January Effect of Stock Returns in Indonesia:
The Unconditional Method and the Conditional Method

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Abstract: This study examines the January effect on stock market returns by using the unconditional and the conditional method. This study uses daily closing prices of 12 firms listed on the Indonesian Stock Exchange by using LQ-45 index from January 2006 to December 2013. Independent sample t-test is applied to examine the significance of the January effect. Results don't support the January effect by using the unconditional and the conditional method. Otherwise, returns on December are significant higher than returns on January by using the unconditional and the conditional method (down market). But when using the conditional method (up market), returns on January are higher than returns on December but not significant. This is the first comprehensive study of January effect which provides the unconditional and the conditional method on Indonesian data. The findings give important insights into market anomaly, especially the January effect, which help investors to develop a good investment strategy. Investors could buy stocks on January by using the unconditional or the conditional method in down market, with abnormally low returns and sell stocks on December with abnormally high returns by using the unconditional method.

Key words: January effect, the unconditional method, the conditional method, return of stock, investor

INTRODUCTION

Information is one of the key factor for an investor in the capital market. Efficient market is defined as one in which the prices of securities quickly and fully reflect all available information about the assets (Jones, 2004). According to the efficient market, prices of securities are assumed random, not patterned and unpredictable. Market anomalies are in contrast to what would be expected in a totally efficient market. Numoreus empirical studies have indicated persistent and potentially exploitable January effect in stock returns in many countries.

The first study of January effect was Wachtel (1942). Since, this discovery many studies examined this market anomaly. Other researchers that supported the existence of January effect were Kato and Schallheim (1985), Choudhry (2001), Ciccone and Etebari (2008), Al-Rjoub and Alwaked (2010), Georgantopoulos and Tsamis (2011), Tangjitprom (2011) and Guler (2001). Apparently, market anomalies were not only on January but also appeared on other months. Dash *et al.* (2011) found positive November, August and December effects and a negative March effect. Chia and Liew (2012) also found November effect. Ahsan and Sarkar (2013) found June effect in Bangladesh, whereby there were significant positive returns on June. However, in contrast to the findings from Nageswari *et al.* (2013), they found the highest returns were on December and the lowest returns were on January. Ogieva *et al.* (2013) found negative returns were

on February, March, April, May and December. Wheras positive returns were on January, August, September, October and November.

Stock prices in the stock market will always fluctuate. Fluctuations in market can occur whether in up or down market. For a rational investor that fluctuations must be faced with a good investment strategy to obtain the optimal returns at a certain level of risk that is able to carry. Improved analysis capabilities for investors is essential because the ability of investment managers in the management of funds is not guaranteed. There was no prior research that investigated more comprehensively about the January effect by using the unconditional (without differentiated market) and the conditional method (with differentiated market). Therefore, this study will fill this gap by testing the January effect by using the unconditional and the conditional method in companies listed on the Indonesian Stock Exhange by using LQ-45 index.

The results don't support the January effect by using the unconditional and the conditional method. Otherwise, returns on December are significant higher than returns on January by using the unconditional and the conditional method (down market). The practical implications of this study are investors could buy stocks on January by using the unconditional or the conditional method in down market, with abnormally low returns and then sell stocks on December with abnormally high returns by using the unconditional method.

Literature review: January effect is the most studied pattern of month of the year effect. It is established that in January, the stock return is higher than that of other months of the year. It may be caused normally by a significant low return in December (Nageswari *et al.*, 2013). Wachtel (1942) was the first to examine January effect in the Dow Jones Industrial Average (DJIA) index from 1927-1942. He found that the returns in January were higher than other months. Since this discovery, many studies that examined this market anomaly.

Researchers who supported the existence of January effect were Kato and Schallheim (1985). Kato and Schallheim used the data for the 29 year period of 1952-1980 in the Japanese stock market in two market indices, Value Weighted Index (VWI) and Equally Weighted Index (EWI). This study has examined stock returns on the TSE for the presence of January and size effects. Both of these anomalous effects appeared in the Japanese data. However, the January and size effects were sensitive to the type of market index used in the analysis. Further evidence was presented that a possible June seasonal in the Japanese stock market.

Choudhry (2001) investigated seasonal anomalies in the mean stock returns of Germany, the UK and the US during pre-World War I period using the data from January 1870 to December 1913 in Germany and the UK and from January 1871 to December 1913 for the US. The empirical research was conducted using a non linear GARCH-t Model. Results obtained provide evidence of the January effect and the month of the year effect on the UK and US returns. There was month of the year anomaly but there was no January effect in German returns.

Ciccone and Etebari (2008) used data from the Center for Research in Security Prices monthly index returns from January 1926 through December 2006. Five indexes were: the CAC 40 of France (1991-2006), the DAX 30 of Germany (1991-2006), the FTSE 100 of the United Kingdom (1985-2006), the Hang Seng of Hong Kong (1987-2006) and the Nikkei 225 of Japan (1985-2006). They found the January effect, driven by small firms, was powerful throughout the 1926-2006 sample period. A September effect was also evident as overall returns in September were negative. Upon an analysis of major indexes, the September effect also appeared in four of the five international markets tested. September was the worst month for investing in France, Germany, the United Kingdom and Japan.

Al-Rjoub and Alwaked (2010) used the data from the Dow Jones Industrial Average (DJIA), the Standard and Poors 500 (S&P 500) and the National Association of Securities Dealers Automated Quotations (NASDAQ) indices by using Ordinary Least Square regression, major findings of this study:

- Confirmed that stock returns were consistently negative during crises, across the tested indices and across time
- Confirmed that large firms were less affected by financial crises
- Found that the average January returns were consistently negative during crises
- Found that average loss in returns of January during crises were much smaller than average loss in returns during other months of the crises
- Provided new evidence of a new behavior of January, the month of January was more immune against the losses of crises

Georgantopoulos and Tsamis (2011) used a data set from FYROM Stock Exchange to investigate the presence of calendar effects in this recently organised equity market during the period 2002-2008. The calendar effects were examined by both mean (OLS) and variance (GARCH) regressions. Results indicated that two of the tested calendar effects were present in the MSE (day of the week and January effects).

Tangjitprom (2011) used the stock return that was computed from SET index during 1988-2009 and the SET50 index gathered, since it was created in 1995. The multiple regression techniques using dummy variables were employed to test the difference of the return during each calendar anomalies period. The return was abnormally high during December and January which can be addressed to be the turn-of-year effect. The return during the turn-of-month period, which can be defined as the last trading day and the first four trading days of the following months was also abnormally high. Finally, the return was also abnormally high on Fridays but abnormally low on Mondays, which was addressed as weekend effect. Guler (2001) investigated the existence of January effect in the Brazil, Shanghai, India, Argentina and Turkey indices with power ratio method. Results indicated existence of the January effect in China, Argentina and Turkey returns. However, no evidence of a January effect was found at Brazil and India stock markets.

Market anomalies also occur in other months. Dash *et al.* (2011) used historical data covering the post-reform period, leading up to the global financial crisis in the third quarter of 2007 in the Indian stock market, specifically the Bombay Stock Exchange (BSE). The data used for the study were the monthly closing Sensex values in the period April 1999 to March 2007. The results of the study provided evidence for a month-of-the-year effect in Indian stock markets, particularly positive November, August and December effects and a negative March effect. Further, the study suggested that the incidence of market crashes reduced the seasonal effects. Chia and Liew (2012) used the monthly stock indices data

of the Japan stock market Nikkei 225 over the period from January 2000 to June 2009. This study found significant November effect in the Nikkei 225 index of the Tokyo Stock Exchange (TSE) by using TGARCH Model. Financial managers, financial counselors and investors could take timed investment strategies in getting advantage of the patterns and gain profit.

Ahsan and Sarkar (2013) examined the existence of January effect in Dhaka Stock Exchange (DSE) in Bangladesh. Regression Model combined with dummy variables and monthly DSE All Share Price Index (DSI) from January 1987 to November 2012 has been used to test January effect in the stock return in DSE. It was empirically found that, although January anomaly didn't exist in DSE, there was significant positive return in June. Thus, there was an opportunity for investors to take advantage of this June anomaly. Nageswari *et al.* (2013) used the logarithmic data for S&P CNX Nifty and S&P CNX 500 sample indices and applied the Dummy Variable Regression Model from 1st April 2002 to 31st March 2011. They found that the highest mean return was earned in December and the lowest/negative mean return earned in January Month for S&P CNX Nifty index. The S&P CNX 500 index recorded the highest mean return in the month of March and the highest negative mean returns in the month of January. There was significant difference in the mean returns among the different months of the year. The analytical results of seasonality indicated the absence of January anomaly during the study period.

Ogieva *et al.* (2013) examined the calendar effect in the Nigerian stock market from 19 April 2005 to 30 September 2010. Using the multiple ordinary least square regression, they found negative returns on Monday, Thursday and Friday. They also found positive returns on Tuesday and Wednesday. Returns in February, March, April, May and December were negative significant. Wheras the positive returns appeared in January, August, September, October and November. In the case of June and July there were mixed signs. The hypotheses in this paper are:

- H_o: The average return on January is the same to the average return on December
- H_a: The average return on January is different to the average return on December

Before testing the significance of differences between return on January and return on December, first it can be found if there is January effect, where the mean return on January is higher than the mean return on December. Next, the significance of differences should be investigated. In testing the hypothesis, this study will use the independent sample t-test. If the probability of significance = 0.05, H_o is rejected, that means the average return on January is different to the average return on

December. If the probability of significance >0.05, H_o is accepted, that means the average return on January is the same to the average return on December.

MATERIALS AND METHODS

Research model: This study uses daily data for every January and December in period 2006-2013. By using purposive sampling, this study has 12 firms that continued listing for period 2006-2013 in LQ-45 index in Indonesian Stock Exchange. Dependent variable in this study is return of stock, calculated as:

$$R_{i(t)} = P_{i(t)}-P_{i(t-1)}/P_{i(t-1)}$$

Where:
$R_{i(t)}$ = Return on stock i at time t
$P_{i(t)}$ = is price on stock i at time t
$P_{i(t-1)}$ = is price on stock i at time t-1

Independent variable in this study is January effect. January effect appears when the stock return is higher than that of other months of the year that may be caused normally by a significant low return in December.

The results of this study by investigating the January effect use the methodology replication on the unconditional and the conditional method by Pettengil *et al.* (1995). The unconditional method is a method without dividing the market conditions, wheras the conditional method is a method with dividing the market conditions, up and down market. Up market is when there is a positive risk premium (Rm-Rf)>0 and down market is when there is a negative risk premium (Rm-Rf)<0. Where Rm refers to return of market and Rf refers to return of risk free rate.

By using the unconditional method, there are 1.918 observations on January and 1.812 observations on December. By using the conditional method, especially in up market, there are 961 observations on January and 983 observations on December. By using the conditional method, especially in down market, there are 946 observations on January and 829 observations on December.

RESULTS AND DISCUSSION

January effect by using the unconditional method: Table 1 shows that the average return on January is -0.0022 lower than the average return on December 0.0019. It's contrary to the January effect concept which is

Table 1: Group statistics

Months	N	Mean	SD	SE mean
Return				
January	1918	-0.0022	0.06275	0.00143
December	1812	0.0019	0.03543	0.00083

Table 2: Independent samples test

	Levene's test for equality of variances		t-test for equality of means			Differences		95% confidence interval of the difference	
Parameters	F	Sig.	t	df	Sig.(2-tailed)	Mean	SE	Lower	Upper
Return									
Equal variances assumed	23.608	0.000	-2.441	3728.000	0.015	-0.00410	0.00168	-0.00740	-0.00081
Equal variances not assumed			-2.477	3060.159	0.013	-0.00410	0.00166	-0.00735	-0.00086

Table 3: Group statistics

Months	N	Mean	SD	SE mean
Return				
January up	961	0.0140	0.04333	0.00140
December up	983	0.0120	0.04156	0.00133

Table 4: Independent samples test

	Levene's test for equality of variances		t-test for equality of means			Differences		95% confidence interval of the difference	
Parameters	F	Sig.	t	df	Sig.(2-tailed)	Mean	SE	Lower	Upper
Return									
Equal variances assumed	1.631	0.202	1.048	1942	0.295	0.00202	0.00193	-0.00176	0.00579
Equal variances not assumed			1.048	1933.994	0.295	0.00202	0.00193	-0.00176	0.00580

returns on January are higher than returns on December. Standard deviation on January is also higher than standard deviation on December 0.06275>0.03543. Which means January is more risky than December.

The probability of significance in Levene's test for equality of variances is 0.000 = 0.05 that means the variance is different. Thus, the t-test analysis is using equal variances not assumed. The probability of significance in equal variances not assumed is 0.013 (two tailed). So, it can be concluded that there is no January effect because the average return on December is higher than the average return on January. Nonetheless, H_o from this research is rejected which means the average return on January is significant different to the average return on December (the probability of significance 0.013 = 0.05; Table 2).

January effect by using the conditional method (up market): Table 3 shows that the average return on January is 0.0140, higher than the average return on December 0.0120. It's consistent to the January effect concept which is returns on January are higher than returns on December. Standard deviation on January is also higher than standard deviation on December 0.04333>0.04156. Which means January is more risky than December.

The probability of significance in Levene's test for equality of variances is 0.202>0.05 that means the variance is the same. Thus, the t-test analysis is using equal variances assumed. The probability of significance in equal variances assumed is 0.295 (two tailed). Eventhough the returns on January are higher than the returns on December, it can be concluded that there is no January

Table 5: Group statistics

Months	N	Mean	SD	SE mean
Return				
January down	946	-0.0157	0.04531	0.00147
December down	829	-0.0102	0.02075	0.00072

effect because the average return on January and December is not significant different (the probability of significance 0.295>0.05). Ho from this research is accepted which means the average return on January is the same to the average return on December (Table 4).

January effect by using the conditional method (down market): Table 5 shows that the average return on January is -0.0157, lower than the average return on December, -0.0102 or in other words, the average loss in return of January is higher than December. It's contratry to the January effect concept which is returns on January are higher than returns on December. Standard deviation on January is also higher than standard deviation on December, 0.04531>0.02075. Which means January is more risky than December. The probability of significance in Levene's test for equality of variances is 0.000 = 0.05 that means the variance is different. Thus, the t-test analysis is using equal variances not assumed. The probability of significance in equal variances not assumed is 0.001 (two tailed). So, it can be concluded that there is no January effect whereas the average return on January is lower than the average return on December, meanwhile, the average difference on January and December is significant different (the probability of significance 0.001 = 0.05). H_o from this research is rejected which means the average return on January is different to the average return on December (Table 6).

Table 6: Independent samples test

	Levene's test for equality of variances		t-test for equality of means			Differences		95% confidence interval of the difference	
Parameters	F	Sig.	t	df	Sig.(2-tailed)	Mean	SE	Lower	Upper
Return									
Equal variances assumed	15.198	0.000	-3.234	1773	0.001	-0.00554	0.00171	-0.00890	-0.00218
Equal variances not assumed			-3.376	1362.463	0.001	-0.00554	0.00164	-0.00875	-0.00232

Results don't support the January effect by using the unconditional and the conditional method. Otherwise, returns on December are significant higher than returns on January by using the unconditional and the conditional method (down market). But, when using the conditional method (up market), returns on January are higher than returns on December but not significant.

These study results for not supporting January effect are consistence with Guler (2001) on Brazil and India Stock markets and Ahsan and Sarkar (2013). Moreover, the results for December effect, which means returns on December are significant positive, are consistence with Dash *et al.* (2011) and Nageswari *et al.* (2013).

CONCLUSION

There is no January effect by using the unconditional and the conditional method. Meanwhile, the returns on December are significant higher than the returns on January by using the unconditional and the conditional method (down market). This study presents new evidences and supplements the finance literature on the January effect for the case of Indonesian Stock Exchange and also help investors to develop a good investment strategy. Investors could buy stocks that have abnormally low returns on January by using the unconditional or the conditional method in down market and sell stocks that have abnormally high returns on December by using the unconditional method.

This study has several limitations. This study is limited to 12 firms listed on LQ-45 index on the Indonesian Stock Exchange. The market anomaly is also limited to January effect in period 2006-2013. The future research should test the other market anomalies in other stock markets of other such as day of the week effect, Monday effect, weekend effect and so many others.

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