Analysis Of The Effect Of Capital Structure, Firm Size, Liquidity On Firm Value In Coal Subsector Companies On The Indonesia Stock Exchange In 2018-2022

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Abstract

This study aims to analyse the effect of capital structure, firm size, and liquidity on firm value in the coal subsector listed on the Indonesia Stock Exchange (IDX) during the 2018-2022 period. The background of this study is the importance of the coal subsector in the Indonesian economy as well as the challenges faced by companies in maintaining firm value amid fluctuating energy prices and policies. This research uses quantitative methods with multiple linear regression analysis approaches. The research population consisted of coal subsector companies listed on the IDX, with the sampling technique using purposive sampling. The number of samples taken was 28 companies with 140 data collected in a span of 5 years. The data used is secondary data in the form of financial reports of companies listed on the IDX coal subsector. The research location is on the Indonesia Stock Exchange, with a research period from 2018 to 2022. The independent variables in this study consist of capital structure, firm size, and liquidity, while the dependent variable is firm value. The results showed that capital structure has a significant influence on firm value, while firm size and liquidity do not have a significant influence on firm value.

Keywords: Capital Structure, Firm Size, Liquidity, Firm Value

Abstrak

Penelitian ini bertujuan untuk menganalisis pengaruh struktur modal, ukuran perusahaan, dan likuiditas terhadap nilai perusahaan pada subsektor batu bara yang terdaftar di Bursa Efek Indonesia (BEI) selama periode 2018–2022. Latar belakang penelitian ini adalah pentingnya subsektor batu bara dalam perekonomian Indonesia serta tantangan yang dihadapi perusahaan dalam menjaga nilai perusahaan di tengah fluktuasi harga energi dan kebijakan yang berubah-ubah. Penelitian ini menggunakan metode kuantitatif dengan pendekatan analisis regresi linier berganda. Populasi dalam penelitian ini adalah perusahaan subsektor batu bara yang terdaftar di BEI, dengan teknik pengambilan sampel menggunakan purposive sampling. Jumlah sampel yang diambil adalah 28 perusahaan dengan total 140 data yang dikumpulkan selama rentang waktu 5 tahun. Data yang digunakan merupakan data sekunder berupa laporan keuangan perusahaan-perusahaan subsektor batu bara yang terdaftar di BEI. Lokasi penelitian berada di Bursa Efek Indonesia dengan periode penelitian dari tahun 2018 hingga 2022. Variabel independen dalam penelitian ini terdiri dari struktur modal, ukuran perusahaan, dan likuiditas, sedangkan variabel dependen adalah nilai perusahaan. Hasil penelitian menunjukkan bahwa struktur modal berpengaruh signifikan terhadap nilai perusahaan, sedangkan ukuran perusahaan dan likuiditas tidak berpengaruh signifikan terhadap nilai perusahaan.

Kata Kunci: Struktur Modal, Ukuran Perusahaan, Likuiditas, Nilai Perusahaan

A. INTRODUCTION

In the current era of globalisation, the industrial sector plays an important role in a country's economic development. The coal subsector holds great significance in the Indonesian economy, serving as a vital natural resource that contributes to economic growth and national income. Companies in this subsector face great challenges in maintaining their corporate value amidst fluctuating commodity prices and ever-changing energy policies. Price fluctuations and dynamic policies create difficulties for

companies to maintain and increase company value. An increase in the value of a company's shares reflects an increase in the value of the company as a whole. This is because an increased share value reflects a positive market perception of the company's performance and prospects, which in turn increases market capitalisation and overall firm value (Chen & Christian, 2011). Specifically, this study investigates the influence of capital structure, firm size, liquidity, and firm value in the context of the coal subsector, which is listed on the Indonesia Stock Exchange (IDX) between 2018-2022.

Capital structure refers to the composition of a firm's funding between debt and equity. Capital structure theories, such as Modigliani-Miller theory, Trade-Off Theory, and Pecking Order Theory, provide a framework to understand how funding decisions can affect firm value. Firm size, on the other hand, is often associated with competitive advantage, operational efficiency, and capacity to withstand market shocks. A company's liquidity, as measured by liquidity ratios, indicates the company's ability to fulfil its short-term obligations and influences the perception of risk by investors.

Firm value is an important indicator for business sustainability, reflecting overall performance and attracting investor interest. This value provides a picture of the company's performance that potential investors use to assess its share price. Firm value is a measure of the overall value of the company, including its assets, performance, future prospects, and other factors that affect the overall value of the company (Enzela, Simorangkir, Torian, & Wahyuni, 2024). In a modern economy, firms need to understand the factors that affect their performance and value, such as capital structure, firm size, and liquidity levels. These factors are the focus of significant research in the finance literature due to their huge impact on firm value. Especially in the coal sector, where market volatility and regulatory changes present challenges, an in-depth understanding of these factors is critical to success.

B. LITERATURE REVIEW AND HYPOTHESIS DEVELOPMENT

Capital structure refers to the composition between debt and equity that a firm uses to finance its operations and growth. Capital structure theories, such as Modigliani-Miller theory, Trade-Off Theory, and Pecking Order Theory, provide a framework to understand how funding decisions can affect firm value. An optimal capital structure can minimise the cost of capital and maximise firm value. According to (Chen & Christian, 2011), capital structure has a significant influence on firm value, capital structure has a persial influence on firm value (Mangku, Patonangan, Najmudin, & Susanti, 2024).

Firm size is often regarded as an indicator of long-term survival and growth. Firm size, on the other hand, is often associated with competitive advantage, operational efficiency, and capacity to withstand market shocks. There are varying views on how relevant such measures are to the overall performance of the firm. In general, company size affects investor assessments in making investment decisions, this is because the size of the company can predict the company's ability to generate operating profit and the level of stability in financial management, according to (Myers, 2001), (Nikmah & Hung, 2024)company growth has no effect on firm value.

Liquidity is a company's ability to meet its short-term obligations and maintain day-to-day operations without financial difficulty. Good liquidity reflects efficient cash management and high financial stability. However, too high liquidity can also indicate that the company is not utilising its assets optimally for productive investments.

Previous research has explored various aspects of these factors on firm value. Research conducted by (Purnamasari & Yuliana, 2024) and (Rajan & Zingales, 1995) showed the importance of capital structure in determining firm value. (Saudicha & Kautsar, 2024) found that firm size is positively related to firm value in the

manufacturing industry, while research by (Titman & Wesseles, 1988) indicated that liquidity has a significant impact on capital structure decisions. In the context of the coal subsector in Indonesia, several local studies have tried to identify factors that affect firm value. However, research that focuses on the combination of capital structure, firm size, and liquidity together is limited. This research is important given the unique characteristics of the coal subsector, such as high dependence on global commodities and strict environmental regulations.

While there are many studies that examine the influence of each factor separately, there is still a gap in the literature regarding a comprehensive analysis that includes all three factors simultaneously, particularly in the coal subsector in Indonesia. In addition, most previous studies do not consider temporal impacts with limited year coverage. Therefore, this study aims to fill the gap by analysing data from 2018-2022, providing a more holistic and relevant view of the current conditions on the Indonesia Stock Exchange. This research is expected to contribute to the development of discourse on the topic by offering a new, more comprehensive perspective, as well as providing practical insights for policy makers and stakeholders in the coal industry.

C. RESEARCH METHODOLOGY

This research uses a quantitative approach with a causal-comparative research type. This approach aims to identify and analyse the effect of capital structure, company size, and liquidity on firm value in coal subsector companies listed on the Indonesia Stock Exchange (IDX) during the period 2018-2022. The research instrument in this quantitative approach is secondary data obtained from financial reports and annual reports of coal subsector companies available on the official website of the Indonesia Stock Exchange (www.idx.co.id) and the official website of the company under study. The data collected includes information on capital structure, company size, liquidity, and firm value.

Secondary data used in this study include, annual financial statements of coal subsector companies listed on the IDX, annual reports of coal subsector companies. Data obtained from the Indonesia Stock Exchange and the official website of each company. The population in this study were all coal subsector companies listed on the IDX during the 2018-2022 period, with an initial number of 34 companies. However, after applying the inclusion and exclusion criteria, there were 28 companies that met the requirements of this study. The sample selection criteria are as follows:

1. Coal subsector companies that have conducted Initial Public Offering (IPO) before 2018,
2. Companies that provide complete and consistent financial reports and annual reports during the 2018-2022 research period.

The sampling technique used is purposive sampling, which is the selection of samples based on certain criteria that are relevant to the research objectives. Data was collected from the company's financial statements and annual reports published on the IDX official website and the official website of each company during the 2018-2022 period. The data collection process is carried out by downloading and processing these reports according to the needs of the research variables. The data analysis method used in this study includes several stages, namely descriptive analysis, multiple linear regression analysis, partial significance test (t test), simultaneous significance test (F test), determination test. Variable measurements in this study used EViews software for data analysis.

Descriptive analysis is employed to give a summary of the acquired data. This involves computing the average, standard deviation, lowest, and highest values for each research variable—specifically, capital structure, firm size, liquidity, and firm value.

These findings from descriptive analysis aid in grasping the fundamental attributes of the data prior to subsequent analysis. Multiple linear regression is then utilized to examine how capital structure, firm size, and liquidity influence firm value. The regression model applied is outlined as follows:

$$Y = \alpha + \beta_1 X1 + \beta_2 X2 + \beta_1 X3 + \epsilon$$

Where firm value (Y) is the dependent variable measured, capital structure (X1) is an independent variable that describes the composition of the company's funding, firm size (X2) is an independent variable that measures the size of the company, and liquidity (X3) is an independent variable that shows the company's ability to meet its short-term obligations. Constant (α) is a fixed value that shows the basic value of the dependent variable when all independent variables are zero, regression coefficients (βX1, βX2, βX3 are numbers that show the magnitude of the influence of each independent variable on the dependent variable, and error term (ϵ) is a variable that represents the influence of other factors not included in the model on the dependent variable.

The simultaneous significance test or F test is used to test whether the independent variables together have a significant effect on the dependent variable. This test determines whether the regression model used is good enough to explain the relationship between the independent and dependent variables. Partial significance test or t test is used to test the effect of each independent variable partially on the dependent variable. This test determines whether each independent variable individually has a significant effect on the dependent variable in the regression model. The determination test (R-squared) is used to measure how much variation in the dependent variable can be explained by the independent variables in the regression model. A higher R-squared value indicates that the regression model has a better ability to explain variations in firm value.

By using this comprehensive data analysis method, the research is expected to provide accurate and informative results regarding the effect of capital structure, company size, and liquidity on firm value in coal subsector companies listed on the Indonesia Stock Exchange during the period 2018-2022.

Company value is measured using Price to Book Value (PBV), which is a financial ratio used to compare the stock market price of a company with its book value per share. This ratio is often used by investors to assess whether a stock is trading at a higher or lower value than its book value (Purnamasari & Yuliana, 2024). Capital structure is the composition of corporate funding consisting of debt and equity. The importance of measuring capital structure lies in its ability to provide an overview of the company's financial health and funding strategy. The capital structure in this study will be measured using the Debt to Equity Ratio (DER), to measure the proportion of debt to equity in the Company's funding structure. Data analysis is carried out using multiple linear regression methods to determine the effect of capital structure, company size, and liquidity on firm value. Based on Trade-Off Theory, Pecking Order Theory, and Agency Theory, an optimal capital structure can increase firm value by reducing the cost of capital and bankruptcy risk. Company size in this study is measured using the natural logarithm of the company's total assets. The use of natural logarithm is intended to reduce the scale of data that is too large and ensure a more normal distribution of data (Rajan & Zingales, 1995). Based on the Theory of Economies of Scale and Signaling Theory, companies with larger sizes usually have easier access to resources and markets, as well as the ability to take advantage of economies of scale, which in turn can increase firm value. The liquidity of the company in this study is measured using the Current Ratio (CR). Current Ratio is a ratio that shows the company's ability to meet its short-term obligations with current assets owned (Saudicha & Kautsar, 2024). Based on

Liquidity Theory and Agency Theory, high liquidity can increase investor confidence in the company's ability to fulfil its obligations, which in turn can increase firm value.

Thus, the conceptual framework of this study illustrates how capital structure, firm size, and liquidity simultaneously affect firm value. The hypothesis proposed is that capital structure, firm size, and liquidity all have a positive influence on firm value. This conceptual framework becomes the basis for formulating the research hypothesis and provides the theoretical foundation for the empirical analysis to be conducted.

D. RESULT AND DISCUSSION

In this section, we will present the numerical results of the proposed method and then analyse them. Specifically, we will start by discussing the results of this study and then examine the linear models generated on each leaf. In this case, we will only consider models that are significant (i.e. p-value < 0.05).

The table 1 presents descriptive statistics for four variables: Debt to Equity Ratio (DER), Natural Log of Total Assets (LNTA), Current Ratio (CR), and Price to Book Value (PBV). The statistics presented include mean, median, maximum and minimum values, standard deviation (Std. Dev.), skewness, and kurtosis.

Debt to Equity Ratio (DER), Natural Logarithm of Total Assets (LNTA), Current Ratio (CR), and Price to Book Value (PBV). The average DER of 0.913397 indicates that the companies in the sample have a relatively low debt to equity ratio. The median DER of 0.616900, which is lower than the mean, indicates a right-skewed distribution. The maximum value of DER stands at 34.05560, while the minimum value is -43.08640, indicating the presence of significant outliers in the data. The standard deviation of 6.029767 indicates high variability in DER. Skewness of -1.484754 indicates a left-skewed distribution of the data, and kurtosis of 30.67422 indicates very sharp peaks and long tails in the DER distribution.

Table 1 Descriptive Analysis

	DER	LNTA	CR	PBV
Mean	0.913397	29.12565	1.675982	2.025841
Median	0.616900	28.75520	1.237200	0.903000
Maximum	34.05560	32.66560	10.07430	35.90490
Minimum	-43.08640	26.37530	0.000100	-63.25390
Std. Dev.	6.029767	1.653275	1.669747	8.877208
Skewness	-1.484754	0.305511	2.489060	-1.732322
Kurtosis	30.67422	1.922981	10.82271	27.28203

Source: Eviews Processed Data, 2024

For the Log Natural of Total Assets (LNTA) variable is 29.12565, which gives an indication of the size of the companies in the sample. The median LNTA of 28.75520 is close to the mean, indicating a relatively symmetrical distribution. The maximum and minimum values of LNTA are 32.66560 and 26.37530 respectively, indicating a narrower range compared to DER. The standard deviation of 1.653275 indicates low variability in firm size. Skewness of 0.305511 indicates a slightly right-skewed distribution, and kurtosis of 1.922981 indicates a distribution closer to normal.

For the Current Ratio (CR) variable, the average CR is 1.675982, indicating generally good liquidity of the companies. The median CR of 1.237200 is lower than the mean, indicating a right-skewed distribution. The maximum value of CR is 10.07430 and the minimum value is 0.000100, indicating outliers. The standard deviation of 1.669747 indicates high variability in firm liquidity. Skewness of 2.489060 indicates a very right-

skewed distribution, and kurtosis of 10.82271 indicates very sharp peaks and long tails in the CR distribution.

For the Price to Book Value (PBV) variable, the average PBV is 2.025841, indicating that in general, the market values the company above its book value. The median PBV of 0.903000 is lower than the mean, indicating a right-skewed distribution. The maximum value of PBV is 35.90490 and the minimum value is -63.25390, indicating the presence of highly significant outliers. The standard deviation of 8.877208 indicates a very high variability in the market valuation of the company. Skewness of -1.732322 indicates a left-skewed distribution, and kurtosis of 27.28203 indicates very sharp peaks and long tails in the PBV distribution.

Overall, this descriptive analysis shows significant variability and asymmetry in the data, with some variables having notable outliers, particularly in DER and PBV. The table above shows the linear regression results of the independent variables Debt to Equity Ratio (DER), Natural Logarithm of Total Assets (LNTA), and Current Ratio (CR) on the dependent variable. This analysis uses regression coefficients, standard errors, t statistics, and probability values (p-value) to assess the significance of each independent variable.

The coefficient for the intercept (C) of 11.28642 with a standard error of 12.12898 yields a t-statistic of 0.930533 and a probability value of 0.3538. A p value greater than 0.05 indicates that the intercept is not significant at the 5% significance level, meaning that when all independent variables are zero, the predicted dependent value is not significantly different from zero. The coefficient for Debt to Equity Ratio (DER) of 0.690986 with a standard error of 0.114687 yields a t-statistic of 6.024993 and a probability value of 0.0000. The very small p value (less than 0.05) indicates that DER has a significant influence on the dependent variable at the 5% significance level. This positive coefficient indicates that an increase in DER is associated with an increase in the value of the dependent variable.

Table 2. Data statistics

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	11.28642	12.12898	0.930533	0.3538
DER	0.690986	0.114687	6.024993	0.0000
LNTA	-0.335136	0.416714	-0.804236	0.4227
CR	-0.077963	0.407374	-0.191379	0.8485

Source: Eviews Processed Data, 2024

The coefficient for Logarithm of Natural Total Assets (LNTA) of -0.335136 with a standard error of 0.416714 yields a t-statistic of -0.804236 and a probability value of 0.4227. The p value greater than 0.05 indicates that LNTA has no significant effect on the dependent variable at the 5% significance level. The negative coefficient indicates that an increase in LNTA is associated with a decrease in the value of the dependent variable, although this relationship is not statistically significant. The coefficient for Current Ratio (CR) of -0.077963 with a standard error of 0.407374 yields a t-statistic of -0.191379 and a probability value of 0.8485. A p value greater than 0.05 indicates that CR has no significant effect on the dependent variable at the 5% significance level. The negative coefficient indicates that an increase in CR is associated with a decrease in the value of the dependent variable, but this relationship is not statistically significant.

Overall, these regression results show that of the three independent variables tested, only DER has a significant influence on the dependent variable. LNTA and CR

showed no significant effect at the 5% significance level. This indicates that the debt-to-equity ratio is an important factor in influencing the value of the dependent variable in this model.

Table 3. Model Summary

R-squared	0.215028
Adjusted R-squared	0.197584
S.E. of regression	7.951996
Sum squared resid	8536.623
Log likelihood	-483.4089
F-statistic	12.32688
Prob(F-statistic)	0.000000

Source: Eviews Processed Data, 2024

Based on the F-test results, the F-statistic value obtained is 12.32688. This value is used to test the null hypothesis which states that all regression coefficients in the model are zero. This high F-statistic indicates that we have enough evidence to reject the null hypothesis, so it can be concluded that there is at least one independent variable in the model that has a significant linear relationship with the dependent variable. Thus, the regression model used has the ability to explain variations in the dependent variable that are influenced by one or more independent variables.

Based on the determination test results, the Adjusted R-squared (R^2 adj.) value obtained is 0.197584. This value adjusts the R-squared (R^2) by considering the number of independent variables used in the regression model. R^2 adj. which is lower than R^2 indicates that the addition of several independent variables to the model does not make a significant contribution in explaining the variation that occurs in the dependent variable. This suggests that the regression model used may be improved by making a more appropriate selection of independent variables to improve the predictive ability of the model.

E. CONCLUSION

Based on the regression results, only the DER variable has a significant influence on the dependent variable at the 5% significance level, with a positive coefficient indicating that an increase in DER corresponds to an increase in the value of the dependent variable. LNTA and CR, despite having negative coefficients, do not show a significant influence on the dependent variable. This indicates that the debt-to-equity ratio is an important factor affecting the value of the dependent variable in this model, while firm size and liquidity have no significant effect.

The F-test results indicate that the regression model has the ability to explain variations in the dependent variable influenced by one or more independent variables. However, the low Adjusted R-squared (R^2 adj.) value indicates that the addition of some independent variables into the model does not make a significant contribution in explaining the variation that occurs in the dependent variable.

The suggestion for this research is to select more appropriate independent variables to improve the predictive ability of the model. In addition, further analysis is needed to identify other variables that may have a significant influence on the dependent variable. Eliminating extreme outliers can also help improve the accuracy and reliability of the regression model used. Future research may consider using more sophisticated analytical methods to deal with the problem of asymmetry and high variability in the data.

REFERENCES

Chen, L.-j., & Christian, C. J. (2011). How the Pecking-Order Theory Explain Capital Structure. *Journal of Business Research, 65*(5), 483-490.

Enzela, M., Simorangkir, E. N., Torian, N. S., & Wahyuni, P. (2024). The influence of liquidity, profitability, company size, company growth and company age on company value (Case study on food and beverage companies listed on the Indonesian Stock Exchange period 2018 - 2022). *Journal of Economics and Business Letters, 4*(1), 71-81.

Mangku, I. K., Patonangan, M., Najmudin, & Susanti, F. E. (2024). Does free cash flow moderate the effect of profitability and capital structure on company value? *Interdisciplinary Social Studies, 3*(2), 88-95.

Myers, S. C. (2001). Capital Structure. *Journal of Economic Perspectives, 15*(2), 81–102.

Nikmah, C., & Hung, R. J. (2024). The impact of ASEAN economic community, firm characteristics and macroeconomics on firm performance and firm value: An investigation of Shariah-compliant firms in Indonesia. *Heliyon, 10*(11), 1-15.

Purnamasari, D. I., & Yuliana, P. (2024). The Influence of Capital Structure, Company Growth, Liquidity, and Profitability on Company Value in Food and Beverages Sector Companies Listed on the IDX for 2017 - 2022. *Social Science and Humanities Journal, 8*(3), 34562-34575.

Rajan, R. G., & Zingales, L. (1995). What Do We Know about Capital Structure? Some Evidence from International Data. *The Journal of Finance, 50*(5), 1421-1460.

Saudicha, M. s., & Kautsar, A. (2024). The Effect of Liquidity, Leverage, Firm Size, Ceo Duality, Political Connection on Financial Distress with Profitability as a Moderating Variable in Property & Real Estate Sector Companies Listed on the Indonesian Stock Exchange for the Period 2018-2022. *Journal of Business and Management Review1`1`, 5*(3), 215-233.

Titman, S., & Wesseles, R. (1988). The Determinants of Capital Structure Choice. *The Journal of Finance, 43*(1), 1-19.

Tyas, A. A., & Binekas, B. (2023). The Effect of Firm Size and Institutional Ownership on Tax Avoidance. *Accounting and Finance Studies, 3*(4), 239-251.

Widyawati, N., & Aris, M. A. (2021). The Influence Of Capital Structure, Company Growth And Profitability On Company Value (Empirical Study Of Manufacturing Companies In The Consumer Goods Industry Sector Listed On The Indonesia Stock Exchange For The Period 2020-2022). *Management Studies and Entrepreneurship, 5*(1), 1453-1465.

Wijaya, A., Juliana, & Avelina, V. (2021). Influence Capital Structure, Liquidity, Size the Company, Debt Policy and Profitability towards Corporate Value on Property Company, Real Estate and Building Construction Listed on the Stock Exchange Indonesia Period 2016-2019. *Budapest International Research and Critics Institute (BIRCI-Journal): Humanities and Social Sciences, 4*(3), 2241-2256.

William, G., & Ekadjaja, A. (2024). THE INFLUENCE OF CAPITAL STRUCTURE, PROFITABILITY AND LIQUIDITY ON THE VALUE OF COMPANIES LISTED ON THE INDONESIAN STOCK EXCHANGE. *International Jurnal of Application on Ekonomics and Business, 2*(1), 29871972.