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THE INFLUENCE OF FINANCIAL CONSTRAINTS AND STOCK PRICE CRASH RISK THROUGH FIRM'S PROFITABILITY ON THE INFRASTRUCTURE, UTILITIES, AND TRANSPORTATION SECTOR LISTED IN IDX BEFORE AND DURING COVID-19 PANDEMIC

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ABSTRACT

In 2020, the world economic condition, especially Indonesia was experiencing a decline due to the Covid-19 pandemic. Financially, this condition weakens the ability of several companies to obtain profits. This capability is defined as profitability. The main purpose of this study is to determine the relationship between the firm's profitability through financial constraints and stock price crash risk on the infrastructure, utilities, and transportation sector companies listed on the Indonesia Stock Exchange before and during the Covid-19 pandemic. The control variables used in this study are the Debt Ratio and Total Asset Turnover. The sample selected using purposive sampling method with multiple linear regression analysis technique through the SPSS program. The sample used in this study were 34 companies in the infrastructure, utilities, and transportation sectors listed on the Indonesia Stock Exchange from 2019 to 2020. The independent variable, financial constraints is measured by firm size and stock price crash risk is measured by the negative coefficient of skewness (NCSKEW). Meanwhile, the dependent variable, firm's profitability is measured by Return On Assets (ROA) ratio. The results of this study indicate that financial constraints significantly influence the firm's profitability. On the other hand, this study finds that stock price crash risk has no significant influence on firm's profitability which may be due to the company's negative coefficient of skewness (NCSKEW) value on the infrastructure, utilities, and transportation sector before and during the Covid-19 pandemic is still reasonable.

Keywords: Profitability, Financial Constraints, Stock Price Crash Risk.

INTRODUCTION

The world is facing an outbreak of the SARS-CoV-2 coronavirus, which has infected more than 172 countries. Since Covid-19 declared as a pandemic, bunches of the problems must be resolved by all countries in the world, especially Indonesia. This outbreak has a major impact on the Indonesian economy and changed the way people work, study, fulfil their daily needs and even interact. The International Labor Organization (ILO) predicts the Covid-19 pandemic will make more than 20 million people in the world lose their jobs. This situation is equivalent to the conditions in the global financial crisis that occurred in 2008-2009 with the number of unemployed at the world level reached to 22 million people. In November 2020, the Central Statistics Agency (BPS) released Indonesia's economic growth in Quarter III-2020, which contracted by 3.49 percent (year on year). This condition has made Indonesia officially enter into recession after contrasting 5.32 percent in the previous quarter. If viewed by the business sector, transportation companies which part of infrastructure, utilities, and transportation sector has consistently been the worst-hit sector in the last two quarters. The growth rate of this sector in the third quarter of 2020 also ran aground at -16.70 percent (year on year).

Meanwhile, in every business, the company wants a profit. The company can be said to be in a healthy condition when more profit is obtained. A company's ability to make a profit is commonly known as profitability. Its internal and external factors largely determine the company's profitability. Profitability is closely related to the profits obtained by the company. It will influence the availability of retained earnings which can be used as a source of internal funds in making

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investments. Investment is the placement of several finances with the hope that it can maintain, increase value, or provide a positive return (Suta, 2000). The huge impact of the Covid-19 pandemic has affected investment flows in the country. The government has even revised the investment achievement target for the 2020 fiscal year down to IDR 817.2 trillion from the initial target of IDR 886.1 trillion.

Funding is a very important issue for a company because it involves many parties, such as shareholders, creditors, and management of the company itself. In the funding process, companies can use sources of funds, both internal and external. However, selecting these sources of funds needs careful consideration because each has a capital cost that must pay so that the selection is an important decision for a manager. Managers prefer internal sources to external sources because the costs are relatively cheaper. Even though it has cheaper costs, the amount of finances from internal sources is generally more limited than external sources (Rinofah, 2018). Therefore, to fund investment, managers always combine with external sources' finances. However, it is not uncommon for companies to experience financial constraints. Tirole (2006) stated that financial constraints arise due to frictions in the supply of capital, chiefly due to information asymmetries between investors and companies. Companies often cannot fulfil their growth ambitions through investment, and, in many instances, they are also constrained in their daily business activity. This situation occurs because of the high cost of debt and the high cost of equity in the market to book ratio, and low cash flow (Fazzari et al., 1988).

Furthermore, some companies are profit-oriented, which have the main goal of obtaining the maximum possible profit to maintain their business continuity. Companies that generate high profits will attract many investors to increase their share price. Conversely, if the company's profit is low, it will make investors not interested in investing, which will result in a decline in stock prices. The company's low performance is due to a low level of income. However, the stock price of a company can also experience a fall which caused by the fraud that occurred in the company, which was exposed by the market. This sudden drop in stock prices can be called as stock price crash. The research results provide answers to the main cause of stock price crashes, namely the accumulation of bad company news that is not revealed to the market due to managers' tendency to hide bad news about the company (Hutton et al., 2009).

Huang Cong Hoang, Qin Xiao, & Saeed Akbar (2019) found that the financial constraint company's optimal level is lower than the financial unconstraint company. Moreover, Rinofah (2018) found the profitability significantly affecting investment level in financial constraints companies and financial unconstraints companies and profitability has more significant effect on financial constraints companies than financial unconstraints companies. Xiaorong Li, Steven Shuye Wang, Xue Wang (2017) found that companies in the central region tend to have little potential to experience crash risk.

THEORITICAL FRAMEWORK AND HYPOTHESIS DEVELOPMENT

In this research, there are two theories used which are signaling theory and pecking order theory. Bringham and Daves (2010) stated that signaling theory is an action taken by company management that provides instructions for shareholders on how management views the company's prospects, such as giving financial statement information to shareholders. A company is encouraged to provide financial statement information to external parties because of the signal theory. This theory is based on the assumption that users of financial statements receive the information published by the company or each party is not the same. This situation is due to information asymmetry Connelly et al., (2011) stated that the quality of the information in financial statements assessed from various points of view, namely accuracy, relevance, completeness of information, and timeliness. Managers are obliged to give signal about the condition of the company to owners such as disclosure of financial statement information. This situation results in a lack of transparency of financial information. Lack of transparency of financial information increase stock price crash risk which results in potentially low profitability.

Myers and Majluf (1984) describe pecking order theory as a level in the disbursement of company funds, showing that companies prefer to use internal funds to finance investment and implement them as growth opportunities. The pecking order theory implies that if sources of funds from external of the company are needed, the company must first issue debt before issuing shares.

Along with the interaction between financial constraints and firm's profitability, The theory shows that companies prefer to use internal funds to finance investments and implement them as growth opportunities. This situation occurs because companies that rely more on internal funds have a high profitability level. Therefore, companies feel that they have enough internal funds, so they do not depend on external funds.

Financial Constraints in Firm's Profitability

The definition of Financial Constraints introduced by Fazzari et al. (1988) has a similarity in meaning to equity dependency introduced by (Stein, 1996; in Chang et al., 2007; and Dong et al., 2007), namely a condition where a company experiences funding difficulty from related sources. Financial Constraints occur due to the lack of company financing from external sources. Companies that experience financial constraints are called financially constrained firms. Financially constrained firms perform cash policy optimally to balance firm's profitability (Weisbach et al., 2004). Therefore, the way to anticipate financial constraints by a company is to save cash from the current profit, which indirectly increases its cash holdings for the company's operations' continuity in the future. Cash policy on financially constrained firms conflicts with financially unconstrained firms (companies that are not affected by financial constraints). The high profit indicates the company's future growth. AlNajjar et al. (2001) investigated the relationship between investment and profitability with significant results.

Rinofah (2018) tested the interaction between Financial Constraints and the condition of firm's profitability because profitability had a significant effect on Financially Constrained Firms. The high profitability will increase investment and company growth due to the possibility of profit on investment. High profitability in a company also shows good growth in the future.

H1: Financial constraints positively influence the firm's profitability

Stock Price Crash Risk in Firm's Profitability

Jin and Myers (2006), which argues that the presence of information between company insiders and external people can be the cause of crash risk. Some companies sharply manipulate profit as their business strategy. Their profit-making action is by hiding false news from investors to maintain future performance expectations, but this increases the risk of a fall in the stock price. An and Zhang (2013) stated that if the company's profit is getting better, it will further reduce crash risk. Managers can postpone contracts to sell or buy securities at fixed prices before maturity. It is commonly referred to as options because managers have inside information that benefits the company's future performance. By retaining options, managers can profit beyond the expected share price or signal information favorable to investors personally. Malmendier and Tate (2005) found that CEO do not fight the market by holding "in-the-money" options. An "in-the-money" option is when the option has value due to the relationship between the option's strike price and the current market price for the underlying instruments (spot price). A call option is in the money when the strike price is below the spot price. Then, a put option is in the money when the strike price is above the spot price. Favorable interpretation of information through option-based insiders contradicts the findings Kim et al. (2016) regarding the fall in future share prices.

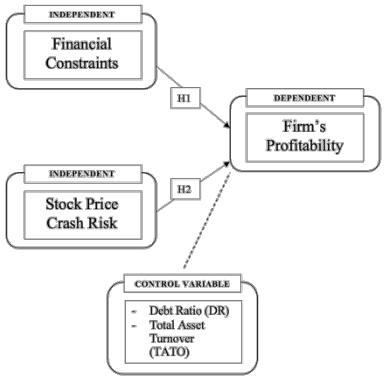
Hilary & Huang (2015) found that companies with high social trust tend to have high profitability, so they are more likely to fire their managers. It is made to determine the impacts of social trust on managers' bad behavior in hoarding bad news. The company will have the potential to experience future crash risk.

H2: Stock price crash risk positively influence the firm's profitability

The hypothesis developments can be showed into this research's framework as follows:

Figure 1

Research Model



RESEARCH METHODOLOGY

Research Variable

This research has three types of variables. These variables contain of dependent variable, the independent variable, and control variable.

Dependent Variable

In this research, the dependent variable to be examined is firm's profitability. There are several ratios used to measure firm's profitability. In managing this variable, Return on Assets (ROA) ratio is used. It can be referred to as the earning power ratio, which describes its ability to generate profits from available resources or assets (Sirait, 2017). ROA is better than the other profitability ratios because this ratio shows the company's profit per unit of asset and it reflects company's management's ability to utilize financial and investment resources to generate finance. According to the calculation of Kasmir (2014) ROA can be calculated by the following formula:

$$ROA = \frac{Earning\ After\ Interest\ and\ Tax}{Total\ Assets}$$

Independent Variable

The independent variable is the variable that is changed or controlled and is assumed to have a direct effect on the dependent variable. This research used the independent variables such as financial constraints and stock price crash risk.

Financial Constraints

Wasiuzzaman (2015) describes financial constraints as a condition where the company cannot bear costs that are too large and must find cheaper alternatives to finance the company's operations. This variable uses firm size as its proxy. Firm size is the subject of public research, and it is more sensitive to existing politics when compared to small companies (Watts & Zimmerman, 1990). Firm size is theoretically critical; if the company scale gets bigger, the profitability will also increase. With extensive resources, the company can invest both in current assets and fixed assets and fulfil product demand. It will further expand market share as well as increase company profits. Several studies, such as those conducted by Fazzari et al. (1988) and Faulkender & Wang (2006), used firm size proxies for companies experiencing financial constraints. The measurement of firm size can be summarized into a formula below:

$$SIZE = LN(Total\ Assets)$$

Stock Price Crash Risk

Stock price crash risk is a condition where skewness is found in stock returns distribution. This independent variable is measured by a model developed by Chen et al. (2001). First, this study will estimate firm-specific weekly returns denoted as W. Chen et al. (2001) stated that this calculation is

based on the company's weekly return, estimated as the residual of the market model. Firm-specific weekly return for the company i in week t, W_ (i,t), measured by the natural log of one plus the residual return from the expanded market model as below here:

$$W_{i,t} = 1n(1 + \varepsilon_{i,t})$$

Where $\varepsilon_{i,t}$ is the residual that will be measured by equation (1) below:

$$r_{i,t} = \alpha + \beta_1 r_{m,t-2} + \beta_2 r_{m,t-1} + \beta_3 r_{m,t} + \beta_4 r_{m,t+1} + \beta_5 r_{m,t+2} + \varepsilon_{i,t} \quad (1)$$

Here $r_{i,t}$ is the return on stock in company i on week t, and $r_{m,t}$ is the return on the market index, IDX Composite (IHSG) on week t.

Second, to measure crash risk, this variable uses a measurement developed by Chen et al. (1999), Negative skewness coefficient (NCSKEW). The calculation method of NCSKEW is to take the negative number of the cubic moment of the company's specific weekly return for each sample year, and then divide it by the standard deviation of the third power of the company's specific weekly return, which will be measured through equation (2) as follows:

$$NCSKEW_{i,t} = \frac{-(n(n-1)^{\frac{3}{2}}(\Sigma W^{3}{}_{i,t})}{(n-1)(n-2)((\Sigma W^{2}{}_{i,t})} \quad (2)$$

Here n is the number of observations on weekly returns during the year of observation.

Control Variable

This research using control variables is to minimize the bias towards the study results. Several control variables used, such as debt ratio (DR), and total asset turnover (TATO).

The debt ratio is used to measure the ratio of debt usage to total assets owned. The debt ratio is measured by comparing total debt to total assets that summarized into a formula below:

$$DR = \frac{Total\ Liabilities}{Total\ Assets}$$

Total Asset Turnover is a ratio used to measure the effectiveness of using assets in generating revenue from sales. Total asset turnover is measured by comparing sales to total assets, or it can be summarized by the formula below:

$$TATO = \frac{Net\ Sales}{Total\ Assets}$$

Population and Sampling Determination

The population used in this research is all companies on the infrastructure, utilities, and transportation sector listed in Indonesia Stock Exchage (IDX) in 2019-2020. The sampling method in this research used purposive sampling that focus on specific criteria that consists of :

1. Data is available from January 1, 2019, to December 31, 2020.
2. The samples are companies on the infrastructure, utilities, and transportation sector listed in the Indonesia Stock Exchange (IDX).
3. The sample has published financial statements for 2019-2020 and must have all the data needed by the researcher.
4. The sample has historical data on individual stock prices and the composite stock price index (IHSG) in Indonesia consistently throughout the observation period.

Data Analysis Technique

This section will explain the statistical tools used to test hypotheses and the statistical tools. This research will test the research hypothesis with multiple regression in the Ordinary Least Square (OLS) analysis methods to test the first and second hypotheses. This regression analysis is used to

determine the relationship between the dependent variable and the independent variable, and aims to estimate or predict the overall average or the average of the dependent variable based on the known average of the independent variable (Ghozali, 2013). The statistical tools in this research will be tested by statistical analysis software SPSS program.

RESULTS AND DISCUSSIONS

Research Objects Description

The research objects used by the authors in this study are all companies in the infrastructure, utilities, and transportation sectors in Indonesia listed on the Indonesia Stock Exchange in 2019-2020. The detailed results of the research sample obtained can be seen in table 1.

Table 1
Research Sample Data

NO	CRITERIA	NUMBER OF SAMPLES
1.	Infrastructure, utilities, and transportation sector companies listed in IDXv 2019-2020	190
2.	The company does not issue financial statements for 2019-2020	(102)
3.	The company does not consistently publish historical data on individual share prices	(14)
	Total samples that qualify the criteria	**74**
	Outlier data	**(5)**
	Total samples after outliers	**69**

Source: Secondary data processed in 2021

Descriptive Statistical Analysis

According to Ghozali (2013), this test is used to describe data from the mean, standard deviation, minimum and maximum values. This study uses this test to understand the distribution of data such as the mean, standard deviation, maximum and minimum values of firm's profitability, financial constraints, and stock price crash risk. Then the mean results are used to determine the distribution of the data in question varies from the average. Simultaneously, the maximum and minimum results are used to determine the highest and lowest data from the research data. Descriptive statistics results for this research presented in table 2 as follows.

Table 2
Descriptive Statistical

	N	Minimum	Maximum	Mean	Std. Deviation
(Y) Firm's Profitability	69	-.07910	.25140	.02374	.05843
(X1) Financial Constraints	69	24.57000	33.14018	28.91324	2.04640
(X2) Stock Price Crash Risk	69	-7.18023	.93963	-.87615	1.41458
(C1) Debt Ratio	69	.00916	.82109	.47911	.20610
(C2) Total Asset Turnover	69	.00016	3.09960	.46878	.48328

Source: SPSS output, secondary data year 2021

As shown in the table above, the results of the descriptive analysis show the minimum, maximum, mean, and standard deviation values for each variable. It can be seen that the dependent variable or firm's profitability variable has a minimum value of -0.07910 or -7.91% shown on PT Smartfren Telecom Tbk sample in 2019 and a maximum value of 0.25140 or 25.14% as noted on PT Satria Antaran Prima Tbk. in 2019. Meanwhile, the standard deviation obtained in this variable is 0.05843 or 5.84%, with an average of 0.02374 or 2.37%.

The first independent variable, financial constraints has a minimum value of 24.57000, shown on the PT Protech Mitra Perkasa Tbk sample in 2020 and a maximum value of 33,14018 shown on PT Telekomunikasi Indonesia (Persero) Tbk. in 2020. Meanwhile, the standard deviation obtained in this variable is 2.04640, with an average of 28.91324.
Meanwhile, the second independent variable which is stock price crash risk has a minimum value of -7.18023, indicated on PT Pelayaran Nasional Bina Buana Raya Tbk. in 2019 and the maximum value 0.93963 that shown on PT Satria Antaran Prima Tbk. in 2019. Meanwhile, the standard deviation obtained in this variable is 1.41458, with an average of -0.87615.

There is also the first control variable, namely the Debt Ratio. This variable has a minimum value of 0.00916 shown on the PT Protech Mitra Perkasa Tbk sample in 2020, and the maximum value is 0.82109 shown on PT Tower Bersama Infrastructure Tbk. in 2019. Meanwhile, the standard deviation obtained in this variable is 0.20610, with an average of 0.47911. Thereafter, for the second control variable which is total asset turnover has a minimum value of 0.00016 indicated on PT Gihon Telekomunikasi Indonesia Tbk. in 2019 and a maximum value of 3.09960 shown on PT. Satria Antaran Prima Tbk. in 2019. Meanwhile, the standard deviation for this variable is 0.48328, with an average of 0.46878.

After conducting a descriptive statistical test, the researcher will display the mean difference between the sample companies before the Covid-19 pandemic which is 2019, and during the Covid-19 pandemic which is 2020. The point of getting the difference itself is so that the author can find out the ups and downs of conditions in the independent and the dependent variable in this study. Table 3 presents the mean difference between the sample of companies in 2019 and 2020.

Table 4
Descriptive Statistics Before and During Covid-19

Period	Mean				
	(Y) Firm's Profitability	(X1) Financial Constraints	(X2) Stock Price Crash Risk	(C1) Debt Ratio	(C2) Total Asset Turnover
Before	0.031	28.906	-0.692	0.472	0.504
During	0.016	28.919	-1.065	0.485	0.432
Difference	**-0.015**	**0.013**	**-0.373**	**0.013**	**-0.072**

Source: Secondary data year 2021

From the table above, the results of the difference in the analysis of company samples before and during the Covid-19 pandemic can be described that firm's profitability has the difference obtained amounted to -0.015 which means that the firm's profitability decreased during the Covid-19 pandemic by -1.5%. For financial constraints has the difference obtained to 0.013 which means there was an increase in companies experiencing financial constraints during the Covid-19 pandemic by 1.3%. Furthermore, stock price crash risk has difference obtained to -0.373 which means that stock price crash risk decreased by -37.3% during the Covid-19 pandemic.

Results Interpretation and Discussion

This research has two hypothesis which tested using multiple linear regression. Based on hypothesis test using multiple linear regression analysis obtained results as shown in table 5.

Table 5
Hypothesis Test Results

Coefficients						
Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	.222	.031		7.250	.000
	(X1) Financial Constraints	.078	.032	.209	2.439	.018
	(X2) Stock Price Crash Risk	.026	.030	.066	.879	.383
	(C1) Debt Ratio	-.281	.101	-.234	-2.769	.007
	(C2) Assets Turnover	.474	.044	.783	10.687	.000

Source: Secondary data year 2021

The results obtained in table 5 show that the t-count value of the Financial Constraints variable is 2.439, which states that the t-count on this variable is greater than the t-table (2.439 > 1.6690). Then, the significance level of the Financial Constraints variable is 0.018, which states that the significance value of this variable is smaller than 0.05. So, the result is that the relationship between these variables rejects the null hypothesis (Ho) and accepts the alternative hypothesis (Ha). The coefficient leads to positive, meaning that Financial Constraints positively and significantly influence firm's profitability. It can conclude that hypothesis one (H1) is acceptable because these results follow the formulated hypothesis, "Financial Constraints positively influence Firm's Profitability."

The results also obtained that the calculated t value of the Stock Price Crash Risk variable is 0.879, which means the t-count value for this variable is smaller than the t table (0.879 < 1.6690). Then the significance level of the Stock Price Crash Risk variable is 0.383, which states that the significance value of this variable is more significant than 0.05. Then the result is that the relationship between these variables accepts the null hypothesis (Ho) and rejects the alternative hypothesis (Ha) so that the coefficient is negative, meaning that Stock Price Crash Risk has a negative and insignificant effect on firm's profitability. It can conclude that the second hypothesis (H2) is rejected because the results are not following the hypothesis statement that has been formulated, "Stock Price Crash Risk positively influences Firm's Profitability."

The Influence of Financial Constraints through Firm's Profitability

Based on the analysis results above, hypothesis one can be accepted, which can be seen from the positive regression coefficient of the Financial Constraints variable and from the t-count, which is greater than the t-table, namely 2.439 > 1.6690 with a significance level of 0.018 or 1.8%. These results can conclude that there is a positive and significant influence between Financial Constraints and Firm's Profitability. The results of this study are in line with research conducted by Rinofah (2018) that the level of company profitability has a positive effect on companies that experience financial constraints. Furthermore, these results of this study also in a line with pecking order theory that explains if companies with high profitability have more internal funds to not depend on high amounts of external funds.

The Influence of Stock Price Crash Risk through Firm's Profitability

According to the above analysis results, Hypothesis 2 is rejected. This can be seen from the negative regression coefficient of the stock price crash risk variable and the t-count less than the t-table, that is, 0.879 <1.6690, and the significance level is 0.383 or 38.3%. These results conclude that the stock price collapse risk variable has no significant effect on the firm's profitability variable. The results of this study are inconsistent with the results of An and Zhang (2013). The study shows that if the company's profits get better, it will further reduce the risk of collapse. In addition, the results of this analysis also contradict the findings of Kim et al. (2014) and Callen and Fang (2015), they pointed out that there is a positive correlation between the company's profitability and the risk of stock price crash risk. They suggest that firm's profitability serves as proxies for managers' incentives

to hide risk-taking activities since higher profitability variations will attract investors' attention to managers' abnormal risk-taking behaviors. The higher the firm's income which also impacts the increase of firm's profit, the more vulnerable it is to stock price crash risk (Chen et al., 2016).

CONCLUSIONS AND LIMITATION

This research examines the factors that influence the firm's profitability with two independent variables consisting of financial constraints and stock price crash risk. In addition, this study also uses two control variables, debt ratio and total asset turnover, which serve to prevent the results of biased calculations. This research uses a sample of companies on the infrastructure, utilities, and transportation sectors listed in the Indonesia Stock Exchange (IDX) for 2019-2020. The author took these periods to determine the difference between each variable before and during the Covid-19 pandemic. The difference is tested by the descriptive statistics test. The test resulted firm's profitability has decreased by -1.5%, which shows that, on average, companies experienced adverse developments during the Covid-19 pandemic. Besides that, there was an increase on companies that experienced financial constraints by 1.3% during the Covid-19 pandemic, while stock price crash risk decreased by -37.3% indicating that companies had lower potential to face crashariskaduringatheaCovid-19 pandemic. Furthermore, based on the hypothesis results, the author concludes that financial constraints significantly influence the firm's profitability. The analysis conducted in this study found that the companies on the infrastructure, utilities, and transportation sectors that experienced financial constraints before and during the Covid-19 pandemic period were companies with a high level of profitability. This hypothesis supports the pecking order theory, which explains that companies with high profitability have more internal funds to not depend on high amounts of external funds. Moreover, this research also found that stock price crash risk has no significant influence on firm's profitability. The results of this study are not in line with several researchers who argue that stock price crash risk has a significant positive relationship to firm's profitability. This result might be caused by the NCSKEW value of companies on the infrastructure, utilities, and transportation sectors before and during the covid-19 pandemic were still in reasonable value, so it does not influence the firm's profitability.

Besides that, in carrying out research, the research has limitation. The limitation is this research had difficulties in finding financial statements data in 2020 on the infrastructure, utilities, and transportation sectors due to the pandemic situation which slowed the issuance of financial statements in 2020.

Based on the limitation above, the author suggests for further research to be able to increase the sample of companies, extend the research period, change the existing indicators in this research, and expand the research phenomenon.

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