Analysis of the Difference Abnormal Return between January Effect and October Effect in Making Investment Decisions (Study of Companies Listed on the Indonesia Stock Exchange LQ45 Index 2015-2018 Period)

Laila Marta Zarika, Unun Khoirun Nisak, Rista Nurfadila Pristianti

Management Department, Faculty of Economics, Surabaya State University, Indonesia
Email: lailamarta28@gmail.com, nisakunun@gmail.com, ristanurfadilapristianti@gmail.com

Abstract: Investors want a positive *return* in every investment activity. Yield obtained can be calculated from how many *abnormal returns* are generated. However, sometimes the price of shares on the stock exchange does not reflect real information or is called a market anomaly. Market anomalies that are often encountered are the January Effect and October Effect. Therefore, this study aims to determine the difference in *abnormal returns* between January Effect and October Effect in investment decision making. This research was conducted on companies listed on the LQ45 Index on the Indonesia Stock Exchange (IDX) using data for the 2015-2018 period. The research method used was *purposive sampling*, with a sample of 33 companies. The type of data used is secondary data. The data collected was analyzed using the normality test method before testing the hypothesis. Testing the hypothesis in this study using the *Paired Sample T-test* and *Wilcoxon Signed Rank Test*. The results showed that there was no difference in *abnormal return* between January Effect and October Effect on the Indonesia Stock Exchange (IDX).
Keywords: Abnormal Return, January Effect, October Effect

Introduction

This research will examine seasonal market anomalies namely *January Effect* and *October Effect*. Anomaly *January Effect is* also known as the *year-end effect*. This is an event wherein early January especially the first weeks the stock price has increased. This is because at the end of December there was a joint sale of shares by investors and investment managers in the context of releasing shares with poor performance to improve financial statements, avoiding tax burden

(tax-loss selling), *profit-taking* actions to realize *capital gains* or sell stock for consumption purposes. When entering the beginning of the year, a large-scale repurchase was carried out. This causes an increase in the volume of transactions that makes the stock price rise rapidly. Anomaly *October effect is* also known as the *Halloween Effect*. This event occurred because of the confidence of American and European investors that stock prices from May to October tend to be lower than other months for one year. Most investors to sell in May, then hold the fund's *cash* or invest their money in money market instruments, then sign back into stock shares at the beginning of November. This strategy is also known as *Sell in May and Go Away*. Many believe the cause is because May to November coincides with the summer holidays so investors make withdrawals for consumption activities. Also, several 'dark' events on the American stock exchange took place in October. As the US stock market plunged 43% in 1973, *the Stock Market Crash* of 30% in 1987, up to the bankruptcy of companies investing the largest, Lehman Brothers in 2008, which contributed an impact on the state of others. But even so, the true cause of this anomaly can not be ascertained

Even so, the October effect also occurs in countries other than America and Europe. Jacobsen & Bouman (2002) examined the challenge of this anomaly and was proven to occur in 36 of the 37 countries studied. In Indonesia, researchers consider this anomaly relevant because 45.29% of share ownership in Indonesia consists of foreign investors. A large portion of foreign investor ownership can trigger significant movements in the stock market if the foreign investors take a sell or buy at a certain time.

This research was conducted on stocks listed on the LQ45 index. This index is an indicator of the movement of 45 selected shares selected based on liquidity, capitalism and the largest transaction frequency on the Indonesia Stock Exchange (IDX) and supported by good corporate fundamentals. This index updated every 6 months once in February and August. Stocks are entered on the index LQ-45 should also be included in the ranking of 60 60 of the total stock transactions in the regular market for 12 months and the stock cap the biggest for 12 months last. Besides, researchers chose the index because the stocks listed in LQ45 are *index movers* or index movers index on the CSPI (Composite Stock Price Index).

Researchers took 2015-2018 as a research period on the basis that from that year there was a significant increase in the number of investors. In 2015 the increase even reached 105.97%. In 2018 the number of investors in Indonesia will reach 1,617,367. This significant increase indicates a growing interest in investing and an increasing number of investors who need knowledge of the capital market.

Theoretical Framework and Hypothesis Development
Efficient Markets
According to Tandelilin (2010: 219) in his book, market efficiency is the market that reflects the stock price information on the actual condition of the company. While the market not efficient is the market which does not reflect the price of the stock on the actual condition of the company and the stock price is significantly influenced by the behavior of investors. Sometimes efficient markets can be found in developed countries while inefficient markets can be found in developing countries.

Fama (1970) states that " *A market in which prices always " fully reflect the variable information is called 'efficient* '. "Fama clarify the concept of the efficient market by dividing it into three forms of information that is the information age and information is now being published, and information private. The three main forms of the efficient market are: 1) *Weak Form* efficient market (*Weak Form)* means that investors can only see or analyze past stock prices in making decisions. 2) *Semi* -strong market efficiency means that all available information is for the public and investors not only to look at past stock prices but also to see the latest company announcements or policies in making decisions. For example annual income announcements, *stock split* policies, etc. 3) *Strong Form Efficiency* Market means that all relevant information including internal information is not published. When market shares reacted on a matter that is not included in the concept of an efficient market, then it is called an anomaly, or disorder.

Market Anomaly

Anomaly is a form of a phenomenon that is on the market. Anomalies are found in various forms that should not exist to become an efficient market that exists. There is a theory that any mention that on the day or in particular in each year, share prices tend to move more volatile. This theory is called the calendar effect (*calendar effect*) (Harjito, 2010). The calendar effect is a form of anomaly that quite disturbs the effectiveness of the capital market. According to (Fitriyani & Sari, 2013) a calendar anomaly is the tendency for the same situation to occur at certain times, for example, the tendency of differences in the capital market conditions in January and in months other than January (*January effect*). This incident then caused the patterns at the time specified that can be read movement. Theories that fall into the category of calendar effects that can cause anomalies are the October effect and January Effect.

January Effect

According to Fitriany & Hartini (2012), the *January Effect* is a condition where the rise in the price of shares in the week -Minggu first in January. The increase in the price of legitimate an m is caused by the activity of investors to construct portfolios regroup after experiencing anomalies stock during the holiday's end of the year. January Effect can be demonstrated by their *return* is not normal or *abnormal return* obtained by investors. The factors that influence the January Effect phenomenon are:

1.   Effects of year-end tax payments. Most investors tend to sell stocks that have less good *returns* so that it can reduce the amount of tax payments resulting in stock prices falling.

2.   Cash demand exceeds the average in the first week or the second week before *Christmas* each year. That caused a lot of shares to be sold on the capital market so that stock prices declined.

3.   The tendency for share prices to rise before the holidays is December 24 and December 31, where investors will buy shares that have fallen since mid-December.

4.   Trust that the New Year will be better than the previous year.

October Effect

According to Harjito (2010), the October effect is a theory that says that the stock market index will tend to fall in October. Thus, some investors will feel anxious in October, especially in the period September to October because the past events have occurred in the stock market crash that month. This phenomenon is often referred to as the "Halloween Effect". The events included *Black Monday, Black Tuesday* and *Black Thursday*, all of which took place in October 1929.

Abnormal Stock Returns

$Ari, t = Ri, t - E[Ri, t]$According to Audina & Laturette (2017), a normal stock *return* is the yield of a stock that exceeds the estimated market movement. Abnormal *return* is the difference between the *returns* are desired to *return* are received. If the *return* received is greater than the *return* diiginkan or *return* calculated the difference in *return* is positive. However, if the *return* earned less than the *returns* they want, or *return* calculated the difference between the return will be negative. According to Tandelilin (2010: 225) abnormal stock returns are calculated by the following formula:

Information:
- Ari, t: *abnormal return* of i-securities in the t-period
- Ri, t: *actual return* of i- securities stock in the t- period
- E [Ri, t]: *expected return* of i- securities in the period t.

$R_{it} = \frac{(P_t - P_{t-1})}{P_{t-1}}$According to Hartono (2014: 236), the *actual return* equation is calculated by the formula:

Information:
- R_{it}: *Return* the real (actual *return)*
- P_t: Period stock price t
- P_{t-1}: Share price for period t-1

$Ri, t = Rm, t$According to Tandelilin (2010: 225), the *expected return* equation using the *Market-adjusted model* can be calculated by the formula:

Information:
- *Ri,* t: *Actual return* index I in the t-event period
- *Rm,* t: Market *return* in the t-estimated period
Where:
$Rm, t = SB_t$

- *Rm*, t: Market *return* in the t-estimated period
- SB_t: Period Interest Rates t

Research Methodology
Type of Research
In this study, the authors used a quantitative research study where it will be used to examine the population or sample specific to data collection using the instrument of research and quantitative data analysis/statistics to test the hypothesis that there is (Sugiyono, 2015: 8).

Population and Sampling Techniques
The population in this study is all shares listed on the Indonesia Stock Exchange (IDX). Whereas for the sample of this research are the shares of companies registered in LQ for the period 2015-2018, namely from August 2015 to January 2018. The data collection technique chosen in this study is the documentation technique. Where according to Arikunto (2006: 158) documentation is a search for data about variables in the form of notes, transcripts, books, magazines, newspapers, minutes of meetings, lengths, agendas, inscriptions, and so on. Data collected in this study were obtained through statistical *online* media to assess daily stock price movements such as the Indonesia Stock Exchange Report (IDX).
The sampling technique uses a *purposive sampling method* where according to Sugiyono (2015: 85) this method is used in the sample to be examined there are several criteria that must be met. The companies selected as samples are based on the following criteria:
a)   The observation period from 2015-2018.
b)   The shares must be registered in LQ45 which continues to survive throughout the study period (2015-2018).
c)   Have complete transaction data during the observation period.
Thus, from these three criteria, a total sample of 33 companies was obtained.

Data Sources
The data to be used in this study is secondary data relating to the stocks of companies listed on the IDX LQ45 index continuously. The data was obtained from the Indonesia Stock Exchange on the website www.idx.co.id and other relevant sources to support research such as *Yahoo Finance* and *Investing.com*.

Data Analysis Techniques
Analysis Steps
1) Determine the period of data collection during the January Effect and *October effect*. The research period used is 2015-2018.
2) Collect LQ45 *Historical Price* Index data at the close of trading. during the 2015-2018 period.
3) Calculate the *actual return* (Rit) of the CSPI studied during the study period by using stock price data at the close of trade each month. With the formula:

$$R_{it} = \frac{(P_t - P_{t-1})}{P_{t-1}}$$

Information

R_{it}: *Return* the real (*actual return*)

P_t: Period stock price t

P_{t-1}: Share price for period t-1

4) Determine *the expected return* about Bank Indonesia's interest rates.

5) Calculate the *abnormal return of* each company stock during the study period. According to Tandelilin (2010: 225), the formula for calculating *abnormal returns* is as follows.

$Ari, t = Ri, t − E[Ri, t]$

Information

Ari, t: *abnormal return of* securities I in the t-period

Ri, t: *actual return* of i- securities stock in the t- period

E [Ri, t]: the *expected return* of the i- securities in the period t.

6) Calculate the AAR (average *abnormal return)* for each group of months during the observation period using the following formula:

$$AAR_{t1,tp} = \frac{\sum_{t=t1}^{tp} ARi,t}{N}$$

Information

$AAR_{t1,tp}$: Average abnormal return (average abnormal return) from day t1 today tp

Ari, t: Return is not normal (accumulative abnormal return) securities I from day t-1 today tp

N: Number of days

7) Conduct normality tests on research data, to find out methods or ways to test different research data.

8) If the data are not normal, then the *Wilcoxon Signed Rank Test is* performed to test the difference between the two independent variables that do not meet the normality assumption.

9) When the data is normal, then performed statistical tests with statistical analysis tools Test average difference (*t-test*) using the help of *software* SPSS version 20. Tests conducted with test *paired sample t-test*. This test is used to see whether there are differences in *abnormal returns* in the study sample during the observation period.

10) Formulate a hypothesis

H₁: There   is   a difference   in *abnormal return* between January Effect and the non- *January Effect* month on the IDX LQ45 index for the 2015-2018 period.

H₂: There   is   a difference   in *abnormal return* between October   effect and the non- *October Effect* on the IDX LQ45 index for the 2015-2018 period

11) To test the hypothesis using two different test techniques paired samples the *Wilcoxon Signed Rank test* for   the   sample   group   for   the   calculation   of   the month *January Effect* and in non- *January Effect* and *October Effect* and non- Octber Effect

Statistic Test

Normality Test

This test is intended to determine whether the data has been distributed normally or not. If there is normality, the difference between the estimated value and the actual observation value will be distributed normally and independently. That is, the *error* of the predicted value and the

actual score will be symmetrically around the *means* equal to 0 (Ghazali, 2005: 27). In this study, the normality test uses the *Kolmogorov-Smirnov Test*.

Paired Sample T-test
This test is useful if two related samples or commonly known as " paired samples " come from populations that have the same average. This test is conducted to test whether there are differences in *abnormal returns* in the January Effect and *October effect* phenomena. *Paired Sample T-test* can be calculated or searched using the formula (Alhusin, 2003: 117) :

$$Sb = \frac{\sqrt{\sum d^2 n(n-1)}}{n(n-1)}$$

Information
Sb: *Standard error of* two related means.
3) Wilcoxon Signed Ranks Test
Test *Wilcoxon Signed Ranks Test* is used to test for differences in a danya particular treatment hypothesis H $_1$ and H $_2$, by using a significance level α = 5%. This testing method can be used if the research data is not normally distributed. If the prob <significance level has been determined α = 5%, then there is a statistically significant difference in the *abnormal return* of each *January effect* and *October effect* phenomenon.

Results
Research Results
After calculating the average *abnormal return*, the next step is to do a different test to see the difference in *abnormal returns* in the study sample during the observation period. A normality test needs to be done before a different test can be performed. The normality test uses *a Kolmogorov Smirnov*. This is because the method to be used to test the difference between normal and abnormal samples is not the same. *Paired Sample* Test *T-test* can be used if the sample data is normal. However, if the data are not normal then different testing methods use the *Wilcoxon* method.

Figure 1: One-Sample Kolmogorov Smirnov January Effect and Non-January Effect Normality Test

One-Sample Kolmogorov-Smirnov Test

		January_Effect	Non_January_Effect
N		4	44
Normal Parameters [a, b]	The mean	-, 02875	-, 05748
	Std. Deviation	, 059701	, 048864
Most Extreme Differences	Absolute	, 331	, 137
	Positive	, 331	, 067
	Negative	-, 209	- 137
Statistical Test		, 331	, 137
Asymp. Sig. (2-tailed)		. [CD]	, 037 [c]

a. Test distribution is Normal.

b. Calculated from data.

c. Lilliefors Significance Correction.

d. Significance can not be computed because the sum of case weights is less than 5.

In the drawing 1 indicates that the value signigikansi *January Effect* and *Non-January Effect* respectively of 0.00 and 0.037 is less than 0.05. So it can be concluded that the two data have not been normally distributed. Because the data has not been normally distributed, hypothesis analysis will use non-parametric statistics with the *Wilcoxon* test.

Figure 2: One-Sample Kolmogorov Smirnov October Effect and Non-October Effect Normality Test

One-Sample Kolmogorov-Smirnov Test

		October_Effect	Non_October_Effect
N		24	24
Normal Parameters [a, b]	The mean	-, 06021	-, 04996
	Std. Deviation	, 051725	, 048271
Most Extreme Differences	Absolute	, 169	, 122
	Positive	, 088	, 122
	Negative	- 169	- 115
Statistical Test		, 169	, 122
Asymp. Sig. (2-tailed)		, 074 [c]	, 200 [c, d]

a. Test distribution is Normal.

b. Calculated from data.

c. Lilliefors Significance Correction.

d. This is a lower bound of true significance.

The results of the Kolmogorov Smirnov table above show the value of sig. *October Effect* and *Non-October Effect* of 0.074 and 0.200, each of which is greater than 0.05. It can be concluded that the two data are normally distributed. Because the data is normally distributed, the hypothesis analysis will use the *Paired Sample T-test*.

Hypothesis Testing

Hypothesis testing used in this study is *the Paired Sample T-test* because the October effect sample group data and other months outside the October effect are normally distributed. The test is done by forming two pairs of tests, namely the October effect with the non- *October Effect*. While testing the January Effect hypothesis and other months outside January Effect use the Wilcoxon test because the data is not normally distributed. The following are the research hypotheses in this test.

H 1: There is a difference in *abnormal return* between January Effect and the non- *January Effect* month on the IDX LQ45 index for the 2015-2018 period.

H 2: There is a difference in *abnormal return* between October effect and the non- *October Effect* on the IDX LQ45 index for the 2015-2018 period.

1) Test *Wilcoxon Signed Rank Test*

Figure 3: Wilcoxon Signed Rank Test for the January Effect and non-January Effect

Test Statistics [a]

	Non_January_Effect - January_Effect
Z	-, 730 [b]
Asymp. Sig. (2-tailed)	, 465

a. Wilcoxon Signed Ranks Test
b. Based on positive ranks.

Based on Figure 3 shows that the *abnormal return* test results for the January period with non-January groups have a value of 0.465 which means above the significance level of 0.05. This shows that H $_{1 is}$ rejected which means there is no difference in *abnormal return* between January Effect and the *non-January Effect* on the stock price on the Indonesia Stock Exchange for the 2015-2018 period.

2) Test *Paired sample t-test*

Figure 4: Paired samples t-test October Effect and non-October Effect

Paired Samples Test

	Paired Differences							
					95% Confidence Interval of the Difference				
	The mean	Std. Deviation	Std. Error Mean	Lower	Upper	t	df	Sig. (2-tailed)
Pair 1 October_Effect - Non_October_Effect	-, 010250	, 056712	, 011576	-, 034197	, 013697	- 885	23	, 385

Based on Figure 4 shows that the *abnormal return* test results for the October effect period with non- *October Effect* groups have a value of 0.385 which means above the significance level of 0.05. This shows that H $_{2\ is}$ rejected which means there is no difference in *abnormal return* between October effect and *Non-October Effect* on the stock price on the Indonesia Stock Exchange for the period 2015-2018.

Discussion and Conclusions
Discussion

The results of the t-test show that there is no difference in *abnormal returns* between January Effect and Non- *January Effect* periods and October effect and Non- *October Effect* periods in the Indonesia Stock Exchange LQ45 Index (BEI) for the 2015-2018 period. So the

results of this study state that there is no difference in *returns* in January Effect and Non- *January Effect* periods and October effect and Non- *October Effect* periods in the Indonesia Stock Exchange LQ45 Index (BEI) for the 2015-2018 period. This shows that the Indonesia Stock Exchange which is represented by the LQ45 index does not react positively to the anomaly of the January Effect and *October Effect.*

In January Effect, Sidney Watchel (1942: 186) in Audina & Laturette (2017); Lokman, Yusoff, Khalid, & Nasri, 2018; Jaradat, ALkhazaleh, (2018) explained that the January anomaly was caused by year-end tax payments, where investors tended to sell underperforming stocks which were later recognized as losses to reduce tax payments. Besides, the celebration of Christmas Day at the end of December and followed by the new year holiday caused a high demand for cash so that it could be one of the factors causing the January Effect. The absence of the January Effect in Indonesia is likely caused by:

a) In tax payment systems between Indonesia and America. The tax payment system in Indonesia is not as strict as America. In America, tax reporting will be reported by officers while in Indonesia, taxpayers must report themselves to the Director-General of Taxes. This allows investors to reduce the tax burden without recognizing the loss.

b) Christmas celebration in Indonesia is a celebration of Christianity which is a minority religion in Indonesia. Compared to demographically, the demand for cash will be greater during Lebaran celebrations.

In the October Effect, in America, it was caused by the summer holidays so that there was an increase in the demand for money to meet consumption needs. Also, because some *bad history* that occurred in October led to investor confidence in this anomaly getting stronger. An n Omali October this effect does not occur in Indonesia may be caused by:

a) The number of foreign investors in Indonesia is not strong enough to influence the perspective of local investors. Although at the end of 2018 the portion of foreign funds in Indonesia reached 45.20%, this anomaly was not detected. Even in 2015 where the number of foreign investors reached 57.33%, the January Effect anomaly remained non-existent.

b) Compared to the population of Indonesia, the number of investors is currently 0.438%. The small number of this percentage causes the culture in the community may not necessarily be reflected in the reaction of investors in dealing with something. The need for high cash in the middle of the year together with school holidays and new school years may become a culture in Indonesian society. But this cannot be identified as an October Effect anomaly due to the small number of investors in Indonesia.

Conclusion

Based on the results of research and discussion, it can be concluded that there is no difference in *abnormal return* between October effect and the non- *October Effect* on the LQ45 index on the Indonesia Stock Exchange. Likewise with the results of January Effect research which concluded that there was no difference in *abnormal return* between January Effect and the non- *January Effect* on the IDX LQ45 Index for the 2015-2018 period.

Based on the research conducted and the conclusion, the researcher proposes the following suggestions:

Issuer

Issuers need not consider certain publications in the January Effect period because this phenomenon does not occur. For the October effect, issuers are expected to be aware of all the worst possibilities to be able to maintain the stability of the company's stock price. And it is recommended that the issuer not carry out *corporate actions* that could have a negative impact.

Investor

Investors are advised to conduct some analysis when making investment decisions both fundamentally and technically and be able to understand and be aware of positive and negative events and news that will have an impact on the acquisition of *abnormal* investor *returns*. Also, it must monitor economic developments both locally and internationally, developments in national and international politics and all things that are expected to affect the movement of stock prices. By understanding this, it is hoped that investors can determine the right time and investment strategy to maximize profits in all conditions.

Next Researcher

First, examine the October effect and January Effect using another *abnormal return* calculation model, the *mean adjusted model* or the *market model*. Second, further research is expected to include *Trading Volume Activity* calculations in the test. The addition of these calculations is expected to provide more explanation for the market reaction to the October effect and *January Effect* events.

References

Arikunto, S. (2006). *Research Methodology*. Yogyakarta: Bina Aksara.

Audina, M., & Laturette, K. (2017). January Effect in the Property, Real Estate and Building Construction Sectors on the Indonesia Stock Exchange. *Journal of Accounting and Financial Research*, *5* (1), 1337–1348.

Fama. (1970). Efficient Capital Markets: A review of Theory and Empirical Work. *The Journal of Finance*, *25* (2), 383–417.

Fitriani, E., & Hartini, T. (2012). *Effect of January Effect on Abnormal Return on Automotive Sector Stocks Listed on the Indonesia Stock Exchange (IDX)*. 1–10.

Fitriyani, I., & Sari, M. M. R. (2013). January Effect Analysis on LQ-45 Index Stock Group on the Indonesia Stock Exchange in 2009-2011. *E-Journal of Accounting*, *Udayana University*, *4* (2), 421–438.

Ghazali, I. (2005). *Multivariate Analysis Application with SPSS Program*. Semarang: Diponegoro University.

Harjito, D. A. (2010). Seasonality Changes in the Capital Market and Contagion Effects in ASEAN Countries. *Journal of Business Strategy*, *14* (1), 1–18.

Jacobsen, B., & Bouman, S. (2002). The Halloween Indicator, Sell in May and Go Away: Another Puzzle. *American Economic Review Journal*, *92* (5), 1618–1635.

Sugiyono. (2015). *Educational Research Methods Approach, Quantitative, Qualitative, and R&D*. Bandung: Alfabeta.

Tandelilin, E. (2010). *Portfolio and Investment Theories and Applications* (Issue 1). Yogyakarta: PT Kanisius.

Lokman, H. F., Yusoff, N. M. R. N., Khalid, F., & Nasri, N. M. (2018). The Feedback of Using Edmodo Application in Teaching and Learning of Moral Education in Secondary School. International Journal of Academic Research in Progressive Education and Development, 7(4), 246–254.

Jaradat, M. A., ALkhazaleh, M. H. A. (2018). The Effect of Liquidity, Administrative Efficiency and Capital Adequacy on the Profitability of Jordanian Banks listed on the Amman Stock Exchange, International Journal of Academic Research in Accounting, Finance and Management Sciences 8 (4): 183-194.