STOCK PRICE VOLATILITY ASSESSED FROM ASPECTS *DIVIDEND YIELD* AND *EARNINGS VOLATILITY* IN COMPANIES LISTED IN INDONESIA STOCK EXCHANGE

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A R T I C L E   I N F O

A B S T R A C T

Stock price volatility is the movement of rising or falling stock prices. This study aimed to obtain empirical evidence about the effect of dividend yield and earnings volatility on stock price volatility in companies listed on the Indonesia Stock Exchange (BEI) for the 2014-2018 periods. The sample in this study was 9 companies selected by purposive sampling method with 4 years of observation, namely 2014-2018. The analytical method used was the panel data regression method. Based on the hypotheses, the results of the study show that dividend yield does not significantly affect stock price volatility and earnings volatility has a significant effect on stock price volatility.

1. INTRODUCTION

Stock price volatility is a concern for investors in the capital market, in which it can be used as a reference for determining the right strategy for investing. Significant volatility indicates that the gain or loss of a stock will be greater in the short term. Stock prices that have high volatility are difficult to predict because they can change at any time (Selpiana & Badjra, 2018).

Stock price in certain circumstances will change; this is related to market conditions, both from the financial performance of the company that issued the stock or the desire of investors to buy the stock. Beside the macroeconomic conditions of a country, the stock price is also a basis for investment considerations for investors because the stock price is like an assessment for the company. The stock buyer expects that by buying stock, its price will increase, while the stock seller expects that the price of stock that have been sold will decrease, so that the stock price will fluctuate (Selpiana & Badjra, 2018).

The up or down movement of stock prices on the Indonesia Stock Exchange is the volatility of stock prices. The volatility of stock prices is also a measure to determine the risk of a stock. The higher the stock price volatility, the more likely the stock price will rise and fall rapidly (Selpiana & Badjra, 2018).

In which as an illustration of stock prices – wherein one of the indicators used to measure the volatility of stock prices is the price. Because price is the main indicator used by investors to know whether the company's performance is good or not; the higher the stock price the better the company's performance is and conversely, the lower the stock price the lower the

company's performance is. Of the five companies taken randomly, where the price fluctuates, that's where the unstable price movement occurs.

Viewed from investors' point of view, most of them prefer dividend rather than *current dividend* or capital gain because dividend represents the magnitude of the return obtained by them (investors), namely dividend where investors receive profits each period; in which the greater the dividend given by company management to investors, the higher the investment attractiveness is. The more dominant the investment attractiveness for investors – will impact on stock prices; wherein the market signals regarding the company's future work are the right way (the right indicator), although expensive but meaningful. Only companies with good prospects can do this while companies that is lacking cannot; because they don't have enough cash flow to do so. Thus the market will react to successful company changes even though the promised dividends are large. *Signaling* is dividend information that brings relevant information to stockholders or investors (Ramdhani, 2012).

Besides dividend yield, earnings volatility can also affect stock prices. Earnings volatility is the ratio of the company's operating earnings before interest and tax (EBIT) to total assets. Earnings volatility is the level of volatility (fast company) of earnings volatility associated with bankruptcy costs which affect the *Agency Cost of Debt* (Ramdhani, 2012); wherein earnings volatility is the movement of earnings as a company's fundamental factor. Earnings volatility is a proxy for business risk. Business risk is a risk faced by a company where the company is unable to cover operational costs. Also, if investors analyse company data based, investors are more oriented towards company that has good prospects – wherein company that is profitable every period indicates that it is financially good then it can attract investors to invest.

2. LITERATURE REVIEW AND HYPOTHESES DEVELOPMENT

Dividend yield is the rate of return in the form of dividend on investment that has been invested by investors. This can affect an investor's investment decisions, and changes in investment decisions can have an impact on the volatility or stock price. According to the research by (Shah, 2016) *dividend yield* is a ratio that relates the dividend to be paid with the price of common stock per share (sheet).

In accordance with the results of the t statistical test, it shows that the dividend yield affects the volatility of the LQ45 shares listed on the IDX in 2015–2017. With a positive t_{count} of 2.930, it means that the change in dividend yield has a direct relationship with the volatility of stock prices. These results are consistent with the findings of (Silviana & sista paramita, 2019) research which reveals that dividend yield has a positive effect on stock price volatility. This is because dividend distribution is information that investors consider when investing. In this regard, the high and low dividend yield values will influence investors' decisions to conduct stock trading transactions. The high value of the dividend yield indicates that the stock price is decreasing, so it has a high level of risk and the stock price becomes more volatile. These findings are inconsistent with the research by (Shah, 2016), where it is found that the dividend yield has a negative effect on the volatility of stock prices. Meanwhile, Fahim et al. (2016) and Surahmat et al. (2017) explain that information regarding the amount of dividends distributed does not affect volatile stock price movements. The level of dividend yield value does not necessarily affect changes in the volatility of stock prices. Based on the description above, the first hypothesis is formulated as follows:

H1: Dividend Yield has a negative and significant effect on Stock Price Volatility.

Furthermore, the research conducted by (Theresia, 2015) proves that earnings volatility causes earnings to be difficult to predict and even more difficult to predict when volatility is high. Earnings volatility has a positive effect, because if profits are fluctuating, it will cause unstable stock prices. Therefore, the level of stock price volatility is neither good nor tends to be high. This is supported by the research conducted by Shah, (2016) which proves that earnings volatility has a positive effect on Share Price Volatility.

On the other hand, Anastassia & Firnanti (2014) and Lashgari & Ahmadi (2014) explain in their research findings that earnings volatility has no effect on stock price volatility. This is due to the factor of investor confidence in a stock. Although, the profits earned by the company

are not stable, as long as the company has the ability to distribute dividend regularly, investors are interested in buying stocks. From the explanation above, the second hypothesis can be formulated as follows:

H2: Earnings Volatility has a positive and significant effect on Stock Price Volatility.

3. METHODS

Population and Sample

This study used a quantitative method with the object of research were companies listed on the IDX in 2014-2018, totalling 600 companies. The data source used was secondary data, which means data that were not given directly to the researchers.

The technique used was purposive sampling-a sampling technique for several companies that are members of the Indonesia Stock Exchange in 2018 with certain considerations, among others: (1) Companies listed on the Indonesia Stock Exchange until the end of the observation period, namely 2014-2018. (2) Companies listed consecutively on the Indonesia Stock Exchange until the end of the observation period (2014-2018). (3) Companies that have complete financial reports until the end of the observation period (2014-2018). (4) Companies that have financial data in accordance with the variables to be tested, namely, *dividend yield*, *earnings volatility* and *stock prices*. (5) Companies that have financial data that are free from outlier data.

Table 3.1
Sample Selection Process Based on Purposive Sampling

No.	Criteria	Total
1	Companies listed on the Indonesia Stock Exchange until the end of the observation period.	600
2	Companies that are not listed consecutively on the Indonesia Stock Exchange during the observation period.	(134)
3	Companies that do not have complete financial reports during the observation period.	(175)
4	Companies that do not have financial data in accordance with the variables to be tested.	(83)
5	Companies that have financial data indicated by data outliers.	(125)
	Final Sample	**83**
	Number of Observations	**415**

Source: Processed by Researchers, 2019

Variable Operational Definition

The variables used consisted of two types, namely independent variables and dependent variables. The independent variables in this study were *Dividend Yield* as X1 and *Earnings Volatility* as X2, while *Stock Price Volatility* as Y.

Table 3.2
Operational Definition of Variables

No.	Variable	Definition	Measurement	Source
1	Stock Price (Y)	The volatility of stock prices is a measure to determine the risk of a stock. The higher the stock price	$PV = \dfrac{Hit - Lit}{(Hit + Lit)/2}$	(Selpiana & Badjra, 2018)

NO	Variable	Definition	Measurement	Source
		volatility, the more likely the stock price will rise and fall rapidly.		
2	*Dividend Yield* (X1)	*Dividend Yield* is a ratio that relates dividends paid to the price of common stock per share (sheet).	$DY = \dfrac{\text{Divident per share}}{\text{Price of common stock per share}}$	(Selpiana & Badjra, 2018)
NO	**Variable**	**Definition**	**Measurement**	**Source**
	Earnings Volatility (X2)	*Earnings Volatility* is an indicator that measures how stable the company's profits are every year.	$EVOL = \text{STD}\dfrac{EBIT}{\text{Total Assets}}$	(Jannah & Haridhi, 2016)

Data Analysis Techniques

In this study, a normality test was carried out to determine whether our data were normally distributed or not. The approaches used for panel data analysis were Common Effect (CEM), Fixed Effect (FEM) and Random Effect (REM). There are two stages to determine which model is the best, this stage is in the form of the Chow Test which functions to determine which model is the best between Common Effect (CEM) or Fixed Effect (FEM). The hausmant test was used to determine which model is the best between Fixed Effect (FEM) and Random Effect (REM).

In this study, the panel data regression model used in testing the hypotheses is as follows:

$$PVit = α + β1\ EV\ it + β2\ DY\ it + e$$

Where PVit is the volatility of stock price i at time t; α is a constant coefficient; $β_1$ is the regression coefficient for earnings volatility; $β_2$ is the regression coefficient for dividend yield; $αβ_1β_2e$ is the Standard error.

This equation model is used for hypothesis testing. The hypotheses in this study were tested using t-test, on the basis of acceptance of the hypothesis if prob is smaller than the alpha level 0.05 or T $_{count}$ is greater than T $_{table}$, the hypothesis is accepted. But if the prob is greater than the alpha level 0.05 or T $_{count}$ is less than T $_{table}$, then the hypothesis is rejected.

4. RESULTS

Below is the descriptive statistical data from the following data:

Table 4.1.
Descriptive Statistics

Variable	Minimum	Maximum	Mean	Standard Deviation
Stock price	1010	3500	1838.53	575.79
Dividend Yield	0.0005	2.4470	0.0842	0.3607

Earnings Volatility	0.0243	0.4412	0.1281	0.1001

Source: Secondary data processed in the e-views 8

Table 3 (4.1) shows the descriptive numbers of each variable with 45 (forty five) observations. The explanation of this descriptive analysis is as follows:

The stock price volatility is the dependent variable. The stock price is a yardstick for determining stock risk. The higher the stock price volatility, the more likely the stock price will rise and fall rapidly. The minimum value of the stock price of 1010 is found in Nippon Indosari Corpindo Tbk., in 2018; while the maximum value of 3500 is found in Ciputra Development Tbk., in 2014. The mean value is 1838.53, meaning that on average the company uses 1838.53 as information on the ups and downs of stock prices in the capital market. The standard deviation value of the stock price variable is 575.79, meaning that the level of sample diversity is 57.579 and shows that the data distribution is smaller as the value is lower than the mean.

The dividend yield is the independent variable. Dividend yield is a ratio that shows the ratio between dividends paid and the price of common stock per share (sheet). The minimum value of 0.0005 is found in Bukit Asam Mining (Persero) Tbk., in 2018; while the maximum value of 24.470 is also found in the Bukit Asam Mining (Persero) Tbk., in 2017. The mean value is 0.0842 meaning that on average the company is able to use 8.42% of its assets as the rate of return on returns to investors. The standard deviation value is 0.3607, meaning that the level of sample diversity is 36.07% and shows a greater distribution of data because the value is higher than the mean.

The earnings volatility is the indicator that measures how stable the company's profits are every year. The minimum value of 0.0243 is found in Pp London Sumatra Indonesia Tbk., in 2016; while the maximum value of 0.4412 is found in Ciputra Development Tbk., in 2015. The mean value is 0.1281 meaning that on average the company is able to earn a profit of 12.81% to reflect the stability of company performance along with the profits earned at the end of the year. The standard deviation value is 0.1001, meaning that the level of sample diversity is 10.01% and indicates a smaller data distribution because the value is lower than the mean.

Panel Regression Model Feasibility Testing

The chow test was carried out to determine the best common effect or fixed effect model that is most appropriate for projecting panel data. In this study, the chow test was carried out, when the normality test of the fixed effect model was fulfilled. The results of further testing can be seen in the table as follows:

Table 4.2
Chow Test Results

Information	Statistics	Prob.
Cross-Section F	5.616501	0.0001
Cross-Section Chi-Square	37.900186	0.0000

Source: data processed by researchers, 2020

Based on the data that has been tested above, it can be seen that the Chi-Square Cross-Section Probability value is greater than alpha (0.00 < 0.05), meaning that H_0 is rejected, H_a is accepted. Thus the fixed effect model is better to be used rather than the common effect model.

The Hausmant Test

The hausmant test was carried out to determine which model is the best and most appropriate for projecting panel data – between the fixed effect model (FEM) and the random effect model (REM). In this study, the hausmant test was carried out, when the normality test

of the random effect model was fulfilled. The results of further testing can be seen in the table as follows:

Table 4.3.
Hausmant test results

Information	Statistics	Prob.
Random cross-section	4.450601	0.1080

Source: data processed by researchers, 2020

Based on the data that has been tested above, it can be seen that the value of the random effect model is acceptable because the probability value generated by the random cross-section is greater than 0.05, meaning that H_0 is rejected, H_a is accepted. Thus the random effect model is better to be used rather than the fixed effect model.

Formation of Panel Regression Model *Random Effect Model* (REM)
The follow-up test that was carried out is the hausmant test – which is used to obtain the best model between the common effect and the fixed effect. Based on the results of the hausmant test, different significance values were obtained. In this study, the best model of the two is the random effects model (REM).

Table 4.4
Results of Random Effect Model Estimation
Information

	Coefficient	Std. Error	t-Statistic	Prob.
C	1415,655	178.6263	7.925229	0.0000
DY	-24.30619	166,9079	-0.145626	0.8849
EV	3318,166	1009,917	3.285584	0.0021

Source: Data processed by researchers, 2020

From the regression results, it was obtained the coefficient value on the dividend yield of -24.30619 with a probability value greater than alpha (0.8849 > 0.05) and T_{count} is smaller than T_{table} (-0.145626 < 2.02). Thus, the dividend yield does not have a significant effect on the stock price volatility.

The coefficient value on earnings volatility is 3318,166 with a probability value that is smaller than alpha (0.0021 < 0.05) and T_{count} is greater than T_{table} (3.285584 > 2.02). Thus, the earnings volatility has a significant effect on the stock price volatility.

Hypothesis Testing
The Effect of Dividend Yield on Stock Price Volatility
The hypothesis testing in this study was aimed to determine how much influence an independent variable has on the dependent variable. The test criteria is in the form of: if the value of $T_{count} > T_{table}$ then H_0 is rejected and H_a is accepted, and if $T_{count} < T_{table}$ then H_a is rejected and H_0 is accepted – with a significance level of 5% (0.05).

Table 4.5
Hypothesis test results
Information

Variable	t-Statistics	t-table	Prob.	Alpha	Conclusion
DY	-0.145626	2.02	0.8849	0.05	H1 is rejected
EV	3.285584	2.02	0.0021	0.05	H2 accepted

Source: Data processed by researchers, 2020

Based on the table of hypothesis test results above, in model I, the dividend yield variable shows that the value of T_{count} is smaller than T_{table} (-0.145626 < 2.02) or the probability is greater than alpha (0.8849 > 0.05), then H1 is rejected and it can be concluded that the dividend yield has no significant effect on the stock price volatility. For earnings volatility regression, it shows that T_{count} is greater than T_{table} (3.285584 > 2.02) or the probability is smaller than alpha (0.0021 < 0.05), then H2 is accepted and it can be concluded that the earnings volatility has a significant effect on the stock price volatility.

The Effect of Dividend Yield on Stock Prices

Based on the tests that have been done, it can be concluded that dividend yield does not have a significant effect on stock price volatility. The insignificant effect of dividend yield on stock price volatility indicates that dividend yield is not a factor that determines the high or low volatility of stock prices.

The results also confirm that the dividend yield has no effect on stock prices. This shows that the higher or lower the dividend yield value will not affect the stock prices. Companies with high prospects will have a high stock market price, meaning that the dividend is high; thus the dividend yield for this kind of company will tend to be lower. Dividend yield is the percentage of dividends received compared to the purchase price of a stock. The company's stock price is constantly changing and is not in line with the amount of the company's dividend yield. This causes potential investors to make decisions to invest to not be influenced by the dividend payment factor by the company.

This finding is also in accordance with the research conducted by (Ramdhani, 2012) in which it reveals that the dividend yield has no effect on the volatility of stock price; wherein the dividend yield paid by the issuer (company) to the stockholders does not increase the value of the company.

The Effect of Earnings Volatility on Stock Price Volatility

Based on the tests that have been done, it can be concluded that earnings volatility has a significant effect on stock price volatility. This means that high earnings volatility will affect the high volatility of stock prices on the IDX.

The signals given by the company regarding the instability of the company's profit will influence investors to sell the company's stock in a fast period of time. The research by Lashgari, (2014) reveals that earnings volatility affect stock price volatility. Companies with high earnings volatility lead to the company profits fluctuation, thus affecting stock prices.

The results of the research conducted by Jannah & Haridhi, (2016) also reveals that earnings volatility has a positive effect on the volatility of company stock prices. Their reserach emphasizes that high earnings volatility indicates an unstable company's earnings, hence the investment risk is higher and the stock prices fluctuate.

These findings are also consistent with the research conducted by (Theresia, 2015) in which it proves that earnings volatility makes stock price earnings unpredictable and even more unpredictable when volatility is high. The earnings volatility has a positive effect, because if profits are fluctuating, it will cause unstable stock prices. Therefore, the level of stock price volatility is neither good nor tends to be high. This is supported by the research conducted by Shah, (2016) which proves that earnings volatility has a positive effect on stock price volatility.

5. CONCLUSION

Based on the results of the research on the effect of dividend yield and earnings volatility on stock price volatility in companies listed on the IDX some conclusions can be drawn as follows: (1) Dividend Yield has no significant effect on stock price volatility in companies listed on the Indonesia Stock Exchange in the 2014-2018 periods. This means that the high or low stock price volatility is not determined by the dividend yield obtained by investors or paid by the company. (2) Earnings Volatility has a positive and significant effect on stock price volatility in companies listed on the Indonesian stock exchange in the 2014-

2018 periods. This means that the higher the earnings volatility, the higher the stock price volatility is.

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