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Comparative Analysis of Stock Prices and Trading Volume Before and After Reverse Stock Splits on the Indonesia Stock Exchange (2015-2022)

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Abstract: The purpose of this study is to examine and analyze the comparison of stock prices and stock trading volume before and after a reverse stock split in companies listed on the Indonesia Stock Exchange during the period 2015-2022. This research adopts an event study approach, which investigates market reactions to specific events, in this case, reverse stock splits. The population in this study consists of all companies listed on the Indonesia Stock Exchange that conducted a reverse stock split between 2015 and 2022. Using a purposive sampling method, 13 companies were selected as the research samples based on specific criteria. The data analysis techniques used in this study include the Paired Sample T-Test and the Wilcoxon Signed Rank Test. The Paired Sample T-Test is applied to determine whether there is a statistically significant difference in stock prices before and after the reverse stock split. Meanwhile, the Wilcoxon Signed Rank Test is used to analyze the differences in stock trading volume before and after the event. The results of the study indicate that, based on the Wilcoxon Signed Rank Test, there is no statistically significant difference in stock prices before and after the reverse stock split. However, the analysis reveals a significant difference in stock trading volume before and after the reverse stock split, suggesting that the event had a notable impact on trading activity but not on stock price levels.

Keywords: stock prices, stock trading volume, reverse stock split.

INTRODUCTION

The capital market acts as an investment forum by providing a variety of securities that can be traded, both in the form of debt and (Destina Paningrum, 2022). In addition, the capital market is also a means for companies to sell stocks and bonds to increase business development funds (Muklis, 2016). Investors can access a variety of information, including corporate actions such as stock splits, right issues, stock dividends, and reverse stock splits, which affect trading activities and stock prices. The reverse stock split aims to increase the stock price to make it more attractive to investors and strengthen the company's value (Hamin, 2024). Stock prices that are too low can reduce investor interest because they are considered risky. Therefore, a reverse stock split is carried out to prevent the stock price from falling too low and avoid delisting due to not meeting the minimum limit for listing on the stock exchange (Edi Murdiyanto et al., 2020).

The reverse stock split turned out to have a negative impact on the company's stock price (Liza et al., 2021). For example, the Bakrie company decided to conduct a reverse stock split and also PT Bakrieland Development, Tbk. (ELTY), PT Energi Mega Persada, Tbk. (ENRG), PT Bakrie Sumatra Plantations, Tbk. (UNSP), which immediately dropped its share price by 30% in a day of circulation. The following is the data from initial observations of companies that carry out reverse stock split corporate actions for the 2015-2022 period:

Table 1. List of Companies that Carried Out Reverse Stock Splits for the 2015-2022 Period

Issuer Name	Stock Code	Reverse Stock Split Date	Ratio Reverse Stock Split
PT Sreeya Sewu Indonesia Tbk	SIPD	03 February 2015	10:1
PT Buana Lintas Lautan Tbk	BULL	09 March 2015	8:1
PT Trada Alam Minera Tbk	TRAM	June 29, 2015	5:1
PT Bakrie Sumatra Plantations Tbk	UNSP	March 15, 2017	10:1
PT Polaris Investama Tbk	PLAS	27 April 2017	10:1
PT Energi Mega Persada Tbk	ENRG	July 26, 2017	8:1
PT Bakrie & Brothers Tbk	BNBR	31 May 2018	10:1
PT Bakrieland Development Tbk	ELTY	07 June 2018	10:1
PT. Intan Baru Prana Finance Tbk	IBFN	04 July 2018	5:1
PT Bank J Trust Indonesia	BCIC	01 October 2018	100.000:1
PT. Investindo Partners	MITI	November 19, 2020	5:2
PT Bank Pembangunan Daerah Banten Tbk	BEKS	December 10, 2020	10:1
PT Pelayaran Nasional Bina Buana Raya Tbk	BBRM	February 18, 2022	3:2

Reverse stock splits are less preferred in Indonesia because they are often carried out by issuers that are experiencing financial problems, so that investors feel disadvantaged due to a reduction in the number of shares without the guarantee of price increase (WOMEN, 2023). For example, PT Buana Lintas Lautan Tbk (BULL), which conducted an 8:1 reverse stock split in 2015, raised its share price from IDR 50 to IDR 400, but then dropped to IDR 180 per share. However, a reverse stock split can also provide positive signals for the market, attract investors, and increase the company's value (Hamin, 2024). Stock trading volume reflects buying and selling activity on exchanges, where increased demand and supply can affect stock price fluctuations. The more often a stock is traded, the greater the trading volume, which has the potential to increase the price or return of the stock (Mustanwir & Rosalia, 2023).

The following are the results of the initial calculation of the condition of stock trading volume before and after the reverse stock split. The calculation criteria used are calculated seven days before and after the reverse stock split, then the average value is taken and a comparison of the increase and decrease experienced by the company after the reverse stock split is calculated.

Table 2. Percentage of Stock Trading Volume Before-After the Reverse Stock Split

Stock Code	Average TVA Before Action	Average TVA After Action	TVA Percentage (%)
TRAM	0,041523734	0,014992664	-79%
PLAS	0,000253800	0,001216517	79%
SIPD	0,001369689	0,003217117	57%
IBFN	0,000029601	0,000091800	68%

Table 2 shows that reverse stock splits have an inconsistent influence on stock trading volume. For example, a company with the stock code TRAM that conducted a reverse stock split on June 29, 2015 experienced a 79% decrease in Trading Volume Activity (TVA) from the previous average of 0.041523734 in the 7 days before the corporate action. This shows the negative impact of the reverse stock split on the trading volume of TRAM shares. In contrast, companies with the stock code PLAS that announced a reverse stock split on April 27, 2017 experienced a 79% increase in TVA from the previous average of 0.000253800, showing the positive impact of the action on the trading volume of PLAS shares. Investors tend to be attracted to stocks with increased trading volume, as the ratio of the number of shares traded and the number of shares outstanding can affect the stock price and the returns that shareholders earn.

This study aims to analyze the difference in stock prices and stock trading volume before and after the reverse stock split in companies listed on the Indonesia Stock Exchange for the 2015-2022 period. Based on the phenomenon of problems and differences in the results of previous studies, researchers are interested in finding out if there is a significant difference in these aspects. Therefore, this study aims to analyze the comparison of stock prices as well as stock trading volume before and after the reverse stock split. The results of this research are expected to provide benefits for various parties, including for academics to increase scientific understanding of the impact of reverse stock splits on stock liquidity, for practitioners or investors as a reference in identifying the influence of this corporate action on stock liquidity in order to be able to invest funds with optimal returns, and for authors to expand their insight into corporate action and apply the knowledge that has been Retrieved. In addition, this study is expected to be a reference for future research that wants to develop studies related to reverse stock splits.

THEORETICAL REVIEW

Signaling Theory

In signal theory, the information that a company discloses to the public will be received by investors as a signal that can influence investment decisions (Wibowo & Febriani, 2023). Company management has more accurate information about financial conditions and business prospects than investors, so the market response may vary depending on the perception of the signal. If the signal comes from a company with strong fundamentals, investors are likely to respond positively. Conversely, if the signal comes from a company with less reliable fundamentals, then it is likely to be considered less quality and not get a positive response from the market (Siladjaja et al., 2023).

Trading Range Theory

Trading range theory is a stock merger theory that resets the stock price at the desired price range and is expected to attract investors to buy a relatively large number of shares (HERDALISA, 2021). Moreover, the price before the stock merger is low, so the reverse stock split will further strengthen the truth of this motive. The reason for the stock merger is to return the stock price to the price that the market is interested in so that it can create a wider market share. The stock merger was encouraged because the stock price was too low which led to a lack of stock trading.

Definition of Stocks

Stocks are one of the most traded types of securities in the capital market. Even now with the number of issuers listing their shares on the stock exchange, stock trading is increasingly rampant and attracts investors to be caught up in buying and selling stocks (Hokardi & Firdausy, 2021). Shares are a sign of capital participation in a Limited Liability Company (PT). By owning a company's shares, the benefits obtained are in the form of dividends which are part of the company's profits distributed to shareholders, capital gains are part of the profits obtained from the difference between the buying and selling prices of the company.

Stock Trading Volume

In making his or her investment decisions, a rational investor will consider the risks and the expected level of return (Mahardhika & Asandimitra, 2023). For this reason, investors should do an analysis before determining the stocks they will buy. In conducting analysis, investors need information. The existence of published information will change the confidence of investors as seen from the market reaction. One of these market reactions is the reaction of stock trading volume.

Corporate Actions

Corporate actions are the activities of issuers that affect the number of outstanding shares, as well as the price of shares in the market (Maulana et al., 2021). Corporate action is news that generally attracts the attention of parties related to the capital market, especially shareholders (investors). Because shareholders (investors) are the parties who need the most news or information about the corporate action, in order to make decisions in their investments.

Reverse Stock Split

A reverse stock split is the opposite of a stock split. Reverse stock split is one of the activities of an issuer company to increase its share price and reduce the number of outstanding shares (Penanne et al., 2024). In the United States, the reverse stock split is a rescue step taken by issuer companies in order to meet the marginability requirements to maintain their listing status in capital market trading. This regulation has been introduced since 1991 on the Nasdaq. This is done by setting a minimum selling price of $1.00 in the national capital market and the small cap market. (Terence F. Martell and Gwendollyn P. Webb, 2005).

Conceptual Framework

This study aims to analyze the influence of reverse stock splits on stock prices and stock trading volume before and after the action is carried out. In this study, the reverse stock split (X) is an independent variable, while the stock price (Y1) and stock trading volume (Y2) are bound variables, which will be analyzed before and after the reverse stock split is carried out by the company.

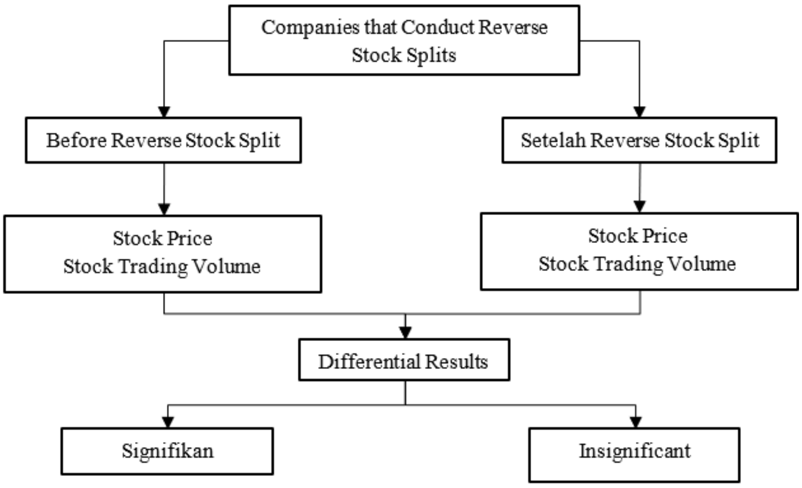

Figure 1. Conceptual Framework

METHODS

This study uses a comparative descriptive method with a quantitative approach to test the significance of the difference in stock prices and stock trading volume before and after the reverse stock split in companies listed on the Indonesia Stock Exchange (IDX) for the 2015-2022 period. Research data was obtained from the official website of the IDX (www.idx.co.id) as well as the announcement of reverse stock split corporate action published by the Indonesian Central Securities Depository (KSEI) through the official website of www.ksei.co.id. This research was conducted from December 2022 to February 2023. To maintain the focus of the research, the operational limitations set include analysis only on the difference in share prices and stock trading volume of companies that carry out reverse stock splits and only include companies listed on the IDX in the 2015-2022 period.

The population in this study is all companies that go public on the Indonesia Stock Exchange that carried out a reverse stock split from 2015 to 2022. The companies listed on the Indonesia Stock Exchange that carried out a reverse stock split amounted to 13 companies. The sample selection in this study uses a purposive sampling method with the following criteria: (1) companies that carry out reverse stock splits between January 2015 and December 2022, (2) do not carry out other corporate actions such as warrants, right issues, or stock dividends on the reverse stock split date, (3) have complete data, especially the daily closing price in the research range, and (4) actively trade stocks during the research period.

Data Analysis Techniques

The data analysis technique in this study uses descriptive statistics and mean difference tests with the help of Microsoft Excel and SPSS. If the data is normally distributed, then the parametric Paired Sample T-Test is used, while if it is not normally distributed, the non-parametric Wilcoxon Signed Rank-Test is used. The descriptive statistical test aims to describe the data that has been collected, with outputs in the form of mean, standard deviation, maximum value, and minimum value. A comparative statistical test was conducted to compare the average tendency between two or more groups of data samples to test the research hypothesis. The data normality test was carried out to determine whether the data was normally distributed or not, using the Kolmogorov-Smirnov test with a two-tailed test, where the p-value was compared with the predetermined significance level to determine the next test method.

Hypothesis Test

The hypothesis test in this study uses the Paired Sample T-Test and the Wilcoxon Signed Rank Test to analyze the difference in stock price and trading volume before and after the reverse stock split with a significance level of $\alpha = 5\%$. The Paired Sample T-Test was carried out by determining the level of significance, degree of freedom (n-1), and comparing the t count with the t table. If t counts > t table or probability value (sig. 2-tailed) < 0.05, then Ha is accepted, whereas if t counts < t table or sig. 2-tailed > 0.05, then Ha is rejected. Meanwhile, the Wilcoxon Signed Rank Test is used if the data is not distributed normally, with a similar step of comparing the z count with the z table. If z counts > z table or sig. 2-tailed < 0.05, then Ha is accepted, and vice versa if z counts < z table or sig. 2-tailed > 0.05, then Ha is rejected. The hypotheses tested include stock prices and stock trading volumes. For the share price, H0 states that there is no significant difference before and after the reverse stock split, while H1 states that there is a significant difference. For stock trading volume, H0 stated there was no significant difference before and after the reverse stock split, while H2 stated there was a significant difference.

RESULTS

Statistical Descriptive Analysis

A description of statistical data of companies that carried out reverse stock splits in 2015-2022 will be presented in this analysis.

Table 3. Descriptive Statistics of Research Variables

	N	Minimum	Maximum	Mean	Std. Deviation
Closing Price Before	91	48	500	187.15	184.078
Closing Price After	91	48	515	174.37	151.322
TVA Before	91	,0000000	,1216524	,003323986	,0169137288
TVA After	91	,0000000	,0715354	,006271256	,0127262277
Valid N (listwise)	91				

Based on Table 3, the share price before the reverse stock split has a minimum of IDR 48 (PT Trada Alam Minera Tbk) and a maximum of IDR 500 (PT Bakrie & Brothers Tbk), while after the reverse stock split the minimum remains IDR 48 and the maximum increases to IDR 515 (PT Sreeya Sewu Indonesia Tbk). The average stock price decreased from 1611.3741 to 187.15 with a difference of 174.37, and the standard deviation decreased from 184,078 to 151,322. For trading volume, before the reverse stock split the minimum is 0.0 (occurs in 5 companies) and the maximum is 0.1216524 (PT Trada Alam Minera Tbk), while after that the minimum remains 0.0 and the maximum drops to 0.0715354 (PT Bakrie Sumatra Plantations Tbk). The average trading volume increased from 0.003323986 to 0.006271256 with an increase of 0.00295, while the standard deviation decreased from 0.0169137288 to 0.0127262277 with a difference of 0.0042.

Data Normality Test

To determine the right statistical test tool for the hypothesis that has been made, a data normality test is first carried out using a non-parametric one-sample Kolmogorov–sminorv test for each variable studied. The basic concept of the Kolmogorov Sminorv test is to compare the distribution of the data (to be tested for normality) with the standard normal distribution. The test criteria used with the two-tailed test are by comparing the p-value obtained with the predetermined level of significance.

1. The value of sig. or significant probability is determined to be 0.05 if p > 0.05, then the data is normally distributed.
2. The value of sig. or significant probability is determined to be 0.05 if p < 0.05 then the data is not normally distributed.

The normality test of stock liquidity data before and after the reverse stock split is shown in the following table:

Table 4. One-Sample Kolmogorov-Sminorv Stock Price Test

		Closing Price Before	Closing Price After
N		91	91
Normal Parametersa,b	Mean	187.15	174.37
	Std. Deviation	184.078	151.322
Most Extreme Differences	Absolute	.320	.223
	Positive	.320	.223
	Negative	-.225	-.202
Test Statistic		.320	.223
Asymp. Sig. (2-tailed)		.000c	.000c

Table 4 explains that the stock price data before and after the reverse stock split is not normally distributed with the probability of significance before and after the reverse stock split being 0.000 and 0.000. The probability of this significance is less than the real level of 5% (0.05). This indicates that hypothesis testing on stock prices can use the Wilcoxon Test.

Stock Trading Volume

The data normality test for liquidity before and after the reverse stock split is shown in the following table:

Table 5. One-Sample Kolmogorov-Sminorv Test Stock Trading Volume

		TVA Before	TVA After
N		91	91
Normal Parametersa,b	Mean	,003323986	,006271256
	Std. Deviation	,0169137288	,0127262277
Most Extreme Differences	Absolute	.450	.311
	Positive	.450	.272
	Negative	-.422	-.311
Test Statistic		.450	.311
Asymp. Sig. (2-tailed)		.000c	.000c

Table 5 explains that the average trading volume before and after the reverse stock split is not normally distributed with the probability of significance before and after the reverse stock split being 0.000 and 0.000. The probability of this significance is less than the real level of 5% (0.05). This indicates that testing on trading volumes can use the Wilcoxon Test.

Hypothesis Testing

After conducting a data normality test, statistical testing was carried out to test the hypothesis. In the stock price variable, the test results using the Wilcoxon Signed Ranks Test, showed that there were 43 samples with stock prices after the reverse stock split lower than before the reverse stock split, which was indicated by negative ranks with a mean rank of 25.14 and a sum of ranks of 1081.00. Meanwhile, there are 15 samples with a higher stock price after the reverse stock split than before, which is indicated by positive ranks with a mean rank of 42.00 and a sum of ranks of 630.00. In addition, there are 33 samples with a fixed share price or included in the ties category. Based on the results of the calculation of the Wilcoxon Signed Ranks Test, an Asymp score was obtained. Sig. (2-tailed) is 0.081, which is greater than α (0.05). Thus, the test results show that there is no statistically significant difference between the stock price before and after the reverse stock split.

In the stock trading volume variable, the test results using the Wilcoxon Signed Ranks Test, showed that there were 13 samples with lower trading volumes after the reverse stock split than before, which was indicated by negative ranks with a mean rank of 30.23 and a sum of ranks of 393.00. Meanwhile, there are 59 samples with a higher trading volume after the reverse stock split than before, which is indicated by positive ranks with a mean rank of 37.88 and a sum of ranks of 2235.00. In addition, there are 19 samples with a fixed trading volume or belonging to the ties category. Based on the results of the calculation of the Wilcoxon Signed Ranks Test, an Asymp score was obtained. Sig. (2-tailed) is 0.000, which is smaller than α (0.05). Thus, the test results showed that there was a statistically significant difference between the trading volume before and after the reverse stock split.

DISCUSSION

Stock Price Difference Before and After Reverse Stock Split

The test results show that there is no significant difference in stock prices before and after the reverse stock split, contrary to the research of Fitria et al. (2016). The average decline in stock prices after a reverse stock split does not fit with trading range theory, which states that stock price adjustments should attract more investors. Reverse stock splits are usually done to increase stock prices and attract investors, but too low a stock price can reflect a company's poor reputation and performance. Low-priced stocks are often considered risky by investors, leading to low liquidity and potential delisting.

Difference in Stock Trading Volume Before and After Reverse Stock Split

There was a significant difference in trading volume before and after the reverse stock split, in line with the research of Maiyaliza et al. (2021). The increase in the average trading volume supports the signaling theory, where the publication of a reverse stock split gives an optimistic signal to investors. However, an increase in trading volume does not necessarily increase long-term investor interest, as evidenced by the decline in stock prices after a reverse stock split. This move is often seen as a sign of management's distrust of the future prospects of the stock price, which can affect investors' expectations of the company's earnings in the future.

CONCLUSION

Research on 13 companies that conducted reverse stock splits on the Indonesia Stock Exchange (IDX) in 2015-2022 showed that reverse stock splits did not have a significant effect on stock prices, because no significant differences were found before and after the event. However, reverse stock splits have a significant effect on stock trading volumes, with significant differences before and after the event. Investors need to analyze more deeply the factors that affect the difference in price and trading volume of stocks before making investment decisions. Issuers are expected to improve the company's performance and value in order to provide better prospects in the eyes of investors, so as to reduce doubts in buying shares. In addition, this study is expected to be a reference for future research with a wider scope, such as increasing samples, extending the observation period, and adding variables such as stock returns so that the research results are more comprehensive.

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