

# Analysis of the Proportion of Capital Structure of Manufacturing Companies Registered on the IDX During the Covid-19 Pandemic (2019-2021 Period)

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**ABSTRACT :** *The manufacturing industry is one of the industries that plays an important role in national economic growth. However, the impact of the Covid-19 pandemic has had a huge impact on manufacturing activities in Indonesia. Based on data on the Indonesia Stock Exchange in 2021, manufacturing companies in the period before Covid-19 showed that the basic industry and chemical sectors used more debt compared to the miscellaneous industry and goods and consumer goods industries. This indicates that there is instability in the use of debt in each sector in manufacturing companies before and during Covid-19. This research aims to determine and analyze the proportion of capital structure of manufacturing companies listed on the IDX during the Covid-19 pandemic in Indonesia for the 2019-2021 period. The sampling technique used purposive sampling of 170 populations and obtained 156 company samples for the 2019-2021 research period. This research shows that during the 2019-2021 Covid-19 pandemic, companies relied more on internal funding rather than debt to operate their businesses.*

**KEYWORDS** - *Capital Structure, Pecking Order Theory, Trade-off Theory*

## I. INTRODUCTION

The Covid-19 pandemic has had a tremendous impact on the economy both throughout the world and in Indonesia. In Indonesia itself, there was a slowdown in economic growth in 2019 from 5.02% to 2.97% in 2020. This slowdown in economic growth was also followed by an increase in the number of unemployed, which according to World Bank data increased from 5.28% in 2019 to 7.07% in 2020 [1]. Many companies ranging from small, medium and large scale were forced to temporarily stop their operational and production activities and this had an impact on the company's layoffs. The manufacturing industry is one of the industries that plays an important role in national economic growth. However, the impact of the Covid-19 pandemic has had a huge impact on manufacturing activities in Indonesia. According to the Minister of Industry, Agus Gumiwang Kartasasmita [2], the two main problems facing the manufacturing sector due to the Covid-19 pandemic are cash flow constraints and the need for working capital. The solution that can be implemented for cash flow constraints is to provide credit restructuring facilities. Meanwhile, working capital is really needed for restarting the industry when conditions return to normal and activities can return to normal.

The Purchasing Managers Index is an index of the direction of economic trends prevailing in the manufacturing and services sectors. The manufacturing PMI index is widely used to determine the health of a country's manufacturing sector, by providing a real-time picture of economic activity in the manufacturing sector. Therefore, PMI is considered a key indicator of economic growth and is closely monitored by investors, policy makers and analysts [3]. At the end of the first quarter of 2020, the Purchasing Managers Index for Indonesian manufacturing companies had not shown significant changes. The government provides solutions for industries to continue operating by always complying with health protocol procedures properly, in order to avoid the spread

of Covid-19. This is reflected in the increase in the PMI percentage from 47.29% in the fourth quarter of 2020 to 50.01%. The increase occurred in almost all components that make up PMI, including total order volume, finished goods inventory volume and production volume. The manufacturing industry is one of the sectors that is relied upon in efforts to restore the national economy after being depressed due to the Covid-19 pandemic [4]. The company continues to strive to implement the company's main objective, namely optimizing profits for shareholders, by managing sources of funds from various sources, both internal through own capital and external through debt.

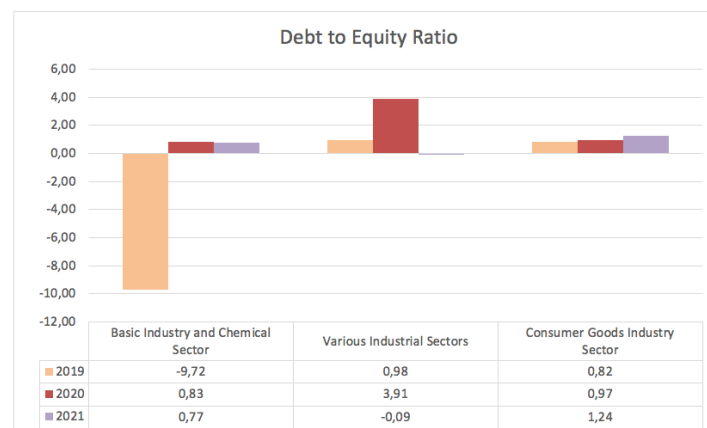
Capital structure is a mixture of various sources of funds which form the basis of funding for a company [5]. Therefore, companies must consider standards when deciding to take on debt and continue to incur operational costs even if the company's performance declines. The most important thing to pay attention to is that the company's capital structure must be used as efficiently as possible so that the company can survive difficult times. According to [6] capital structure is one of the key factors that determines the success of a business. Therefore, capital structure management must be carried out well and carefully and companies can choose existing capital structure theories, namely the Pecking Order Theory or Trade-off Theory to manage the company's capital structure.

Pecking Order Theory states that companies have a tendency to prioritize using internal funding sources as much as possible to fund projects within the company, rather than relying on external funding sources. [7] stated that the Pecking Order model is much more significant than the static Trade-off model. And [8] tested several capital structure theories in Indonesia, including Pecking Order Theory, Trade-off Theory and Market Timing. The results of statistical analysis show that the theory most commonly used by companies in Indonesia is Pecking Order Theory. The results of statistical tests carried out by [9] also show that the Pecking Order Theory is more dominantly used than the Trade-off Theory in companies.

Trade-off Theory states that a company must be able to balance the composition of debt in combination with its capital structure so that an optimal composition of debt and shares can be obtained with appropriate financial calculation analysis [10]. Companies that do not have debt will be charged more tax than companies that have debt. The use of debt in companies is permitted if the benefits are greater.

Debt to equity ratio (DER) is an indicator used to measure the proportion of debt and equity in a company. If the DER value is higher, it can be concluded that the company has a higher liquidity risk. Conversely, if the DER value is lower, then the company's liquidity risk is considered to be lower [11].

Graph 1 Debt to Equity Ratio of Manufacturing Companies in 2019-2021



Source: Data processed

It can be seen that the DER value for manufacturing companies consisting of the basic and chemical industrial sectors, miscellaneous industrial sectors and consumer goods industrial sectors listed on the IDX in 2019-2021 shows fluctuating conditions. In the consumer goods industrial sector there was an increase in the DER value from 2019-2021, while in the basic industrial and chemical sectors as well as the miscellaneous industrial sector there was an increase in the DER value in 2020 from 2019 but then there was a decrease in 2021. From this data there are differences in the composition of the capital structure which occurred in manufacturing companies registered on the IDX during the Covid-19 pandemic for the 2019-2021 period. There are differences in the composition of capital structures in manufacturing companies during the Covid-19 pandemic, some use Pecking Order Theory and Trade-off Theory. Therefore, the aim of this research is to analyze the proportion of capital structure of manufacturing companies listed on the IDX during the Covid-19 pandemic in Indonesia for the 2019-2021 period.

## II. LITERATURE REVIEW

### Capital Structure

Capital structure is a description of the form of financial proportions that are the source of financing for a company [12]. Therefore, the proportion of capital structure must be balanced or appropriate between internal and external funding. In the manufacturing industry on the IDX, especially during the Covid-19 pandemic, the capital structure funding pattern is based on the use of equity or debt to fund company operations. External funding uses short-term or long-term debt, while internal funding uses retained earnings and company ownership. Understanding capital structure is very important, because it can affect the company's finances in the future. If long-term debt exceeds retained earnings, the company can experience large losses. Therefore, it is necessary to pay attention to the capital structure so that it is balanced and adapts to the company's needs. Managers' decisions in determining capital structure affect the quality of the company's operational activities. Several previous studies have become benchmarks for answering phenomena that occur related to capital structure.

According to [13], capital structure has no correlation with company value. This theory assumes that there is no tax and that all investors and management have the same access to investment information and the same interest rates from the company. If the company goes bankrupt, assets can be sold at market price. However, this theory is considered unreasonable and has been widely criticized. Then, [14] modified this theory by including taxes into consideration, where debt can be used to minimize tax payments.

According to [15] capital structure is a balance between the amount of short-term debt, preferred shares and permanent ordinary shares. Capital structure policies must consider the expected impacts and benefits. For a company, capital structure is very important because it directly influences its financial status [12]. To manage a company and make a profit, funds are needed to fund operational and investment activities [16]. Therefore, determining the right capital structure is an important basis for a company [17]. Comparing the right funding sources will have an impact on the optimal capital structure.

From the composition of debt and company capital, conclusions can be drawn regarding the optimal value of the company's capital structure which can increase the value of the company itself [18]. Increasingly high company quality is the company's main goal and this has an impact on the welfare of shareholders and also provides a solid basis for the company to carry out operational activities and obtain maximum profits [19].

It is important for companies to prioritize profits for shareholders who want stable investment returns and minimal risk. A guaranteed level of shareholder welfare and an increase in share prices can have a positive impact on business continuity and the company's future development. Therefore, there are many factors that must be considered in determining a company's capital structure. In making decisions regarding capital structure, companies are faced with two theories, namely Pecking Order Theory and Trade-off Theory.

### **Pecking Order Theory**

This theory explains that companies tend to utilize internal funding sources as much as possible to fund projects within the company, rather than using external funding sources. [20] stated the order of preference in the use of funding sources, which is as follows: First, companies prefer to finance projects using profits generated from company activities. Second, the company calculates the target dividend payout ratio based on available investment opportunities, so that the company tries to avoid sudden changes in dividends and maintain stability. Third, unpredictable fluctuations in profits and investment opportunities cause cash flows in and out of the company to vary at certain times. If the cash coming in is greater than investment expenditure, the company will pay off debt or buy securities. On the other hand, if the incoming cash is smaller, the company will use the cash it has by selling securities. Finally, if the company needs external funding sources, the company will issue the safest securities first. Bonds will be issued first, followed by securities with option characteristics (such as convertible bonds), and only after that will the company issue new shares.

This theory states that companies that earn high profits will owe a small amount, not because the company has a low target debt ratio, but because the company requires little external funding. On the other hand, companies that earn low profits will tend to owe large amounts because their internal funds are insufficient or the company prefers external funding in the form of debt. Thus, high or low company funding depends on the large profits earned by the company, so that the company only needs a little debt if the profits earned are high and requires a lot of debt if the profits earned are low.

### **Trade-off Theory**

This theory is an extension of Modigliani Miller's theory. This theory illustrates that a company's capital structure can gain tax benefits from debt, but also faces the potential risk of bankruptcy. [21] explains that Trade-off Theory is as follows:

Interest paid as a tax deduction makes debt cheaper than common or preferred stock, so the company gets tax benefits from debt. Along with that, the use of large amounts of debt can reduce taxes and increase operating profit or EBIT (earnings before interest and tax) obtained by investors.

The company has a target debt ratio that limits the use of debt below 100 percent to reduce the risk of bankruptcy. Trade-off Theory basically balances the tax benefits and costs that arise from the use of debt. These costs are related to the risk of bankruptcy. When initially used, debt can increase a company's value due to its large tax benefits and low risk of bankruptcy. However, if the costs incurred due to the use of debt are greater than the tax benefits obtained, then the debt cannot be increased further. Therefore, companies must find an optimal capital structure that balances tax benefits with bankruptcy costs so that company value is maintained.

## **III. RESEARCH METHODS**

This research is quantitative research, where according to [22], quantitative research describes quantitative research, namely a research approach that uses a lot of numbers, starting from collecting data, interpreting the data obtained, and presenting the results. This research analyzes the proportion of capital structure of manufacturing companies consisting of basic and chemical industrial sectors, miscellaneous industrial sectors and consumer goods industrial sectors listed on the Indonesian Stock Exchange (BEI) during the pandemic period (2019-2021 period).

The literature study carried out was collecting journals related to the topic being researched, as well as related book theories. And documentation studies in collecting the necessary data. Then secondary data was collected in the form of financial reports or annual reports of companies listed on the Indonesia Stock Exchange (BEI) for 2019-2021.

The population in this research are companies listed on the Indonesia Stock Exchange (BEI) in 2019-2021, consisting of 170 companies. And sampling from the population is carried out purposive sampling (selecting samples using certain criteria. The criteria are as follows:

1. Companies registered on the IDX for the 2019-2021 period.
2. Companies that regularly publish financial reports or annual reports for the 2019-2021 period.
3. Companies that publish financial reports or annual reports in rupiah and dollars.

Based on determining these criteria, 156 companies were found that met the sample criteria for this research.

The following are the variables in this research:

Table 3.1 Research Variables

Variable	Operational Definition	Measurement	Source
Capital Structure (DEBT)	1. The company's long-term debt every year 2. Total debt divided by equity 3. Long-term debt divided by equity	D/E D/A SD/E SD/A LD/E LD/A	Shyam-Sunder & Myers (1999)

Symbol description:

1. D/E = Total Debt divided by Total Equity (Debt to Equity)
2. D/A = Total Debt divided by Total Assets (Debt to Asset)
3. SD = Total Short Term Debt (Short Debt)
4. LD = Total Long Term Debt (Long Debt)
5. SD/E = Total Short Term Debt divided by Equity (Short Debt to Equity)
6. SD/A = Total Short Term Debt divided by Assets (Short Debt to Asset)
7. LD/E = Total Long Term Debt divided by Equity (Long Debt to Equity)
8. LD/A = Total Long Term Debt divided by Assets (Long Debt to Asset)

In this research, quantitative descriptive data analysis techniques were used which used descriptive statistics. According to [23], descriptive statistics are used to describe the characteristics of a data set so that it can provide information that is easy to understand.

#### IV. RESULT AND DISCUSSION

##### Descriptive Statistics Results

The results of initial data processing in this research are descriptive analysis, which shows the amount of data (N), minimum value, maximum value, average (mean), middle value (median) and standard deviation, as follows:

Table 4.1 Descriptive Statistics

Statistik Deskriptif	N	Minimum	Maximum	Mean	Median	Std. Deviation
D/E	156	-252,76	31,65	-0,36	0,87	20,57
D/A	156	0,05	5,03	0,57	0,48	0,54
SDE	156	-230,79	14,79	-0,68	0,48	18,61
SDA	156	0,03	4,71	0,36	0,29	0,41
LDE	156	-21,98	16,86	0,33	0,21	2,39
LDA	156	0,000377	3,74	0,20	0,12	0,33
Valid N (listwise)	156					

Source: Data processed by SPSS (2023)

Based on the data output above, it is known that the variable conditions in this study are as follows:

### D/E (Debt to Equity)

The mean value of debt to equity in the calculation is -0.36 times, with a mean value of 0.87 and a standard deviation value of 20.57. This shows that on average manufacturing companies on the IDX had low levels of debt during the 2019-2021 Covid-19 pandemic. This indicates that on average companies are in good condition, because they can still fulfill their short and long term obligations, and they also do not choose debt as funding for company operations during the Covid-19 pandemic. The maximum value for debt to equity is 31.65 owned by PT. Asia Pacific Investama Tbk (MYTX), while the minimum value of -252.76 is owned by Alumindo Light Metal Industry Tb (ALMI). The following is a table that shows the debt to equity (DER) value of manufacturing companies on the IDX.

Table 4.2 Debt to Equity Ratio Value

Descriptive statistics	D/E
D/E above 1	65
D/E equal to 1	0
D/E below 1	91
n (amount of data)	156

Source: Data processed (2023)

From the table above, it can be explained that there are 65 manufacturing companies registered on the IDX that have a DER above 1, which means the company is in the warning category. This warning situation can be seen more clearly by looking at the source of the debt. If the company's debt comes from business debt, then the company's condition is still good. However, if the source of the debt comes from bank debt or bonds, then the company should be wary of this condition. There are 95 companies that have a DER below 1, which means the company's condition is in the healthy category.

### D/A (Debt to Assets)

The mean value of debt to assets in the calculation is 0.57 times, with a mean value of 0.48 and a standard deviation value of 0.54. The maximum value for debt to assets is 5.03 owned by Asia Pacific Fibers Tbk (POLY), while the minimum value is 0.05 PT. Buana Artha Anugerah (STAR). The following is a table that shows the value of debt to assets (DAR) for manufacturing companies on the IDX.

Table 4.3 Debt to Assets Ratio Value

Descriptive statistics	D/A
D/A above 0,5	71
D/A equal to 0,5	0
D/A below 0,5	85
n (amount of data)	156

Source: Data processed (2023)

From the table above, it can be explained that there are 71 manufacturing companies registered on the IDX that have a DAR above 0.5, which means that most of the company's assets are financed by debt. Meanwhile, there are 85 companies that have a DAR below 0.5, which means that most of the company's assets are financed by equity or own capital. Therefore, it can be seen that more companies are financing company assets using equity or their own capital.

#### **SD/E (Short Debt to Equity)**

The mean value of short-term debt to equity is -0.68 years, with a mean value of 0.48 and a standard deviation value of 18.61. This shows that the average manufacturing company on the IDX can pay off its short-term debt using equity or its own capital in less than one year. The maximum value for short-term debt to equity is 14.79 owned by PT. Asia Pacific Investama Tbk (MYTX), while the minimum value of -230.79 is owned by Alumindo Light Metal Industry Tb (ALMI).

#### **SD/A (Short Debt to Asset)**

The mean value of short-term debt to assets is 0.36 years, with a mean value of 0.29 and a standard deviation value of 0.41. This shows that on average manufacturing companies on the IDX can pay off their short-term debt using company assets. The maximum value for short-term debt to assets is 4.71 owned by PT. Asia Pacific Investama Tbk (MYTX), while the minimum value of 0.03 is owned by PT. Duta Pertiwi Nusantara Tbk (DPNS).

#### **LD/E (Long Debt to Equity)**

The mean value of long-term debt to equity is 0.33 years, with a mean value of 0.21 and a standard deviation value of 2.39. This shows that the average manufacturing company on the IDX can pay off its long-term debt using equity or its own capital in less than one year. The maximum value for long-term debt to equity is 16.86 owned by PT. Asia Pacific Investama Tbk (MYTX), while the minimum value of -21.98 is owned by Alumindo Light Metal Industry Tb (ALMI).

#### **LD/A (Long Debt to Asset)**

The mean value of long-term debt to assets is 0.20 years, with a mean value of 0.12 and a standard deviation value of 0.33. This shows that the average manufacturing company on the IDX can pay off its long-term debt using assets in less than one year. The maximum value for long-term debt to equity is 3.74 owned by Jakarta Kyoei Steel Work LTD Tbk (JKSW), while the minimum value is 0.000377 owned by PT. Buana Artha Anugerah (STAR).

## **Discussion**

The proportion of capital structure of manufacturing companies listed on the Indonesian Stock Exchange during the Covid-19 pandemic requires attention. The research results show that during the Covid-19 pandemic for the 2019-2021 period, more companies relied on internal funding rather than debt to operate their businesses. The results of the analysis show that the company prefers to use equity or its own capital compared to debt. It can be seen from the table of analysis results for the values of debt to equity (D/E), debt to assets (D/A), short debt to equity (SD/E), short debt to assets (SD/A), long debt to equity (LD/E), and long term to assets (LD/A) which can be financed with the company's internal funds, namely equity or own capital. The capital structure decision taken by the company is a good decision during the Covid-19 pandemic, because if the company decides to take on debt it will result in more costs being paid which could lead to default. The greater the amount of debt a company has, the greater the risk it must bear. This risk will occur when the company fails to pay off the principal and interest [24].

The results of this research show that on average manufacturing companies listed on the IDX for the 2019-2021 period use Pecking Order Theory in determining the proportion of the company's capital structure. This is in line with research by [25], which states that the capital structure of companies in Indonesia tends to use the pecking order theory. Also research from [26] states that manufacturing companies in Indonesia apply pecking order theory in determining capital structure. This proves that pecking order theory is a relevant theory for companies to use in managing capital structure funding patterns [27].

It can also be seen from the research results that several manufacturing companies listed on the IDX for the 2019-2021 period use Trade-off Theory in determining the proportion of the company's capital structure. Companies choose to use debt in the company's operational processes, rather than using equity or their own capital. The use of debt in Trade-off Theory balances the benefits and sacrifices that arise as a result of the use of debt. Tax benefits result from the use of debt, so companies will use debt to a certain level [28]. This is supported by the results of research by [29], which states that the benefits obtained by companies from using debt are greater than the sacrifices, so it is better for companies to finance externally.

## **V. CONCLUSION AND SUGGESTION**

The results of descriptive analysis on 156 manufacturing companies listed on the Indonesia Stock Exchange (BEI) during the 2019-2021 pandemic are that the majority of companies' capital structure proportions use pecking order theory. Where companies are more likely to choose to finance their operations using internal funding sources or their own capital, compared to borrowing money from other parties or using external funding sources. This can be seen from the number of companies that are able to utilize internal funds to meet funding needs, such as debt to assets, short-term debt to own capital (equity), short-term debt to assets, long-term debt to equity, and long-term debt to assets. However, there are several companies that use debt to carry out company operations, this can be seen from the results of the analysis of the debt to equity ratio. It turns out that the use of trade-off theory is still used by these companies for company funding decisions, which depend more on debt than on their own capital.

The following are suggestions for related parties:

### **1. For Manufacturing Companies**

For manufacturing companies to be careful and thorough in determining the funding model used for the company, be it pecking order theory or trade-off theory. Because there are risks that arise from every funding decision that will be taken. It is better to use internal funds during the Covid-19 pandemic because the risks are lower compared to using external funds such as debt. The use of debt creates costs that increase the company's burden. This addition could have a negative impact if the company cannot meet or pay these



expenses. Therefore, companies must be wiser in using company funds as effectively and efficiently as possible.

#### 2. For Investors

Investors should choose companies with low levels of debt, so that the company does not have liquidity problems in providing returns from investments in the form of dividends.

#### 3. For Academics

In order to continue this research by adding the 2022 period, or by adding other variables, and/or further researchers can carry out comparative analysis between manufacturing companies that use pecking order theory or trade-off theory on the variables they want to study in more depth.

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