IMPACT IN CHANGING PRICE FRACTION TO THE STOCK TRADING INDICATORS IN INDONESIA STOCK EXCHANGE

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ABSTRACT

The purpose of this study was to determine how the impact of changes the price fraction to the stock trading indicator that is volume, value, and frequency of trading transactions. Data were analyzed using the Mann-Whitney U test. The results show that the volume of stock trading is not affected significantly by the implementation of the tick size, whereas for the value of trade and frequency of trade significantly affected.

Keywords: Indonesia Stock Exchange, fraction of stock price, trading volume, value of stock trading, stock trading frequencies

INTRODUCTION

As one of the emerging stock exchanges, trading at the Indonesia Stock Exchange (IDX) is increasing very rapidly. This can be seen from the indicators growth such as stock trading volume, value, and frequency of trading in 2003 through 2013, as seen in Table 1.

Table 1 Growth Value Average Stock Day Trading

Trading Indicator	2003	2013	Growth
Volume (Million Shares)	967	5.503	569%
Value (Billion Rupiah)	518	6.238	1,204%
Frequency (Thousand Transactions)	12	154	1,283%

(Source: IDX Statistics)

Stock trading rules are needed to ensure the market to be fair and efficient. One of the implementation rules was the price fraction or tick size. On January 6th, 2014, Indonesia Stock Exchange implemented new regulations related to the fraction of the price, which fraction of the price applied by the price category.

When transacting shares in the capital market, it takes a minimum size in determining stock prices, for example, to make an offer to buy or sell shares at a price of Rp100,00. By using a minimum size Rp1,00, an investor may only bargain a stock price in amount of multiplication, such as Rp99,00, Rp100,00, Rp101,00, and so on. The minimum size in stock transaction known as price fraction or tick size.

The Indonesia Stock Exchange rules Number II-A of the Securities Trading Equity provides a definition of the price fraction that is the unit price changes used in performing selling supply or buying demand. Wu, Krehbiel, and Brorsen (2011) put forward notion of the price fraction is the smallest increment in which the stock price can move. The background of the price fraction changes is as follows: (1) The difference of buy and sell price quotation or bid-ask spread is too wide in IDX inhibits the transactions. (2) Long queues of orders at price level of the stock inhibits liquidity. (3) Small market depth in accepting a large value of transactions so that some large transactions occur big impact on the market. (4) Velocity transactions on the IDX are still relatively low.

There are several studies on the price fraction impact on the stock exchange, such as Chang (2014) who conducted a study on the impact of minimum tick size on liquidity on the New Zealand stock exchange, the empirical study results show that the trade volume correlates very positive between spreads proportion with the minimum size of price fractions.

Reduction changes of price fraction gives effect to the stock trading, it is described in several studies, e.g., Porter and Weaver (1997) analyzed the impact of size reducing of the minimum price fraction on the market quality, internalization, and member benefits using transactional database shares listed on the Stock Exchange Toronto (TSE). This study found that the cost of execution declined to stocks with low price and high volume, and the results also recorded a decrease in the market depth. The study also found that reducing the size of price fraction having a minimum impact on the internalization and member benefits, except generating higher profits and commissions.

Furthermore, Goldstein and Kavajecz (2000) investigated the impact of size reducing of the minimum price fraction on trading liquidity on the New York Stock Exchange (NYSE), the faction size reduction takes effect in spread and depth of the market decreased after price fraction change from one-eighths dollars to one-sixteenths dollars, the market depth decrease so does the entire limit order book.

Chien, Liao, and Lee (2014) examined the impact of size reduction price fraction on the content of order book information using data from the Taiwan Stock Exchange (TWSE). The empirical results indicate that the limit order book is informative. Furthermore, the results indicate that size reduction of price fraction will reduce the information content of an order book and positively associated with depletion order on the order book.

Wu, Krehbiel, and Brorsen (2011) conducted a study that examines the impact of price fraction size changes of the transaction costs of different trade size. Using samples taken from stocks with high and low prices with high and low volume on price fractional change in 1997 and 2001 at the New York Stock Exchange. For the stock with high price but low volume of 1997 fraction changes from the price of one-eighth dollars into the price of one-sixteenth dollar, increase effective transactions spread even to the smallest size transaction, but the effect of price fraction reduction in 2001 was largely positive for the stock at a high price with low volume but were not statistically significant.

Hameed and Terry (1998) examined the impact of size price fraction on the group of price and trading volume when minimum price changes vary with the price level. The study found that the smaller trade prices fraction tend to sharpen the price grouping. Also, the reduction in the price fraction size is more likely to increase trade volume if the shares are often traded.

Furthermore, Anderson and Peng (2013) examined the price fraction change to liquidity on the New Zealand Stock Exchange. The effects of price fraction size changes is not consistent across company, a small company does not benefit from the same liquidity as large enterprises, with small companies has decreased significantly the volume and value of trading.

Satiari (2009) conducted research on differences of the stock price fraction system on the variable bid-ask spread, depth, and trade volume in the companies listed on the Indonesia Stock Exchange. The results of this study revealed a significant difference to the bid- ask spread, depth and trading volume since the announcement of the new system is the stock price fraction.

Based those explanations above, there is a question of how the impact of price fraction changes which a set on January 6th, 2014, as the indicators of stock trading, the volume, value, and frequency of trading. Thus researchers compiled a study entitled "Impact of changing price fraction to the stock trading indicators in Indonesia Stock Exchange." This study uses a volume variable, value and stock trading transactions frequency that are affected by implementation of the price fraction.

Based on the explanation given in the introduction, the problems found in this study is whether this change in the price fraction resulted from a significant change in volume, value, and frequency of trading stock on the Indonesia Stock Exchange.

The objectives to be achieved in this study, are as follows: (1) To determine how the impact of price fraction changes to trading volume transaction on the Indonesia Stock Exchange. (2) To determine how the impact of price fraction changes to trading value transaction on the Indonesia Stock Exchange. (3) To determine how the impact of price fraction changes to trading frequency transaction on the Indonesia Stock Exchange.

This research is expected to be useful for academics and capital markets practition, for academics to be a reference for research related to the price fraction application, while for the practitioner to be a reference in investing capital market with regard to the implementation of new price fraction.

This research is a events study to see the market reaction as measured by volume of stock trading, transaction value and frequency of stock trading for their announcement of the stock price fraction changes. The events study describes of empirical research technique that allows financial analysts assess the effect of certain events on stock prices of companies (Bodie, Kane, & Marcus, 2009). In this article, the stock price movement is represented by indicators of stock trading.

Efficient capital markets are defined as those in which the price of all securities quickly and fully reflect all relevant information available (Jones, 2010). The faster new information is reflected in security prices, the more efficient capital market. There are three forms of capital market efficiency (Husnan, 2001): (1) Weak form efficiency is a condition where prices

reflect all available information at the time when the last record price. (2) Semi-strong form efficiency is a situation where the prices not only reflect the past prices, but all of the information published. (3) Strong form efficiency is a situation where the prices reflect not only all published information but also information that can be gained from fundamental analysis of the company and the economy.

Furthermore, Sunariyah (2011) stated that the characteristics of an efficient capital market in general are: (1) The share price will reflect quickly and accurately to all forms of new information. (2) Stock prices are random, so the price did not follow some of the trends and past information. (3) Profitable stocks are not easy to predict.

Information which is available in the capital markets may also be asymmetric information owned by investors and management. The thinking is a potential investor security have less information than the management, and the management tends to issue securities at the time of knowledge about the market value of the company is higher than that possessed by management. Information is a factor that gives meaning to the recipient, especially in terms of decision-making. Information is needed to determine the condition of a company that has been selling securities and the behavior of the company's securities on the market. There are three main types of information needs to be known by the brokerage, securities traders and investors (Usman *et al.,* 1994).

The first type is fundamental information. In connection with the company, the general conditions of the same industry, and other factors that can affect the condition and prospects of the company in the future, such as changes in government regulations and so on. Second, information related to technical factors. This information reflects the condition of securities trading, exchange rate fluctuations, the volume of transactions and so on. Such information is crucial for investors to determine when a stock should be bought, sold or exchanged for other securities to obtain the maximum benefit. The third type is information related to environmental factors. Covers the economic, political and security. This information needs to be known by investors and securities trading brokers because such information could affect company's prospects and the development of trade effects, both fundamentally and technically.

Based on the Indonesia Stock Exchange Rule Number II-A of the Securities Trading Equity, the price fraction is the unit price changes used in performing selling or buying demand. On January 6, 2014, Indonesia Stock Exchange announced the adoption fraction of the new price, which fraction of the price applied to the price category as shown in Table 2.

Table 2 Stock Price Fraction Changes

Before		
Price Group	**Price Fraction**	**Maximum Changes**
< Rp200,00	Rp1,00	Rp10,00
Rp200,00 s.d < Rp500,00	Rp5,00	Rp50,00
Rp500,00 s.d < Rp2.000,00	Rp10,00	Rp100,00
Rp2.000,00 s.d < Rp5.000,00	Rp25,00	Rp250,00
>= Rp5.000,00	Rp50,00	Rp500,00

After		
Price Group	**Price Fraction**	**Maximum Changes**
< Rp500,00	Rp1,00	Rp20,00
Rp500,00 s.d < Rp5.000,00	Rp5,00	Rp100,00
>= Rp5.000,00	Rp25,00	Rp500,00

(Source: Indonesia Stock Exchange)

Maximum change is the maximum multiple of the price change, instead of the maximum daily price movement limits. The benefits obtained by the market of the fractional change are as follows: (1) More alternative pricing options that can be traded. (2) Reduce queues orders and increase the potential transaction. (3) Make it easy for investors to manage risk. (4) The movement of stock prices becomes more refined. (5) Increase market depth and minimize market impact.

According to Sekaran and Bougie (2013), hypothesis is logically expected the relationship between two or more variables are expressed in the form of a statement that can be tested. The relationship is expected based on the network of associations set out in the theoretical framework formulated for research studies. Thus the hypothesis proposed in this research are as follows:

H1: There is a significant effect of price fraction changes to the stock trading volume in the Indonesia Stock Exchange.

H2: There is a significant effect of price fraction changes to the stock trading value on the Indonesia Stock Exchange.

H3: There is a significant effect of price fraction changes to stock trading frequency in the Indonesian Stock Exchange.

Sarwono (2012) suggested the hypothesis testing if we use the curve to test the hypothesis can be described in Figure 1 (for a two-tailed test):
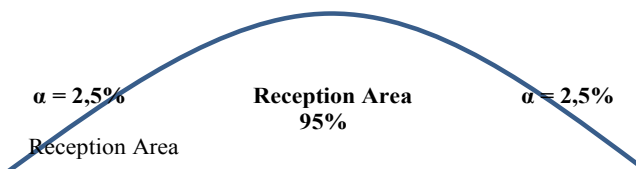
Figure 1 Two-tailed Test Curve for Hypothesis

Testing the hypothesis using SPSS version 20 is done by using the numbers of significance. The decision obtained using the criteria of significance if the number of research results < 0,05 then the H1, H2, and H3 received.

METHODS

The population in this study is data volume, value, and frequency of trading on the Indonesia Stock Exchange, during the 30 days before and 30 days after the implementation of the trading exchanges fraction of the new price stock exchange trading, which as of November 2013 to February 2014. Date of start enactment fraction of the new price is January 6th 2014. The data used is secondary data obtained from the Indonesia Stock Exchange and Indonesian Capital Market Electronic Library (ICaMEL).

Before performing the hypothesis test, normality test should be performed. Kolmogorov - Smirnov method is used to determine whether the distribution of data is normal or not. If the significance value (Sig.) or a probability value is < 0,05, then the distribution is not normal. On the other hand, if the significance value (Sig.) or a probability value is > 0,05, then the distribution is normal.

To find out whether there are differences between the two groups of data are unrelated (independent), then the classification of group is tested with the Mann-Whitney U test. Group 1 is the data volume, value and frequency of trading prior to the implementation of the fraction of the new price. Group 2 is a data volume, value and frequency of trading after the implementation of the fraction of the new price.

Basis for a decision to use the significant value: If the probability > 0,05, H0 is accepted that the two groups did not differ significantly. If the probability < 0,05, H0 is rejected that the two groups differed significantly.

RESULTS AND DISCUSSIONS

To analyze the data in the data processing performed using SPSS software version 20, the process output subject of the analysis to formulate the results and recommendations of the study. Prior to test hypotheses, the first step is to do the normality test to ensure the data of volume, value and trades frequency, period of before and after the implementation of new price fraction with normally distributed. Normality test results using the Kolmogorov-Smirnov method are as shown in Table 3.

Table 3 shows the data volume of trade has a normal distribution, with significant value 0,302 > 0,05. Transaction value also has a normal distribution with significant value 0,380 > 0,05. The same thing happens to the data frequency trading also normal distribution with a significance value of 0,092 > 0,05.

Having in mind that all data have normal distribution, then the next hypothesis test to determine whether there are differences between the three indicators before and after implementation of the new stock price fraction. Based on the results of data processing with SPSS version 20, the results are as shown in Table 4.

The results if the data use Mann - Whitney U demonstrate the significant value or Asymp. Sig. (2 - tailed) for share trading volume was 0,337 > 0,05. Thus indicators reflected by the stock trading volume stock trading does not have a significant difference before and after the implementation of the new stock price fraction.

Asymp significance or value. Sig. (2 - tailed) for share trading value was 0,029 < 0,05. Thus indicators of stock trading, as reflected by the value of stock trading has a significant difference before and after the implementation of the new stock price fraction.

Asymp significance or value. Sig. (2 - tailed) for share trading frequency is 0,000 < 0,05. Thus indicators stock trading reflected by frequency trading has a significant difference before and after the implementation of the new stock price fraction.

Table 3 Normality Test Result

One-Sample Kolmogorov-Smirnov Test

		Volume	Value	Frequency
N		60	60	60
Normal Parameters[a,b]	Mean	4579318398,1167	5000052131081,1340	160109,4167
	Std. Deviation	1237319658,12788	1342822177134,51400	59160,27482
Most Extreme Differences	Absolute	0,125	0,117	0,160
	Positive	0,125	0,117	0,160
	Negative	-0,078	-0,086	-0,076
Kolmogorov-Smirnov Z		0,971	0,910	1,240
Asymp. Sig. (2-tailed)		0,302	0,380	,092

a. Test distribution is Normal.

b. Calculated from data.

Table 4 Result of Mann – Whitney U Test

Ranks

	Price Fraction Rules	N	Mean Rank	Sum of Ranks
Volume	Before	30	32,67	980,00
	After	30	28,33	850,00
	Total	60		
Value	Before	30	25,57	767,00
	After	30	35,43	1063,00
	Total	60		
Frequency	Before	30	15,60	468,00
	After	30	45,40	1362,00
	Total	60		

Test Statistics[a]

	Volume	Value	Frequency
Mann-Whitney U	385,000	302,000	3,000
Wilcoxon W	850,000	767,000	468,000
Z	-0,961	-2,188	-6,609
Asymp. Sig. (2-tailed)	0,337	0,029	0,000

a. Grouping Variable: Price Fraction Rules

CONCLUSIONS

It could be concluded that the application of the fraction of the price does not significantly affect the volume of stock trading; it provides an overview of the application of the new price fraction is not an impact on the number of shares traded. Implementation of the stock price fraction significantly affect the stocks trading value and shares trading frequency; it reflects the change in the amount of funds transacted and the number transactions performed by capital markets investor concerning a change in the stock price fraction. Further research may use a variable volume, value and frequency of trades are calculated based on the activity of foreign investors, but it can also examined other variables such as the Composite Stock Price Index.

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