

## **INFORMATION ASYMMETRY, MARKET REACTION AND COMPANY PERFORMANCE: PRE AND DURING THE COVID-19 PANDEMIC**

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### **Abstract**

This study examines the effect of information asymmetry and market reaction on company performance before and during the Covid-19 pandemic. The population in this study are all listed companies on the Indonesia Stock Exchange except for the financial sector with the 2018-2020 observation year. We define the observation period as pre-pandemic (2018-2019) and during the pandemic Covid-19 (2020). This study used the purposive sample selection method and obtained 953 observations. Using multiple linear regression analysis models, our study finds evidence that information asymmetry negatively affects firm performance. During the Covid-19 pandemic, this study finds weak evidence of the moderating role of Covid-19 on the relationship between information asymmetry and performance. Furthermore, this study found no evidence that the company's performance gave a market reaction, measured by the earnings response coefficient, but in the Covid-19 pandemic period, the company's performance gave a positive market reaction.

**Keywords:** Covid-19; firm performance; information asymmetry; market reaction

### **INTRODUCTION**

At the beginning of 2020, the world was shocked by a new virus, the 2019 Novel Coronavirus (2019-nCov) or Corona Virus (Covid-19). Initially, Covid-19 was discovered in Wuhan, the People's Republic of China, in December 2019. The virus spread quickly among the Wuhan population in the first week of 2020. The Covid-19 virus quickly spread to the East Asia region, throughout Asia, and worldwide. The impact that is felt by the world due to the spread of Covid-19 is that it is difficult for people to carry out normal activities. From an economic perspective, consumers and business entities are equally affected. The business sectors affected are tourism, public transportation, hotels, property, credit institutions [1], and the energy industry [2]. Reference [2], for example, found that Covid-19 has a negative effect on the performance of Chinese Stock Exchange companies by lowering the investment value and decreasing total income. Based on data from UNCTAD (United Nations Conference on Trade and Development), international tourism suffered a loss of more than four million US Dollars against global Gross Domestic Product during 2020 and 2021 (<https://unctad.org/>). The International Monetary Fund has predicted that the global economy will shrink by 4.4 percent in 2020, where the decline will be worse than the Great Depression of 1930 (<https://imf.org/>).

The Covid-19 case in Indonesia was confirmed by President Joko Widodo on March 2, 2020, for the first time. The impact of Covid-19 on the Indonesian economy caused state spending to increase by 12.3 percent, worth Rp 2.593.5 trillion, while in 2020, Indonesia experienced a 16 percent decline in revenue due to many business entities being suspended due to the pandemic. As a result, the 2020's Indonesia State Revenue and Expenditure Budget experienced the largest deficit reaching 6.1 percent of Gross Domestic Product, which has only happened for the last 20 years (<https://nasional.kompas.com>). This makes business people adapt and make the right decisions for the company's survival. The Covid-19 pandemic also

has a negative effect on stock market returns and raises concerns for investors in the stock market [3]. The Indonesia Stock Exchange noted that the daily stock transaction value decreased by 15.16% in June 2020 (<https://cnbcindonesia.com>).

Statistical data from the Indonesia Stock Exchange shows a decrease in stock market trading volume, which can affect the company's performance. The decline in company performance during the subsequent pandemic negatively impacted companies competing in the stock market. On the other hand, investors will invest in companies with healthy financial conditions and can compete in the stock market [4]. When the company's financial condition declines, it will further increase the risk of bankruptcy, so it does not rule out the possibility of uncertainty about the company's value caused by information asymmetry [5]. Information asymmetry can affect the company's performance because managers have more favorable information than shareholders who do not have that information [6]. To reduce information asymmetry, companies need to implement transparency as a form of accountability to the public for their financial performance because information asymmetry that occurs within the company can make the company's assessment uncertain [5].

Research prior to the Covid-19 pandemic in Indonesia documented that companies were under pressure from investors and workers to produce more transparent financial reports, but in reality, companies did not necessarily present transparent reports due to the interests of shareholders [7]. In addition, the capital market in Indonesia also experienced market reactions prior to the Covid-19 pandemic. For example, the market reacted positively at the time when Donald Trump announced his victory in the United States [8] and the announcement of the victory of President Joko Widodo in the second period [9].

This study wants to examine the effect of information asymmetry on company performance, especially during the Covid-19 pandemic in 2020. This study also examines investor reactions to company performance before and during the Covid-19 pandemic.

This study is important to do for the following reasons. First, our study wants to examine how information asymmetry affects the overall performance of publicly traded companies on the Indonesia Stock Exchange, except for the financial industry before the pandemic (2018-2019) and during the pandemic (2020). Our study uses the agency theory, where managers as agents have opportunistic behavior that can incur agency costs in their efforts to improve performance through earnings management and other opportunistic behaviors that can harm shareholders before and amid the Covid-19 pandemic [10].

Second, the Covid-19 pandemic, which has occurred for the first time in the world, and in Indonesia in particular since March 2020, has impacted the market-based performance of companies where the market reaction has not been known in previous studies of market-based performance. To the best of our knowledge, no previous studies have tested how the performance of companies affected by the Covid-19 pandemic is captured by the market and reflected in the earnings response coefficient (ERC).

Agency theory posited that there are differences in interests between managers as agents and shareholders as principals, which can lead to agency costs [10]. The existence of separation between the company and the owner causes information asymmetry. Because the company's management always owns broader information than the shareholders, it creates an information gap within the company, even among investors [11]. Companies with a low level of transparency will tend to have a high level of information asymmetry. Previous studies concluded that bid-ask spreads are inversely related to trading volume as a measure of information asymmetry [12] and found that information asymmetry has a negative effect on firm performance [6]. At the time of the Covid-19 pandemic in 2020, it is suspected that information asymmetry will be higher so that the negative relationship between information asymmetry will be even greater on company performance. Based on the arguments above, this study formulates the following hypotheses to be tested:

H1: Information asymmetry is negatively related to firm performance.

H2: The Covid-19 pandemic has a moderating role that strengthens the negative relationship between information asymmetry and company performance.

Furthermore, it is assumed that the market will react positively to the company's reported performance. However, during the Covid-19 pandemic, the market will react more positively to the reported performance, indicating that the market hopes the company can maintain its performance amid the pandemic. Therefore, based on the arguments above, the hypothesis to be tested is formulated as follows:

H3: The market reacts positively to the company's performance

H4: The market will react more positively to the company's performance during the Covid-19 pandemic.

## METHODOLOGY

The study uses a sample of all companies listed on the Indonesia Stock Exchange except the financial industry for 2018-2020. The sample selection method was carried out by non-probability sampling technique, while the data processing technique was carried out with the help of Stata software version 15. As a result, we obtain a final sample of 953 firm-year observations using purposive sampling.

**Table 1. Sample Selection**

No	Description	Total
1	All companies listed on the Indonesia Stock Exchange in the 2018-2020 period	761
2	Companies in the financial sector	(95)
2	Number of companies that did not report complete financial statement data in the 2018-2020 period	(51)
3	Number of companies that presented financial statements in USD in the period 2018-2020	(79)
4	Number of companies that presented financial statements in USD in the period 2018-2020	(151)
Total companies that meet the criteria		340
Total companies that meet the criteria multiplied by 3 years		1020
Data outliers		(67)
Total final sample used in firm-years		953

To test the H1-H4 hypothesis, this study uses four linear multiple regression models. Equations (1), (2), (3), and (4) are used to test the H1, H2, H3, and H4 hypotheses, respectively, as follows:

$$\text{TOBINS}_{it} = \alpha_0 + \alpha_1 \text{SPREAD}_{it} + \alpha_2 \text{VOLTRADE}_{it} + \alpha_3 \text{LEV}_{it} + \alpha_4 \text{ROA}_{it} + \alpha_5 \text{SIZE}_{it} + \alpha_6 \text{GROWTH}_{it} + \alpha_7 \text{LOSS}_{it} + \alpha_8 \text{BIG4}_{it} + \text{eit} \quad (1)$$

$$\text{TOBINS}_{it} = \alpha_0 + \alpha_1 \text{SPREAD}_{it} + \alpha_2 \text{VOLTRADE}_{it} + \alpha_3 \text{SPREAD} * \text{COVID}_{it} + \alpha_4 \text{VOLTRADE} * \text{COVID}_{it} + \alpha_5 \text{COVID}_{it} + \alpha_6 \text{LEV}_{it} + \alpha_7 \text{ROA}_{it} + \alpha_8 \text{SIZE}_{it} + \alpha_9 \text{GROWTH}_{it} + \alpha_{10} \text{LOSS}_{it} + \alpha_{11} \text{BIG4}_{it} + \text{eit} \quad (2)$$

$$\text{CAR}_{it} = \alpha_0 + \alpha_1 \text{UE}_{it} + \alpha_2 \text{UE} * \text{TOBINS}_{it} + \alpha_3 \text{UE} * \text{LEV}_{it} + \alpha_4 \text{UE} * \text{SIZE}_{it} + \alpha_5 \text{UE} * \text{GROWTH}_{it} + \alpha_6 \text{UE} * \text{LOSS}_{it} + \alpha_7 \text{UE} * \text{BIG4}_{it} + \alpha_8 \text{TOBINS}_{it} + \alpha_9 \text{LEV}_{it} + \alpha_{10} \text{SIZE}_{it} + \alpha_{11} \text{GROWTH}_{it} + \alpha_{12} \text{LOSS}_{it} + \alpha_{13} \text{BIG4}_{it} + \text{eit} \quad (3)$$

$$\text{CAR}_{it} = \alpha_0 + \alpha_1 \text{UE}_{it} + \alpha_2 \text{UE} * \text{TOBINS}_{it} + \alpha_3 \text{UE} * \text{COVID}_{it} + \alpha_4 \text{UE} * \text{TOBINS} * \text{COVID}_{it} + \alpha_5 \text{UE} * \text{LEV}_{it} + \alpha_6 \text{UE} * \text{SIZE}_{it} + \alpha_7 \text{UE} * \text{GROWTH}_{it} + \alpha_8 \text{UE} * \text{LOSS}_{it} + \alpha_9 \text{UE} * \text{BIG4}_{it} +$$

$$\alpha_{10}TOBINS*COVID_{it} + \alpha_{11}TOBINS_{it} + \alpha_{12}COVID_{it} + \alpha_{13}LEV_{it} + \alpha_{14}SIZE_{it} + \alpha_{15}GROWTH_{it} + \alpha_{16}LOSS_{it} + \alpha_{17}BIG4_{it} + \epsilon_{it} \quad (4)$$

Company performance on Eq. (1) and (2) was measured using a market approach, namely Tobin's Q, which was estimated using the Lindenberg and Ross model (1981, in [13]). We use two proxies in measuring the asymmetric information in Eq. (1) and (2), i.e., bid-ask spread (SPREAD) and volume trading (VOLTRADE) [12]. While in Eq (3) and (4), we follow reference [14] to measure cumulative abnormal return (CAR) using the earnings response coefficient's main model  $CAR_{it} = \alpha + \delta UE_{it} + \epsilon_{it}$  (please see [14] for detail computation). We predict that hypothesis H1 is supported if  $\alpha_1$  and  $\alpha_2$  in Eq. (1) are positive and negative, respectively, and statistically significant. To support H2, in the Covid-19 period, we expect that the interaction variables  $\alpha_3$  and  $\alpha_4$  in Eq. (2) are positive and negative, respectively, and statistically significant, indicating that the asymmetric information is worsening. Next, to support H3, we expect that the coefficient  $\alpha_2$  is positive and significant, while in the Covid-19 period, we expect that the coefficient  $\alpha_4$  is negative and significant, indicating that firms' performance is worsening compared to the non-Covid-19 period. We also use variables controls in Eq (1) to Eq. (4) due to their effects on the dependent variables in each model. See Appendix 1 for all variable definitions in each model used.

## RESULTS

### Descriptive statistics

Table 2 shows descriptive statistics for all study models. The TOBINS variable has an average value of 1.91, with a minimum value of 0.06 and a maximum value of 53.40. The SPREAD variable has an average value of 62.81, a minimum value of 0, and a maximum value of 190.93, while VOLTRADE has an average value of 0.28, a minimum value of 0, and a maximum value of 5.91. The CAR variable has a mean of 2.90, and the minimum and maximum values are -2.35 and 91.70, respectively. Other variables can be seen in Table 2.

**Table 2. Statistic Descriptive**

Variable	Mean	Standard Deviation	Minimum	Maximum
TOBINS	1.905	3.706	0.063	53.401
SPREAD	62.808	40.237	0	190.930
VOLTRADE	0.281	0.362	0	5.907
CAR	2.897	9.244	-2.345	91.696
UE	0.009	0.385	-5.397	181.301
COVID	0.339	0.474	0	1
BIG4	0.264	0.441	0	1
LOSS	0.317	0.465	0	1
ROA	0.002	0.172	-3.094	0.599
LEV	1.089	1.730	-10.256	10.777
SIZE	14.710	1.742	8.561	19.679
GROWTH	0.022	0.660	-2.617	8.574

Source: Stata output. N= 953 firm-years observations

### Results of multivariate analysis

Before testing the hypothesis, we conducted preliminary tests, including normality, multicollinearity, and heteroscedasticity, to meet the best linear unbiased estimates for all models used. Finally, this study uses clustered robust standard errors provided in Stata. Table

3 reports that the SPREAD variable has a coefficient of 0.002, with a probability value of 0.000 (< 0.01) and a positive direction. The results of this regression indicate that SPREAD positively influences company performance, indicating that asymmetric information is increasing. Meanwhile, VOLTRADE has a coefficient of -0.244, with a probability value of 0.000 (<0.01) and negative. This shows that VOLTRADE has a negative effect on company performance. Therefore, the two proxies of this information asymmetry, SPREAD, and VOLTRADE, support the hypothesis that information asymmetry has a negative effect on company performance, so it can be concluded that hypothesis H1 is accepted.

**Table 3. Hypothesis Testing Results H1**

Independent Variable	Predicted Sign	Dependent Variable (TOBINS)	
		Coefficient	p-value
SPREAD	+	0.002	0.001***
VOLTRADE	-	-0.244	0.001***
BIG4	-	0.193	0.000***
LOSS	+	-0.104	0.036**
ROA	+	-0.299	0.032**
LEV	+	-0.010	0.176
SIZE	?	-0.067	0.000***
GROWTH	+	0.013	0.725
CONSTANT	?	1.071	0.000
F-test			5.47
p-value			<0.001
Adjusted R <sup>2</sup>			0.0440
N			953

Source: Stata output results; \*\*\*,\*\*,\* significant at 1%, 5%, and 10%, respectively, with the two-tailed tests and robust standard errors.

Table 4 tests hypothesis H2. The statistical test results show that the VOLTRADE\*COVID interaction variable has a coefficient of 0.647, with a probability of 0.4955 (> 0.10) insignificant at the 10% level. This shows that during the Covid-19 period, there was no indication that trading volume was getting lower, which could affect the company's performance. While in Table 4, the SPREAD\*COVID coefficient has a value of -0.019, with a probability of 0.058, significant at 10%. This shows that during the Covid-19 period, the bid and ask spread had a lower spread that could affect the company's performance. Thus, we conclude that in the Covid-19 period, we find some weak evidence that affects the relation between information asymmetry and company performance compared to the period before Covid-19.

**Table 4. Hypothesis Testing Results H2**

Independent Variable	Predicted Sign	Dependent Variable (TOBINS)	
		Coefficient	p-value
SPREAD	+	0.026	0.025**
VOLTRADE	-	-1.440	0.030**
VOLTRADE*COVID	-	0.647	0.390
SPREAD*COVID	+	-0.019	0.058*
COVID	?	0.736	0.117
BIG4	-	0.451	0.006***
LOSS	+	0.063	0.840
ROA	+	-1.306	0.254
LEV	+	-0.177	0.183

SIZE	?	-0.417	0.000***
GROWTH	+	0.866	0.650
CONSTANT	?	7.123	0.000
F-test			4.04
p-value			<0.001
Adjusted R <sup>2</sup>			0.0423
N			953
Source: Stata output results; ***, **, * significant at 1%, 5%, and 10%, respectively, with the two-tailed tests and robust standard errors.			

In model 3, the research hypothesis H3 aims to test whether the market reacts to the company's performance, which is reflected in the UE\*TOBINS coefficient. Table 5 reports that the UE\*TOBINS coefficient is -1.022 with a probability of 0.514 (> 0.10), not significant at the 10% level.

**Table 5. Hypothesis Testing Results H3**

Independent Variable	Predicted Sign	Dependent Variable (CAR)	
		Coefficient	p-value
UE	+	13.696	0.407
UE*TOBINS	+	-1.022	0.514
UE*BIG4	-	24.515	0.244
UE*LOSS	+	3.075	0.453
UE*LEV	+	-0.113	0.719
UE*SIZE	?	-0.955	0.403
UE*GROWTH	+	0.861	0.119
TOBINS	+	0.118	0.117
BIG4	-	1.234	0.126
LOSS	+	-0.193	0.761
LEV	+	-0.403	0.031**
SIZE	?	-0.153	0.275
GROWTH	+	0.631	0.180
CONSTANT	?	5.029	0.015
F-test			1.76
p-value			0.0451
Adjusted R <sup>2</sup>			0.0137
N			953
Source: Stata output results; ** significant at 5% with the two-tailed tests and robust standard errors.			

The test results show that the company's performance as measured by Tobin's Q has no market reaction as measured by ERC. Thus, the results of this study found no evidence that investors react to the information conveyed using the company's performance. Thus, hypothesis H3 is rejected.

The next test of the hypothesis (H4) is to see if the market is reacting more positively to the company's performance, as reflected in the UE\*TOBINS\*COVID interaction coefficient. Based on table 7, the coefficient of UE\*TOBINS\*COVID is 16,486 and is positive, with a probability of 0.045 (< 0.05) significant at the 5% level. This test's results indicate an increasingly positive market reaction to the company's performance as measured by the earnings response coefficient (ERC) in the Covid-19 period. Thus this study concludes that hypothesis H4 is accepted.

## DISCUSSION

The results provide evidence that information asymmetry, measured using bid and ask spreads and trading volume, negatively affects company performance. The results of this test indicate that the presence of higher information asymmetry will negatively affect the reported company performance. Capital market participants, in this case, are investors who will act rationally to anticipate investment risks arising from, for example, the lack of transparency of financial information submitted to the market. The capital market reaction will be reflected in the bid and ask intervals and trading volume. The higher the information asymmetry perceived by the capital market participants, the wider the bid and ask interval will be, and the lower the trading volume in the capital market. The results of this study are not in line with previous research (e.g. [15]), where information asymmetry increased during the Covid-19 pandemic.

The results of our study find weak evidence that during the Covid-19 pandemic period, information asymmetry has an increasingly negative influence on company performance. In other words, it can be concluded that there is no significant difference between the period before and during the Covid-19 pandemic. The results of this study may be due to the new Covid-19 pandemic that occurred in early March 2020, which could affect the results of this study.

**Table 6. Hypothesis Testing Results H4**

Independent Variable	Predicted Sign	Dependent Variable (CAR)	
		Coef	p-value
UE	+	32.718	0.126
UE*TOBINS	+	-16.083	0.106
UE*COVID	?	-29.948	0.061*
UE*TOBINS*COVID	+	16.486	0.089*
UE*BIG4	-	20.621	0.125
UE*LOSS	+	1.118	0.736
UE*LEV	+	-0.213	0.633
UE*SIZE	?	-0.329	0.707
UE*GROWTH	+	-0.225	0.751
TOBINS	+	0.116	0.200
COVID	?	-4.229	0.000***
BIG4	-	-4.229	0.250
LOSS	+	0.534	0.406
LEV	+	-0.355	0.042
SIZE	?	-0.043	0.761
GROWTH	+	-0.058	0.905
TOBINS*COVID	?	-0.033	0.758
CONSTANT	?	5.029	0.021
F-test			5.47
p-value			<0.001
Adjusted R <sup>2</sup>			0.0701
N			953
Source: Stata output results; ***, * significant at 1%, and 10%, respectively with the two-tailed tests and robust standard errors.			

We find no evidence that the company's reported performance has a market reaction as measured by the Earning Response Coefficient (ERC). The results of this study differ from previous studies (e.g., [16]), which found that the market will react according to the news it receives.

The test results showed that the market would react more positively to better performance during the Covid-19 period. According to theory, the market will react positively if it receives good news. In general, the news during Covid-19 is bad news considering that many companies in various sectors have experienced a decline in performance and resources, including the increasing number of cases every day in 2020, so the stock market will react more negatively. This is in line with Tandelilin's theory (2010, p.221 in [8]), where the market reaction will follow the news it receives. However, our result shows that the better-off company's performance during the Covid-19 pandemic will give good news to the investor and a positive reaction in the stock market.

## CONCLUSION

Asymmetry has a negative effect on company performance as measured by Tobin's Q, which is reflected in the bid-ask spread and trading volume. The results of this study are consistent with previous studies [12]. However, in the Covid-19 period, namely 2020, our study finds weak evidence that information asymmetry negatively affects company performance. Subsequent test results found no evidence that the market reacted to company performance during the 2018-2020 period, but this study found that the market reacted more positively to company performance during the Covid-19 period, 2020.

The study results imply that information asymmetry has an economic consequence on the company's performance because capital market players can penalize issuers even if the company's performance is good, including reporting on the company's performance becomes irrelevant to the investment decisions of capital market players.

Our study has several limitations. First, the observations taken as the study sample for the Covid-19 period may not represent an adequate coverage period because the new pandemic Covid just occurred in March 2020 could affect the study results. Therefore, further research is recommended to study a longer pandemic period, namely in 2021, where there is still a pandemic that can affect companies' performance.

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