Tick Size and Investor Reactions: A Study of Indonesia

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ABSTRACT

In May 2016, the Indonesia Stock Exchange announced the change of tick size from three to five fractions. This study examined the effect of tick size changes on investor reactions in Indonesia. By using paired sample t-test, we tested whether there was a significant difference between investor reactions before and after the change of tick size. The result of this research showed that there was no significant difference in abnormal return, stock trading transactions, stock trading volume and risk before and after that event. This study proved that abnormal return after that event was lower than before. The value content of the new information would be reflected in the price of the securities. Thus, it would be very difficult for investors to get above normal profit levels consistently. The average stock trading transactions after that event was relatively higher. This showed that there was an increase in demand for stocks although the increase was not significant. We found that stock trading volume increased after that event. That indicated that the stock was in demand by investors. The tick size change caused the variation of the supply and demand price to be greater so that it would increase the risk.

Keywords: Abnormal Return, Risk, Stock Trading Transactions, Stock Trading Volume, Tick Size.

1. INTRODUCTION

In May 2016, the Indonesian Stock Exchange (BEI) enables the change of tick size of the three fractions into five fractions. It is described in Table 1. The changes of tick size aims in order to create trading orderly, fair and efficient and to further increase the liquidity of trading in securities. The imposition of a new tick size that expected the value of stock trading transactions on the Indonesia Stocks Exchange can be more active and increased. The determination of tick size is divided into five fractions which was initiated due to the unstable conditions of the Indonesian economy. The regulation is made in order to aim that there would be better conditions of change than before, as well as the new regulations in the capital market which is expected to make a capital market activity better. The new tick-sized system is considered as a meaningful information for the investors to make decisions. With the new tick size, the investors will make transactions with a more relevant fraction. The rise of demand with a fixed

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number of shares will cause the stock price increases after the announcement of the change.

Table 1. The Change of Tick Size

Price	Before Mei 2, 2016		Start at Mei 2, 2016	
	Tick Size	Maximum change	Tick Size	Maximum change
< Rp 200	Rp 1	Rp 20	Rp 1	Rp 10
Rp 200 -<Rp 500			Rp 2	Rp 20
Rp 500 -<Rp 2.000	Rp 5	Rp 100	Rp5	Rp 50
Rp2.000 -<Rp 5.000			Rp 10	Rp 100
≥Rp 5.000	Rp 25	Rp 500	Rp 25	Rp 250

Source: *www.idx.co.id*

Enforcement of the new faction is also considered to be the increased liquidity of the domestic capital market and ultimately to attract foreign investors to enter into the country by placing funds in the Indonesian stock market. Darmadji and Fakhruddin (2011) argue that if the minimum price is too high, there will be different offers, and the difference will reach a very competitive level. If the minimum price is too small, it can reduce the depth of the market and increase the cost of negotiations, which will slow the pricing process. Goldstein & Kavajecz (2000) stated that the decrease in price fraction resulted in decreased trading volume. The results of Chung et al. (2005) showed significant spread, depth decreased, and trading volume increased, while stock price significantly increased after tick size change. This is inversely related to Ahn et all research (1996), Pavabutr & Prangwattananon (2009) which explains that changes in tick size have no significant effect on trading volume.

This research found that there is no difference of investor's reaction to stock price change with abnormal return, stock trading transactions, stock trading volume and risk. This paper is organized as follows: the background, previous research, review of the literature, and will be used for developing hypotheses, research methods that will describe the data and the samples used in this study, the research model and statistical tools used, as well as an explanation of the variables research. At the end, there is a discussion of the results of hypothesis testing, and then provide conclusions, implications, and recommendations for further research.

2. LITERATURE REVIEW AND HYPOTHESIS DEVELOPMENT

2.1 Theoritical Framework

The definition of efficient capital markets according to Fama (1970) is as security market efficient reflects the information availability. While Beaver (1989) defines an efficient capital market based on the distribution of information as follows: *The market is efficient with respect to some specified information system, if and only if security prices act as if everyone observes the information system*. Husnan (1996) defines an efficient capital market as a capital market whose price of securities reflects all relevant information. Information relevant to capital market conditions is something that is always sought by the capital market players in an effort to implement investment

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decision-making. But not all information is valuable information and there is information that is not relevant to capital market activity. Investors, therefore, should precisely select the appropriate information.

Marston (1996) argues that less meaningful information for the first investor is caused by the quality of information itself which is less valuable (quality of information) and the second is due to the distribution of information to investors who are less well. The quality of information is closely related to the information content contained in the information itself, whether or not relevant and meaningful enough for capital market activity. While in terms of distribution of information depends on the ease of the investors to get easy access to information at a low cost.

Fama (1970) forms of market efficiency based on information types efficient: weak form market efficiency, semi-strong form market efficiency, strong form market efficiency, efficient in strong form if the price or value listed in the securities fully reflect all private information, as well as other information (published and past). The level of market efficiency can be measured by how much the average change in trading volume activity, changes in stock prices and changes in the composite stock price index caused by an event.

According to Pavabutr & Prangwattananon (2009), the tick size is the minimum price for attention. The size of the exorbitant minimum price will incur high trading costs, not allowing the investors to trade frequently, consequently the trading activity in the market will decline. Trading in the regular market and the market must be in round of lot trading units or multiples. Darmadji & Fakhruddin (2011) defines tick size as the limitation of the bargaining value of the securities determined by the Securities Exchange. One of the most important protocols in the securities market is the magnitude of the minimum price increase in which market participants make transactions and fix prices. If the minimum price is too high, there will be a difference in supply, and the difference will reach a very competitive level. If the minimum price is too small, it can reduce the depth of the market and increase the cost of negotiations, which will slow the pricing process. In addition, the small minimum price sizes can change market forces, from public investors to professional traders who will pave the way for professionals beyond the existing public boundaries.

2.2 Prior research

The change of tick size by increasing the price fraction group will make the investor easier to conduct stock transactions. This condition will make the stock price increase faster than before, so that liquidity also increases. Several previous studies have shown that changes in trade rules related to stock price fractions may affect stock prices. Bessembinder (2000) found that the reduction of tick size led to a decrease in bid-ask spreads. The results of Chung et al. (2005) proves that after the change of tick size, the spread and depth significantly decreased, while the stock price significantly increased.

The research was supported by other research Purwoto & Tandelilin (2004) and Goldstein & Kavajecz (2000), studies show tick size changes resulted in declining spreads, depth decreases, and decreases trade costs there by increasing liquidity. The

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change of tick size on the Stock Exchange provides a unique opportunity to empirically evaluate the debate about optimal tick size. Niemeyer and Sandas (1993) on the Stocholm Stock Exchange consistent with Chan and Huang (1998) on the Stock Exchange of Hongkong show that ticks are positively correlated with spreads and dept.

Ha_1: There is a significant influence between the announcements of the change of tick size to abnormal return.

High number of stock transactions indicates that the stock is in demand by investors in the capital market. Allen & Sudiman (2009) found that there was a difference in the intensity of trade increased in small intervals between before and after the change of tick size. Purwoto & Tandelilin (2004) showed that after the tick size changes all trading activities such as stock trading transactions, stock trading volume, increased for cheap shares. In contrast, trading activity declined for high-priced stocks. Santosa (2011) and Ricker (1998) showed that trade activity increased after the determination of the tick size fraction. Allen & Sudiman (2009) proved that Trade intensity increases through small time intervals between trades in the coarse tick size period for all stocks observed. Consistent with the results of Ricker (1998), Chung et al. (2005) and Purwoto & Tandelilin (2004) stated that tick changes will increase stock trading volume.

Ha_2: There is a significant influence between the announcements of the change of tick size to stock trading transactions.

Ha_3: There is a significant influence between the announcements of the change tick size to stock trading volume.

Investors who have more information make it possible to avoid the risks associated with trading. Investment risk can be decreased by diversifying investments in other securities. Porter & Weaver (1997) stated that the decline in tick size will lead to a decrease in spread and depth so that the price variability will increase. An increase in price variance will provide an increased risk to investors. According to Chan & Hwang (2001) spread, depth, and trading volume increased after the reduction of tick size. The biggest increase was found in stocks with low prices compared to stocks with high prices. A larger tick size increases the risk, so investors will restrict orders.

Ha_4: There is a significant influence between the announcements of the change of tick size to risk.

3 RESEARCH METHOD

3.1 Sample and Data Sources

The type of data in this study is historical secondary data. Sources of data in this study were obtained from www.idx.co.id through the corner of Indonesia Stock Exchange and finance.yahoo.com, as well as other supporting data such as journals, literature and other sources related to the research. In this research, the determination of the sample will be done by using purposive sampling method. The criteria used are manufacturing companies with complete daily transaction data, active trading activities, no corporate action during the observation period from April 4, 2016 - June 1, 2016. Event date occurred on May 2, 2016. Based on the criteria, the sample is 74 companies.

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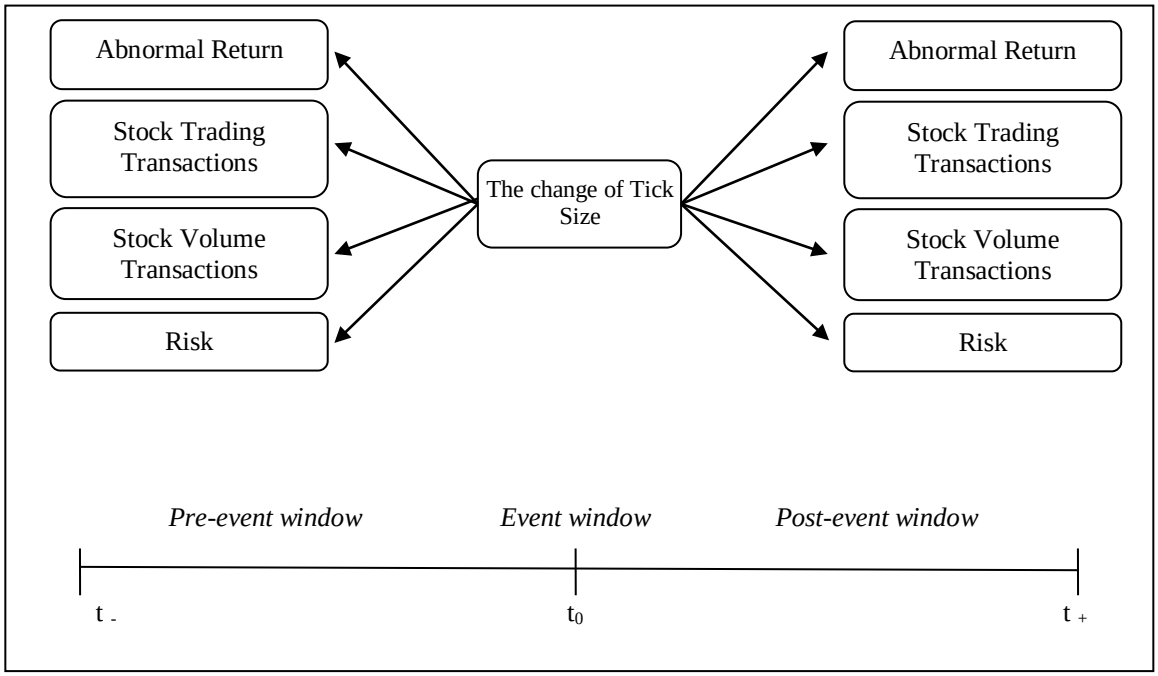
Figure 1. Conseptual Framework



3.2 Research Model

We examined the comparations of abnormal return, stock trading transactions, stock trading volume and risk before and after the announcement of the tick size change. Data analysis method used is descriptive statistics. Descriptive statistic is basically a process of transforming research data in tabular form so that it is easily understood and interpreted (Indriantoro & Supomo, 2014). Hypothesis testing in this research uses Paired Sample t-test with significance level at 10% tolerance. According to Ghozali (2011), Paired Sample t-test is a parametric test used to test whether there is a difference in the average of two related samples. Data comes from two measurements or two different observation periods taken from the paired subject.

3.3 Operational Variable

3.3.1 Abnormal Return

Stock returns in this study was measured by abnormal return using market adjusted model.

3.3.2 Stock Trading Transactions

Stock Trading Transactions $_{i,t}$ = Number of companies (i) stock transactions conducted during one day (t)

3.3.3 Stock Trading Volume

Stock Trading Volume $_{i,t}$ = The number of shares of companies traded during the day (t).

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3.3.4 Risk

Beta is a systematic measure of risk from a securities or portfolio relative to market risk. The formula that can be used to measure stock Beta can be seen as follows:

$$\beta = \frac{n\,\Sigma RmRi - \Sigma Rm\Sigma Ri}{n\,\Sigma Rm^2 - (\Sigma Rm)^2}$$

Note :

β = beta
Rm = *return market shares*
Ri = *stock returns*
n = number of samples

4. RESULT AND DISCUSSION

4.1 Descriptive Statistic

This study uses descriptive statistics to explain the description of sample data from 74 companies. Description of sample can be seen in form of maximum value, minimum value, mean (average), and standard deviation. Description of descriptive statistics can be seen in the following table:

Tabel 2. Descriptive Statistics

	N	Min	Max	Mean	Std. Deviation
Abnormal return - pre event	74	-.01669	.02684	.0021120	.00702132
Abnormal return - post event	74	-.01198	.02656	.0018328	.00604420
Stock Trading Transactions – pre event	74	1	3782	356.37	800.104
Stock Trading Transactions – post event	74	0	4247	358.72	774.200
Stock Trading Volume-pre event	74	890	40875670	1912753.85	5697285.990
Stock Trading Volume-post event	74	20	49563770	2152608.51	6723176.253
Risk-pre event	74	-4.284	4.473	.30047	1.314596
Risk-post event	74	-2.200	4.303	.37350	1.087403

Based on table 2. There is a decrease in average abnormal return after the announcement of change of tick size compared before. The average Stock Trading Transactions after the announcement is higher than before. Increased Stock Trading Transactions after the announcement is compared to the previous one and the risk after the announcement is higher than before.

4.2 Hypothesis Testing

Hypothesis testing in this research uses Paired Samples t-Test. The results of the test can be seen in the following table:

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		t	Sig. (2-tailed)
Pair 1	Abnormal return-pre event- Abnormal return-post event	.289	.773
Pair 2	Stock Trading Transactions -pre event- Stock Trading Transactions –post event	-.069	.945
Pair 3	Stock Trading Volume-pre event- Stock Trading Volume-post event	-.933	.354
Pair 4	Risk-pre event- Risk-post event	-.361	.719

4.2.1 Abnormal Return

The stock price is a set price in the capital market formed from the interaction of market participants. Stock prices are determined by market forces based on demand and supply of shares in the capital market. In addition, external factors can also affect the prices of stock. Based on theory, information will be summarized in the market price of securities through trading activities. The level of market efficiency can be measured by how much the stock price changes caused by an event. This is in line with the market efficiency theory that an efficient capital market is a capital market whose price of securities reflects all relevant information.

This study indicates that there is a non-significant difference in stock returns between before and after tick-rate changes. The results showed that the change of tick size caused abnormal return to decrease compared to abnormal return before change of tick size. The faster the new information is reflected in security prices, the more efficient the capital market. Thus, it will be very difficult for investors to obtain above normal profit levels consistently by trading transactions on the Stock Exchange.

4.2.2 Stock Trading Transactions

Stock Trading Transactions is the number of times the sale and purchase transactions of an issuer's shares that occurred in a certain period. By looking at how Stock Trading Transactions can be known, the stock is in demand by investors or not. High trading transactions indicates that the stock is actively traded. The higher the number of trading transactions of a stock, the bigger of the shares that will be increasingly liquid, and indicates that the stock is in demand by the investors. Conversely, if the share of the transaction amount is low, then the stock is illiquid or unattractive to the investor.

The results showed that there was no significant difference between the Stock Trading Transactions before and after the change of tick size. If seen from the average before

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and after, Stock Trading Transactions in the period after the relatively higher than in the period before the change of tick size. This shows an increase in stock demand, although the increase is not significant. The results of this study is in accordance with Pavabutr & Prangwattananon (2009) which indicated that the change in tick size did not have a significant impact on Stock Trading Transactions.

4.2.3 Stock Trading Volume

Stock trading volume is the number of shares traded on the capital market among investors in a certain period of time. Changes in the volume of stock trading in the stock market indicate the activity of stock trading on the stock and reflect investment decisions by investors. Trading volume is one indicator to see the stock can be categorized as active or not in the capital market. Based on the theory, trading volume is one indicator of stock liquidity over an existing information in the capital market. The level of market efficiency can also be measured by how much the average change in trading volume activity.

This study found that there is no significant difference between Stock Volume Transactions before and after the change event ftick size. However, based on the results of the average value indicates that the Stock Volume Transactions relative increase after the tick size change period, although not significant. Increasing Stock Volume Transactions can be interpreted also as an increase in stock liquidity. The higher Stock Volume Transactions show that the stock is favored by investors in the capital market. The results of this study support Ahn et al. (1996), Pavabutr & Prangwattananon (2009) that changes in price fraction have no significant effect on trading volume.

4.2.4 Risk

Risk is the possibility of actual income received in an investment different from the expected return. The greater the deviation between actual return and expected return, the greater the risk to be borne. Risk is one of the important factors that need to be paid attention by investor in making investment. Based on the theory, an investor who has more information, may be able to avoid the risks associated with trading.

This study indicates that there is no significant difference between the risk before and after the change of tick size, but after the announcement, it is seen that the relative risks of the average has increased, although the increase is not significant. This is because after the change of tick size causes the variation of supply and demand price becomes larger so that will increase risk for investor. The results of this study support the study of Chan & Hwang (2001) which shows a larger tick size will increase the risk, so investors will do the order restrictions. On the other hand managers will minimize the risks that occur by implementing risk management (Kurniawanto,dkk, 2017).

4 CONCLUSION

5.1 Conclusion

The conclusion of this study describes the findings of research on the important issues as the basis for this study. Based on the results of the discussion, it can be concluded

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that there is no significant difference of abnormal return between before and after the change of tick size. There is no significant difference between stock trading transactions, and stock trading volumes before and after tick size changes. But when viewed from the average stock trading transactions and stock trading volume after the change of tick size, it shows relatively higher average than before. This indicates that tick size changes result in an increase in trading activity in the capital market. There was no significant difference between the risk before and after the change of tick size. This is because the new fraction has a greater variety of supply and demand prices. There was no significant difference between the risk before and after the change of tick size. On the other hand, when it is viewed from the result of the average risk after the change of tick size applied, it shows the average is relatively higher than before. This is because the new fraction has a greater variety of supply and demand prices.

5.2 Implication

This study shows the change of tick size from three groups to five groups in a positive response by the investors. This is the evident from the increase in stock trading volume and stock trading transactions eventhough the increase after the announcement is not significant.

5.3 Limitations

The limitation in this research is to analyze only one period of application of new tick price system that is on May 2, 2016. It was not being compared to the period of change of tick price before. The sample of the company in this research is only the manufacturing industry. Therefore, the results of this study cannot be generalized to other industries, such as banking industry or property and real estate industry.

5.4 Recommendation

In the future research, there are some things to be noted, among others as follows: Further research makes comparisons to analyze between ticks change period. For example, in the policy event of January 6, 2014 concerning the provision of tick size consisting of 3 price groups, the events of October 20, 2000, concerning the change of fraction of the single stock price to multi fraction, and others.

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