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The effect of five price categories in tick size policy on trade and stock returns based on the LQ45 Index

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Abstract

The capital market has an influential role in the national economy of countries, including Indonesia. The capital market in Indonesia is regulated by the Indonesia Stock Exchange (IDX) with the new regulation number Kep-00113/BEI/12-2016 that focuses on five price categories of tick size. This study aimed to investigate the impact of five price categories in tick size policy on liquidity and volatility based on the LQ45 index and examine factors that influence stock return. This study was performed using a paired sample T-test and panel regression test. The result of the different test indicates a significant change in bid-ask spread, Depth, Depth to relative spread (DRS), volume, and volatility. The five price category in the tick size policy does not affect the depth. It is found that all the variables have a smaller value after the implementation of the tick size policy. The results of the panel regression test show that depth, volume, and volatility have a significant influence on stock returns, while the bid-ask spread, and DRS does not affect stock returns. The result of this study was expected to improve understanding of the tick size regulation to determine the best stock investment strategy.

Abstrak

Pasar modal memiliki peran yang berpengaruh dalam perekonomian nasional suatu negara, termasuk Indonesia. Pasar modal di Indonesia diatur oleh Bursa Efek Indonesia (BEI) dengan nomor peraturan baru Kep-00113 / BEI / 12-2016 yang berfokus pada lima kategori harga ukuran tick. Penelitian ini bertujuan untuk menyelidiki dampak dari lima kategori harga dalam kebijakan ukuran tick pada likuiditas dan volatilitas berdasarkan indeks LQ45 dan menguji faktor-faktor yang mempengaruhi return saham. Penelitian ini dilakukan dengan menggunakan paired sample T-test dan panel regression test. Hasil dari uji yang berbeda menunjukkan perubahan signifikan dalam bid-ask spread, depth, depth to relative spread (DRS), volume, dan volatilitas. Lima kategori harga dalam kebijakan ukuran centang tidak mempengaruhi kedalaman. Ditemukan bahwa semua variabel memiliki nilai lebih kecil setelah implementasi kebijakan ukuran centang. Hasil uji regresi panel menunjukkan bahwa kedalaman, volume, dan volatilitas memiliki pengaruh signifikan terhadap pengembalian saham, sedangkan bid-ask spread, dan DRS tidak mempengaruhi pengembalian saham. Hasil penelitian ini diharapkan dapat meningkatkan pemahaman tentang peraturan ukuran kutu untuk menentukan strategi investasi saham terbaik.

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1. Introduction

The capital market plays a prominent role in the national development of economics for many countries, including Indonesia. The Indonesia Stock Exchange (IDX) holds the responsibility to manage the capital market in Indonesia. In operating the capital market, IDX arranges some regulations about tick size. One of the goals of regulation is to increase market liquidity. According to IDX, a tick size is a unit of price change in buying and selling activities. Sutyanto (2015) state that some world stock exchanges have made policies about tick size. It goes the same way in Indonesia. The policy of tick size regulated by the IDX was enacted with the imposition of a single fraction of IDR 5. In addition, on October 20, 2000, a multi-fraction system consisting of four price categories was enacted. In 2006, a regulation about five price categories in the tick size policy was regulated by the IDX Board of Directors with decree number of *Kep-307 / 12-2006* with some details i.e., IDR 1 for share price less than IDR 200; fraction of IDR 5 for shares between IDR 200 to less than IDR 500; the fraction of IDR 10 for the share price of IDR 500 to less than IDR 2000; fraction of IDR 25 for the share price of IDR 2,000 to less than IDR 5,000; and fraction for the share price of more than or equal to IDR 50. Furthermore, on December 13, 2016, the IDX reissued a regulation about five price categories in the tick size policy with some *Kep-00113 / BEI / 12-2016* and took effect on January 3, 2017, before the enactment of three categories of tick size.

In the most recent tick size policy of five price categories, the price change applies in details, as follow. Shares at a price of less than IDR 200 will set a fraction of IDR 1. For shares between IDR 200 and IDR 500 will set a fraction of IDR 2. For shares between IDR 500 and IDR 2,000, will set a fraction of IDR 5. For shares with a price of between IDR 2,000 and IDR 5,000 will be charged a fraction of IDR 10, and for a share more than IDR 5,000 will be charged a fraction of IDR 25. For more details about regulations in tick size is shown in Table 1.

The five price categories in the tick size policy regulated by the IDX is used to increase liquidity (reducing bid-ask spreads and increasing trading volume), as well as reducing price volatility. However, in reality, there are some pros and cons among capital market players about the regulation. Some people believe the regulation will be profitable if the investors sell the shares during the rising stock market conditions. If compared to the previous tick size policy (three price categories), the investors only got a profit of 0.22 percent before the transaction and tax costs had been deducted with a share price of IDR 2,200 and sold them for IDR 2,205.

On the contrary, in the latest regulation of tick size work differently. If the stock rises one fraction, then the profit earned by the investor will increase before the transaction and tax costs are deducted. For example, investors buy shares for IDR 2,200 and sell them for IDR 2,210 then the profits will go up to 0.45 percent before the transaction and tax costs are deducted.

Table 1. List of Changes in Tick Size for 2000-2017

Stock Price	Tick Size						
	Single Fraction		Multi Fraction				
	Before 3-July-00	3 July – 19 Oct-00	20-Oct-00	3-Jan-05	1-Jan-07	6-Jan-14	3-Jan-17
0 s/d < IDR 200					IDR 1	IDR 1	IDR 1
IDR 200 < IDR 500		IDR 5	IDR 5	IDR 5	IDR 5		IDR 2
IDR 500 to < IDR 2,000	IDR 25	IDR 5	IDR 25	IDR 10	IDR 10		IDR 5
IDR 500 to < IDR 5,000						IDR 5	
IDR 2,000 to < IDR 5,000				IDR 25	IDR 25		IDR 10
> IDR 5,000			IDR 50	IDR 50	IDR 50	IDR 25	IDR 25

Source: Indonesia Stock Exchange

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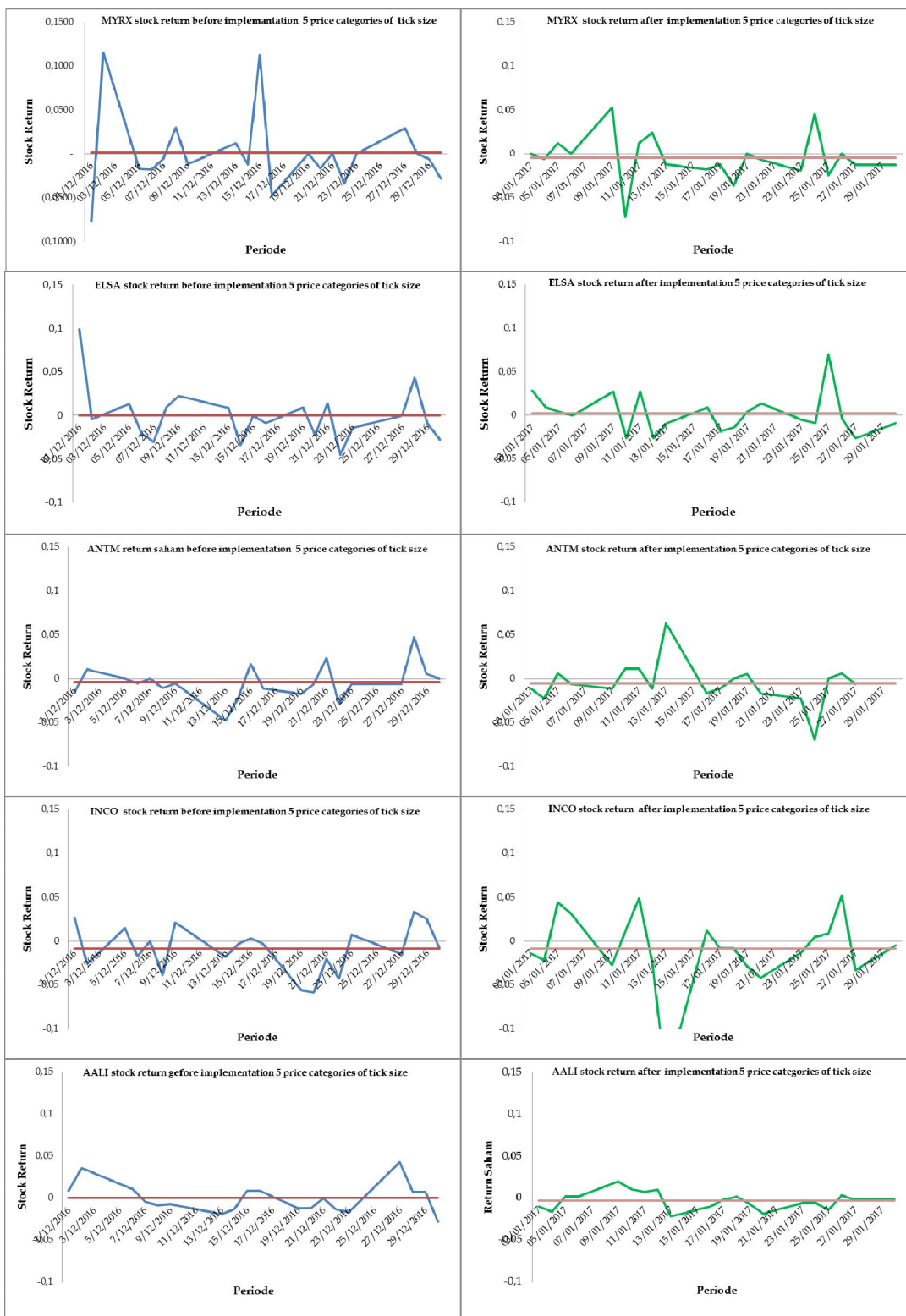


Figure 1. Graph of Stock Returns on LQ45 Issuers before and After the Five Price Categories in the Tick Size Policy

Meanwhile, if the shares that have been bought by investors have decreased continuously, the losses received by investors will be far greater than the previous one, particularly in determining the latest price fraction. For example, when an investor buys shares for IDR 1,500 and sells them for IDR 1,495, the investor will lose 0.33 percent. Unlike the previous policy, if the investor buys shares for IDR 1,500 and sells them for IDR 1,499, the losses will be much smaller, which is only 0.06 percent. Using this analogy for reasoning, it shows that the implementation of tick size policy will provide a different version of stock returns at a certain price fraction.

In Figure 1, there are five LQ45 issuers, each of which represents the prevailing price fraction. MYRX issuers represent a fraction of IDR 1, the ELSA issuer represents a fraction of the price of IDR 2, the issuer of ANTM represents a fraction of the price of IDR 5, INCO issuers represent a fraction of the price of IDR 10, and the AALI issuer represents a fraction of the price of IDR 25. The period in the above graph is one month before the fraction changes and one month after the fraction change takes effect.

Based on a graph above, the average return for one month and the average value for stock returns of the issuer MYRX before tick size policy are 0.0012 and after tick size of -0.00429. ELSA issuer before tick size is -0.000012 and aftermath of 0.002358. ANTM issuers before the tick size of -0.00383 and after the tick size of -0.00528. INCO issuer before the tick size of -0.00867 and after the tick size of -0.00848. Issuer AALI before the tick size of 0.000825 and after the tick size of -0.00301. Based on the result, ELSA issuers has increased in stock returns, while the other three issuers decline in stock returns. ELSA issuers set a fraction of the price of IDR 2. Therefore, it concludes that there is a difference in stock returns in each of the prevailing stock price fractions.

To understand how the tick size policy affects the stock liquidity, the overall stock returns, and the stock volatility, it is necessary to conduct further studies. Figure 1 briefly shows that the values of stock re-

turns from several issuers in the LQ45 index have decreased and some have increased. To understand how the policy affects liquidity and volatility, this study analyzes the tick size policy impacts of five price categories on liquidity and volatility. The increase in liquidity and the decrease of volatility will automatically increase the stock returns.

Some previous studies have investigated various effects of tick size policy on liquidity and volatility. One of some previous studies is conducted by Baharuddin, Bujang, & Hassan (2018) which analyzes market liquidity (spread and volume) on the Kuala Lumpur Stock Exchange. Based on research findings, shows the reduction in tick size, it reduces the spread significantly, and there is a significant impact on trading volume. Meanwhile, a study conducted by Sutyanto, Nuryartono, & Andati (2015) shows a decrease in tick size can increase market quality (liquidity). A study by Jonsson & Welander (2012) reveals the volatility will be high if there is an increase in tick size; this is due to an increase in the frequency of stock trading. A study by Pan, Song, & Tao (2012) about the Hong Kong Stock Market shows that the decrease in tick size can result in a decrease in liquidity.

The different results from previous studies make the impacts of tick size policy on stock market liquidity and stock market volatility become an interesting topic to investigate. If the tick size policy is associated with stock returns, it will attract more investors due to rewarding stock return. Based on research conducted by Sutyanto, Nuryartono, & Andati (2015) on three price categories, the tick size policy can indirectly influence the return of LQ45 stocks. However, there are few studies on the effect of five price categories of tick size policy on stock returns from companies in the LQ45 index. Therefore, the writer is interested in investigating this problem.

2. Hypotheses Development

According to Megginson (1996), the micro theory of market structure is a study about gathering

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information from market prices and how institutional policies influence it. Theoretically, a study about market microstructure is important to understand market price and behavior and the design of new trading mechanisms along with the collection of information (Nurhayati, 2016). Harris (2003) states that market microstructure is a branch of financial economics that conducts stock trading investigations and market organizations.

There have been many studies about tick size policy from worldwide stock exchanges. A pioneer who researched tick size policy is Lawrence E. Harris. A study conducted by Harris (1994) is related to the effect of tick size on the liquidity, one of which is the bid-ask spread. The research findings say, if the tick size is reduced by half, then the spread will decrease by 38. Baharuddin, Bujang, & Hassan (2018) analyzed liquidity which was measured by the Spread. This study found that, with the reduction in tick size, its reduction in tick size, it reduces the spread significantly.

A study by Satiari (2009) on tick size policy by the Indonesia Stock Exchange shows the decrease in the bid-ask spread. Ronen & Weaver (1998) state that the decrease in tick size causes an increase in liquidity. Moreover, the decline in spreads causes a decline in the costs of trade execution. Based on the description, the hypothesis is arranged as follow:

H₁: five price categories in the tick size policy have a significantly negative effect on the bid-ask spread

The changes in depth are necessary to evaluate overall liquidity changes (Satiari, 2009). Logically, the more securities traded, the greater the market depth. The depth also illustrates the marketability of getting buying and selling orders without striking changes (Shook, 2002). The increase in depth causes an increase in liquidity level. Subsequently, it attracts a lot of investors. The decrease in tick size will increase the liquidity; one of them is indicated by an increase in depth value according to Ronen & Weaver (1998). Satiari (2009) conducted a study on tick size policy managed by the Indonesia Stock Exchange. From these

studies, there are some differences in the effect of the latest tick size policy on the depth value, in which the depth has increased. Based on the description, the hypothesis is arranged in the following:

H₂: five price categories in the tick size policy have a significantly positive effect on the depth

Harris (2003) suggests that the relative bid-ask spread (DRS) has two components, i.e., relative spread and depth. The DRS measures the speed, proximity and transaction costs. The smaller the relative spread, the higher the liquidity due to the smaller transaction costs quickly incurred within process transactions. Meanwhile, either bid & ask and the depth, or the average of both variables reveal marketability on attracting some stock trades. The greater the depth, the higher the liquidity of the stock because more transactions can be made without changing stock prices. The ratio of DRS shows a comparison between depth and relative spread to understand whether changes in depth are greater or smaller than changes in the relative spread. A study on the latest tick size policy by Anggraeni, Wiksuana, & Wiagustini (2016) reveals that the DRS ratio is significantly higher than before the implementation of the policy. The decrease in DRS is greater than the decrease in the bid-ask spread. Based on the description, the hypothesis is arranged as follow:

H₃: five price categories in the tick size policy have a significantly positive effect on the depth to relative spread (DRS)

According to Krishnan & Mishra (2013), trading volume can serve as an indicator of market liquidity, as it adds to high trade volume and there is a sign of high liquidity. Trading volume can be mutually used as a proxy of market liquidity. The development of stock trading volume focuses on supply and demand which is a manifestation of investor behavior. The increase in trading volume is affected by the increase in the buying and selling activities of the stock exchange. The higher the volume of supply and demand, the

greater the effect on stock price fluctuations. The increase in stock trading volume shows public enthusiasm that will affect on the rising prices and stock returns. Ronen & Weaver (1998) shows a decrease in tick size will influence the increase in liquidity, which is often indicated by the increase in the volume of stock trading. Satiari (2009) found that there are differences in trading volume on the use of old fractions with the latest ones. The smaller the price fraction is, the trading volume increases. Based on the description, the hypothesis is arranged in the following:

H₄: five price categories in the tick size policy have a significantly positive effect on trading volume

Aside of making an effort to increase liquidity, the purpose of tick size policy is to reduce the changes of stock prices volatility in the capital market and to increase public participation as retail investors because investment costs are more affordable. According to Jonsson & Welander (2012), volatility is part of total variability due to sensitivity to market changes which come with systematic and unavoidable risks and measured with a beta coefficient. Harris (1994) points out that volatility is related to tick size. According to Harris (1994), the reduction in tick size can improve quality which causes a significant decrease in volatility. Based on the description, the hypothesis is arranged as follow:

H₅: five price categories in the tick size policy have a significantly positive effect on price volatility

A study by Anggraeni, Wiksuana, & Wiagustini (2016) proves that stock returns have a positive effect on the bid-ask spread. This positive relationship is due to the tendency of an increase in stock price for each transaction; as a result, this condition causes a high stock return. It indicates that the stock is actively traded and favored by investors. This situation makes dealers hesitate in releasing shares until at a certain time. The longer the stock is in the hands of the dealers, the greater the bid-ask spread is. This condition is due to more share ownership costs are borne by the dealers.

Based on the description, the hypothesis is arranged as follow:

H₆: changes in bid-ask spread due to tick size policy have a significant negative effect on stock returns

Satiari (2009) points out tick size policy makes an increase in the depth because of some transactions which can be absorbed by the market increases without changing prices. The better the level of liquidity is, the more securities are traded and the higher buying and selling orders without any striking changes. Based on the description, the hypothesis is arranged as follow:

H₇: changes in depth after tick size policy have a significantly positive effect on stock returns

A study by Ekaputra & Asikin (2012) reveals that tick size policy causes a decrease in DRS. The decrease in the depth is larger than the decrease of relative spread. As a result, the market liquidity also decreases because the market cannot absorb more transactions without changing prices. The decline in liquidity is caused by behavior changes among big traders, who divide their orders into small parts due to a decline in spread (Anggraeni, Wiksuana, & Wiagustini, 2016). Therefore, it does not meet the objective of the tick size policy. Based on the description, the hypothesis is arranged as follow:

H₈: changes in DRS after tick size policy have a significantly positive effect on stock returns

Satiari (2009) analyzes the effect of tick size policy on the trading volume, in which the smaller price fraction, the higher the trading volume and subsequently the higher stock returns. Based on the description, the hypothesis is arranged as follow:

H₉: changes in trading volume after tick size policy have a significantly positive effect on stock returns

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Volatility is an important thing that must be considered by regulators. High volatility indicates the market is not functioning properly because accurate prices are very important in the economic system (Harris, 2003). This is in line with a study by Adesina (2013) that volatility negatively influences returns on the Nigeria Stock Exchange. High volatility generally leads to more profits earned by traders in the capital market due to higher stock return. However, high volatility reflects a high risk when experiencing a correction. Based on the description, the hypothesis is arranged as follow:

H₁₀: changes in volatility after tick size policy have a significantly negative effect on stock returns

3. Method, Data, and Analysis

This study uses comparative descriptive research which is verified on a theoretical basis. The data are secondary data from relevant institutions in Indonesia which have been examined for its verity and enlisted in the LQ45 index after tick size policy. The data was obtained from trade data managed by IDX.

This study uses purposive sampling with criteria of stocks enlisted in the LQ45 index. The stocks have never been absent from the LQ45 index for approximately 13 years (period of August 2003-January 2004 to August 2016-January 2017). When the stocks are consistently enlisted in the LQ45 index, they are generally liquid with a high market capitalization, good financial condition, growth prospects, appropriate frequency and number of transactions in the regular market. Of the 45 shares incorporated in the LQ45 index, there are only 13 stocks which are consistently present in the index for the past 13 years. The 13 listed companies include AALI, ANTM, ASII, BBCA, BBRI, BMRI, INCO, INDF, KLBF, PTBA, TLKM, UNTR, and UNVR.

The dependent variable in the study is stock returns; while independent variables are bid-ask spread, depth, DRS, volume, and volatility. The variables used in this study can be seen in Table 2.

Table 2. Research Variables

Variables	Formulas
Bid-Ask Spread	$\sum_{t=1}^N \left(\frac{ask_{i,t} - bid_{i,t}}{(ask_{i,t} + bid_{i,t})/2} \right) \times 100\%$
Depth	$\sum_{t=1}^N \left(\frac{askprice_{i,t} + bidprice_{i,t}}{2} \right)$
Trade Volume	$\sum_{d=1}^N \frac{volume_{i,t}}{total\ volume\ t}$
Depth To Relative Spread	$\left(\frac{Depth_{i,t}}{Bid - ask\ spread_{i,t}} \right)$
Price Volatility	$\sigma PV = \sqrt{\frac{1}{n} \sum \ln\left(\frac{Ht}{Lt}\right)^2}$
Stock Return	$Stock\ return = \frac{P_t - P_{t-1}}{P_{t-1}}$

The first analysis method is a paired sample t-test. This method is used to accommodate the availability of similar object of study with different treatment and different measurement. The second analysis method is panel data regression, which is used to identify the effect of liquidity on volatility on stock returns. The equation of panel data regression model is as follows:

$$R_{it} = \alpha_0 + \beta_1 BIDASK_{it} + \beta_2 DEPTH_{it} + \beta_3 DRS_{it} + \beta_4 VOLUME_{it} + \beta_5 VOLATILITAS_{it} + \varepsilon_i \quad (1)$$

Hypothesis: $\beta_1, \beta_5 < 0$; $\beta_2, \beta_3, \beta_4 > 0$

Description:

R_{it} : stock return
 BIDASK_{it} : bid-ask spread
 DEPTH_{it} : depth
 DRS_{it} : DRS
 VOLUME_{it} : volume
 VALATILITAS_{it} : volatility

Table 3. Test of Different Bid-Ask Spreads, Depth, DRS, Volume, and Volatility before and After the Price Fraction Changes in the 20 Days of Windows Event

Variable	T calculation	df	Prob	Conclusion	Annotation
BidAsk	2.038	259	0.043	Significant	Before >After
Depth	1.763	259	0.079	Insignificant	Before ≈After
DRS	2.352	259	0.019	Significant	Before >After
Volume	4.894	259	0.000	Significant	Before >After
Volatility	60.604	259	0.000	Significant	Before >After

4. Results

The result of a paired sample t-test is used to prove some research hypotheses from the 1st hypothesis to the 5th hypothesis. Of the 13 listed companies, four variables experience significant changes after tick size policy such as bid-ask spread, DRS, volume, and volatility; whereas the depth variable does not change significantly. The following is a result of different tests on bid-ask spread, depth, DRS, volume, and volatility before and after the tick size policy within 20 days of windows event.

Based on Table 3, the bid-ask spread has significant change after the tick size policy as the value of bid-ask spread gets smaller than before. Meanwhile, the variable of depth has insignificant changes as its value is higher than after the change is made. Moreover, DRS undergoes a significant change after the tick size policy, implying that the IDX does not damage the overall liquidity of the stock. On the contrary, the trading volume has significantly increased, in which its value is lesser than before the tick size policy. The volatility has significantly increased as well. It has greater value after the tick size policy.

The classic assumption test is used to ensure that the regression model is free from classical assumptions, including the normality test, multicollinearity test, autocorrelation test, and heteroscedasticity test. The classical assumption testings in this study were carried out using SPSS software.

Based on the normality test on a graph of the Kolmogorov Smirnov histogram, it is close to symmetry, which is then assumed as close to normal. Moreover, the multicollinearity test show there are no vari-

ables with beta coefficient values and error standard values of 1. It means the data does not have multicollinearity. The autocorrelation test is carried out using the Durbin Watson test (Santoso, 2010) by using estimated Durbin Watson values. The DW value of 1.825 is almost close to the upper limit value (du) of 1.866 and less than the lower brick (dl) of 2.13349. Thus, it can be concluded that there is no autocorrelation.

The heteroscedasticity test is performed using SPSS software based on scatterplots graphs. The scatterplots are spread above and below zero or surrounding zero. The spread of scatterplots does not create a wide wavy pattern narrowing and widening again to shape a certain pattern, but creates non-patterned scatterplots. Thus, it can be assumed that the data is no heteroscedasticity.

Panel data regression analysis in this study is used to answer the 6th hypothesis up to the 10th hypothesis using three approaches for selecting the best model, i.e., pooled least square, fixed effect, and random effect. Model testing is required to select the best model (Chow test and Hausman test). The results of the Chow test is shown in Table 4 and the Hausman test in Table 5.

Table 4. Chow Test Results

Effect Test	Statistic	d.f.	Prob.
Cross-section F	5.144983	-12.424	0.0000

*significant at $\alpha = 5$ percent

In Table 4, p-value (0.0000) < $\alpha = 5$ percent, H_0 is rejected, meaning that the best model is the fixed effect. Based on the results of the Chow test, the model follows a fixed effect, but not necessarily the best

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model. Therefore, the next step is to do the Hausman test, as shown in Table 5.

Table 5. Hausman Test Results

Test Summary	Chi-Sq.Statistic	Chi-Sq.d.f	Prob.
Cross-Section Random	33.126268	5	0.0000

*significant at $\alpha=5$ percent

Based on the Hausman test in Table 5, it is known that p-value (0.0000) < $\alpha = 5$ percent. Therefore H_0 is rejected, meaning that the chosen model is a fixed effect. The regression model with the fixed effect one can be seen in Table 6.

The results of the regression test show that depth, volume, and volatility have a significant influence on stock returns, while the bid-ask spread and DRS do not influence stock returns. The number of cross sections (i) are 13 issuers and time series (t) are 40 days respectively. The equation of the regression model is described as follows:

$$R_{it} = -0.830987 - 1.340932 \text{BIDASK}_{it} + 0.160387 \text{DEPTH}_{it} - 0.004057 \text{DRS}_{it} + 0.005295 \text{VOLUME}_{it} + 0.112690 \text{VOLATILITAS}_{it} \quad (2)$$

The value of R-squared shows variations of the dependent variable which can be explained by independent variables. The results obtained show the R-squared value is off 16.55 percent, meaning that 16.55 percent of the variation in stock returns can be explained by independent variables, while other variables explain the remaining 83.45 percent.

Table 6. Fixed Effect Test Results

Variables	Coefficient	Std. Error	t-Statistic	Prob.
BIDASK	-1.340932	0.687590	-1.950191	0.0518
DEPTH	0.160387	0.021680	7.398079	0.0000
DRS	-0.004057	0.003182	-1.274948	0.2030
VOLUME	0.005295	0.001534	3.451117	0.0006
VOLATILITAS	0.112690	0.047160	2.389544	0.0173
C	-0.830987	0.116331	-7.143274	0.0000
R-squared	0.165483		Prob (F-Statistic)	0.0000

*significant at $\alpha=5$ percent

Moreover, the F test is carried out to examine the significant effect of independent variables on the dependent variable. The F-probability value has a significant effect at 0.0000 which is smaller than $\alpha=5$ percent. This result shows that at least one of all independent variables influences the dependent variable. Paired testing (t-test) is conducted to determine the significance of the independent variables on the dependent variable. With a significant level of 95 percent, the t value is calculated from each regression coefficient compared to α of 5 percent. Therefore there are three variables that have values smaller than 5 percent, i.e., depth, volume, and volatility. While the other three variables have values greater than 5 percent, meaning they do not affect stock returns.

5. Discussion

The effect of five price categories in the tick size policy on the bid-ask spread

The results of t-test in Table 2 indicates the tick size policy significantly affect bid-ask spread as it becomes smaller after the enactment of regulation. Thus, the 1st hypothesis is accepted. It meets the objective of IDX regulation, in which tick size policy is expected to reduce the bid-ask spread. As stated by Ekaputra & Asikin (2012), an addition of price fraction IDR 10 makes the value of bid-ask spread decreased.

The effect of five price categories in the tick size policy on the depth

The tick size policy has an insignificant effect on depth. The value of depth was smaller after the

tick size policy. Therefore, the 2nd hypothesis is rejected and does not meet the objective of IDX regulation, that is tick size policy will increase the depth. As stated in a study by Harris (1994), the tick size policy can lead to lower profit and higher liquidity risk and subsequently the lower value of depth.

The effect of five price categories in the tick size policy on DRS

The five price categories in the tick size policy have a significant effect on DRS, meaning that the tick size policy by the IDX does not damage the overall liquidity of the stock. DRS value is smaller than it was before the tick size policy. Therefore, the third hypothesis is rejected. The DRS value decreases and does not meet the objectives of IDX regulation. Conforming to a study by Ekaputra & Asikin (2012), the enactment of the tick size of IDR 10 does not have a significant impact on the DRS value. Moreover, a study by Setyawasih (2011) reveals the implementation of a price fraction of IDR 1 at a stock price of less than IDR 200 does not significantly affect the DRS value.

The effect of five price categories in the tick size policy on the trading volume

After the enactment of five price categories in tick size policy, the trading volume has significantly decreased since the trading volume was higher than it was after the tick size policy. Therefore the fourth hypothesis is rejected, and it does not meet the objective of the IDX regulation. In line with research by Anh et al. (1996), a decrease in the share price fraction of the American Stock Exchange cannot increase the volume of stock transactions.

The effect of five price categories in the tick size policy on the volatility

Volatility has significantly decreased after the tick size policy. The volatility value was higher than it was after the tick size. It shows that the fifth hypothesis is

not rejected, meaning that the tick size policy can reduce the value of stock price volatility. This different from the previous study by Jonsson & Welander (2012) saying that the increase in tick size causes an increase in volatility. The result indicates that stock markets would not benefit from a marketwide increase in tick sizes.

The effect of bid-ask spread on stock returns

The bid-ask spread a probability of 0.0691 with α of 5 percent, and the coefficient of -1.252416. It indicates that the bid-ask spread does not have a significant effect on stock returns. The negative coefficient sign indicates that there is an inverse relationship between stock returns and bid-ask spread.

It shows that the 6th hypothesis is accepted, which is the same from a previous study by Satiari (2009), the smaller the tick size is, the lower the bid-ask spread value. Anggraeni, Wiksuana, & Wiagustini (2016) also point out that the bid-ask spread value is significantly lower than before tick size policy.

The effect of depth on the stock returns

The variable depth has a probability of 0.0000 with α of 5 percent, and a coefficient of 0.155501. It indicates the significant effect of the depth on the stock returns. The positive coefficient sign shows that there is a positive relationship between depth and stock returns, meaning that the 7th hypothesis is accepted.

This finding is in line with Satiari's research (2009) where fraction changes lead to an increase in depth value and an increase in the number of market transactions without changing prices. The better the level of liquidation, the more securities are traded. This also illustrates the market's ability to accommodate buying and selling orders in large capacity without striking changes.

The effect of DRS on stock returns

The DRS has a probability of 0.2530 with α of 5 percent, and the coefficient of -0.003647 indicating

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that DRS has no significant effect on stock returns. The negative coefficient indicates an opposite relationship between DRS and stock returns. Therefore the 8th hypothesis is rejected.

A study by Ekaputra & Asikin (2012) reveals a similar result. After the tick size policy, the DRS value decrease. The decrease in depth is larger than the decrease in the relative spread. Market liquidity also decreases because the market cannot obtain more transactions without changing prices. The decrease in liquidity is caused by behavioral changes among large traders who divide their orders into small parts due to decreasing spreads (Anggraeni, Wiksuana, & Wiagustini, 2016).

The effect of trading volume on stock returns

The volume has a probability of 0.0011 with α of 5 percent, and a coefficient of 0.005049. These results indicate that the trading volume has a significant effect on stock returns. A positive sign shows that there is a positive relationship between trading volume and stock return. The results of the study are in line with the 9th hypothesis. A study by Anggraeni, Wiksuana, & Wiagustini (2016) reveals a similar result, showing that trading volume after tick size policy has a higher value than beforehand. This is in line with a study by Satiari (2009) who analyzes the effect of tick size policy on trading volume, the smaller the fraction of prices is the higher the trading volume. As a result, it will provide a potential increase in stock returns.

The effect of volatility on stock returns

The volatility has a probability of 0.0116, α of 5 percent with the coefficient of 0.119614. It indicates volatility has a significant effect on stock returns. The sign of positive coefficient shows a positive relationship between volatility with stock returns. This means that the 10th hypothesis is rejected. This result is consistent with the research findings by Adesina (2013), that volatility influenced the Nigeria Stock Exchange return. High volatility will usually bring

profits to traders in the capital market because it will make stock returns higher. However, high volatility imposes a high risk when encountering a correction.

6. Conclusions, Limitations, and Suggestions

Conclusion

Based on the findings of the study, the five price categories in tick size policy has a significant effect on trade liquidity, which is indicated by the variable ask spread, depth, DRS, and volume. The tick size policy has a significantly positive relationship on the bid-ask spread, DRS, and volume, but insignificant on the depth. Moreover, this policy also has a significant effect on volatility. Based on simultaneous tests among these variables, there is at least one variable among bid-ask spread, depth, DRS, volume, and volatility which has a significant effect on stock returns. Meanwhile, based on paired testing of five independent variables, there are three variables that have a significant effect on stock returns, i.e., depth, volume, and volatility. While the bid-ask spread, DRS, and exchange rates variables did not affect stock returns.

Limitations and suggestions

As a policymaker, the Indonesia Stock Exchange can learn from this research finding that the tick size policy has a significant effect on trading liquidity. However, it also comes with the limitation that the data uses LQ45 samples consisting of stocks that already come with high liquidity. Change in fractions is indeed positive for stocks with high liquidity. Therefore different treatments are required to manage stocks with on liquidity, and it is necessary to separate the share price fraction on high and low liquidity stocks. For investors, they need to pay attention to the liquidity and volatility of their shares in order to get a maximum return. For further studies, it is necessary to arrange company sampling on the basis of sectors. Moreover, the next researcher should use stocks with low liquidity for sampling to identify the effect of the tick size policy comprehensively on all components of the capital market.

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