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Stock price synchronicity, sustainability reports, and earnings quality

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ABSTRACT

Stock Price Synchronicity is a calculation used to show the proportion of the company's internal and external information accumulated into the stock price. This study aims to examine internal information in the form of sustainability reports and earnings quality on stock price synchronicity. Furthermore, this study also aims to examine the moderating effect of institutional investors as an indicator of sophisticated investors. The population in this study is a go-public manufacturing company on the Indonesia Stock Exchange (BEI). The sample was determined by the purposive sampling method. This research uses multiple regression analysis methods with a panel data form. The results showed that companies with a higher quality of sustainability reports had lower stock price synchronicity and institutional investors did not have a moderating effect in this relationship. The results also show that companies that have higher earnings quality have high stock price synchronicity as well. This relationship changes when the institutional investor moderation variable is added. Companies with higher earnings quality have lower stock price synchronicity values.

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Introduction

The efficient market hypothesis explains that stock prices will reflect all the information available to investors. The stock price will go up or down depending on the ability of this information to influence company profits. However, when investors think that the available information is not related to the company, the stock price tends to remain constant.

Stock price synchronicity is a calculation method that shows the trend of information used in determining the stock price by investors when the information has been released to the public. The calculation of stock price synchronicity uses the R² value obtained by regressing industry returns to firm returns. Many previous studies used stock price synchronicity to test investor responses in response to information received and accumulate it in stock prices (An & Zhang, 2013; Grewal, Hauptmann, & Serafeim, 2020; Gul, Kim, & A.Qiu, 2010; Morck, Yeung, & Yu, 2019; Xing & Anderson, 2011).

There are several things that can hinder the accumulation of information into share prices and cause the market to be inefficient. One of them is the pump & dump phenomenon. The pump & dumb phenomenon is an activity to manipulate stock prices so that they appear to rise continuously in the short term so that many investors will be interested in investing in these stocks (Huang & Cheng, 2015). In Indonesia this is better known as “saham gorengan”.

During 2019, there were 84 announcements by the financial services authority (OJK) on shares that are indicated to have an unusual market activity or have unusual stock price movements within a certain period of time (Financial Services Authority, 2020). Huang & Cheng (2015) found that stock manipulation was carried out by small and poorly managed companies. Dai, Lu, & Qi (2019) found that fundamental information in the form of corporate social responsibility (CSR) can reduce stock price crash risk. So that fundamental information becomes important in investment decisions and stock price formation so that investors avoid buying “saham gorengan”.

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The fundamental information most often used by investors is financial performance. The company's financial performance can be seen from many indicators, one of which is the quality of earnings. Lyimo (2014) proves that a higher quality of earnings increases company-specific information accumulated in stock prices. Zhou (2007) proved that earnings quality has a significant effect on stock price synchronicity and a stronger influence for samples with higher financial analysts and institutional investors. Cheng, Johnston, & Zhou (2012) prove that earnings quality can have a positive or negative effect on stock price synchronicity depending on analyst coverage.

Fundamental information outside of financial performance is also needed by investors to assess the company better. One of the non-financial information is related to corporate social responsibility in the form of a sustainability report. According to Grewal, Hauptmann, & Serafeim (2020), companies that voluntarily disclose sustainability information that SASB (Sustainability Accounting Standard Board) considers material have a lower stock price synchronicity. Reported sustainability reports are considered as useful information for investors in determining share prices. However, CSR reports are used by companies only as a tool for personal gain (Dai, Lu, Yang, & Zheng, 2018). Poorly performing companies publish low-quality CSR reports through unclear processing methods to cover up poor operating conditions. As a result, the information contained in CSR reports is primarily industry and market public information, which leads to increased synchronization of share prices

The existence of institutional investors also affects the incorporation of information into share prices because institutional investors are considered as sophisticated investors. Shiller & Pound (1989) found that most individual investors do not perform systematic analysis for different stock characteristics in purchasing decisions. In contrast to institutional investors who spend more time doing analysis, institutional investors are often used as indicators for sophisticated investors.

This research contributes in several ways. First, this study investigates 2 types of fundamental information, namely financial information (earnings quality) and non-financial information (CSR) on stock price synchronicity, in contrast to previous studies which only investigated one type of information (Cheng, Johnston, & Zhou, 2012; Lyimo, 2014; Dasgupta, Gan, & Gao, 2010; Grewal, Hauptmann, & Serafeim, 2020). Second, research related to fundamental information and stock price synchronicity is quite a lot done, but research in Indonesia as far as the researchers' knowledge is still relatively small. Previous research by Butar (2019) investigated more fundamental information related to the composition of the Board of Commissioners and the Governance Committee, while Septiani's (2018) research only investigated fundamental information related to accrual quality (earnings quality). Third, this study contributes to the growth of research investigating the relationship between earnings quality and stock price synchronicity because according to Cheng, Johnston, & Zhou (2012) there is still relatively little research related to this.

This study aims to examine internal information in the form of sustainability reports and earnings quality on stock price synchronicity. Furthermore, this study also aims to examine the moderating effect of institutional investors as an indicator of sophisticated investors. This study addresses 4 important questions:

- i. *Does the sustainability report have a negative effect on stock price synchronicity?*
- ii. *Does the quality of earnings have a negative effect on stock price synchronicity?*
- iii. *Do institutional investors strengthen the relationship between sustainability reports and stock price synchronicity?*
- iv. *Do institutional investors strengthen the relationship between earnings quality and stock price synchronicity?*

This research uses multiple regression analysis methods with a panel data form. The samples were determined using purposive sampling with the following criteria: (1) the company published a sustainability report in 2014-2018; (2) presents financial reports in rupiah currency; and (3) have been listed / go-public before 2014. The organization of the texts in this study starts with an introduction, literature review, research and methodology, results and discussion, and ends with conclusions.

Literature Review

Theoretical Background and Conceptual Framework

Stock Price Synchronicity

Many previous studies used stock price synchronicity to test investor responses in response to information received and accumulate it in stock prices (An & Zhang, 2013; Grewal, Hauptmann, & Serafeim, 2020; Gul, Kim, & A.Qiu, 2010; Morck, Yeung, & Yu, 2019; Xing & Anderson, 2011). The calculation of stock price synchronicity uses the R² value obtained by regressing industry returns to firm returns. Stock price synchronicity will show a positive or negative value. A positive value indicates that more external information is accumulated in the company's stock price. Conversely, a negative value means that fundamental information will be accumulated in the company's stock price.

Sustainability Report

A sustainability report is a form of report carried out by a company in order to disclose or communicate to all stakeholders about environmental, social and good governance (LST) performance in an accountable manner (Financial Services Authority, 2017). (Gray & Bebbington, 2001) explains that a sustainability report is a non-financial report that is separate from financial statements. This

report focuses on the environment in which there are statements, definitions, missions, statements regarding policies or objectives, and progress related to environmental achievements published by the company or organization. One of the guidelines for sustainability reporting is the GRI Standard made by the Global Reporting Initiative (GRI).

Earnings Quality

High earnings quality is profit that accurately reflects the company's current operating performance, can be a good indicator of future operating performance and a useful summary measure for assessing firm value (Dechow and Dichev, 2002). Previous studies have used accruals quality as a measure of a company's earnings quality (Jing, 2007; Siew Hong Teoh et al, 2009; C.S Agnes Cheng et al, 2012). This is based on the observation that accruals will adjust the recognition of cash flows which will later be converted into reported earnings at the end of each period. Although accruals are based on assumptions and estimates that can be wrong, they must be corrected in future accruals and earnings. Accrual quality will provide an overview for investors about the mapping of accounting earnings into cash flows. The relatively poor quality of the accruals weakens this mapping and increases the risk of information.

Institutional Investors

Institutional investors are investors of a company which is an institution or institution. These institutions or institutions such as securities companies, banks, insurance companies, or owned by other institutions or companies. Institutional investors are also considered as sophisticated investors. Sophisticated investors or sophisticated investors are investors who have the ability to receive, analyze and interpret the information received (Hartono, 2016). (Shiller & Pound, 1989) found that most individual investors do not perform a systematic analysis of different types of stock characteristics in purchasing decisions. Less than a quarter of individual investors conduct an analysis of the companies they invest in. In contrast to institutional investors who spend more time doing analysis, institutional investors are often used as indicators for sophisticated investors.

Empirical Review and Hypothesis Development

Sustainability Report and Stock Price Synchronicity

A sustainability report will help investors get more information regarding the current and future condition of the company and help shape the stock price better. This is because the financial statements cannot describe the positive and negative impacts arising from the company's activities. Investors can make mistakes in judgment if they only refer to the financial statements. When investors use sustainability reports as additional information in form stock prices, the stock price will be dominated by internal information and the stock price synchronicity will decrease.

(Grewal, Hauptmann, & Serafeim, 2020) found that companies that voluntarily disclose sustainability information that SASB (Sustainability Accounting Standard Board) considers material have a lower stock price synchronicity. (Song, 2015) found that companies that had superior accounting disclosure policies had lower stock price synchronicities. Several studies also prove that higher voluntary disclosure is able to minimize stock price synchronicity (Hagard, Martin, & Pereira, 2008; Tian, 2014; Zhang & Niu, 2015).

H1: Sustainability Reports negatively affect Stock Price Synchronicity.

Earnings Quality and Stock Price Synchronicity

Higher quality company earnings indicate that the company's current earnings can be good information to predict the current and future conditions of the company. High earnings quality will help investors not to make mistakes in predicting and making investment decisions related to determining the company's stock price. Investors will use earnings quality as additional company internal information used in the formation of stock prices. This causes the formation of stock prices to be dominated by internal company information so that the higher earnings quality relationship will lead to lower stock price synchronicity.

(Zhou, 2007) proves that earnings quality has a negative effect on stock price synchronicity and a stronger effect for samples with higher financial analysts and institutional investors. This proves that the quality of earnings is important in the process of incorporating information into stock prices. (Cheng, Johnston, & Zhou, 2012) proved that earnings quality can have a positive or negative effect on stock price synchronicity depending on the coverage of the analyst. When there is no or little analyst coverage, the relationship between earnings quality and stock price synchronicity becomes negative. Meanwhile, when the analyst coverage is higher, the relationship between earnings quality and stock price synchronicity becomes positive.

H2: Earning Quality negatively affect Stock Price Synchronicity

Moderating effect of institutional investors on the relationship between sustainability reports, earnings quality and stock price synchronicity

The theory of the efficient market hypothesis also explains that the expertise of investors in processing information also affects the incorporation of information into stock prices (Scott, 2015). Institutional investors are often used as a sophistication indicator, so that institutional investors are considered to have higher analytical skills than individual investors. When companies have a larger proportion of institutional investors, the incorporation of fundamental information into stock prices will be stronger (Piotroski &

Roulstone, 2004; Grewal, Hauptmann, & Serafeim, 2020). The ability of institutional investors will help process more fundamental information from sustainability reports and earnings quality. The two information will accumulate more into the stock price so that the presence of institutional investors will strengthen the relationship between sustainability reports, earnings quality and stock price synchronicity. (Grewal, Hauptmann, & Serafeim, 2020) found that institutional investors significantly moderate the relationship between sustainability information and stock price synchronicity. (Zhou, 2007) proved that a sample with higher financial analysts and institutional investors was able to strengthen the relationship between earnings quality and stock price synchronicity.

H3: Institutional Investor strengthen the connection between Sustainability report and Stock Price Synchronicity

H4: Institutional Investor strengthen the connection between Earning Quality and Stock Price Synchronicity

Figure 1: Research Model

Research and Methodology

Data and Sampling Method

This study uses data from two main sources, namely the Indonesia Stock Exchange (IDX) and company websites. The population in this study are manufacturing companies that have gone public in Indonesia. The samples were determined using purposive sampling with the following criteria: (1) the company published a sustainability report in 2014-2018; (2) presents financial reports in rupiah currency; and (3) have been listed / go-public before 2014. Based on the three criteria, ten companies were obtained; so that the total sample size is 50 units (10 companies for 5 years)

Table 1: Sample Selection Result

Criterion	Jumlah
Manufacturing Companies	173
Companies that didn't publish sustainability reports during 2014-2018	(160)
Companies that present their financial statement in foreign currency	(2)
Companies that listed/go-public in IDX after 2014	(1)
Research Samples	10
Number of Observations	50

The observation period for the independent variables (sustainability reports, earnings quality, and control variables) is from 2014-2018. Meanwhile, the dependent variable (stock price synchronicity) uses the 2015-2019 observation period. The selection of this observation period is because the sustainability report and financial report (the source of the earnings quality calculation) is published by the company at $t + 1$ or 1 year after the period written in the report.

Model Construction and Data Analysis Technique

This research uses multiple regression analysis methods with a panel data form. The data in this study were tested using Eviews 9. The model used in this research is as follows:

$$SYNC_{i,t+1} = \alpha + \beta_1 SR_{i,t} + \beta_2 EQ_{i,t} + \sum \delta_c CONT_{c,i,t} + \varepsilon \dots\dots\dots(1)$$

$$SYNC_{i,t+1} = \alpha + \beta_1 SR_{i,t} + \beta_2 EQ_{i,t} + \beta_3 INST_{i,t} + \beta_4 (SR_{i,t} * INST_{i,t}) + \beta_5 (EQ_{i,t} * INST_{i,t}) + \sum \delta_c CONT_{c,i,t} + \varepsilon \dots\dots\dots(2)$$

Where :

SYNC _{it+1}	=	Company's stock price synchronicity on $t+1$ year
SR _{it}	=	Company's Sustainability report on $t+1$ year
EQ _{it}	=	Company's Earnings Quality on t year
INST _{it}	=	Institutional Investors on t year
CONT _{cit}	=	Control Variables

Measures of Variable

Stock Price Synchronicity

In accordance to (Francis, LaFond, Olsson, & Schipper, 2005) and (Gul, Kim, & A.Qiu, 2010) this study regresses market return and industrial return to form return to get R^2 value, as follows:

$$r_{i,t} = \alpha_0 + \alpha_1 rmkt_{i,t} + \alpha_2 rmkt_{i,t-1} + \alpha_3 rind_{i,t} + \alpha_4 rind_{i,t-1} + \varepsilon \dots\dots\dots(3)$$

Where:

ri,t = company return
 rmkt_{i,t} = market returns (IHSG)
 rind_{i,t} = industry return (manufacture)

The formula used to calculate stock price synchronicity is as follows:

$$SYNC_{i,t} = \ln \left(\frac{R^2_{i,t}}{1-R^2_{i,t}} \right) \dots\dots\dots(4)$$

The R^2 value obtained from equation number (3) is then entered into the formula (4) to produces a value. A value above 0 indicates that the company's stock price is more influenced by external related information; whereas the value below 0 means that the stock price is more influenced by internal information related to the company.

Sustainability Reports

Following the research of (Michelon, Pilonato, & Ricceri, 2015), the disclosure quality of the CSR Report uses 4 indexes, namely:

Relative Quantity Index; obtained from calculating the standard residuals from the OLS disclosure regression model with the size and average industry disclosure as independent variables.

$$\widehat{DISC}_{it} = \beta_0 + \sum_{j=1}^k \beta_j IND_j + \beta_{k+1} SIZE_{it} \dots\dots\dots(5)$$

Where:

(DISC)_{it} = estimated disclosure
 IND_j = average industrial disclosure
 SIZE_{it} = company size (natural log of sales)

Furthermore, the Relative Quantity Index is calculated using through the following formula:

$$RQT_{it} = \frac{DISC_{it} - \widehat{DISC}_{it}}{\widehat{DISC}_{it}} \dots\dots\dots(6)$$

Where:

RQT_{it} = Relative Quantity Index
 DISC_{it} = company's disclosure rate
 (DISC)_{it} = estimated disclosure

Density Index; calculated using following formula:

$$DEN_{it} = \frac{1}{k_{it}} \sum_{j=1}^{k_{it}} CSR_{ijt} \dots\dots\dots(7)$$

Where:

DEN_{it} = Density Index
 kit = the number of sentences in the document

CSR_{ijt} =1 if the sentence j on the analyzed documents for i company on year t contains CSR information; otherwise, 0.

Accuracy of Information Index; calculated using the following formula:

$$ACC_{it} = \frac{1}{n_{it}} \sum_{j=1}^{n_{it}} (w * CSR_{ijt}) \dots\dots\dots(8)$$

Where:

ACC_{it}= Accuracy Information Index

nit= the number of sentences contains CSR information on the analyzed document.

CSR_{ijt}=1 if the sentence *j* on the analyzed documents for *i* company on year *t* contains CSR information; otherwise, 0.

w=1 if the *j* sentences is qualitative; 2 if the *j* sentences is quantitative; 3 if the *j* sentences is monetary/finance

Managerial Orientation Index, calculated using the following formula:

$$ACC_{it} = \frac{1}{n_{it}} \sum_{j=1}^{n_{it}} (w * CSR_{ijt}) \dots\dots\dots(9)$$

Where:

ACC_{it}= Accuracy Information Index

nit= the number of sentences contains CSR information on the analyzed document

CSR_{ijt}= 1 if the sentence *j* on the analyzed documents for *i* company on year *t* contains CSR information; otherwise, 0.

w=1 if the *j* sentences is qualitative; 2 if the *j* sentences is quantitative; 3 if the *j* sentences is monetary/finance

The last step is to enter the four indexes into the following formula:

$$SR_{it} = \frac{1}{4(RQTS_{it} + DENS_{it} + ACCS_{it} + MANS_{it})} \dots\dots\dots(10)$$

Earnings Quality

Various preliminary researches are using accrual quality as the company's Earnings Quality (Zhou, 2007; Cheng, Johnston, & Zhou, 2012; Lyimo, 2014). The use of accrual quality as earning quality is based on (Francis, LaFond, Olsson, & Schipper, 2005) research. The accrual quality can be obtained through the following equation:

$$\frac{\Delta WC_{it}}{Assets_{it}} = \alpha_0 \frac{1}{Assets_{ij}} + \alpha_1 \frac{OCF_{i,t-1}}{Assets_{ij}} + \alpha_2 \frac{OCF_{i,t}}{Assets_{ij}} + \alpha_3 \frac{OCF_{i,t+1}}{Assets_{ij}} + \alpha_4 \frac{\Delta REV_{it}}{Assets_{ij}} + \alpha_5 \frac{PPE_{it}}{Assets_{ij}} + e_{i,t} \dots\dots\dots(11)$$

Where:

$\Delta WC_{i,t}$ = Δ current asset – Δ current liabilities – Δ cash

OCF_{i,t} = cash flow from operations

$\Delta REV_{i,t}$ = income differences between t and t-1

PPE_{i,t} = gross property, plant, and equipment

Assets_{i,t} = average total assets

Following (Francis, LaFond, Olsson, & Schipper, 2005), we estimate the equation above using OLS method and calculate both the standard deviation and residual. Since a higher standard deviation indicates lower earnings quality, the earnings quality (EQ_{i, t}) is 1 minus the standard deviation of the residuals, so a larger value indicates better earnings quality.

Institutional Investor

Referring to several previous studies (Grewal et al., 2020; Zhou, 2007) institutional investor variables are calculated using the following formula:

$$INST_{i,t} = \frac{\text{amount of common stock owned by institutional investor}}{\text{total common stock outstanding}_{i,t}}$$

Control Variables

There are three control variables used in this study, namely Market Value of Equity (MVE), Return on Assets (ROA), and Market to Book Ratio (MTB). The use of these three variables refers to previous studies (Grewal, Hauptmann, & Serafeim, 2020; Dasgupta, Gan, & Gao, 2010; Cheng, Johnston, & Zhou, 2012).

Table 2: Variable Definition

Variable	Definition
Stock Price Synchronicity	a test tool for investor response to the company's internal/external information received and accumulate the information into the stock price
Sustainability Report	company reports that used to communicate performance and impacts (positive or negative) from an economic, social, and environmental perspective
Earnings Quality	the company's current earnings can be good information to predict the current and future conditions of the company
Institutional Investor	institutions that are corporate investors.

Results and Discussion

Table 3 shows the results of the descriptive statistics for all variables used in the study. Stock Price Synchronicity has an average value of -0.021678. This shows that the average investor is more likely to use fundamental information in determining stock prices.

Table 3: Descriptive Statistic Result

	Average	Min.	Max.	Std. Dev
SYNC	-0.0217	-4.5951	2.3383	1.2749
SR	1.0990	0.0000	2.9486	0.7738
EQ	0.9514	0.7816	0.9995	0.0436
INST	0.6780	0.5011	0.8635	0.1377
LOGMVE	13.600	12.515	14.907	0.6380
ROA	0.1234	-0.0400	0.4700	0.1155
MTB	8.5734	0.8600	82.440	17.996

The sustainability report (SR) has a minimum value of 0.000000 because some companies did not issue SR consistently during the observation period, so they were given a value of 0 when they did not issue. The maximum value of 2,948651 is owned by the company "Wijaya Karya Beton" in 2017.

Earnings quality (EQ) has an average value of 0.9514, meaning that the companies used as the sample have very good earnings quality because they are close to the value 1. "Kalbe Farma" company in 2014 had the lowest EQ value of 0.781629 while the Semen Indonesia company in 2016 has the highest EQ value of 0.999555.

Table 4 shows the regression results of the first equation, namely stock price synchronicity, sustainability reports, and earnings quality. Meanwhile, Table 5 shows the regression results with the addition of the institutional investor moderating variable. The regression results show that the hypotheses H1 and H4 are accepted, while the hypotheses H2 and H3 are rejected.

Table 4: Regression Model 1

Variable	Coefficient	Prob.
C	-17.33837	0.0000
SR	-0.479251	0.0002
EQ	3.384769	0.0413
LogMVE	1.098561	0.0000
ROA	-3.747323	0.0033
MTB	0.024712	0.0107

Where:

C: cons.

SR: sustainability report

EQ: earning quality

LogMVE : log of the market value of equity

ROA : Return on asset

MTB : market to book ratio

*Sig.: 5%

The SR probability value in Table 4 shows a significant value and a negative coefficient so that the first hypothesis is accepted. This shows that fundamental information in the form of a sustainability report is useful information for investors so that it is used in the formation of stock prices. Companies publish sustainability reports with more disclosure of information, so the stock price will accumulate more fundamental information than external information.

The sustainability report shows the company's ability to carry out operational activities, while still paying attention to social and environmental aspects. The positive and negative impacts of operational activities will be disclosed to stakeholders through sustainability reports. As a stakeholder, this additional information will help investors get a better picture of the company's prospects.

Additional information will minimize errors in decision making. The more disclosure of sustainability information the company provides, the better investors will be in determining the right stock price. This is in line with the theory of the efficient market hypothesis because sustainability reports are information that can be reflected in stock prices.

However, there are still relatively few companies that publish sustainability reports when compared to the total companies that have gone public in Indonesia. Financial Services Authority shows that only 9% of companies publish sustainability reports (Financial Services Authority, 2017). Based on the signal theory, companies can use sustainability reports as a signal to investors to show that their company management is better than companies that do not publish. A company can even provide a signal to investors by providing more disclosure in its reports, compared to the reports of its competitors. More disclosure will be captured as better commitment among the companies that publish sustainability reports.

The next step is to test the model of analysis further by adding a moderating variable for institutional investors. The SR * INST value in table 5 shows an insignificant value so that the third hypothesis is rejected. The results showed that institutional investors did not moderate the relationship between sustainability reports and stock price synchronicity.

The number of institutional investors does not cause a moderating effect either to strengthen or weaken the relationship between sustainability reports and stock price synchronicity. Investors will continue to use information related to sustainability reports regardless of whether they are individual investors or institutional investors.

Table 5: Regression Model 2

Variable	Coefficient	Prob.
C	-16.82834	0.0628
SR	-0.687155	0.2345
EQ	20.05340	0.0191
INST	21.71827	0.0964
SR*INST	0.584541	0.4430
EQ*INST	-27.76633	0.0427
LogMVE	0.096948	0.6986
ROA	-3.393823	0.0239
MTB	0.051079	0.0000

Where :

C : cons.

SR : sustainability report

EQ : earnings quality

INST : institutional investor

SR*INST: sustainability report w/ moderation eff.

EQ*INST : earnings quality w/ moderation eff.

LogMVE: log of market value of equity

ROA : return on asset

MTB : market to book ratio

*Sig. : 5%

The EQ probability value in Table 4 shows a significant but positive value so that the second hypothesis is rejected. Investors use earnings quality as information that is combined or combined with external information. Earnings quality cannot be fully absorbed into the stock price because it does not accumulate into fundamental information.

The results of this study are not in line with the efficient market hypothesis theory. Earnings quality information cannot reflect fundamental information in the formation of stock prices. Allegedly, this is because information related to earnings quality is not directly obtained in the financial statements. Earnings will be said to be of quality if they can provide information for investors to determine current operational performance and predict future performance

Investors need sufficient ability to carry out further analysis to obtain information related to the quality of company earnings in the financial statements. The theory of the efficient market hypothesis also emphasizes that the accumulation of information into stock prices also requires further capabilities of investors (Scott, 2015).

The results also indicate that signal theory also does not apply to earnings quality. Most of the Indonesian investors do not have sufficient ability to process information related to earnings quality. Companies that provide signals to investors with good earnings quality will not be able to be captured by investors so that the difference between one company and another is not visible.

The relationship between stock price synchronicity and earnings quality changes after adding the moderating variable of institutional investors. The EQ * INST value in table 5 shows a significant probability and has a negative coefficient with a higher value than the previous regression test results, so the fourth hypothesis is accepted. The results showed that institutional investors were able to strengthen the relationship between earnings quality and stock price synchronicity. Institutional investors use earnings quality information as fundamental company information and incorporate it into stock prices.

Institutional investors, as investors who have higher analytical skills than individual investors, can obtain information through earnings quality. The results of this study indicate the efficient market hypothesis can occur because information on earnings quality can be accumulated into stock prices. The determination of the stock price will be better because investors can get a better picture of the company through the quality of earnings. This is because when the company has high-quality earnings, the company's current earnings can be good information to predict the current and future conditions of the company.

Furthermore, institutional investors also have the potential to suppress agency problems. The research results prove that institutional investors can capture information on earnings quality so that the transfer of information from companies to investors will be more. This capability will provide better oversight of company performance.

Conclusions

This study investigates the relationship between stock price synchronicity, sustainability reporting, and earnings quality as well as the moderating effects of institutional investors. Companies with a higher quality of sustainability reports had lower stock price synchronicity and institutional investors did not have a moderating effect in this relationship. The results also show that companies that have higher earnings quality have high stock price synchronicity as well. This relationship changes when the institutional investor moderation variable is added.

This research contributed in several ways. First, this research contributes to the growth of capital market research, especially those investigating the associated efficient market. second, this research contributes to the company because it helps companies to understand the information needs of investors. Third, this research contributes to investors because it helps understand the majority of investors' behavior in Indonesia, so they can make better investment decisions. Fourth, for regulators this research can be used as a policy consideration that obliges all companies to publish sustainability reports, not only for financial companies. The government could also consider requiring companies to include earnings quality in their financial summary at the beginning of their annual report, so as to help investors perform analysis more quickly.

The limitation of this study is that the number of publishers of sustainability reports by publicly traded manufacturing companies in Indonesia is still relatively small, so the sample used in this study is also small. Future studies can use sustainability reports from all types of the industry but need to pay attention to differences in characteristics between industries. The use of sustainability reports published throughout the Industry will provide a better picture of the capital market in Indonesia.

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