Liquidity Analysis and Abnormal Stock Return Before and After Stock Split Event

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Abstract:- This study aims to identify market reactions in the days around the implementation of *stock split* seen from stock liquidity (trading volume*activity* and *bid-ask spread*)and abnormal *return*. Identification is done by looking at the difference in average value *of trading volume activity, bid-ask spread* and *abnormal return* five days before with five days after the corporate *action stock split*. The population in this study was *a public company* that conducted stock *split corporate* action in the period 2015 to 2019. Sample selection is done *purposive sampling with the* criteria of samples of *companies going public* that conduct stock split *corporate action* and do not perform other corporate actions in the vicinity of the observation period. In addition, the shares are actively traded on IDX and the data is available during the observation period. The observation period in this study is 5 days before the *stock split event* up to 5 days after the stock *split event*. From the results of this study, it was found that there is no difference in stock liquidity measured using trading *volume activity* (TVA) and *bid-ask spreads* before and after the event stock *split corporate action*. There is an abnormal *difference* in return before and after the stock *split corporate action event*. The *abnormal return* difference occurs in a negative direction after a stock *split event*.

Keywords:- Stock Split, Liquidity, Trading Volume Activity (TVA), Bid-Ask Spread, Abnormal Return.

I. INTRODUCTION

Capital markets can be found almost in various countries. This is because the capital market has an important role for a country's economy.

Investors conduct investment activities in the hope of obtaining *a return. Return* is one of the factors that motivate investors to invest and is also a reward for the courage of investors to bear the risk of their investment(Tandelilin,2010).

Stock split is*a*change in par value per share and increases the number of shares outstanding in accordance with the*split factor*. Saham is said to be liquid if at any time investors come to the broker and sell their shares, there will be other investors who will buy the shares. Based on the description above, it can be said that securities are increasingly liquid if the securities sell quickly.
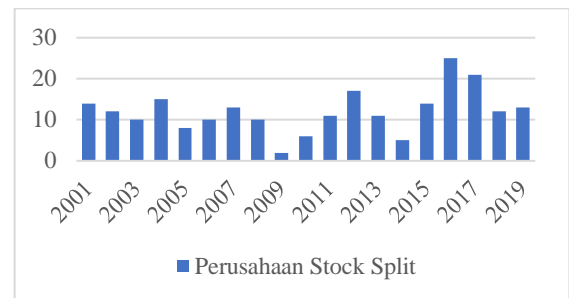

Chart 1: Stock Split Companies in IDX Year 2001-2019

Tahun 2001 to 2019 the largest number of *companies doing stock split occurred* in 2016, namely as many as 25 companies. While in 2009 at least jumal companies that do *stock split that is as* many as 2 companies. Anumber of companies that did *stock split* in 2015-2019 are quite a lot of 85 issuers with a total rupiah value of closing stock price 1 day *before the stock split* of Rp. 911,781.

The study of *events on stock split* announcements can be attributed to Signaling*Theory*and*Liquidity Theory (Trading Range Theory)* (Tandelilin,2010). *Signaling theory is* stock split announcement is considered as a positive signal, because the company manager will convey the future prospects of a good company to the public.

II. LITERATURE

a) Corpotate Action Stock Split

According to Hadi (2013) *corporate action is* an action carried out by a company whose weight is material enough that it has the possibility of affecting the share price of the company concerned on theexchange. Stock split is a corporate action carried out by companies that have gone public (issuers) to break the nominal value of shares into a smaller par value, by breaking a sheet of shares into several shares (Yuniartini,2020).

b) *Signalling Theory*

According to Copeland (1979) the reason for the stock split was to achieve an optimal stock price range to create a broader market. According to Ikenberry et.al (1996) stated that trading range theory is an effort by management to reorganize the price per share at lower price limits.

According to range theory trading, stock splitting is done by companies with the aim that by doing a stock split can keep the share price not too high in the capital market making it possible for investors to buy more shares that will

ultimately increase the liquidity of stock trading. In addition, trading range theory also mentions that too high stock prices can cause inactivity of stocks traded in the capital market. By doing the solving.

c) *Event Study*

(According to Fama (1970) in Tandelilin (2010), classifyingthe form of efficient markets into three categories: efficiency in the form of weak*(weak form),* *efficiency*in the form of semi strong(semi*strong),*and efficiency in strong*form* (strong*form).* In 1991, Fama in Tandelilin (2010) proposed improvements to the classification of market efficiency, the efficiency of the semi-strong form was transformed into*an event study.*

a) Liquidity Stock

a. *Electronic Word of Mouth*

Liquidity according to Alexander *et.al* (1999) is the ability of investors to sell their assets without having to make concessions or loosen assets.

1. *Trading Volume Activity*

Trading volume activity is the sale of every transaction that occurs on the stock exchange at a certain time and stock, and is one of the factors that also influence the movement of the share price (Masyithoh: 2018). The higher the value of TVA can be said that the stock is as liquid as the shares are increasingly traded on the stock exchange.

2. *Bid-Ask Spread*

In the event of stock split or stock split the liquidity level of the stock can also be measured by the bid-ask spread. Bid-ask spread is the difference between bid price or purchase request price with ask price or sales offer price (Jogiyanto,

3. *Abnormal Return*

According to Tandelilin (2010), abnormal return is the difference between actual return and expected return that can occur before information is published or information leakage has occurred after the information is published.

III. CONCEPTUAL FRAMEWORK

Based on the literature study and the results of previous research that has been described before,here is the conceptual framework that has been compiled based on the following image
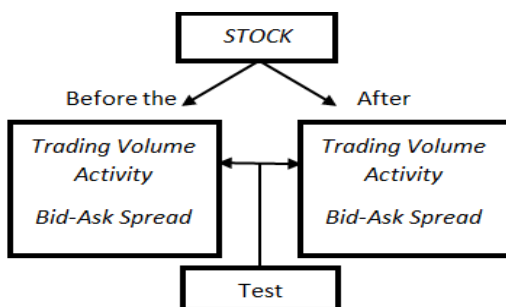

Figure 1 : Conceptual Framework

H_{a1} : There is a difference in stock liquidity as measured by Trading Volume *Activity* before and after the *stock split.*

H_{a2} : There are differences in stock liquidity as measured by *Bid-Ask Spread* before and after stock *split.*

H_{a3} : There is a difference in Abnormal *Return* before and after stock *split.*

IV. RESEARCH METHODS

This research uses comparative quantitative research design and also merufeed research eventstudy (eventstudy) that is a study that studies market reaction to an event (*event*)

a. Operational Definition of Variables and Variable Measurement

1. Trading Volume Activity

Trading volume activity (TVA) can be calculated by the following formula:

$$TVA = \frac{Jumlah\ Saham\ i\ yang\ diperdagangkan\ pada\ waktu\ t}{Jumlah\ Saham\ i\ yang\ beredar\ pada\ waktu\ t}$$

2. Bid-Ask Spread

Bid-ask spread is the difference between bid *price* and ask *price.* The smaller *the bid-ask spread* means the more liquid the stock is. *Bid-ask spread* can be calculated with the following formula:

$$Bid - Ask\ Spread_{it} = \frac{(Ask\ Price_{it} - Bid\ Price_{it})}{\frac{1}{2}(Ask\ Price_{it} + Bid\ Price_{it})}$$

With:
$Bid - Ask\ Spread_{it}=$ the difference in selling interest price and share interest price
$Ask\ Price_{it}=$ share purchase interest price i at the close of period t
$Bid\ Price_{it}=$ share selling interest price i at the close of period t

3. Abnormal Return

Abnormal return is the difference between the *real return* that occurs with the *expected return* that can be calculated by the formula as follows:

$$AR_{it} = R_{it} - E(R_{it})$$

With:
AR_{it} = *Abnormal Return* of the 11th security in the t-th event period
R_{it} = *Return* of realization that occurred for the 1th security in the t-th event period
$E(R_{it})$= Return *of* expectations of the i-1th security for the t-th event period

where *the realization return* can be calculated using the formula:

$$R_{it} = \frac{P_{it} - P_{it-1}}{P_{it-1}}$$

With:

R_{it} = *Return* realization that occurred for the 1th security in the t-th period

P_{it} = Stock price i on the t-day (current price)

P_{it-1} = Share price i on day t-1 (previous price)

To *calculate the expected* return there is using *a mean-adjusted model,* a customized beta model *(model-adjusted beta),* and a *market-adjusted model.* In this study, researchers used a *market-adjusted model. Return of* estimated securities is the same as the return of the market index or with the following formula:

$$E(R_{it}) = Rm_t$$

$$Rm_t = \frac{IHSG_t - IHSG_{t-1}}{IHSG_{t-1}}$$

with:

Rm_t = *Return* of the market in the t-th period

JCI_t = Composite stock price index on the t-day

JCI_{t-1} = Composite stock price index on day t-1

b. Population and Research Samples

Aumlah population in this study is 85 companies. The sample criteria used in this study are companies going *public* that conduct stock split corporate *actions and* do not perform other corporate actions. Based on these criteria, the number of samples in this study amounted to 53 companies.

c. Data Collection Techniques

In this study the data used is secondary data that is data obtained indirectly or data obtained through other parties.

d. Data Analysis Method

In this research, the method used using event study data analysis *technique where the* date of *stock split event* becomes *event date.*

V. RESULTS AND DISCUSSIONS

1. Data Analysis

Differences in Trading Volume Activity (TVA) Before and After Stock Split

a. Descriptive Statistical Analysis

Descriptive statistics describe or give an overview of data into information that is easier to understand. Descriptive statistics describe the phenomena or characteristics of a data. In this study, descriptive data seen from minimum, maximum, average, and standard deviation values. Descriptive statistical test results are briefly presented in the table as follows:

Table 1 Descriptive Statistics of *Trading Volume Activity* (TVA) Data Before and After *Stock Split*

Descriptive Statistics

	N	Minimum	Maximum	Mean	Std. Deviation
TVA Before	53	.0000012358	.0159727860	.001755675000	.0029799005901
TVA After	53	.0000011671	.0124815280	.001791701391	.0028264869919
Valid N (listwise)	53				

Source : Data Processed 2021

Table 1 shows that the *average trading value of activity volume before* the stock *split event* is 0.001755675000 and after the stock split *event* is 0.001791701391. Descriptively when viewed from the average value of trading volume *activity* increases after the stock *split event.* The standard deviation values before and after the stock *split* event are 0.0029799005901 and 0.0028264869919. The average *trading volume activity is* smaller than the standard deviation, this indicates that the greater deviation of the trading value of the activity *volume* before *and after the stock split* against its average value.

Trading *value of the lowest activity volume* after the *stock split* event of 0.0000011671 which is the trading volume *activity* of PT. Graha Layar Prima, Tbk. While *trading the highest activity volume* after the stock split *event* of 0.0124815280 which is trading volume *activity* from PT. Rukun Raharja, Tbk. This indicates that PT. Rukun Raharja, Tbk is one of the companies with good liquidity after the *stock split event when viewed* from the company's trading *volume activity* data.

b. Data Normality Test

Data normality test is done to determine the next statistical different test. Different test for normal distributed data using different test *(T-test)* for related samples (PairedSample *T-Test*). If the data is not distributed normally then use *Wilcoxon test to* find out if there is a significant difference before and after the Stock *Split event.* The test tool used in this study to find out the normality of the data is the *One-Sample Kolmogorov Smirnov Test. One-Sample Kolmogorov Smirnov Test test criteria* is if the value of sig > 0.05 then the data is distributed normally and if the value of sig < 0.05 then the data is not distributed normally.

Here is the table from *the results of the One-Sample Kolmogorov Smirnov Test* for trading volume *activity* data before and after the stock split *event:*

Table 2 Normality Test Results of *Trading Volume Activity* (TVA) Data Before and After *Stock Split*
One-Sample Kolmogorov-Smirnov Test

		TVA Before	TVA After
N		53	53
Normal Parameters[a,b]	Mean	.001755675000	.001791701391
	Std. Deviation	.0029799005901	.0028264869919
Most Extreme Differences	Absolute	.278	.263
	Positive	.241	.253
	Negative	-.278	-.263
Kolmogorov-Smirnov Z		2.024	1.916
Asymp, what's going on? Sig. (2-tailed)		.001	.001

A. Test distribution is Normal.
B. Calculated from data.
Source : Data Processed 2021

Table 2 shows *that Kolmogorov-Smirnov trading volume activity* (TVA) before and after *stock split* events of 2,024 and 1,916 with significance values of 0.001 and 0.001 which means abnormally distributed data.

c. Wilcoxon Test

Wilcoxon test of trading volume *activity* is done to find out the difference between before and after stock *split* event for abnormally distributed data. Here is a table of *Wilcoxon test results* for trading volume *activity* data before and after the stock *split event:*

Table 3 *Wilcoxon* Data Trading Volume *Activity* (TVA) Test Results Before and After Stock *Split*
Test Statistics[b]

	TVA After - TVA Before
Z	-.075[a]
Asymp, what's going on? Sig. (2-tailed)	.940

A. Based on positive ranks.
b. Wilcoxon Signed Ranks Test
Source : Data Processed 2021

Table 3 shows that the significance value is 0. 940 is greater than 0.05, so it can be concluded that $H_{a1\ is}$ rejected. This indicates that there is no significant difference between trading activity *volume* (TVA) before stock *split* and trading volume *activity* (TVA) after stock *split.*

Difference *between Bid-Ask Spread* Before and After Stock *Split*

a. Descriptive Statistical Analysis

Table 4 Descriptive Statistics of *Bid-Ask Spread Data* Before and After Stock *Split*
Descriptive Statistics

	N	Minimum	Maximum	Mean	Std. Deviation
BAS Before	53	.0014315635	.1660515700	.024173853332	.0367270531594
BAS After	53	.0020926744	.0776840000	.015493581281	.0173228547181
Valid N (listwise)	53				

Source : Data Processed 2021

In the table above shows that the average bid-ask *spread value* before the stock *split* event is 0.024173853332 and after the stock split *event* 0.015493581281. Descriptively when viewed from the average bid-ask *spread decreased* after the stock *split event.* The standard deviation values before and after the stock *split* event are 0.0367270531594 and 0.0173228547181. The average *bid-ask spread is* smaller than the standard deviation, this indicates that the greater deviation of the *bid-ask spread value* before and after the stock *split* against its average value.

The *lowest bid-ask spread* value after the *stock split event* is 0.0020926744 which is the *bid-ask spread* of PT. Mitra Keluarga Karyasehat, Tbk. While the *highest bid-ask spread* is 0.0776840000 which is a *bid-ask spread* from PT. Lion Metal Works, Tbk. This indicates that PT. Mitra Keluarga Karyasehat, Tbk is one of the companies with good liquidity after *the stock split event* when viewed from the company's *bid-ask spread* data.

b. Data Normality Test

One-Sample Kolmogorov-Smirnov Test

		BAS Before	BAS After
N		53	53
Normal Parameters[a,b]	Mean	.024173853332	.015493581281
	Std. Deviation	.0367270531594	.0173228547181
Most Extreme Differences	Absolute	.321	.317
	Positive	.321	.317
	Negative	-.268	-.220
Kolmogorov-Smirnov Z		2.338	2.309
Asymp, what's going on? Sig. (2-tailed)		.000	.000

A.Test distribution is Normal.
B. Calculated from data.
Table 5 : Normality Test Results of *Bid-Ask Spread Data Before* and After *Stock Split*

Table 5 shows *that Kolmogorov-Smirnov*   values *for bid-ask spreads*   before and after *stock split* events are 2,338 and 2,309 with significance values of 0.000 and 0.000 meaning abnormally distributed data.

c. Wilcoxon Test

Table 6 *Wilcoxon Test Results Bid-Ask Spread Data*
Before and **After *Stock Split***
Test Statistics[b]

	BAS After - BAS Before
Z	-.668[a]
Asymp, what's going on? Sig. (2-tailed)	.504

A. Based on positive ranks.
b. Wilcoxon Signed Ranks Test
Source : Data Processed 2021

Table 6 shows that the significance value of 0.504 is greater than 0.05, so it can be concluded that $H_{a2\ is}$ rejected. This indicates that there is no significant difference between the *bid-ask spread before* the stock *split and the bid-ask spread after* the stock *split.*

Differences in Abnormal Returns Before and After Stock Split

a. Descriptive Statistical Analysis

Table 4.8. Descriptive Statistics of *Abnormal Return* Data
Before and **After Stock *Split***
Descriptive Statistics

	N	Minimum	Maximum	Mean	Std. Deviation
AR Before	53	-.0188863690	.0523856950	.005606559463	.0135238337189
AR After	53	-.0408024230	.0492281840	-.003589481972	.0168764966956
Valid N (listwise)	53				

Source : Data Processed 2021

In table 7 shows that *the average abnormal return before* the stock *split event* is 0.005606559463 and after the stock *split* event -0.003589481972. Descriptively when viewed from the average value of abnormal *returns* decreased after the stock *split event.* The standard deviation values before and after the stock *split* event are 0.0135238337189 and 0.0168764966956. The average *abnormal return is* less than the standard deviation, this indicates that the greater the deviation of abnormal return *value* before and *after stock split* against the average value.

The *lowest abnormal return* after the stock split *event* is -0.0408024230 which is the abnormal *return* of PT. Medco Energi Internasional, Tbk. While   *the highest abnormal return* was 0.0492281840 which is an abnormal *return* from PT. Bukit Uluwatu Villa, Tbk.

b. Data Normality Test

Table 8 Abnormal Return Data Normality *Test Results*
Before and **After *Stock Split***
One-Sample Kolmogorov-Smirnov Test

		AR Before	AR After
N		53	53
Normal Parameters[a,b]	Mean	.005606559463	-.003589481972
	Std. Deviation	.0135238337189	.0168764966956
Most Extreme Differences	Absolute	.149	.137
	Positive	.149	.137
	Negative	-.105	-.084
Kolmogorov-Smirnov Z		1.086	1.000
Asymp, what's going on? Sig. (2-tailed)		.189	.270

A. Test distribution is Normal.
B. Calculated from data.
Source : Data Processed 2021

Table 8 shows *that Kolmogorov-Smirnov   values for abnormal returns* before and after stock *split events* are 1,086 and 1,000 with significance values of 0.189 and 0.270 meaning normally distributed data.

c. Different Paired Sample T-Test

Different *Paired Sample T-Test* test against *abnormal return* is done to find out the difference between before and after stock *split* event for normal distributed data. Here is a table of different test results   *Paired Sample T-Test* for *abnormal return* data before and after stock split *event:*

Paired Samples Test

	Paired Differences					t	df	S (ta c
				95% Confidence Interval of the Difference				
	Mean	Std. Deviation	Std. Error Mean	Lower	Upper			
Pair 1 AR Sebelum - AR Sesudah	.0091960414	.0222946466	.0030624052	.0030508758	.0153412071	3.003	52	.0

Table 9 : Test Results Of Different Paired Sample T-Test Data Abnormal Return Before and After Stock Split

Table 9 shows that the significance value of 0.004 is less than 0.05, so it can be concluded that $H_{a3\ is}$ accepted. This indicates that there is a significant difference between abnormal return *before* stock *split* and abnormal *return* after stock *split.*

VI. DISCUSSION

➢ *Differences in Trading Volume Activity (TVA) Before and After Stock Split*

Based on the results of statistical tests showed that there is no significant difference between *trading volume activity* (TVA) before and after the *stock slpit event*. This can be interpreted that stock *split corporate action does* not give a *difference in trading volume activity* (TVA) in the five days before the event when compared to five days after the *stock* spit *event*. The results are not in line with the *trading range theory* which states that stock split is a *corporate* action taken by the company to reorgan the share price at the desired range of the market so that investors can buy more shares, thereby increasing stock liquidity. The results of this study are in line with yustisia research (2018) which concluded that *stock split* corporate action does not affect trading *volume activity* (TVA) because there is no difference between before and after the stock split corporate *action.*

There was no difference before and after the corporate *action of stock split* occurred because investor did not give a quick reaction to the stock *split information.* Investors consider that stock *split events are not* good news so there is no difference in trading volume activity. In this case investor tend to becareful in responding *to stock split events,* investors do not buy shares just because the price is cheaper after *the corporate action stock split,* but also look at the prospects and profits of the company in the future.

➢ *Difference between Bid-Ask Spread Before and After Stock Split*

Based on the results of statistical tests showed that there is no significant difference between *bid-ask spread* before and after stock *slpit event.* This can be interpreted that the *stock split corporate action does* not give a *difference in bid-ask spread in* the five days before the event when compared to five days after the *stock spit event.* It is also not in line with the trading range *theory* which states that stock *split can* increase stock liquidity. The results of this study are in line with Yustisia's research (2018) which concluded that *stock split corporate action does* not affect *bid-ask spread because* there is no difference between before and after the stock split corporate *action.*

Stock *split corporate action makes* cheaper prices indirectly make investors' interest increase to transact so as not to increase liquidity. This can be seen from the results of this study where *the corporate action of stock split* does not make a difference trading *volume activity and bid-ask spread* in the five days before with the after event. In addition, banyak is also another factor that can affect *bid-ask spreads in addition* to *stock split,* such as the condition of the company and also the state of the economy.

➢ *Differences in Abnormal Returns Before and After Stock Split*

Based on statistical test results in this study showed that there are significant differences *in abnormal returns* before and after stock split *events.* This can be interpreted that stock split *corporate action* provides *a difference in adnormal return* in the five days before the event when compared to five days after the *stock* spit *event.* Significant differences in *abnormal returns* in this study did not occur in a more positive direction but in a negative direction. An *abnormal negative* return can mean that the *return* value obtained is lower than the expected return. The *abnormal negative return* indicates that the market is receiving negative signals from stock *split events.* This is contrary to *the signalling theory which* states that the stock split *event gives* a positive signal to the market about the increase in future returns, because *companies that do stock splits* are considered to have a good performance. The results of this study are in line with research conducted by Puspita and Yuliari (2019) and also Hanafie and Diyani research (2019) where stated that there are significant differences in abnormal *returns* before and after stock *split events.* The difference that occurs in the market is more towards the negative by indicating abnormal *return value* after stock split *event* becomes negative.

In the results of this study, *abnormal return differences showed* that there was a market reaction to stock *split events.* *Abnormal negative* returns indicate that the information contained in the stock split event is bad news for investors. So investors react to selling their shares which ultimately makes the return on the *stock* decrease.

VII. CONCLUSIONS AND SUGGESTIONS

Conclusion

Based on the discussion in this research on liquidity comparison measured using trading volume *activity* (TVA) and *bid-ask spread,* as well as *analyzing abnormal return comparison* in corporate stock *split action* in the period 2015 to 2019 can be concluded as follows:

a. There is no significant difference in stock liquidity before and after *stock split* events as measured by *trading volume activity* (TVA) between five days before and five days after the event.

b. There is no significant difference in stock liquidity before and after *the stock split event* as measured by *the bid-ask spread* between five days before and five days after the event.

c. There was a significant *difference in abnormal retreats* between the five days prior to the five days after the *stock split event.* The *difference in abnormal returns* is occurring in a negative direction.

Advice

Based on the conclusions of the research conducted, here are some suggestions that can be given:

a. For further research it is recommended to use a longer period or timeframe and add other variael to better describe *the corporate action of stock split* and achieve more accurate results. For further research can also

compare the value of daily research variables before and after the stock split *event*.

b. Investors should pay more attention to market reaction information on the company's policies related to corporate actions to predict the risks that may arise as a result of the announcement. Investors can also use the existing information as a reference for profit.

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