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The Impact of Pre-Closing Implementation to Price Efficiency in Indonesia Stock Exchange

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The Indonesia Stock Exchange has really concerned about improving stock market quality these days. One of its effort is implementing pre-closing trading session. It refers to Decision of the Board of Directors of The Indonesia Stock Exchange Number Kep-00399/BEI/11-2012, regarding Amendment to Rule Number II-A concerning Equity-Type Securities Trading. The rule is effective on 2nd January 2013 and Indonesia Stock Exchange has implemented it since that date. The purposes of pre-closing implementation are to mitigate marking the close, which is the practice of buying security at the very end of the trading day at a significantly higher price than the current price of the security, and to improve market quality. This paper attempts to verify whether the impact of pre-closing implementation to price efficiency is positive or not. The result shows that the pre-closing implementation has positive impact to price efficiency. It reduces the return volatility and market manipulation at the closing time which also means that the pre-closing implementation has effectively improved market quality in the Indonesia Stock Exchange.

Keywords: Pre-closing, price manipulation, marking the close, volatility, price efficiency.

Introduction

Indonesia capital market has shown a significant development. The indicators are the increasing of number of issuers, value of emissions, trading volume, stock market capitalization and the number of investors, both domestic and foreign. Indonesian capital market development gives impact to regulator because the responsibility will be higher especially in monitoring and auditing functions. The regulator is also expected to provide capital market which is fair, transparent, efficient and law enforcement, and also to protect investors' interests in the capital market.

Based on the Law Number 8 of 1995 Concerning Capital Market (UUPM), the Capital Market regulator in Indonesia is Capital Market and Financial Institution Supervisory Agency (Bapepam-LK) and there are three Self Regulatory Organizations (SROs) that consists of Indonesia Stock Exchange (IDX), Indonesian Clearing and Guarantee Corporation (KPEI) and Indonesian Central Securities Depository (KSEI). Since 31st December 2012, The functions and responsibilities in supervising financial services in capital market sector is diverting from Financial Institution Supervisory Agency (Bapepam-LK) to Financial Services Authority (OJK) in accordance with Law Number 21 of

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2011. OJK will continue to work together with IDX, KPEI and KSEI in organizing Indonesia capital market. SROs will help OJK as facilitator to develop capital market and also make a regulation that aims to develop and control capital market in Indonesia.

The Indonesia Stock Exchange (IDX) as one of the Self-Regulatory Organizations (SROs), just did the concrete step in running the facilitation and surveillance function in Indonesia Capital Market. IDX issued new regulation to increase transaction, provide comfortability to investors and reduce price manipulation. The regulation refers to Decision of the Board of Directors of The Indonesia Stock Exchange Number Kep-00399/BEI/11-2012, regarding Amendment to Rule Number II-A concerning Equity-Type Securities Trading. The rule is effective on 2nd January 2013. This rule contains the changes of trading hours and the addition of trading sessions, one of which is the pre-closing session is one of the addition.

The purposes of pre-closing implementation are to mitigate marking the close, which is the practice of buying security at the very end of the trading day at a significantly higher price than the current price of the security, and to improve market quality. By implementing it, IDX seeks to prevent fraud from occurring during closing time as a result of possible closing price manipulation, thereby improving the efficiency of the capital market. In 2009, there was example of marking the close case that was examined by IDX. The case was conducted by PT Finan Corfindo, member of the Infonesia Stock Exchange, who did marking the close on shares of PT Ratu Prabu Energi Tbk (ARTI) with the purpose to make closing price not much different from the opening price and caused the closing price of its stock did not reflect available information.

Based on that, we are challenged to do research about the pre-closing implementation of the new regulation in IDX and analyze its impact on price efficiency. We are also curious whether IDX achieved the purposes of pre-closing implementation or not. The successful implementation of it will improve the market quality of Indonesia capital market.

Literature Review

According to Introduction before, we would like to know about the impact of pre-closing implementation to price efficiency. Pre-closing is familiarly known as Call Market Method (CMM) in closing time. CMM is one of two types of trading session methods beside Continuous-Auction Method (CAM). In CMM, each transaction takes place at predetermined intervals and where all of the bid and ask orders are aggregated and transacted at once. All traders trade at the same time when the market is called. The market may call all securities simultaneously, or it may call the securities one at a time, in a rotation (Harris, 2003). In CAM, a trade is made whenever a bid and offer match or cross each other (Pagano and Schwartz, 2003).

The price efficiency is a function of the market efficiency hypothesis. If market is efficient, it is nearly impossible for investors to “beat the market” on a consistent basis. The efficient market hypothesis has been popularized by Fama (1970). A market is efficient when no one, both individual investor and institutional investors, will be able to get abnormal return because the prices in the market is a reflect all available information.

There are three forms of market efficiency, consist of weak form, semi-strong form and strong form. In the weak form, market is efficient if the price of security fully reflects the information in the past. In the semi-strong form, market is efficient if the price of security fully reflects all publicly available information. In the strong form, market is efficient if the price of security fully reflects all available information including public and private information.

There are some previous studies about pre-closing or CMM implementation. Some studies resulted that the CMM implementation had a positive impact on price efficiency. Chang et al. (1999) find that trading under the CMM is less volatile and more efficient. Theissen (2000) reports that the CMM and CAM are more price efficient than market dealer. Bacidore and S. Lipson (2001) stated in their research that CMM is more efficient than CAM for the opening and closing trades. Then, Chang et al. (2008) say if

the call method significantly improved the price discovery process and market quality. Some studies also find that there is negative impact of using CMM. Amihud et al. (1997) and Lauterbach (2001) demonstrate that CAM more superior than CMM in Tel Aviv Stock Exchange. Muscarela and Piwowar (2001) report that price discovery in CMM is inferior to the CAM.

The measurement of price efficiency in this paper will be presented by return, return volatility and return correlation of the security or stock. They are close to Chang et al. (2008) in their paper "How Does The Call Market Method Affect Price Efficiency? Evidence from the Singapore Stock Market" but different calculation method. The return volatility calculation method is based on Parkinson Volatility that was found by Michael Parkinson (1980) in his paper "The Extreme Value Method for Estimating the Variance of the Rate of return". His motivation in developing this method is to be able to find better method in constant estimated diffusion in the theory random walk. When the estimation constant diffusion have better results, the estimation of volatility return will also get a better result. In fact the Parkinson Volatility Method is very easy to be applied because the data is not hard to find. We only need the highest and lowest price of the stocks or securities to be calculated as the following formula:

$$Vp = \frac{1}{4 \ln 2} (\ln H - \ln L)^2 \quad 1)$$

Note:

Vp = Parkinson Volatility

H = Highest Price of Stocks

L = lowest price of Stocks

Research Method

We use secondary data of IDX which is obtained from Bloomberg Terminal. The method of sample selection based on purposive sampling by criteria: The sample is listing on the index that have most liquid underlying in the IDX, the LQ45 index. Its shares is the most actively traded in the stock exchange, with big capitalization and listing in the IDX at least 3 months. We will get the best result with these

criteria because we need more data and we can get it from most actively traded stocks. The sample lists are the underlying stocks in the two periods of The LQ45 index: period of August 2012 to January 2013 and period of February 2013 to July 2013.

We did the research in April 2013 and it becomes the limitation of the research because we can only use the data before April 2013. We decide to use data three months before and after pre-closing implementation. In this research, we compare before and after pre-closing implementation so that we divide the data in to two period. First period is before pre-closing implementation, from 1st October 2013 to 31st December 2013. Second period is after pre-closing implementation, from 1st January 2013 to 31st March 2013. We collected price of stock per tick for each sample so we can get more accurate results.

Descriptive Statistic

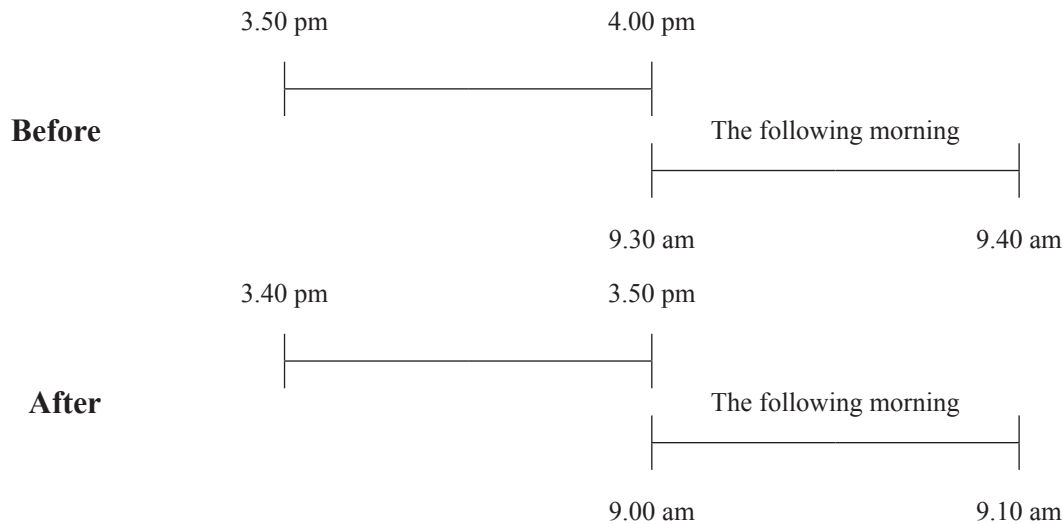
First, we describe return and return volatility of the sample stocks before and after pre-closing implementation. We collected price of stock per tick for each sample, 30 minutes before the closing time and divided in to three sessions with 10 minutes in every session, consist of the transaction at 3.30 to 3.40 pm, 3.40 to 3.50 pm and 3.50 to 4.00 pm, in order to find the change of return and return volatility and then reduction of market manipulation will be examined from it. The purpose of sessions split is to find when is the extreme change of return and return volatility. The volatility return calculation method is based on Parkinson Volatility which is already explained in literature review.

Second, we describe the correlation between return near to the closing time and return in the following opening in the morning. We collected price of stock per tick 10 minutes before closing and 10 minutes in the following opening in the morning. In the period of before pre-closing implementation, we collected price of stock at 3.50 – 4.00 pm and 9.30 – 9.40 am in the following opening in the morning. In the period after pre-closing implementation, we collected price of stock at 3.40 – 3.50 pm and 9.00 – 9.10

Panel A. Session Split for Return and Return Volatility Test



Panel B. Session Split For Return Correlation Test



am in the following opening in the morning, in order to find the correlation of the return before closing and the following opening in the morning so we can determine whether the pre-closing implementation reduces the marking the close or not.

Hyphotesis Test

There are two hypothesis tests in this research which consist of : a) Hyphotesis I is assessed with Paired samplet-test to see whether there is a statistically significant difference between return volatility before and after the pre-closing implementation in the Indonesia Stock Exchange. b) Hyphotesis 2 is also assesseed with Paired samplet-tests to see whether there is a statistically significant difference between return before and after the pre-closing implementation in the Indonesia Stock Exchange.

Result and Discussion

Before the pre-closing implementation, return volatility increased near to the closing time. It raised from 0.0000285 to 0.0000753.

Return also increased near to the closing time from -0.000184 to 0.00309. Comerton-Forde and Putnins (2007) find strong evidence that return at the end of the day increase significantly is the presence of manipulation. According to that, we assume that there had been price manipulation near to the closing time or usually called as marking the close.

After the pre-closing implementation, return volatility increased from 3.30 –3.40 pm to around 3.40 - 3.50 pm but decreased at 3.50 - 4.00 pm. Returns have the same pattern with return volatility. Chang et al. (1999) find that trading under the CMM is less volatile and more efficient. According to that, the decreasing of return volatility and return make the market more efficient.

Paired sample *t*-test for return volatility shows that there is significance different between return volatility before and after pre-closing implementation. The different is lower return volatility after pre-closing implementation which means pre-closing has positive impact in decreasing the risk of market (volatility). Paired sample *t*-test for return also shows that there is significance different between re-

Table 1. Return and return volatility before and after pre-closing implementation

Return Volatility	3.30 - 3.40 pm	3.40 - 3.50 pm	3.50 - 4.00 pm
Before	0.00002851409813133	0.00003434249882683	0.00007533413106383
After	0.00002857316843008	0.00005069809106032	-
Return	3.30 - 3.40 pm	3.40 - 3.50 pm	3.50 - 4.00 pm
Before	(0.00018460826757900)	0.00032348267469100	0.00309720159454300
After	(0.00017773076389800)	0.00107808852331700	-

Table 2. Paired Sample T-test Return and Return Volatility Before and After Pre-closing Implementation

	Return Volatility	Return
N	60	60
df	59	59
Before (Mean)	0.0000753341	0.0030972020
After (Mean)	0.0000506980	0.0010780890
t-statistic	3.8820*	6.5940*

*significance at 1 percent level

Table 3. Correlation between Return Near to The Closing Time and The Return in The Following Morning

Pearson Correlation		3.50 – 4.00 pm	9.30 - 9.40 am
Before	3.50 – 4.00 pm	1	-0.169
	9.30 - 9.40 am	-0.169	1
	N	59	59
	Mean Return	0.003100294806	-0.000051227882
Pearson Correlation		3.50 – 4.00 pm	9.00 - 9.10 am
After	3.50 – 4.00 pm	1	0.048
	9.00 - 9.10 am	0.048	1
	N	59	59
	Mean Return	0.001081431454	0.000632607156

turn before and after pre-closing implementation. The different is also lower return after pre-closing implementation.

The last descriptive statistic of this research is comparing the correlation between the return near to the closing time and the return in the following opening in the morning before and after pre-closing implementation. Before pre-closing implementation, the correlation is negative (-0.169) which means that there is price reversion. Comerton-Forde and Putnins (2007) found that price reversion in the following morning is the presence of manipulation.

The correlation between return near to the closing time and the return in the following opening in the morning after pre-closing implementation is positive (0.048) which means that there is price continuation. Price continuation shows that return near to the closing time is the fair return and the price is close to efficient. It

also shows that there is manipulation decreasing in the market. IDX has the right decision implementing pre-closing to minimize marking the close.

Conclusion

The Indonesia Stock Exchange has the right decision in implementing pre-closing. The paired sample t-test shows that there is significant decreasing in return and return volatility. The result supports Chang et al. (1999) who find that trading under the CMM is less volatile and more efficient. Pre-closing also minimize marking the close which is showed by the positive correlation between return near to the closing time and the return in the following opening in the morning after pre-closing implementation. It concludes that IDX has achieved its purpose of implementing pre-closing. It reduces

return volatility, minimize marking the close, more efficient price and better market quality.

This research has the limitation because the data is short term. We only take three months before and after pre-closing implementation. The

reason is pre-closing has just started in 2013. This research can also be developed by adding the test variables. Commerton-Forde and Putnis (2007) also use transaction volume and bid ask spread to measure market manipulation.

References

- Abhyankar, A., Ghosh, D., Levin, E., and Limmack, R.J. (1997), Bid-Ask Spreads, Trading Volume and Volatility: Intra-Day Evidence from the London Stock Exchange, *Journal of Business, Finance and Accounting*, 24, 0307-686X.
- Aggarwal, Rajesh K., and Wu, G. (2006), Stock Market Manipulations, *Journal of Business*, 79, 1915-1953.
- Amihud, Y. and Mendelson, H. (1987), Trading Mechanisms and Stock Returns: An Empirical Investigation, *Journal of Finance*, 42, 533-553.
- Amihud, Y. and Mendelson, H. (1991), Volatility, Efficiency and Trading: Evidence from the Japanese Stock Market, *Journal of Finance*, 46, 1765-1791.
- Ang, R. (1997), *Pasar Modal Indonesia (The Intelligent Guide to Indonesian Capital Market)*, Mediasoft Indonesia.
- Bodie et al. (2009), *Investments, 8th edition*. Singapore: McGraw-Hill.
- Chang, R.P., Rhee, S.G., and Soedigno, S. (1995), Price Volatility of Indonesian Stock, *Pacific-Basin Finance Journal*, 3, 337-355.
- Chang, R.P., Hsu, S.-T., Huang, N.K., and Rhee, S.G. (1999), The Effects of Trading Methods on Volatility and Liquidity: Evidence from Taiwan Stock Exchange, *Journal of Business Finance and Accounting*, 26, 137-171.
- Chang, R.P., Rhee, S.G., Stone, G. R., and Tang, N. (2008), How Does the Call Market Method Affect Price Efficiency? Evidence from the Singapore Stock Market, *Journal of Banking and Finance*, 32, 2205-2219.
- Cheung, Y.L., Ho, R.Y.K., Pope, and Draper, P. (1994), Intraday Return Volatility: The Hongkong Evidence, *Pacific-Basin Finance Journal*, 2, 261-276.
- Cochrane, J.H. (1991), Volatility Tests and Efficient Markets, *Journal of Monetary Economics*, 27, 463-485.
- Comerton-Forde, C. and Putnis, T.J. (2007), *Measuring Closing Price Manipulation*. University of Sydney Working Paper.
- Floros, C. (2009), Modelling Volatility Using High, Low, Open and Closing Prices: Evidence from Four S&P Indices, *Journal of Finance and Economics*, 28, 1450-2887.
- Harris, L. (2003), *Trading and Exchange: Market Microstructure for Practitioners*, New York: Oxford University Press.
- Pagano, M. and Schwartz, R. (2003), A Closing Call's Impact on Market Quality at Euronext Paris, *Journal of Financial Economics*, 68, 439-384.
- Parkinson, M. (1980), The Extreme Value Method for Estimating the Variance of the Rate of Return, *Journal of Business*, 53, 61 - 65.
- Schwartz, R.A. (2000), Building a Better Stock Market: New Solution to Old Problems, AEI Brookings Joint Center for Regulatory Studies Working Paper.