# THE EFFECT OF CAPITAL STRUCTURE ON FIRM VALUE WITH PROFITABILITY AS VARIABLE MEDIATOR IN INDUSTRIAL COMPANIES LISTED ON THE IDX

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#### ABSTRACT

This research discusses the influence of capital structure on firm value which is mediated by profitability in industrial companies listed on the Indonesia Stock Exchange from 2020 to 2021. These variables include capital structure (as measured by debt to equity ratio [DER]), profitability (as measured by return on equity [ROE]), and firm value (as measured by price to book value [PBV]), Based on the purposive sampling strategy, 96 data from 32 companies were chosen as research samples. Verification analysis is used in this study, with data analysis techniques through conditional process analysis and used SPSS Process Macro Model 4 was used to process the data. The study showed that: capital structure affects profitability, Capital structure affects firm value, Profitability affects firm value, and Profitability mediates the effect of Capital Structure on Firm Value.

Keywords: Firm value, profitability, capital structure

## **1. INTRODUCTION**

The continued growth of economic and social conditions is changing people's attitudes, behavior and mindset from people who save to people who invest and this can be seen from the increasing public interest in capital market investment in Indonesia. The Indonesia Stock Exchange (IDX) reported that the number of single investor identification (SID) in the Indonesian capital market had reached 10.48 million SID as of January 2023 [1]. Permatasari & Azizah [2] show that there is an increase in company value which has a big influence on investors' investment decisions because of its ability to illustrate the financial condition and level of risk faced by a company [2].

Firm value is able to reflect whether a company's performance is good or not. Where this will influence investors' views regarding the company [3]. In calculating firm value and making investment decisions, one proxy that is often used is the ratio of share price to book value or often known as price to book value (PBV) [4]. Firm value or company value can be influenced by macroeconomic factors and internal company factors such as capital structure, profitability, hedging policy, and others. Several of these factors are indicators that can influence investors in making investment decisions [5]. Profitability is one of the factors that can influence firm value. Profitability, which is represented by profits obtained from sales and investment income, is an appropriate variable for measuring the level of managerial effectiveness of a company [6]. In describing how a company's success can be seen from the company's overall use of capital in creating profits using the return on equity or ROE proxy [7].

Capital Structure can influence Profitability and firm value [8]. A high capital structure will have a negative influence or impact on the company's finances. Companies that are unable to manage funds effectively and efficiently will see their profits decrease because the greater the value of their debt, meaning that the amount of their own capital cannot meet all the company's fixed obligations, so the profits generated will be smaller [5]. This research looked up at the variable profitability as a mediator which will influence the influence of capital structure on firm value in industrial companies listed on the Indonesia Stock Exchange for the years 2020 to 2022. These variables include capital structure, as indicated by debt equity ratio (DER), profitability, as indicated by return on equity (ROE), and firm value, as indicated by price to book value (PBV).

A high capital structure will reflect a negative influence or impact on the company's finances. Companies that are unable to manage funds effectively and efficiently will see their profits decrease because the greater the value of their debt, meaning that the amount of their own capital cannot meet all of the company's fixed obligations, so the profits generated will be smaller [5].

Profitability can reflect measure a company's ability to generate or gain profits through all existing capabilities and resources [9].

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This research aims to obtain empirical evidence regarding the influence of Capital Structure on firm value with profitability as a mediating variable.

#### Signaling Theory

Spence [10] explains that Signaling Theory is a theory that explains the actions of managers who provide information to investors or creditors about the conditions facing the company. Companies provide signals to investors in the form of information that can be used as analysis for decision making. The information provided in this research can be in the form of company financial reports. The signaling theory underlying this research is used to explain that strong profitability is a sign of promising business prospects, so that investors will be happy and company value will increase. Signal theory explains that signaling is carried out by management to reduce asymmetric information.

### Firm Value

Company value is a certain condition that a company is able to achieve which can be seen through the share market price of the company [18]. Firm value is able to reflect whether a company's performance is good or not. Where this will influence investors' views regarding the company. It can be concluded that firm value is an indicator or reflection of the success of a company or the performance of a company. Firm value is closely related to the performance of a company in obtaining profits and increasing the wealth of its shareholders. High firm value will make the market believe not only in the company's current performance but also in the company's condition in the future. Firm value can also be interpreted as a normative goal of financial management [11]. The higher the firm value, the more impact it will have on investor perceptions, causing investors to have more confidence in the company's prospects [12]. Meanwhile, according to Kusumajaya [19] firm value is the market value of a company's equity plus the market value of debt. Thus, the addition of the company's equity to the company's debt can reflect the company's value. Based on the explanation that has been explained, it can be concluded that firm value is an indicator or reflection of the success of a company or the performance of a company. Firm value is closely related to the performance of a company in obtaining profits and increasing the wealth of its shareholders. High firm value will make the market believe not only in the company's current performance but also in the company's condition in the future.

# Capital Structure

Capital structure is a management decision related to company finances which will be used for company operational activities to carry out company investment activities [13]. Capital structure is company capital which includes a combination of debt and the company's own capital (shareholder's equity) [14]. Capital structure can also be interpreted as the allocation of company equity and the use of debt to carry out company operational activities [15]. According to Hamidy et al. [20] which states that capital structure has a significant positive effect on profitability, this research is not in line with research conducted by Rukmana et al. [21] which states that capital structure has a significant negative effect on profitability. Capital structure can influence market perceptions of the company. If a company has high debt, the market will consider this to be a high risk and can affect share prices, which will affect profitability. Apart from that, excessive use of debt can increase the risk of company bankruptcy in the future. Excessive use of debt in the capital structure will increase interest and principal payments on loans, which will reduce the profitability of a company. On the other hand, profitability will increase if the use of debt in the capital structure is within reasonable and appropriate limits. In other words, the relationship between capital structure and profitability is something that can be said to be complex and can be influenced by many factors.

H1: Capital structure affects profitability.

The relationship between capital structure and firm value is in line with signaling theory, which in the context of this theory explains how a company's decisions regarding funding can influence investors and influence firm value itself. In other words, a good capital structure will provide a positive signal that the company's firm value is in good condition. Beside. that, the research done by Hirdinis [22] it is stated that capital structure has a positive and significant influence on firm value. In contrast to research conducted by Meivinia [23] that capital structure has a significant negative effect on firm value. The capital structure within a company can influence the company's funding. Debt usually has interest costs that tend to be lower than the cost of equity, where the greater the proportion of debt in the capital structure, the lower the company's total funding costs. This will increase net profit which can influence firm value positively. Using a capital structure within reasonable limits will provide a sign that the company can control debt well, so that this can influence investors' views regarding the company which will increase firm value in the eyes of investors.

H2: Capital structure affects firm value.

### Profitability

According to Chistian and Fauziah [16] profitability is a company's financial ratio which can be used to measure a company's ability to generate profits or returns on income, assets and capital. This opinion is in line with the opinion of Irwanto et al [17] who stated that profitability is a ratio for assessing a company's finances in seeking profits/profits in a certain period. The higher the profitability ratio, the higher the profit that can be obtained. By increasing the profitability ratio, it can explain the increase in asset profitability in order to obtain profits so that the source of cash receipts will increase. Profitability is a ratio that can be used by companies to find out how much profit the company generates from the use of company assets. The greater the profitability ratio indicates an increase in profits in the company. Based on research conducted by Ambarwati [24], the influence between profitability and firm value is influential. This research is in line with research conducted by Pratiwi et al. [25] which states that there is an influence between profitability and firm value. H.R Pratiwi & Aligarh [26] say that if earnings per share increase without being accompanied by an increase in share prices, then this will affect firm value. Research

conducted by Alghifari et al. [5] explains that profitability has an influence on firm value. High profitability tends to be a positive factor in determining the value of a company. When a company is able to generate stable and high profits, investors will see it as something attractive. In other words, high profitability is able to reflect good firm value or company value and encourage an increase in firm value on the stock market.

H3: Profitability affects Firm Value.

According to previous research by Alghifari et al. [5], profitability which is moderated by hedging policy does not mediate the influence of capital structure on firm value. The findings in this research are that even debt that can increase a company's profitability will not be able to increase business strength because profitability is unable to mitigate the impact of capital structure on company value. This research is in line with research by Hirdinis [22] and Kartika, [27]. Profitability refers to the company's ability to generate profits. High profitability tends to reflect good firm value because consistent profits are an indicator of good company performance. If the company's profitability is high, it can compensate for the negative impact of a high capital structure. In this context, company profitability is considered as a mechanism that mediates or connects the influence of capital structure on firm value.

H4: Profitability mediates the effect of capital structure on firm value.

The research model of this study as presented in Figure 1 below:

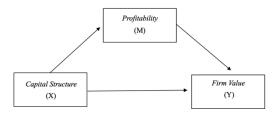


Figure 1. The Research Model

This paper presents some improvements based on the This research shows several differences and advances based on research conducted by Alghifari et al [5]. On the one hand, we eliminate the firm size variable and hedging policy which has been used in previous research. We also used different subjects from research conducted by Alghifari et al [5], namely using industrial companies. The period we use is also different from previous research. This research also uses process macro model 4 to test existing data, which is uses the Bootstrap method 95% (Resample = 5000).

The rest of the paper is organized as follows. Section 1 introduces the preliminaries used in this paper, covering the basic theories used in this study. Section 2 presents the research model and hypothesis used in the study and the population, sample count, sample criteria, and proxies are described in Section 2 as well. Section 3 shows the results of the study. Section 4 shows conclusion. Finally, Section 5 shows the acknowledgement.

### **2. RESEARCH METHOD**

All industrial companies registered on the Indonesia Stock Exchange for the years 2020 through 2022 represent the study's population. There are 32 companies in the chosen research sample. Purposive sampling was utilized for the sample selection, and the following sample criteria were used: (1) Industrial companies listed on the IDX successively in the period 2020-2022; (2)

Industrial companies that have complete and related data with the variables to be researched and publish complete and audited financial reports for the 2020-2022 period; (3) ndustrial Companies listed on the Indonesia Stock Exchange on the main and development listing boards; (4) Industrial companies listed on the Indonesian Stock Exchange which use the Rupiah (Rp) currency. Process macro model 4 and bootstraping method was used to process the data for this research.

This study was used SPSS process macro model 4, which is in order not to care about normality SPSS Process Macro use Bootsraping for the regression coefficient. Bootstrapping is a method for deriving robust estimates of standard errors and confidence intervals for estimates such as the mean, median, proportion, odds ratio, correlation coefficient or regression coefficient. It may also be used for constructing hypothesis tests. Bootstrapping is most useful as an alternative to parametric estimates when the assumptions of those methods are in doubt. This study used Bootsraping with resample 5000 and the 95% confidence interval.

The operationalization of variables used in this study consists of three types of variables. The dependent variable used is firm value, the independent variable used is capital structure, and the mediation variable used is profitability. The total companies that are valid to be the sample of this study is 32, with the total data sample of 96. The variables and proxy used in this study are concluded below:

Table 1. The Operationalization of Research Variables

Variabel	Ukuran	Skala
Capital Structure	Total Debt/Total Equity	Rasio
Profitability	Profit After Tax/Total Equity	Rasio
Firm Value	Market Price per Share/Book Value per Share	Rasio

### **3. RESULT S AND DISCUSSIONS**

The results of data processing from SPSS Process Macro Model 4, can be seen in the table below.

Table 2. Hypothesis Testing. 1						
Outcome Variable : Profitability (ROE)						
Variable	В	SE	t	р	Bootstra	ıp (95%)
					LLCI	ULCI
Constant	0.0000	.0121	0.0000	1.0000	0239	.0239
Capital Structure	1.0000	0.0003	3565.0176	0.0000	0.9994	1.0006

According to the results of data processing using SPSS Process Macro Model 4 Hypothesis 2, generate results with a p value of 0.0000 and a coefficient of -0.0820. The p value is lower than the significance value that was used in this study (0.0000 < 0.05). It shows that the capital Structure (DER) have a negative significant influence on profitability (ROE). Therefore, based on the results of data analysis, this hypothesis 2 is accepted.

According to the results of data processing using SPSS Process Macro Model 4 Hypothesis 1, generate results with a p value of 0.0000 and a coefficient of 1.0000. The p value is lower than the significance value that was used in this study (0.0000 < 0.05). It shows that the capital Structure (DER) have a positive significant influence on profitability (ROE). Therefore, based on the results of data analysis, this hypothesis 1 is accepted.

Table 3. Hypothesis Testing 2, 3						
<b>Outcome Variable : Firm Value</b>						
Variable	В	SE	t	р	Bootstrap (95%)	
					LLCI	ULCI
Constant	0.0000	.0011	0.0000	1.0000	0022	.0022
Capital Structure	-0.0820	0.0094	-8.6873	0.0000		-0.0633
Profitability	1.0820	0.0094	114.6314	0.0000		1.1007

Beside that, the result of data processing using SPSS Process Macro Model 4 hypothesis 3, generate result with a p value of 0.0000 and a coefficient of 1.0820. The p value is lower than the significance value that was used in this study (0.0000 < 0.05). It shows that the profitability (ROE) have a positive significant influence on firm value (PBV). Therefore, based on the results of data analysis, this hypothesis 3 is accepted.

Table 4. Hypothesis Testing 4					
Indirect(s) Effect of X on Y: (X-M-Y)					
Variable	index	BootSE	BootLLCI	BootULCI	
Profitability	1.0820	0.0134	1.0622	1.1159	

Distribution of this index is not known weather 0 is not so p value here is not shown and only have bootstrap confidence intervals. So in order to see weather this index significant is uses two borders of the confidence intervals and weather 0 is part of the confidence and part of the confidence, that is means significant index mediation.

The indirect impact of capital structure on firm value through profitability is calculated with a 95 percent bootstrap confidence interval. Hypothesis 4 is accepted because the Bootstrap Confidence profitability Interval is [1.0622 to 1.1159].

# 4. CONCLUSIONS AND SUGGESTIONS

### H1: Capital Structure affects Profitability

The expenditures of financial management will produce a financial structure that will indicate the comparative composition of the company's sources of cash in funding the company's activities. The source of money selection is crucial for any firm since it influences the company's financial structure, which in turn affects profitability. Foreign capital serves as a source of money for the corporation, as indicated by debt to equity. If the DER is larger, the company's potential to attain profitability is diminished, meaning that the DER has a negative connection with profitability [28]. However, this research shows the opposite, namely that capital structure has a significant positive effect on profitability, which is in line with research by Sari et al. [29] The use of debt by companies can show good company performance. A high DER indicates that the company feels optimistic about the profitability that will increase in the next period. The company is considered good by creditors because, to get high debt, the company must show high profits. Seeing growing profits means the company can pay obligations in high nominal terms. The higher the company's debt, the higher the profit the company will get from debt.

### H2: Capital Structure affects Firm Value

Capital structure decisions state that if capital structure decisions can affect company value, then the company wants to have a capital structure that maximizes its value. Therefore, a company's goals should center on maximizing its value through capital structure decisions. However, there are conflicting theories about the relationship between capital structure and firm value making it necessary to capture them into several broad groups. According to signaling theory, capital structure can be considered as a signal to the market. When debt is used, more of the company's operational earnings is taken, as result the greater the use of debt by a company, the greater its value and share price. Beside that, the higher the use of debt as forming capital structure will reduce the Firm Value. High debt can provide high risk for companies because the amount of debt will be proportional to the obligations that must be paid. The problem that arises is the inability of companies to pay interest on loans that encourage the risk of bankruptcy. The increase in debt by companies will be responded negatively by investors so that it can reduce the Firm Value. The results of the study is align with studies by Tri Putri & Rahyuda [15] and Paminto et al. [30] Both of which discovered that capital structure affects firm value but have negative impact.

### H3: Profitability affects Firm Value

The higher the company's ability to earn profits, the higher the company value. The greater the company's profitability, the greater the income that can be distributed to shareholders so that the expected company value is also higher. Investors' perception of the company will be good if the company is able to manage the company efficiently, which is reflected in the increase return on equity (ROE). The results of the study is align with studies by Anisa et al. [18], which explained that profitability has positive significant effect on firm value. Increasing a company's ability to earn profits can increase company value. The higher the company's profits, the less likely the company is to go bankrupt and the more investor confidence in the company increases, so the value of the company also increases.

#### H4: Profitability mediates the effect of Capital Structure on Firm Value

profitability is a variable that mediates the influence between capital structure and the value of the company. This means that the company value will increase if the company has high profitability. Directly the influence between capital structure and company value is negative, meaning that directly increasing capital structure will reduce company value, but if there is a mediating/intervening variable the influence between capital structure and company value becomes positive. This study align by Anisa et al [18] which explained that profitability mediates the effect of Capital Structure on Firm Value, Meanwhile, the results of this study conflict with those by Alghifari et al. [5], who discovered that Profitability does not mediates the effect of Capital Structure on Firm Value.

The use of debt by companies can show good company performance. A high DER indicates that the company feels optimistic about the profitability that will increase in the next period. The company is considered good by creditors because, to get high debt, the company must show high profits. Seeing growing profits means the company can pay obligations in high nominal terms. The higher the company's debt, the higher the profit the company will get from debt. which is in line with research by Sari et al. [29] which capital structure has a significant positive effect on profitability. The increase in debt by companies will be responded negatively by investors so that it can reduce the Firm Value. The results of the study is align with studies by Tri Putri & Rahyuda [15] and Paminto et al [30]. Both of which discovered that capital structure affects firm value but have negative impact. The higher the company's profits, the less likely the company is to go bankrupt and the more investor confidence in the company increases, so the value of the company also increases. The results of the study is align with studies by Anisa et al. [18] which explained that profitability has positive significant effect on firm value. The company value will increase if the company has high profitability. Directly the influence between capital structure and company

value is negative, meaning that directly increasing capital structure will reduce company value, but if there is a mediating/intervening variable the influence between capital structure and company value becomes positive. This study align by Anisa et al. [18] which explained that profitability mediates the effect of Capital Structure on Firm Value.

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