

# Modeling the Relationship between Capital Structure and Company Value in the Perspective of Agency and Trade-Off Theory

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**Abstract:** - This study is carried out to investigate the link between capital structure and company value from the perspective of agency and trade-off theory. This model formulates that the use of debt can increase profitability through monitoring mechanisms and disciplining by creditors. Profitability can reduce and increase financial distress and company value. The sample consists of companies in the LQ45 index for the period 2017-2020 and model testing uses path analysis. The results show that (i) there is a positive influence of capital structure on profitability, (ii) profitability significantly increases company value (iii) profitability affects the decrease in financial distress (iv) Financial distress significantly increases company value, (v) profitability and financial distress do not mediate capital structure on company value, (v) profitability mediates the influence of capital structure on company value (vi). These results have important implications, where an increase in debt positively affects company value due to the supervisory mechanism and discipline from the debtor. Meanwhile, the theoretical implication is to confirm agency theory and trade-off theory.

**Key-Word:** - Agency Theory, Trade-off Theory, Capital Structure, Profitability, Financial Distress.

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## 1 Introduction

Studies on company value are vital for investors and companies because the concept is related to investment decisions and the sustainability of the capital market. Several theories explain different views on the correlation between company value and capital structure.

According to, [1], there is no optimum capital structure (irrelevance theory), meaning that the variable does not affect company value. However, [2], revised previous results, where capital structure has a significant impact on company value because of market inefficiencies. The reduction of company tax liabilities leads to a positive impact and the modification of the Modigliani and Miller (MM) theory is commonly referred to as the MM Irrelevance Theory.

Considering the weakness of MM Irrelevance Theory MM, optimum capital structure is conducted by using debt, which influences the likelihood of the company becoming bankrupt. trade-off theory is designed to consider the risk of bankruptcy.

According to, [3], the decision to use debt is dependent on the degree of advantages to be obtained. Conversely, the use may not be deemed necessary when the associated drawbacks and potential losses outweigh the benefits. The use of debt increases and decreases company and company value to a certain percentage.

Agency theory in, [4], explains that debt financing reduces managers who try to maximize their profits by using free cash flow. Debt financing increases agency costs, but lenders include loan terms in the contract as a monitoring tool. The covenants are designed to restrict managers from overinvesting in risky projects.

Numerous studies show that the use of debt in capital structure enhances company value, [5], [6], [7], [8]. However, other results report a detrimental impact because increasing debt is considered a risk that will reduce company value and the benefits are smaller than the costs of financial difficulties, [9], [10], [11], [12].

Previous studies showed that Debt Equity Ratio directly impacted Company Value, [4], [6]. According to optimum capital structure, [5], capital structure can have positive and negative effects on company value. Previous results have not explained the mechanism of the link between the two variables, hence this study is conducted to fill the gap.

The current study aims to examine the impact of Capital Structure on company value from the perspective of agency and trade-off theory. To realize the objective, a model that formulates capital structure to increase company value is built.

The novelty is to develop a model from the perspective of agency theory and trade, where the optimum capital structure can be obtained from the use of debt. Optimum capital structure from the use of debt can increase company value. The model built will then be tested to explain the effects of capital structure on company value. Therefore, this study explains trade-off and agency theory concerning the use of debt.

## 2 Theoretical Review

The theoretical basis used is agency and irrelevance theory for building models that explain the use of debt. Agency theory shows that principals and agents have different interests. Conflicts of interest arise due to information asymmetry between owners and management, [13]. Meanwhile, management possesses a deeper understanding of company operations and activities due to their direct involvement in its day-to-day management, surpassing the knowledge of the owner. Conflicts of interest can arise between shareholders and bondholders within the company ownership structure, [14], [15].

The use of debt in capital structure can overcome agency costs arising from conflicts of interest related to free cash flow. In addition, [4], explains that agency problems associated with free cash flow can be controlled by increasing the use of debt in capital structure. Debt is used as a control mechanism where lenders and shareholders become the main parties in company governance structure and, [16], states the point of view in agency theory. Moreover, [17], explains that company value is higher than those without debt.

Agency theory states that the optimum capital structure with the use of debt can increase company value. The study, [2], argues that companies with leverage have more value than those without leverage. Furthermore, [17], reports that the value of

companies with greater debt is higher than those without debt.

MM created the trade-off theory and, [1], reports that the use of equity or debt as a trade-off between the expense of bankruptcy and the interest tax shield is determined by the trade-off hypothesis. According to, [2], [18], [19], the risks presented by future bankruptcy are exchanged by the company for the tax advantages of debt financing. The company stands to benefit from the tax advantages associated with interest payments when financing an investment using debt.

### 2.1. Effect of Capital Structure on Profitability

The use of debt in capital structure may enhance the profitability of the company, [20]. This is in line with agency theory that a company financed by most of the debt in its capital structure will make managers have less power in decision-making. Debt can be used as a control mechanism in company governance and this is supported by, [14], where a company reduces the risk of bankruptcy to make optimal business decisions. In addition, [21], proves that long-term debt is a strong disciplinary tool against company governance allowing a company to generate positive profitability, [22], [23], [24]. The study, [25], explains the other side of the use of debt in capital structure, where companies with more debt financing in their capital structure avoid the tendency of managers to misuse free cash flow. Therefore, the first hypothesis states that capital structure has a positive effect on the profitability of the company.

### 2.2 Effect of Profitability on Financial Distress

Increased profitability as an impact of the use of debt in capital structure as explained in the formulation of hypothesis 1, strengthens other financial performance. Improved financial performance is also needed to keep the company from financial distress. Meanwhile, [26], explains that a company gains high confidence from its stakeholders by producing strong financial results, conveying favorable information, and attracting investors and creditors.

An increase in profitability shows that the company has a better financial condition and can avoid the possibility of difficulties. The study, [27], suggests the significance of profitability ratios in identifying financial difficulties and argues that companies with high profitability face less likelihood of financial distress. According to, [28], a

company with high profitability has a large profit devoid of financial distress. In addition, [29], reports that companies experiencing financial distress generate low profitability. The second hypothesis states that the increase in profitability decreases financial distress.

### **2.3 Effect of Profitability on Company Value**

Continuing the first hypothesis, the model built from agency theory is that the use of debt can increase profitability and company value. Agency theory explains that the conflict between agents and creditors can be resolved by the ability to generate profits, [26]. The company has a good financial condition and will be responded to by increasing company value with high productivity. According to, [30], profitability with ROE and ROA indicators shows positive and statistically significant regression results on company value. Meanwhile, [31], explains that the benefits of using debt can increase expectations of higher future profitability due to low financial difficulties. As stated by, [32], the benefit of using external financing in the form of debt can result in good future investment projects with positive NPV. Future profitability resulting from the benefits of using debt can provide positive sentiment on the stock market, [33]. In trade-off theory, [3], the variable is generated from the ability to use sources of funds from debt to increase share value. Therefore, the third hypothesis states that profitability has a positive effect on company value.

### **2.4 Effect of Financial Distress on Company Value**

The first and second hypotheses with the agency theory perspective show that the use of debt has the potential to enhance profitability. Increased profitability serves as a safeguard against the occurrence of financial distress. Consequently, a lower incidence of financial distress contributes positively to company value. To assess financial distress, the Altman Z-score model is used, where a higher value indicates a reduced risk of financial distress. The increased Z-score correlates with an augmentation in company value, as shown by an increase in the PBV ratio. There exists a positive relationship between the Z-score and PBV, implying a positive relationship between the Z-score value and PBV ratio. However, the risk of financial distress has a detrimental impact on the valuation of shares, potentially leading to a decrease in share value. According to, [19], companies with high levels of financial distress tend to carry out accrual earnings management and have less real income. The study in, [34], reports that financial distress is a

systematic risk of reducing asset prices. The study, [35], states that the risk of financial distress puts pressure on falling stock prices.

Another study conducted by, [36], examines the other side of financial distress, where businesses use restructuring methods including lowering dividends or modifying capital structure in facing difficulties. In recovering financial conditions, investment and dividends are reduced to impact market confidence and company value. Therefore, the fourth hypothesis states that the avoidance of financial distress increases company value.

### **2.5 Mediation Profitability and Financial Distress on Company Value**

Agency Theory put forward by, [4], postulates that the control of excessive use of free cash flow by management is achieved through the use of debt. This method avoids risky investments, [25], but the use of debt also makes management more careful because the impact increases bankruptcy. Trade-off and agency theory state that capital structure can increase the use of debt functioning as a control mechanism for the tendency of managers to behave opportunistically. The use of debt needs to be accompanied by the principle of prudence resulting from the risk of using debt to improve profitability performance exceeding the risk of financial distress. Therefore, the fifth hypothesis states that profitability and financial distress mediate the effect of capital structure on company value.

## **3 Methodology**

### **3.1 Sample**

This study was conducted to prove agency theory on how the use of debt has a positive effect on company value. The sample used was a company in the LQ-45 index during 2017-2020 which consistently remained listed in LQ-45. The reason for selecting a company in the LQ-45 index was because the stocks included in the index had financial conditions, growth prospects, and high transaction value. Therefore, the use of debt was not due to financial problems because of the growth prospects. The sorting of the study years 2017-2020 ensures that the results are tested under any conditions.

### **3.2 Variable**

The variables used together with their abbreviations and definitions are provided in Table 1.

Table 1. Variable Definition

Variable	Abbreviation	Definition
Dependent Variable		
Debt To Equity Ratio	DER	Total debt to total equity ratio
Intervening Variables		
Profitability	ROA	Net income to total assets ratio
Financial Distress	Z	Z-Score of company
Dependent Variable		
Price Book Value	PBV	The ratio of market price per share to book value per share

### 3.3 Data and Analysis Methods

This study aims to answer the problem of a path analysis model derived from four sub-structure models, which is a regression equation using panel data. Therefore, panel data analysis is used for each sub-structure to obtain path coefficients. The following is a sub-structure model based on the study model.

$$\begin{aligned}
 \text{ROA} &= a_1 + b_1 \text{DER} + e_1 \text{ (sub-structure 1)} \\
 \text{Z-Score} &= a_2 + b_1 \text{ROA} + e_2 \text{ (sub-structure 2)} \\
 \text{PBV} &= a_3 + b_1 \text{Z-score} + e_3 \text{ (sub-structure 3)} \\
 \text{PBV} &= a_4 + b_1 \text{DER} + b_2 \text{ROA} + b_3 \text{Z-score} + e_1 \\
 &\text{(s4b-structure 4)}
 \end{aligned}$$

The pooled ordinary least squares (pooled-OLS), fixed effects model (FEM), and random effects model (REM) for four regression models were used in this investigation. To select the most suitable, the Chow test was used to verify a better model between OLS and FEM. The basis for the Chow test decision is seen from the cross-section chi-square probability value, with the H0 criterion: Common Effect Model or CEM. H1: Fixed Effect Model or FEM.

Breusch and Pagan Lagrange multiplier to check the most suitable model between REM and CEM. The basis for decision-making in the Lagrange multiplier is seen from the critical value of the chi-squares statistic with the criterion H0: Random Effect Model. H1: Common effect.

The Hausman test is used to determine which model between REM and FEM is more appropriate. The random cross-section probability value provides the framework for the decision-making of the Hausman test. Furthermore, with the criteria H0: Random Effect Model or REM. H1: Fixed Effect Model is FEM.

The multicollinearity test is required to determine when there is a correlation between the independent variables. There is a need to check for multicollinearity due to the presence of more than two independent variables in the fourth substructure.

In this study, The multicollinearity test includes assessing the correlation between independent variables, and a value exceeding 0.8 is considered an indicator.

In the context of conducting a linear regression analysis, it is important to ascertain the level of heteroskedasticity or homoskedasticity. In the case of the OLS method, the model adheres to the assumption of homoscedasticity. Conversely, when an individual opts for the FEM or REM, it becomes essential for the model to exhibit heteroskedastic characteristics.

Hypothesis testing is conducted through the t-statistic and probability values. The intervening variable is proven to mediate and can be determined by the comparison between the magnitude of the direct and indirect effects. The indirect effect is calculated from the sum of the multiplication of the path coefficients between parameters. The intervening variable acts as a mediator when indirect effects outweigh the direct. However, the variable does not perform a mediating role when the indirect effects outweigh the direct effects.

## 4 Data Analysis and Interpretation

### 4.1 Descriptive Statistik

Descriptive statistics of the variables used in the model are presented in Table 2.

Table 2. Descriptive Statistik

Variable	DER	ROA	Z-Score	PBV
Mean	1.0146	0.1846	4.9696	5.0680
Median	0.7253	0.1207	4.0680	1.6992
Maximum	3.3134	1.4508	12.3721	82.4444
Minimum	0.1447	-0.0730	-1.3350	0.5671

The capital structure of the company incorporated in JCI has an average DER of 1.01 during the study period, hence the average company funding is 101% using debt compared to capital. The maximum and minimum values are 331% and 14.47%, with a median DER of 0.72%. Sampling with a large debt-use ratio is relevant to the objectives of this study. In the context of agency theory, the use of increased debt causes the company to be more supervised in its operations to produce good company profitability.

The profitability of the company incorporated in JCI has an average ROA of 18.48 during the study period, meaning that every one rupiah of total assets generates 18.38 rupiah of net income. This ROA ratio is quite good when compared to the average risk-free rate with an average of 7% per year. The minimum and maximum profits are -0.07% and 145% with a median ROA of 12.07%, meaning that some samples have a ROA value above 12.07%. This ratio causes the company to have sufficient cash flow used to increase retained earnings and develop business.

Financial Distress incorporated in JCI has an average Z score of 4,969 during the study period, meaning that companies are categorized as avoiding financial distress. This z-score value indicates that the company has a low risk of bankruptcy. The minimum and maximum z-score values are -1.335 and 12.3712 with a median value of 4.068, meaning that some samples have a score of 4.068.

Company value proxied by the average price book value is 5.068 during the study period, meaning that the company is categorized as having a market price exceeding its book value. The market has trust in the shares of a company or shows the investor assessment. The minimum and maximum PBV values are 0.5671 and 8.244 with a median of 1.992, meaning that some samples have values above 1.992.

#### 4.2 Hypothesis Testing

Model Selection Estimation with Chow test, Hausman test, and Lagrange Test obtained the results in Table 3.

Table 3. Model Selection Estimation

Hypothesis	Test	P-Value	Model Preferred
Path 1 : ROA = a <sub>1</sub> + b <sub>1</sub> DER + e <sub>1</sub> (p<0,05, Ho : ditolak)			
Null: Common Effect Alternative: Fixed Effect	Chow Test	0.1020	CEM
Null: Random Effect Alternative: Common Effect	Lagrange multiplier testMultiplier	0.000	CEM
Null: Random Effect Alternative: Fixed effect	Hausman Test	0.2444	FEM
Path 2 : Z-Score = a <sub>1</sub> + b <sub>1</sub> ROA + e <sub>1</sub> (p<0,05, Ho : ditolak)			
Null: Common Effect Alternative: Fixed Effect	Chow Test	0.0000	FEM
Null: Random Effect Alternative: Common Effect	Lagrange multiplier testMultiplier	0.0000	CEM
Null: Random Effect Alternative: Fixed effect	Hausman Test	0.8710	FEM
Path 3 : PBV = a <sub>1</sub> + b <sub>1</sub> Z-Score e <sub>1</sub> (p<0,05, Ho : ditolak)			
Null: Common Effect Alternative: Fixed Effect	Chow Test	0.0000	FEM
Null: Random Effect Alternative: Common Effect	Lagrange multiplier testMultiplier	0.0000	CEM
Null: Random Effect Alternative: Fixed effect	Hausman Test	0.7855	REM
Path 4 : PBV = a <sub>1</sub> + b <sub>1</sub> DER + b <sub>2</sub> ROA + e <sub>1</sub> (p<0,05, Ho : ditolak)			
Null: Common Effect Alternative: Fixed Effect	Chow Test	0.0013	FEM
Null: Random Effect Alternative: Common Effect	Lagrange multiplier testMultiplier	0.0572	CEM
Null: Random Effect Alternative: Fixed effect	Hausman Test	0.0039	FEM

Based on the estimation model, paths one, four, and three are CEM, FEM, and REM,

respectively. Furthermore, classical assumption testing is carried out and the multicollinearity test is only performed for path four in Table 4.

Table 4. Multicolinierity Test

Variable	DER	ROA
DER	1	0.3067
ROA	0.3067	1

The independent variables have a correlation coefficient below 0.08. Therefore, the variables are not correlated with each other and there is no significant multicollinearity between the independent variables.

The heteroscedasticity test is carried out using the Glejser test, as shown in Table 5.

Table 5. Heteroskedastic Model Test

Dependent Variable	Independent Variables	Prob	Conclusion
Path 1 : ROA = a <sub>1</sub> + b <sub>1</sub> DER + e <sub>1</sub> (Prob > 0,05, There is no problem Heteroscedasticity)			
ROA	DER	0.0813	There is no problem Heteroscedasticity
Path 2 : Z-Score = a <sub>1</sub> + b <sub>1</sub> ROA + e <sub>1</sub>			
Z Score	ROA	0.7605	There is no problem Heteroscedasticity
Path 3 : PBV = a <sub>1</sub> + b <sub>1</sub> Z-Score + e <sub>1</sub> (Prob > 0,05, There is no problem Heteroscedasticity)			
PBV	Z Score	0.4539	There is no problem Heteroscedasticity
Path 4 : PBV = a <sub>1</sub> + b <sub>1</sub> DER + b <sub>2</sub> ROA + e <sub>1</sub> (Prob > 0,05, There is no problem Heteroscedasticity)			
PBV	DER, ROA,	0.7476 0.7858	There is no problem Heteroscedasticity

After passing the classical assumption test on each substructure, the following are the regression estimation results for testing the hypothesis as shown in Table 6.

Table 6. Summary Output

Variable	Coefficient	t-statistic	Prob
Path 1 : ROA = a <sub>1</sub> + b <sub>1</sub> DER + e <sub>1</sub> (Estimasi Common Effect Model)			
Intercept	0.0086	1.9971	0.0490
DER	0.0971	2.988	0.0037
Path 2 : Z-Score = a <sub>1</sub> + b <sub>1</sub> ROA + e <sub>1</sub> (Estimasi Fixed Effect Model)			
Intercept	3.5778	18.0640	0.0000
ROA	7.5376	7.190	0.0000
Path 3 : PBV = a <sub>1</sub> + b <sub>1</sub> Z-score + e <sub>1</sub> (Estimasi Fixed Effect Model)			
Intercept	2.7815	7.6196	0.0000
Z-score	0.4600	6.3098	0.0000
Path 4 : PBV = a <sub>1</sub> + b <sub>1</sub> DER + b <sub>2</sub> ROA + e <sub>1</sub> (Estimasi CEM)			
Intercept	-4.0056	-4,0707	0.0000
DER	0.9486	1,7844	0.0779
ROA	43.9209	26.1469	0.000

The path\_1 regression equation where DER is the independent variable affecting ROA as the dependent variable is as follows:

$$ROA = 0.08615 + 0,0917 DER + e_i$$

The constant value of 0.08615 indicates that DER (Z) will remain at 0.08615 units even though DER is zero. DER regression coefficient is 0.0917, hence each increase in DER by one unit will increase ROA value by 0.0917 units. The P value of DER on ROA is 0.0037 smaller than 0.05, Ho is rejected, meaning that DER has a significant effect on ROA at a significance level of 5%.

The Path\_2 regression equation where ROA is the independent variable affecting Z-Score as the dependent variable is as follows:

$$ROA = 3.5778 + 7,5376 Z\text{-Score} + e_i$$

The constant value of 3.5778 indicates that the Z-score will remain at 3.5778 units even though the ROA is zero. The regression coefficient of the Z-score is 7.5376, hence each increase in ROA by one unit positively affects the Z-score by 7.5376 units. The P value of ROA on the Z-score is 0.0000 smaller than 0.01, Ho is rejected, meaning that ROA has a significant effect at a significance level of 1%.

The Path\_3 regression equation where Z-score is the independent variable that affects PBV as the dependent variable is as follows:

$$PBV = 2.7815 + 0.4600 Z\text{-score} + e_1$$

The constant value of 2.7815 indicates that PBV will remain at 2.7815 units even though the Z-score is zero. The regression coefficient of the Z-score is 0.4600, hence each increase in Z-score by one unit will positively affect PBV by 0.4600 units. The P value on PBV of 0.0000 is smaller than 0.01, Ho is rejected, meaning that Z-score has a significant effect on PBV at a significance level of 1%.

The Path\_4 regression equation where DER and ROA as independent variables affect PBV as the dependent variable is as follows:

$$PBV = 0.7502 + 1.1600 DER + 3.9732 ROA + 0.4843 Z\_score + e_i$$

The constant value of -4.0056 indicates that PBV will remain at -4.0056 units even though DER and ROA are zero. The regression coefficient of DER is 0.9486, hence each increase in DER by one unit has a positive effect on PBV value by 0.9486 units with ROA at a fixed value. The Regression Coefficient of ROA is 43.9209, meaning that each increase by one unit positively affects the PBV value by 43.9209 units with DER at a fixed value. The P value of DER and ROA of 0.0779 and 0.0000 is smaller than 0.05 and 0.01, Ho is rejected, hence DER has a significant effect on PBV at a significance level of 1%.

The mediation hypothesis test is shown by comparing the direct and indirect effects as shown in Table 7.

Based on the calculation in Table 4, concerning the mediation of ROA on the relationship between DER and PBV, when the DER variable directly affects PBV, the estimated coefficient value obtained is 0.8998. The indirect influence of DER on PBV through ROA shows an estimated coefficient value of 4.2647. Therefore, the value of the indirect effect is greater than the direct through the mediation variable since ROA mediates the relationship between DER and PBV.

Concerning the mediation of ROA and Z-score on the relationship between DER and PBV, when the DER variable directly affects PBV, the estimated coefficient value obtained is 0.8998. The indirect influence or the effect of DER on PBV through ROA and Z-score shows an estimated coefficient value of 0.3667. It can be concluded that the value of the indirect effect is smaller than the direct through the mediation variable since ROA and Z-score do not mediate the relationship between DER and PBV.

Table 7. Mediation Test

Path	Direct Effect	Indirect Effect	Conclusion
DER → PBV	0.9486*0.9486= 0.8998		
DER→ROA→PBV		0.0971 X 43,9209 = 4.2647	Mediation
DER→ROA→Z Score → PBV		0.0971 X 7.5376 X 0.4600 = 0.3667	No Mediation

### 4.3 Discussion and Result

The result shows a significant and positive impact of DER on ROA, meaning that a rise in capital structure increases the ability to generate profits. The use of debt results in increased control mechanisms in the company governance structure. Furthermore, it avoids the tendency of managers to abuse free cash flow and makes financial managers more disciplined in managing the company. These results are consistent with agency theory and studies conducted by, [14], [21], [22], [24], [25].

ROA has a positive and significant influence on the Z-score, meaning that an increase in profitability significantly reduces the risk of financial distress. In the context of agency theory, a company with high profits resulting from the use of capital sourced from debt can be interpreted that the management is successful in achieving the interests of the agent and the principal, [4]. Furthermore, an increase in profit makes it easier to settle obligations and avoid financial difficulties, [26], and the company has all obligations with its profitability, [28], [29]. The increase in z-score value indicates a decrease and increase in bankruptcy risk and company value, [27]. This result confirms agency and trade-off theory where debt can provide benefits in the form of profits.

Profitability has a positive and significant influence on company value and the hypothesis is proven. Based on a model built from agency and trade-off theory, debt, profitability, and company value are directly related. The profitability of a company serves as an indicator of successful company management, mitigating conflicts between agents and principals, [26]. High profitability is emblematic of favorable financial circumstances, leading to increased trust among stakeholders, such as investors, creditors, and shareholders, [30]. In the context of trade-off theory, the strategic employment of debt to enhance profitability underscores the ability to yield greater benefits relative to the associated risks of the use, [3]. The situation attests to a high-performing company, eliciting a positive response from investors. Moreover, heightened prospective profitability holds the potential to generate positive sentiment, [33].

There exists a positive correlation between financial distress and company value. The z-score and PBV are directly related, signifying a reduced risk of bankruptcy and an augmented company value. The rationale is that companies characterized by minimal financial distress tend to exhibit greater real income, lower systematic risk, and a diminished likelihood of bankruptcy. In the

absence of financial difficulties, such a company possesses the potential for heightened investment. Under these favorable circumstances, the company is poised to maintain an upward trajectory, providing dividends to shareholders and proffering the promise of continued growth, [19], [34], [35], [36].

The mediation test results show that ROA can mediate DER to PBV, and this is evidenced by the magnitude of the indirect effect. The results are in line with the perspective of agency and trade-off theory, where the use of debt can produce an optimum capital structure. The use is related to the supervisory mechanism carried out by the lender, making financial managers more disciplined in managing the company, avoiding the tendency to misuse free cash flow, and making optimal business decisions, [14], [21], [22], [24], [25].

The mediation test results of profitability and financial distress in the link between capital structure and company value are not proven. This is because the magnitude of the indirect effect is smaller than the direct effect. Capital structure affects profitability, financial distress, and company value, without a proven mediation. The explanation lies in the dual influence of debt, including both profitability and financial distress. The optimal deployment of debt leads to heightened profitability and simultaneously introduces financial risk. Therefore, the growth of company value may be hindered when the increment in profitability resulting from the use of debt surpasses the magnitude of financial risk incurred.

The use of debt increases profitability, which can reduce financial distress. The lack of significance in mediation testing can be attributed to profitability levels. This is due to the Altman model's consideration of debt as a weight, contributing to the risk profile of the company. The mediation test outcomes tend to exhibit significant results when the profitability generated exceeds the risk associated with debt use.

## 5 Conclusion

Capital structure decision was important for the sustainability of the company because the performance of the company was affected. This study aimed to prove a proposed model of the relationship between capital structure and company value from the perspective of agency theory. The samples used were companies in the LQ45 Index on the Indonesia Stock Exchange (IDX) with a sample period between 2017 and 2020. Company



value was measured using PBV and there were independent and intervening variables based on the development of the model. The independent variable was capital structure measured using DER, and the intervening variable was profitability and Financial distress measured by ROA and Z-score value.

The hypothesis testing showed that DER had a positive and significant effect on PBV. An increase in the use of debt caused ROA to increase with PBV and Z scores, indicating a low risk of bankruptcy. ROA significantly mediated the effect of DER on PBV, while ROA and Z-score did not mediate the effect of DER on PBV.

The interesting result was based on the mediation test, where profitability significantly mediated the effect of capital structure on company value. Profitability and financial distress proved to be insignificant in mediating capital structure to company value. This result showed that the model proposed using the agency theory perspective was proven. The increased use of debt in the perspective of agency theory increased the supervision of the lender. Therefore, the company worked more effectively and carefully in every decision making as evidenced by the increase in profitability and value of the company. The capital structure presented a paradox, enhancing profitability while elevating financial challenges. The observed rise in profitability fell short of reaching an optimal level necessary to offset financial risks stemming from debt use. Therefore, the mediation effect of profitability and financial distress on the relationship between capital structure and company value did not attain statistical significance.

This result had important implications for academics and managers. First, the use of debt could positively affect company value within the model. Previous studies examined the association between capital structure and company value. However, the results omitted an evaluation of how the deployment of debt was harnessed as a mechanism for regulating the operational undertakings of the company. This omission potentially yielded inadequate conclusions regarding the impact of capital structure on company value. Second, management needed to consider the use of debt in its use because the concept had positive and negative impacts on company performance. Company value was increased by optimizing the use of funds from debt, hence the resulting profitability was higher than the risk. Third, the decision of the company was focused on risk minimization and supervising

debtors prevented managers from engaging in risky operational activities, leading to a reduction in company value.

#### References:

- [1] Modigliani, F., & Miller, M. H. (1958). The cost of capital, corporation finance and the theory of investment. *The American Economic Review*, 48(3), pp.261-297.
- [2] Modigliani, F., & Miller, M. H. (1963). Corporate income taxes and the cost of capital: a correction. *The American Economic Review*, pp.433-443.
- [3] Octavia, A. N., Wicaksono, G. S., Sari, D. P., & Mambay, V. V. (2021, February). Empirical testing of trade off theory and pecking order theory on companies in the LQ45 index on the Indonesian stock exchange. In *Proceedings of the First International Conference on Economics, Business and Social Humanities, ICONEBS 2020, November 4-5, 2020, Madiun, Indonesia*.
- [4] Jensen, M., & Meckling, W. H. (1976). Theory of the firm: Managerial behavior, agency costs and ownership structure. *Journal of Financial Economics*, 3(4), pp.305-360.
- [5] Migliori, S., Maturo, F., & Paolone, F. (2018). Capital structure determinants in family firms: An empirical analysis in context of crisis. *International Business Research*, 11(4), 65.
- [6] Salam, Z. A., & Shourkashti, R. (2019). Capital structure and firm performance in emerging market: An empirical analysis of Malaysian companies. *International Journal of Academic Research in Accounting, Finance and Management Sciences*, 9(3), pp.70-82.
- [7] Detthamrong, U., Chancharat, N., & Vithessonthi, C. (2017). Corporate governance, capital structure and firm performance: Evidence from Thailand. *Research in International Business and Finance*, 42, pp.689-709.
- [8] Ramli, N. A., Latan, H., & Solovida, G. T. (2019). Determinants of capital structure and firm financial performance—A PLS-SEM approach: Evidence from Malaysia and Indonesia. *The Quarterly Review of Economics and Finance*, 71, pp.148-160.
- [9] Hamam, M. D., Layyinaturobaniyah, L., & Herwany, A. (2020). Capital Structure and

- Firm's Growth in Relations to Firm Value at Oil and Gas Companies Listed in Indonesia Stock Exchange. *Journal of Accounting Auditing and Business*, 3(1), pp.14-28.
- [10] Ngatno, Apriatni, E. P., & Youlianto, A. (2021). Moderating effects of corporate governance mechanism on the relation between capital structure and firm performance. *Cogent Business & Management*, 8(1), 1866822.
- [11] Le, T. P. V., & Phan, T. B. N. (2017). Capital structure and firm performance: Empirical evidence from a small transition country. *Research in international business and finance*, 42, pp.710-726.
- [12] Vo, X. V. (2017). Determinants of capital structure in emerging markets: Evidence from Vietnam. *Research in International Business and Finance*, 40, pp.105-113.
- [13] Panda, B., & Leepsa, N. M. (2017). Agency theory: Review of theory and evidence on problems and perspectives. *Indian journal of corporate governance*, 10(1), pp.74-95.
- [14] Ni, J., Chu, L. K., & Li, Q. (2017). Capacity decisions with debt financing: The effects of agency problem. *European Journal of Operational Research*, 261(3), pp.1158-1169.
- [15] Tran, Q. T. (2019). Economic policy uncertainty and corporate risk-taking: International evidence. *Journal of Multinational Financial Management*, 52, 100605.
- [16] Petty, J. W., Titman, S., Keown, A. J., Martin, P., Martin, J. D., & Burrow, M. (2015). *Financial management: Principles and applications*. Pearson Higher Education AU.
- [17] Ardalan, K. (2017). Capital structure theory: Reconsidered. *Research in International Business and Finance*, 39, pp.696-710
- [18] Andrade, G., & Kaplan, S. N. (1998). How costly is financial (not economic) distress? Evidence from highly leveraged transactions that became distressed. *The journal of finance*, 53(5), pp.1443-1493.
- [19] Li, Y., & Singal, M. (2019). Capital structure in the hospitality industry: The role of the asset-light and fee-oriented strategy. *Tourism Management*, 70, pp.124-133.
- [20] Bae, J., Kim, S. J., & Oh, H. (2017). Taming polysemous signals: The role of marketing intensity on the relationship between financial leverage and firm performance. *Review of Financial Economics*, 33, pp.29-40.
- [21] Ugur, M., Solomon, E., & Zeynalov, A. (2022). Leverage, competition and financial distress hazard: Implications for capital structure in the presence of agency costs. *Economic Modelling*, 108, 105740.
- [22] Aivazian, V. A., Ge, Y., & Qiu, J. (2005). The impact of leverage on firm investment: Canadian evidence. *Journal of corporate finance*, 11(1-2), pp.277-291.
- [23] Alter, A., & Elekdag, S. (2020). Emerging market corporate leverage and global financial conditions. *Journal of Corporate Finance*, 62, 101590.
- [24] Canarella, G., & Miller, S. M. (2022). Firm size, corporate debt, R&D activity, and agency costs: Exploring dynamic and non-linear effects. *The Journal of Economic Asymmetries*, 25, e00233.
- [25] Shoaib, A., & Siddiqui, M. A. (2022). Earnings management and theoretical adjustment in capital structure performance pattern: Evidence from APTA economies. *Borsa Istanbul Review*, 22(1), pp.20-36.
- [26] Kalbuana, N., Kusiayah, K., Supriatiningsih, S., Budiharjo, R., Budyastuti, T., & Rusdiyanto, R. (2022). Effect of profitability, audit committee, company size, activity, and board of directors on sustainability. *Cogent Business & Management*, 9(1), 2129354.
- [27] Altman, E. I., Iwanicz-Drozowska, M., Laitinen, E. K., & Suvas, A. (2017). Financial distress prediction in an international context: A review and empirical analysis of Altman's Z-score model. *Journal of International Financial Management & Accounting*, 28(2), pp.131-171.
- [28] Waqas, H., & Md-Rus, R. (2018). Predicting financial distress: Importance of accounting and firm-specific market variables for Pakistan's listed firms. *Cogent Economics & Finance*, 6(1), 1545739.
- [29] ElBannan, M. A. (2021). On the prediction of financial distress in emerging markets: What matters more? Empirical evidence from Arab spring countries. *Emerging Markets Review*, 47, 100806.
- [30] Dang, H. N., Vu, V. T. T., Ngo, X. T., & Hoang, H. T. V. (2019). Study the impact of growth, firm size, capital structure, and profitability on enterprise value: Evidence of enterprises in Vietnam. *Journal of Corporate Accounting & Finance*, 30(1), pp.144-160.

- [31] DeAngelo, H., DeAngelo, L., & Whited, T. M. (2011). Capital structure dynamics and transitory debt. *Journal of financial economics*, 99(2), 235-261.
- [32] Fama, E. F., & French, K. R. (2002). Testing trade-off and pecking order predictions about dividends and debt. *Review of financial studies*, pp.1-33.
- [33] Danso, A., Lartey, T., Amankwah-Amoah, J., Adomako, S., Lu, Q., & Uddin, M. (2019). Market sentiment and firm investment decision-making. *International Review of Financial Analysis*, 66, 101369.
- [34] Boubaker, S., Hamza, T., & Vidal-García, J. (2018). Financial distress and equity returns: A leverage-augmented three-factor model. *Research in International Business and Finance*, 46, pp.1-15.
- [35] Andreou, C. K., Andreou, P. C., & Lambertides, N. (2021). Financial distress risk and stock price crashes. *Journal of Corporate Finance*, 67, 101870.
- [36] Koh, S., Durand, R. B., Dai, L., & Chang, M. (2015). Financial distress: Lifecycle and corporate restructuring. *Journal of Corporate Finance*, 33, pp.19-33.

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The authors equally contributed to the present study at all stages from the formulation of the problem to the final results and solution.

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The authors have no conflict of interest to declare that is relevant to the content of this article.

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