is obtained from a combined volume at the best trading state of market.

3.3 Research Questions

The research questions or hypotheses are provided for investigating the impact of trading halt on the liquidity and volatility as follows.

Is there a significant relationship between the trading halt and the suspended stock equity turnover?

Is there a significant relationship between the trading halt and the suspended stock price volatility?

Is there a significant relationship between the trading halt and the suspended stock Bid-ask Spread?

Is there a significant relationship between the trading halt and the suspended stock market depth?

3.4 Data Analysis Method

To investigate the effect of trading halts on the research variables such as the equity turnover, Bid-ask Spread, price volatility and market depth, here the comparative method is applied between the studied company and parent company. According to Frino et al's viewpoint (2011), the parent company is the one with the same stock return in the same market and time. Accordingly, the stock return is initially calculated during a trading halt immediately after its start and immediately after ending. The abnormal behavior of trading halt is determined with the following equation.

$$\text{Abnormal behavior of trading halt} = \frac{\text{The rate of quasi-market trading halt - rate of market trading halt}}{\text{The rate of quasi-market trading halt}} \times 100$$

This relationship should be calculated for each of the research variables for 15-minute intervals. During this study and according to Corwin and Lipson (2000), we rated the research report as the mean statistics of abnormal behavior through testing the significance of each variable by Friedman test.

3.5 Conceptual model of research

Conceptual model of research is shown in Figure 1.

Figure 1. Conceptual model of research

4. Research findings

4.1 Student's t test

To investigate the existence or lack of relationship between the research variables including the equity turnover, Bid-ask Spread, price volatility, and market depth, the Student's t test is applied and its results are presented in Table 1.

Table 1. Student's t test results of research variables

Research Variables	Mean	Student's t statistics	Significance Level	Results
Equity turnover	4.295	3.129	0.04	There is a significant relationship
Bid-ask Spread	4.469	4.369	0.03	There is a significant relationship
Price volatility	3.891	1.148	0.16	There is no significant relationship
Market Depth	4.639	4.763	0.02	There is a significant relationship

According to the results of table, only the price volatility has no significant relationship with trading halt. Significance level of other research variables is less than 0.05.

4.2 Prioritization of organizational learning dimensions through Friedman test

Non-parametric Friedman analysis of variance is applied in this study in order to investigate the way of ranking the research variables because the collected data are based on the quantitative and computational values. Results are shown in Table 2.

Table 2. Results of Friedman rank test

Research Variables	Mean Rank	Rank of variables
Equity turnover	4.70	1
Bid-ask Spread	4.28	2
Price volatility	3.23	3
Market Depth	3.18	4

As seen, the ranks of research variables according to the descending order include the equity turnover, Bid-ask Spread, price volatility and market depth.

4.3 Factor Analysis of Partial Least Squares (PLS)

The structural equation of Partial Least Squares is applied in order to investigate the effect of research variables on the trading halt. In fact, we are seeking to answer the research questions. Results are shown in Figures 2 and Table 3.

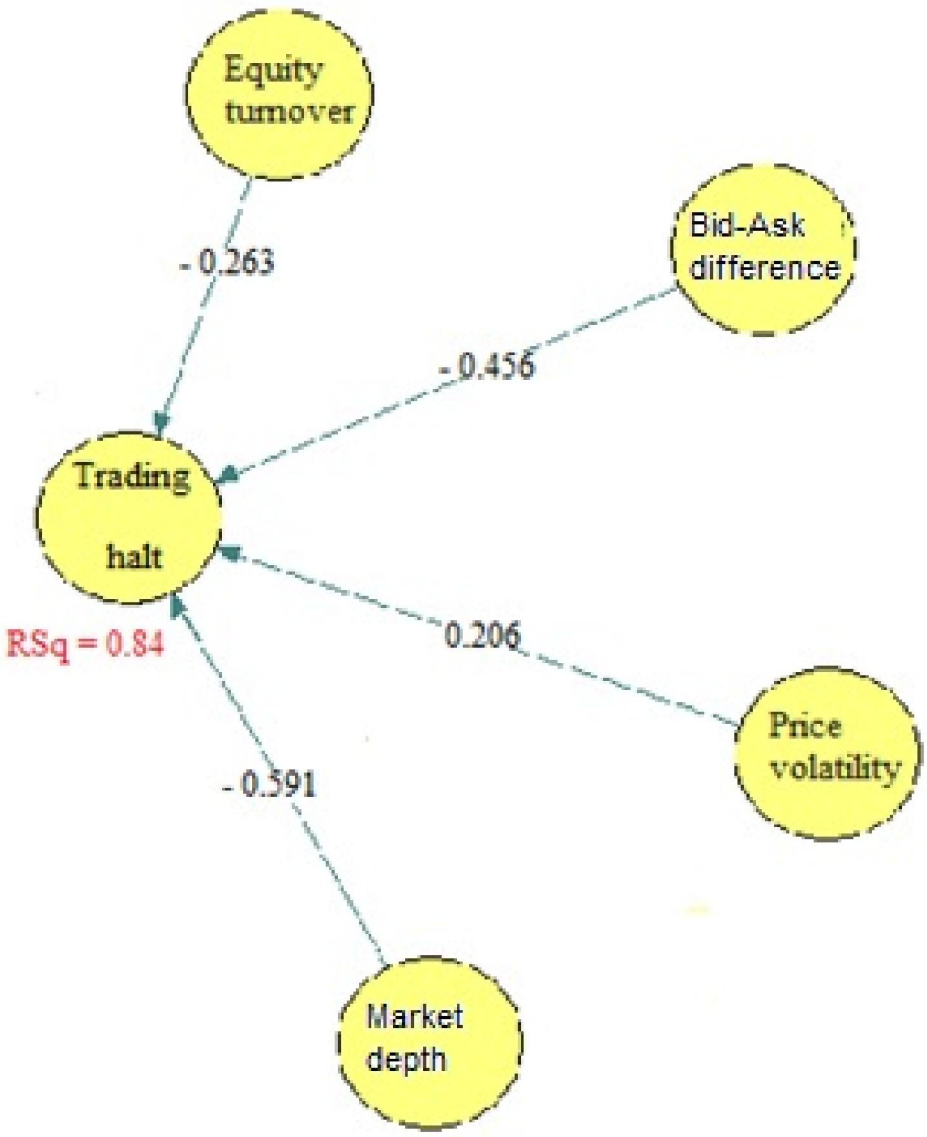

Figure 2. Structural model estimation through PLS software

Figure 2 shows the calculated structural equation method and the coefficient of determination is equal to R=0.84 which indicates that the variations of research variables by research hypotheses are explained in this study approximately equal to 84%.

Table 3. Results of structural equation coefficients of research hypotheses

Index	Estimated correlation coefficients	p-value
Equity turnover→ Trading halt	-0.263	0.000
Bid-ask Spread→ Trading halt	-0.456	0.000
Price volatility	0.206	0.067
Market Depth → Trading halt	-0.591	0.000

As shown in Table (1), the students' t values of each estimated coefficients of model are higher than confidence level 95% (1.96) except for the price volatility of 95%, but it can be concluded that the research hypotheses, except for the volatility, are confirmed in this study. In summary, the correlation coefficients of research indicate that:

- With one unit increase in the equity turnover, the trading halt is decreased equal to 0.263.
- With one unit increase in the Bid-ask Spread, the trading halt is decreased equal to 0.456.
- Price volatility has no effect on trading halt.
- With one unit increase in the market depth, trading halt is decreased equal to 0.591.

5. Conclusion

Student's t test (Table 1) shows that the research variables including the equity turnover, Bid-ask Spread, market depth have a significant relationship with trading halt. Only the price volatility has no significant relationship with trading halt. Furthermore, Friedman test (Table 2) indicates that the rank of research variables in descending order includes the equity turnover, Bid-ask Spread, price volatility and market depth. According to the results of factor analysis (PLS), with one unit increase in equity turnover, Bid-ask Spread and market depth, the values of trading halt are decreases equal to 0.263, 0.456, and 0.591, respectively (Table 3). Furthermore, the price volatility has no effect on the trading halt. According to these results, the researchers can reduce the trading halt through choosing the research variables including the equity turnover, Bid-ask Spread and market depth.

- Suggestion

- Applying a mathematical model for minimizing the trading halt according to the calculated correlation coefficients in this study.
- Investigating the effect of other variables affecting the trading halt such as forecasted dividends, increased capital of certain companies such as holding companies.
- Determining the trading halt function based on the effective models through the stepwise regression as the final model for a special case study.
- Determining the target independent variables to assess the significant relationship with meta-cognitive strategies and testing them based on Durbin-Watson statistics.

References

[1]. Ghalibaf-asl, Hassan, Askari Firouzjaei, Ehsan, (2011), "Investigating the effects of trading halts on the stock turnover, price volatility and discovery on Tehran Stock Exchange", Quarterly Journal of Stock Exchange, No. 14, fourth year, summer 2011.

[2]. Hopewell, M.H., Schwartz, A.L., (1978), Temporary Trading Suspensions in Individual NYSE Securities, the Journal of Finance 33(5): pp. 1355 – 1373.

[3]. Jalaldoust Astaneh, Hamid, (2005), "Investigating the effect of trading halt on Tehran Stock Exchange", Master's Thesis on Financial Management, Shahid Beheshti University.

[4]. Badri, Ahmad; Shavakhi Zavareh, Alireza (2010), "Reference points, stock price and turnover: Evidence from Tehran Stock Exchange", Quarterly Journal of Stock Exchange, No.12, third year.

[5]. Ghalibaf-asl, Hassan, Askari Firouzjaei, Ehsan, (2011), "Investigating the effects of trading halts on the stock turnover, price volatility and discovery on Tehran Stock Exchange", Quarterly Journal of Stock Exchange, No. 14, fourth year.

[6]. Chen, H., Chen, H. Valerios, N., (2003), the effects of trading halts on price discovery for NYSE stocks, Applied Economics 35: pp. 91–97.

[7]. Tan, S.K., Yeo, W.Y., (2003), Voluntary Trading Suspension in Singapore, Applied Financial Economics 13: pp. 517–523.

[8]. Engelen P. Kabir, R. (2006), "Empirical Evidence on the Role of Trading Suspensions in Disseminating New Information to the Capital Market" Journal of Business Finance & Accounting 33(7) & (8), pp. 1142-1167.

[9]. Kim Y.H, Yagüe, J. Yang, J.J., (2007), "Relative performance of trading halts and price limits: Evidence from the Spanish Stock Exchange", International Review of Economics and Finance.

[10]. Rashid M.S.E.A, Ramlee, R. Bacha, O.I., (2008), "The Efficiency of Trading Halts, Evidence from Bursa Malaysia", International Islamic University Malaysia.

[11]. Bacha Obiyathulla I. Mohamed Eskandar R. Roslily, R., (2008),"Suspicious trading halts", Journal of Multinational Financial Management, No. 13, pp. 251 – 263.

[12]. Lee, C.M. Ready, M.J. Seguin, P., (2009), "Volume volatility and New York Stock Exchange trading halts" The Journal of Finance, 49, pp. 183-215.
[13]. Frino, A. Steven, L. Reuben, S., (2011),"The impact of trading halts on liquidity and price volatility: Evidence from the Australian Stock Exchange", Pacific-Basin Finance Journal 19, pp. 298–307.
[14]. Corwin, A.S., Lipson, L.M., (2000), Order flow and liquidity around NYSE trading halts. The Journal of Finance 55, pp. 1771–1801.

1/12/2022