



Review of Accounting, Finance and Governance

Journal homepage: <https://akuntansi.pnp.ac.id/rafgo>

The effect of minimum trading unit on trading activity: Evidence from Indonesia stock market

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ARTICLE INFO

Keywords:

Minimum Trading Unit
Volatility
Trading Volume
Frequency
Foreign Investor
Market Capitalization
Value

Received : 13 September 2020

Accepted : 13 Oktober 2020

Published : 29 December 2020

ABSTRACT

The purpose of this empirical study is to describe the effect of Minimum Trading Unit (MTU) reduction. Period which is used is from January 2013 to January 2015. MTU applied in Indonesia Stock Exchange (IDX) is different from Tokyo Stock Exchange (TSE) in several ways. This study explains the effect of MTU after introduction during one year. To elaborate the changes, one year is divided to be three periods. The results show that MTU leads to decreasing of trading volume and volatility. However, they are greater in the sample than in overall in composite index. Market capitalization is also rising due to stock price appreciation. Frequency, foreign investor, and value are increasing respectively after application of MTU. Most of reactions upon introduction show positive trend and declining in the end of period. Classification based on price range is used to observe the impact in samples. Further, there is finding that negative relationship between volatility and price.

Introduction

Price has always been standard for everyone to make decision, either buying or selling. Generally, the lower product's price, more people tend to buy. In stock exchange market, not all investor could buy the company which has good liquidity. One of the reason is the stock's price is too high for them to afford. Many companies have their own effort to reduce the price in order to attract more people to invest their money to respected company.

Stock split is one of the ways to reduce the price of company. Basically, companies try to divide all shares in two. So, the stock will be half of previous price. Stock split does not necessarily have effect on company's value. Sometimes it has both positive and negative effect on company itself.

Positive effect of stock split, investors who could not usually buy the stocks, and then they could afford it. On the other side, the negative effect of this is people who do not get information from respected companies which has done stock split will consider the companies have bad issues.

Minimum trading unit (MTU) is similar to stock split in regarding of effect. However, companies do not divide their own shares. Companies limit the number of shares in a lot size. Normally, in one lot consists of 1,000 shares. In MTU company can set below than 1,000. It could be 900, 500, or less.

In japan, all companies can set their own limit of one lot. Yet, not all companies do MTU. Companies which have lower stock's price than average do not do MTU. Many studies do research about MTU in Japan they categorized companies by the number of limited shares. In Israel, Tel Aviv Stock Exchange did MTU to all companies. In 1998 MTU increased by 33% and in 1999 decreased by 62%-81%. Stock which has above average trading volume gains more than companies which has lower trading volume.

In Indonesia, which is Indonesia Stock Market (IDX), MTU applied is similar to Tel Aviv Stock Exchange. Decree 007/BEI/11-2013 regarding trading unit and price fraction, announce the change of lot size for equity securities. In IDX, one lot consists of 500 shares before MTU applied. When MTU is applied to Indonesia it became 100. The date of this event occurred in January 14th, 2014.

This study will observe the effects of MTU by knowing the difference variable of stock market, in the prior year and post-event MTU. They are abnormal volume, abnormal volatility, abnormal frequency, abnormal value, abnormal foreign volume, and abnormal market capitalization.

Literature Review

Lot size is important since it determines the minimum amount of money needed for trading. Too large a lot size would prohibit small investors from entering the market for the stock. Meanwhile, too small a lot size would be costly because of indirect costs related with problems with corporate control due to dispersion of share ownership according to Ahn, Cai and Hamao(2003).

A stock split proportionately increases the number of shares outstanding with a corresponding decrease in the share price and with no change in market capitalization of a firm, Jain and Robbani (2013). Individual shareholders tend to be wealth constrained and, therefore, cannot afford to acquire a round lot of a firm's stock if the price is too high, Dennis and Strickland (2002). Firms can also increase their investor base by listing on an exchange. Kadlec and McConnell (1994) find that for firms that move from the Nasdaq Stock Market to the New York Stock Exchange the increase in the stock price at the announcement is negatively related to the shadow cost of incomplete information.

Similarly with stock split, Minimum trading unit (MTU) also decreases the share price. However, it is not multiply the number of shares. MTU sets the minimum quantity of a security required for regular trading purposes. Amihud , Mendelson and Uno (1999) find that a reduction in the minimum trading unit greatly increases a firm's base of individual investors and its stock liquidity, and is associated with a significant increase in the stock price. Further, the stock price appreciation is positively related to an increase in the number of shareholders.

The finding of study of Hauser and Lauterbach (2003) of Tel-Aviv stock Exchange is that changing MTU affects not only the size of the investor base, but also price noisiness. There is a concern about this recommendation to abate MTUs relates to small and thin trading stocks.

Following an MTU decrease, Isaka (2014) finds that the individual shareholder base tends to increase significantly over a period of several years. In his sample, after the MTU reduction, the average number of individual shareholders increases by 90, 181 and 259% at the end of the first to third fiscal years, respectively. He also find that such a significant increase in the number of individual investors affects both long-term stock returns and the efficiency of stock prices. Ahn, Cai and Hamao (2003) they find that there is a significant increase in the total number of investors and individual investors, Second, quoted spreads on average drop from 1.89 to 1.38 percent. Effective spreads drop from 1.09 to 0.94 percent. Liquidity improvements from spreads are primarily associated with small quantity limit orders. Small trades registered the most significant increase while large trades witness a significant decline. The net effect is a highly significant increase in trading volume for small trades, and a moderate decrease in trading volume for large trades. Third, brokerage coverage increases on average from 8 to 11 firms. Fourth, return volatility increases for more than 58 percent of the events in the sample. Adverse selection component of the spread drops from 49.9 to 45.4 percent.

To illustrate, the difference of MTU between Japan and Indonesia, In Japan, a firm's board of directors determines the MTU of its stock, or the minimum number of shares that can be traded on an exchange. As investors place orders in integer multiples of the MTU when they buy or sell shares, a firm can reduce the minimum monetary value necessary for trading shares by decreasing its MTU. For instance, if a firm reduces the MTU of its stock of 1000 yen per share from 1000 to 100 shares, an investor can then purchase the minimum unit of shares for only 100,000 yen, down from 1 million yen previously. Japanese Commercial Code previously restricted changes in MTU, which stipulated that a firm needed to hold 50,000 yen worth of net assets per unit. However, the revision of the law in October 2001 allowed firms to change their MTU without such restriction. As a result, many Japanese firms have reduced their MTU to encourage small investors with limited financial resources to invest in their stock.

The previous studies provide information all firms that are able to adjust the minimum quantity of lot size. In Indonesia, MTU is set up for all firms without exception. MTU in Indonesia applied in January 14th 2014. However, the rule is slightly different from Tokyo Stock Exchange and Tel-Aviv Stock Exchange. All firms are reducing the limit of shares of one lot to be 100 from former 500 shares. Therefore, Cost for reducing the lot size could be eliminated. Small firms will be eliminated in this sample because it will be hard to see the daily return due to higher probability no trading steadily. Lauterbach (2003) in his study finds that extremely thin trading stocks appear to lose value upon the MTU decrease, and for many other small and thin traded stocks price noisiness increased following the MTU decrease. MTU will make former investor to diversify their portfolio following with solid fundamental. However, it will also attract investor who likes to do thin trading. I suspect 1 or 2 positive difference will trigger this action, which can be seen in how many transactions occur after one year.

This study will take all firms which take position of LQ-45 in Indonesia Stock Exchange (IDX). Firms which are included in LQ-45 is top 60 companies with highest capitalization and highest transaction in the last 12 months and have good financial conditions, prospect of growth and high transaction value and frequency (official IDX website). This study will examine the effect of MTU before and after one year, this time series is considered as a result of MTU only applied recently applied in Indonesia, this study will cover spread, investor base, and abnormal return. This study will investigate whether more investor are attracted to purchase shares due to MTU decreased.

Methods

The sample of this paper consists of historical daily data of stock price in Indonesia Stock Exchange (IDX) from 2013 to 2014 and all data which are included has these criteria as follows;

1. Firms have to be in the list of LQ 45 (IDX announce top 45 companies which has the most liquidity).
2. LQ 45 announcement is once in six month, all companies are member of LQ 45 in four periods in a row.
3. Prior and post event days has same number of days, in order to make estimation and event windows balance.

After checking the number of dates of composite index of Indonesia which is Indeks Harga Saham Gabungan (IHSG), amount of days is not equal and also not all Volume shares are recorded. 409 days for 30 company's data and 488 for composite index data. So, i drop the date which is lack of data. Therefore, sample of this data is 264 days. There are 15 of 45 companies which is not consistent to be in LQ 45 list. Finally this paper uses 30 companies.

MTU is basically reducing the price of stock itself indirectly. However, it does not necessarily reducing the value of a stock price. More investor could invest more lot than pre-MTU event. Investor could also diversify their portfolio better due to the price reduction. Hence, this paper hypothesizes that the magnitude of MTU will have positive after application.

After MTU event, the price to obtain one lot is cheaper, but it will affect for many investors to do thin trading, 1 or 2 positive difference of trading will be executed more than before. Abnormal volume has positive reaction after MTU reduction.

Price of one lot is lower than previous year of MTU, it will make the range of price is smaller than before. It will make all companies in IHSG (composite index) getting smaller. However, samples that I took have more liquidity than the other companies in composite index. So, abnormal volatility is increasing after MTU event. Abnormal volatility has positive reaction after MTU reduction.

As told before that after MTU event, thin trading will occur more in post-MTU. Therefore, frequency will show an increase. Abnormal frequency has positive reaction after MTU reduction.

Many investors Indonesia will show more interest in companies which had higher price in prior MTU year, so does foreign investor. Abnormal foreign volume has positive reaction after MTU reduction.

As many transactions occur in post-MTU event, there will be an increase in stock price for each share. Therefore, abnormal market capitalization will have an increasing trend throughout the year after MTU application. Abnormal value as a description of the number of trading in Indonesia currency will also rise.

Results

Panel C of table 1 describes that trading volume is decreasing overtime of event windows. However, panel A has fluctuated volume. In the end of event period it decreased 63%. After classify price range in panel B, firms which are categorized as low price has more effect for overall companies. In panel C, Higher price-firm has an increasing volume after MTU. More than 50% of companies have increasing trend. Volume increases in the introduction of MTU, when price is getting lower. It is the same as Karpoff (1987), volume is positively related to the magnitude of the price change.

Table 1. Changes in Volume

A. Comparison of volume				
Full sample = 30	Before (-132,-10)	(+10,+24)	After (+10,+41)	(+10,+132)
Mean Volume	25,251,086	27,643,848	25,084,986	21,778,219
% with increase		57%	40%	37%
B. Volume classified by price				
Price Range	Before (-132,-10)	(+10,+24)	After (+10,+41)	(+10,+132)
Mean -Low (Rp.0,-to Rp.9999,-) N=20	35,769,994	39,198,076	35,206,150	30,641,309
-High (above Rp.10,000,) N=10	4,213,270	4,535,393	4,842,658	4,052,040
C. Trading Volume effects				
Event window	Mean AVOL (p-value)	Median AVOL (p-value)	% AVOL >0 (z-statistic)	

(+10,+24)			
Low (Rp.0,-to Rp.9999,-) N=20	0.1016 (0.188)	0.1235 (0.218)	0.55 (0.4472)
High (above Rp.10,000,) N=10	0.1602 (0.1241)	0.1132 (0.1394)	0.6 (0.6325)
Full sample N=30	0.1211 (0.0457)**	0.1132 (0.0687)*	0.5667 (0.7303)
(+10,+41)			
Low (Rp.0,-to Rp.9999,-) N=20	0.0786 (0.3306)	0.0685 (0.5755)	0.55 (0.4472)
High (above Rp.10,000,) N=10	0.3055 (0.0323)**	0.2345 (0.0125)**	0.8 (1.8974)*
Full sample N=30	0.1542 (0.0307)**	0.0844 (0.0449)**	0.6333 (1.4606)
(+10,+132)			
Low (Rp.0,-to Rp.9999,-) N=20	-0.0994 (0.0876)*	-0.1205 (0.0187)**	0.3 (-1.7889)*
High (above Rp.10,000,) N=10	0.0898 (0.4578)	0.1062 (0.7213)	0.6 (0.6325)
Full sample N=30	0.0363 (0.5117)	-0.1079 (0.147)	0.4 (-1.0954)

Average of trading volume increase upon introduction in (+10,+24) event widows. However, it falls in period-end (+10,+132).

In panel A, they are decreasing gradually in all event windows. It proves that 30 sample companies has wide gap of volatility compared to all composite index volatility. As shown in panel B, all price range after beginning of MTU (+10,+24), they drop more than 50%. Less return will occur due to decline of volatility.

Table 2. Changes in Volatility

A. Comparison of volatility				
Full sample = 30	Before (-132,-10)	(+10,+24)	After (+10,+41)	(+10,+132)
Mean Volatility	0.0007	0.0003	0.0003	0.0002
% with increase		3%	3%	0%
B. Volatility classified by price				
Price Range	Before (-132,-10)	(+10,+24)	After (+10,+41)	(+10,+132)
Mean -Low (Rp.0,-to Rp.9999,-) N=20	0.0008	0.0003	0.0003	0.0003
-High (above Rp.10,000,) N=10	0.0006	0.0003	0.0003	0.0002
C. Volatility effects				
Event window	Mean Volatility (p-value)	Median Volatility (p-value)	% Volatility >0 (z-statistic)	
(+10,+24)				
Low (Rp.0,-to Rp.9999,-) N=20	0.0824 (0.5812)	0.0457 (0.9702)	0.55 (0.4472)	
High (above Rp.10,000,) N=10	0.0975 (0.6181)	-0.0622 (0.6465)	0.5 (0)	
Full sample N=30	0.0875 (0.4512)	0.0263 (0.8451)	0.5333 (0.3651)	
(+10,+41)				
Low (Rp.0,-to Rp.9999,-) N=20	0.1932 (0.1328)	0.1266 (0.1454)	0.7 (1.7889)*	
High (above Rp.10,000,) N=10	0.3299 (0.0922)*	0.1712 (0.1394)	0.6 (0.6325)	
Full sample N=30	0.2387 (0.0232)**	0.1367 (0.027)**	0.6667 (1.8257)*	
(+10,+132)				
Low (Rp.0,-to Rp.9999,-) N=20	0.4074 (0.0085)***	0.3067 (0.0012)***	0.85 (3.1305)***	
High (above Rp.10,000,) N=10	0.5337 (0.0021)***	0.6506 (0.0093)*	0.9 (2.5298)***	
Full sample N=30	0.4495 (0.0001)***	0.3746 (0.000)***	0.8667 (4.0166)***	

- * indicates significance at the 0.1 level
 ** indicates significance at the 0.05 level
 *** indicates significance at the 0.01 level

This finding has the similarity of Isaka (2014) while trading volume increase after MTU reduction. Volatility decreases overtime. I conclude this happen because of short-selling shares.

High price-companies tend to increase amount of transactions, as seen in panel C and B of table 3. It increases in all event windows. In panel C, low price-company decrease gradually and it increase slightly in the end of period. Panel B shows mean of 30 companies increase steadily, there are 97% companies follows the trend in beginning period (+10,+24). As shown in panel B, both low and high-price range companies increase slightly upon introduction of MTU. However, they still fall in (+10,+132) event windows. Rise in frequency could be that more investors come from the ones who cannot afford buying stock of LQ 45 before and also most of higher-price range companies have tendency to increase. There are 90% of sample follow this trend.

Table 3. Changes in Frequency

A. Comparison of Frequency				
Full sample = 30	Before (-132,-10)	(+10,+24)	After (+10,+41)	(+10,+132)
Mean Frequency	1,687	2,660	2,583	2,445
% with increase		97%	93%	93%
B. Frequency classified by price				
Price Range	Before (-132,-10)	(+10,+24)	After (+10,+41)	(+10,+132)
Low (Rp.0,-to Rp.9999,-) N=20	1,919	2,913	2,748	2,593
High (above Rp.10,000,) N=10	1,223	2,154	2,253	2,149
C. Abnormal Frequency effects				
Event window	Mean Frequency (p-value)	Median Frequency (p-value)	% Frequency >0 (z-statistic)	
(+10,+24)				
Low (Rp.0,-to Rp.9999,-) N=20	0.0034 (0.9514)	-0.0311 (0.7369)	0.45 (-0.4472)	
High (above Rp.10,000,) N=10	0.1841 (0.0341)**	0.1356 (0.0284)**	0.9 (2.5298)***	
Full sample N=30	0.0637 (0.1811)	0.0283 (0.2623)	0.6 (1.0954)	
(+10,+41)				
Low (Rp.0,-to Rp.9999,-) N=20	-0.0224 (0.6622)	-0.0292 (0.5755)	0.4 (0.8145)	
High (above Rp.10,000,) N=10	0.2632 (0.0048)***	0.2097 (0.0069)***	0.9 (2.5298)***	
Full sample N=30	0.0728 (0.1364)	0.0742 (0.165)	0.5667 (0.7303)	
(+10,+132)				
Low (Rp.0,-to Rp.9999,-) N=20	-0.0283 (0.5155)	-0.0665 (0.4553)	0.45 (-0.4472)	
High (above Rp.10,000,) N=10	0.2743 (0.0247)**	0.2007 (0.0367)**	0.8 (1.8974)*	
Full sample N=30	0.0726 (0.1635)	0.0317 (0.3709)	0.5667 (0.7303)	

- * indicates significance at the 0.1 level
 ** indicates significance at the 0.05 level
 *** indicates significance at the 0.01 level

Abnormal foreign volume varies in all three event windows, all of mean and median positive and significant at the one-tailed 1% level. As seen in panel B, in (+10,+24) event window, it falls dramatically. Foreign investor is obtained after dividing volume of Indonesia stock market with foreign sell and foreign buy. Therefore, the lower the number of foreign volume, the better it is. In panel A of table 7, there is huge difference pre-MTU and post-MTU event. The reason is that one of company's samples had policy in 2013 that I assume foreign investors did not like. In the data, there are some days that foreign investor did not have any transactions due to the days policies announced.

Table 4. Changes in foreign volume

A. Comparison of foreign volume				
Full sample = 30	Before (-132,-10)	(+10,+24)	After (+10,+41)	(+10,+132)
Mean Foreign Volume	5.0142	3.8018	3.7314	3.6292
% with increase	-	47%	50%	63%
B. Foreign volume classified by price				
Price Range	Before (-132,-10)	(+10,+24)	After (+10,+41)	(+10,+132)
Mean -Low (Rp.0,-to Rp.9999,-) N=20	6.4204	4.5298	4.3445	4.28526
-High (above Rp.10,000,) N=10	2.2017	2.3457	2.5053	2.3171
C. Abnormal Foreign Volume				
Event window	Mean Volume (p-value)	Median Volume (p-value)	% Volume >0 (z-statistic)	
(+10,+24)				
Low (Rp.0,-to Rp.9999,-) N=20	0.4496 (0.0035)***	0.2826 (0.001)***	0.95 (4.0249)***	
High (above Rp.10,000,) N=10	0.3748 (0.0027)***	0.3053 (0.0051)***	1 (3.1623)***	
Full sample N=30	0.4247 (0.0001)***	0.2826 (0.000)***	0.9667 (5.1121)***	
(+10,+41)				
Low (Rp.0,-to Rp.9999,-) N=20	0.4473 (0.0015)***	0.3652 (0.001)***	0.95 (4.0249)***	
High (above Rp.10,000,) N=10	0.4881 (0.0038)***	0.3617 (0.0051)***	1 (3.1623)***	
Full sample N=30	0.4609 (0.0000)***	0.3617 (0.000)***	0.9667 (5.1121)***	
(+10,+132)				
Low (Rp.0,-to Rp.9999,-) N=20	0.5139 (0.0016)***	0.3971 (0.0012)***	0.9 (3.5777)***	
High (above Rp.10,000,) N=10	0.4335 (0.0001)***	0.4287 (0.0051)***	1 (3.1623)***	
Full sample N=30	0.4871 (0.0000)***	0.4047 (0.000)***	0.9333 (4.7469)***	

***indicates significance at the 0.01 level

Abnormal market capitalization is fluctuated through following year after separating price range. Overall companies increase their market capitalization. As shows in panel B, market capitalization of low-price companies decreasing in beginning of MTU application. In a year, market capitalization is higher than prior year. It has huge impact for overall companies because it is increasing as in panel A. However, high price company has increase over all event windows. The rise in frequency is not significant, more than half sample's companies are decreasing. MTU reduction causes more frequency and it makes the stock price increases overtime. In the end, it affects the rise of market capitalization.

Table 5. Changes in Market Capitalization

A. Comparison of Market Capitalization				
Full sample = 30	Before (-132,-10)	(+10,+24)	After (+10,+41)	(+10,+132)
Mean Market Capitalization	201,468,046	202,929,744	223,193,571	245,303,240
% with increase		50%	60%	70%
B. Market capitalization classified by price				
Price Range	Before (-132,-10)	(+10,+24)	After (+10,+41)	(+10,+132)
Mean -Low (Rp.0,-to Rp.9999,-) N=20	24,981,552	22,449,998	24,293,521	26,586,563

-High (above Rp.10,000,) N=10 554,441,035 563,889,237 620,993,671 682,736,595

C. Abnormal Market Capitalization			
Event window	Mean Market Capitalization (p-value)	Median Market Capitalization (p-value)	%Market Capitalization>0 (z-statistic)
(+10,+24)			
Low (Rp.0,-to Rp.9999,-) N=20	-0.1042 (0.1649)	-0.0574 (0.2043)	0.4 (-0.8944)
High (above Rp.10,000,) N=10	0.0192 (0.8456)	0.0644 (0.3863)	0.7 (1.2649)
Full sample N=30	-0.0631 (0.2835)	-0.0025 (0.4653)	0.5 (0.000)
(+10,+41)			
Low (Rp.0,-to Rp.9999,-) N=20	-0.1227 (0.1144)	-0.1051 (0.1084)	0.3 (-1.7889)*
High (above Rp.10,000,) N=10	-0.0053 (0.9602)	0.0018 (0.9594)	0.5 (0.000)
Full sample N=30	-0.0835 (0.1741)	-0.0774 (0.1714)	0.3667 (-1.461)
(+10,+132)			
Low (Rp.0,-to Rp.9999,-) N=20	-0.1464 (0.0786)*	-0.1157 (0.0859)*	0.3 (-1.7889)*
High (above Rp.10,000,) N=10	-0.0225 (0.7976)	0.0093 (0.8785)	0.5 (0.000)
Full sample N=30	-0.1051 (0.0894)*	-0.0883 (0.1359)	0.3667 (-1.461)*

* indicates significance at the 0.1 level

Panel C shows that high-price companies increase their company value, more than 50% company follow this trend. However, it is different from low-price companies which fluctuate throughout the year in panel A. In the end, the number of value is higher than last year. Overall companies, they increase their value in the first period of MTU. Still, it is decreasing for the rest of event windows. Investors tend to overreact due to MTU application, when the price is getting smaller. That is the reason value faces up and down.

Table 6. Changes in value

A. Comparison of Value				
Full sample = 30	Before (-132,-10)	(+10,+24)	After (+10,+41)	(+10,+132)
Mean Value	92,336,387,346	101,302,672,209	99,555,083,878	87,029,659,795
% with increase		47%	53%	43%
B. Value classified by price				
Price Range	Before (-132,-10)	(+10,+24)	After (+10,+41)	(+10,+132)
Mean -Low (Rp.0,-to Rp.9999,-) N=20	104,636,059,270	116,489,996,984	110,292,464,337	96,273,391,464
-High (above Rp.10,000,) N=10	67,737,043,496	70,928,022,661	78,080,322,960	68,542,196,457
C. Abnormal Value				
Event window	Mean Value (p-value)	Median Value (p-value)	% Value >0 (z-statistic)	
(+10,+24)				
Low (Rp.0,-to Rp.9999,-) N=20	-0.0867 (0.194)	-0.1695 (0.1454)	0.3 (-1.7889)*	
High (above Rp.10,000,) N=10	-0.0002 (0.9978)	-0.0079 (0.7989)	0.4 (-0.6325)	
Full sample N=30	-0.0579 (0.2479)	-0.1282 (0.1714)	0.3333 (-1.8257)*	
(+10,+41)				

Low (Rp.0,-to Rp.9999,-) N=20	-0.1123 (0.1104)	-0.2152 (0.0859)*	0.35 (-1.3416)
High (above Rp.10,000,) N=10	0.1085 (0.1449)	0.0515 (0.2411)	0.7 (1.2649)
Full sample N=30	-0.0387 (0.4717)	-0.067 (0.3709)	0.4667 (-0.3651)
(+10,+132)			
Low (Rp.0,-to Rp.9999,-) N=20	-0.0926 (0.1443)	-0.1069 (0.156)	0.4 (-0.8944)
High (above Rp.10,000,) N=10	0.1198 (0.2332)	0.2226 (0.2026)	0.6 (0.6325)
Full sample N=30	-0.0218 (0.6871)	-0.0627 (0.7655)	0.4667 (-0.3651)

* indicates significance at the 0.1 level

As documented in previous study as in Liu (2007). Volatility of market volatility has up and down overtime with factor such as stock price and trading volume. Conducting regression would be necessary to test the effect of volatility. Here, i use standardized volatility as dependent variable and independent variables are average price and trading volume. All variables are in natural logarithm. The regression model:

$$\ln VAR_i = \alpha + \beta \ln PRC_i + \delta \ln VOL_i + \lambda DUM + \varepsilon_i$$

After running the regression, coefficient would be

$$\ln VAR = 3.3519 - 0.1329 \ln PRC + 0.0622 \ln VOL + 0.1994 DUM + \varepsilon_i$$

(0.000) (0.000) (0.000) (0.000)

$$\text{Adj.}R^2 = 0.0442$$

Dummy variables show positive sign, as expected over all volatility increase after MTU reduction compared to composite index. Price does increase throughout the year, but not for volatility. it proves that both univariate and multivariate test as shown in table 2 and regression increase after reduction of MTU while volume increase and price decrease.

Conclusion

Price have significant role in determining investor decision to buy firm's stock. From time to time, many companies have increased the value of their company. In result, the price is getting higher. Not many investors could buy firm's stock with respected value.

Stock split could be an alternative to reduce the price by splitting shares and cutting price in half, while still not changing market capitalization. Minimum trading unit reduction is also capable reducing the price by setting the limit number of share in it.

After MTU reduction, price of buying one lot is smaller than prior to event. Trading volume increases shortly in introduction of MTU. Volatility shows declining trend throughout the year. However, most companies of composite index seem to have declining volatility than sample of 30 companies.

Both frequency and foreign volume is growing up gradually over periods but not with lower price companies. Investors tend to have more interest in higher price companies. Market capitalization increase overtime, price per share is rising due to MTU reduction. this same result is similar with Amihud, Mendelson, and Uno (1999) that stock appreciation is positively associated with the increase in stock's investor base.

Regression of standardized volatility shows the impact of MTU by having price, volume as controlling variable. In the post-MTU event, volatility also rises when trading volume increases. However, volatility will drop when price rising after MTU reduction.

The suggestion for next study is to add more periods of time. The effects of MTU could be better or worse in long-term effect. Since, MTU application in Indonesia just applied in one year.

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