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(RESEARCH ARTICLE)

The role of profitability in moderating the effect of leverage, liquidity, and firm size on firm value

Amelia Hilda Risky Jenny Eden and Yuniningsih Yuniningsih *

Department of Management, Faculty of Economics and Business, Universitas Pembangunan Nasional Veteran Jawa Timur, Surabaya, Indonesia.

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Abstract

This study aims to analyze the effect of leverage, liquidity, and firm size on firm value with profitability as a moderating variable in transportation and logistics sector companies listed on the Indonesia Stock Exchange (IDX). The population in this study were 37 transportation and logistics sector companies listed on the IDX for the period 2020-2023. The sampling technique used certain criteria (purposive sampling), 22 companies were obtained as research samples. The data analysis method used is multiple regression analysis and Moderated Regression Analysis (MRA). The results of this study indicate that partially leverage and liquidity have a significant positive effect on firm value, while firm size has a significant negative effect on firm value. In this study, profitability is unable to moderate the effect of leverage and liquidity on firm value, but profitability is able to moderate the effect of firm size on firm value.

Keywords: Leverage; Liquidity; Firm Size; Profitability; Firm Value

1. Introduction

Indonesia's Central Bureau of Statistics (BPS) reported that Indonesia's economy in the fourth quarter of 2023 against the fourth quarter of 2022 (y-on-y) experienced positive growth of 5.04%, an increase from the fourth quarter of 2022 against the fourth quarter of 2021 (y-on-y) of 5.01%. Transportation and logistics is one of the sectors that contributed 6.15% in 2023 (y-on-y) to Indonesia's economic growth. In the midst of intense competition between companies in the business world, companies that need additional capital for their business continuity can take an alternative way by conducting an Initial Public Offering (IPO), which is an action of a private company that was originally closed to become public by offering its shares for the first time to the public in the capital market because some of its shares are already owned by the public.

Every company in establishing and operating its business must have certain goals, including short-term and long-term goals. The company's short-term goal is to make as much profit as possible and its long-term goal is to maximize the firm's value for the welfare of its shareholders (1). Firm value is an investor's assessment of the company's success in managing company resources which is represented by the stock price. The value of transportation and logistics sector companies listed on the IDX during the 2020-2023 period experienced fluctuating growth each year.

In 2021 the average growth in the value of companies in the transportation and logistics sector decreased by -15%. In 2022 it increased quite dramatically by 47%, but in 2023 it fell again by -22%. This phenomenon reflects that investors still view the performance of companies in the transportation and logistics sector as less stable, and reflects market conditions that are less confident in the company's prospects now and in the future. Reviewing these conditions, the company must continue to evaluate various aspects of its business, especially its financial performance, one of which can be done by maximizing firm value to attract potential investors to invest in the company.

* Corresponding author: Yuniningsih Yuniningsih

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Based on the phenomena and research gaps that have been described, the authors are interested in further research related to the effect of leverage, liquidity, and firm size on firm value and profitability as a moderating variable.

1.1. Signaling Theory

Signaling Theory was first introduced through a work published in 1970 by George Akerlof entitled "The Market for Lemons" which put forward the concept of asymmetric information, namely the gap between the knowledge of buyers and the market sellers regarding the quality of a product (2). Signaling theory is a view of how shareholders can identify the success or failure of a company from its financial statements (3). The foundation of this theory is known as information asymmetry. Information asymmetry is the gap between the information that investors and management possess, often management knows more about the company's condition than investors (4).

Investors as stakeholders really need guidance through signals provided by the company regarding the company's performance and prospects to reduce information asymmetry. Information about the company's performance will be conveyed by the company, one of which is in the form of annual reports and financial reports published annually. The information that has been received will be interpreted first as good news or bad news, these conditions will have an impact on the rise and fall of the firm's value. Therefore, investors can use this information when making investment decisions in a company.

1.2. Trade-Off Theory

Modigliani and Miller in 1963 first proposed Trade Off Theory in an article entitled Corporate Income Taxes on the Cost of Capital: A Correction, explains how much debt and capital the company has, so that there is an equivalence between the costs incurred and the benefits received (5). The Trade off theory model according to (6) explains that the use of debt at a certain limit will increase the value of the company. However, after the maximum limit is exceeded, the addition of debt will cause a decrease in firm value.

The use of debt can save or reduce taxes received by the company, but on the other hand debt can reduce the profit earned by the company because it can trigger an increase in the risk of company failure to fulfill obligations, causing bankruptcy (4). Bankruptcy can occur because the use of debt that exceeds the optimal limit cannot generate profits that are greater than the loan burden so that the company is unable to pay off its debts, both principal and loan costs. This will have an impact on the decline in firm value as well as the decline in investor and creditor confidence in the company.

1.3. Firm Value

Firm value is defined as the selling value that investors are willing to pay for an issuer when the company is sold (7). The increase in firm value reflects the company's better performance, because the market reacts to investing its funds in the company which results in the company's stock price increasing. Firm value is generated by the company through the business activities it carries out in order to achieve a high proportion between the share price above the company's book value.

1.4. Leverage

Leverage is a source of funding for the continuity of company activities chosen by the company through the use of debt and the company must incur fixed costs for the use of debt (8). The use of debt as a source of financing for the company's business operations will lead to expenses that must be paid regularly by the company, both loan principal and loan fees.

1.5. Liquidity

Liquidity is the company's capacity to pay its short-term debt (9). Liquidity is a benchmark used to evaluate the company's capability to settle its obligations that are due in less than a year using its current assets. Companies that have a good level of liquidity are attractive to investors to invest in the company. Good company liquidity can provide a positive signal for investors to invest in the company (10).

1.6. Firm Size

Firm size is the amount of company assets calculated based on its overall assets (3). Large-sized companies are freer in carrying out their business activities because they have more resources to operate. In addition, large-sized companies have more control over market competition, which increases their readiness to face competition (11). With the availability of a large amount of assets, large-sized companies are easier to grow and more stable in any condition.

1.7. Profitability

Profitability is the company's capability to generate net profit in a certain period of time (12). Profitability ratio is a measure of the issuer's capacity to generate profits within a certain period of time and provides a general view of how effectively management conducts its business operations (7). Companies that are able to create maximum profits on their business operations will attract investors to invest in the company in the hope of getting a return.

2. Material and methods

The population used in this study were all transportation and logistics sector companies listed on the Indonesia Stock Exchange (IDX) as many as 37 companies. The sampling technique used purposive sampling, namely determining the sample with the following criteria considering based on certain predetermined criteria, the number of samples that meet the criteria is 22 companies.

The data collection technique in this study uses documentation data collection techniques, in the form of data in the form of writing or numbers that have passed and are provided by others. There are two data analysis methods used in this study, namely Multiple Linear Regression Analysis used to test the effect of more than one independent variable on the dependent variable and Moderated Regression Analysis (MRA) used to analyze the relationship of moderating variables in the influence between the independent variable and the dependent variable.

3. Results and discussion

3.1. Classical Assumption Test

Table 1 Test for Normality, Multicolonierity, Heteroscedasticity, and Autocorrelation

	Asymp. Sig. (2-tailed)	X1	X2	X3	Y	Z
Normality	.070	-	-	-	-	-
Multicolonierity (VIF)	-	1.031	1.096	1.174	-	1.148
(tolerance)		.970	.913	.852	-	.871
Heteroscedasticity	-	.212	.252	.708	-	.573
Autocorrelation	.054	-	-	-	-	-

a. Dependent Variable: Firm Value; Source: data processed

Based on table 1 using the Kolmogorov Smirnov test, it shows that the Asymp. Sig. (2- tailed) of 0.70>0.05 so it can be concluded that all data in this study are normally distributed.

Based on table 1, it shows that the tolerance and VIF values for each independent variable in this study have met the Multicolonierity Test requirements, namely the tolerance value> 0.1 and VIF < 10 so it can be concluded that there are no multicollinearity symptoms.

Based on table 1 with the Glejser test, it is found that the independent variables in this study, namely leverage, liquidity, firm size, and profitability, each have a Sig. value that is more than 0.05 so it can be concluded that the data does not occur heteroscedasticity in the regression model.

Based on table 1 with the run test, it is obtained that the asymp sig (2-tailed) value is 0.054, which means that this figure is greater than 0.05 so it can be concluded that there is no autocorrelation.

3.2. Regression Analysis Test

Based on table 2, from the results of data processing, the following equation can be drawn.

Y = 14.938 + 1.237 Leverage + 1.442 Liquidity - 0.567 Firm Size + e

The t test results in table 2 are as follows: a. The coefficient value of Leverage is 1.237 and its significance value is 0.000 <0.05 indicating that Leverage has a significant positive effect on firm value; b. The coefficient value of Liquidity is 1.442

and its significance value is 0.000<0.05 indicating that Liquidity has a significant positive effect on firm value; c. The coefficient value of Firm Size is -.567 and its significance value is 0.000 <0.05 indicating that Firm Size has a significant negative effect on firm value.

Table 2 Multiple Regression Analysis Test & MRA Test

Model	**B**	**X1**	**X2**
Constant	14.938	-	-
Leverage	1.237	5.514	.000
Liquidity	1.442	8.419	.000
Firm Size	-.567	4.464	.000
Leverage*Profitability	-1.559	-4.646	.000
Liquidity*Profitability	-.704	-1.608	.112
Firm Size*Profitability	3.604	-.345	.731

a. Dependent Variable: Firm Value; b. Source: data processed

Y = 14.938 - 1.559 Leverage*Profitability - 0.704 Liquidity*Profitability + 3.604 Firm Size*Profitability + e

The results of the Moderation Regression t test in table 2 can be concluded as follows: a. Profitability is unable to moderate the effect of leverage on firm value with a coefficient value of-1.559 and a significance value of 0.112>0.05; b. Profitability is unable to moderate the effect of liquidity on firm value with a coefficient value of -0.704 and a significance value of 0.731>0.05; c. Profitability is able to moderate the effect of firm size on firm value with a coefficient value of 3.604 and a significance value of 0.000 <0.05.

The results of hypothesis testing state that Leverage has a positive and significant effect on firm value, in line with previous research conducted by (13) and (14) that Leverage has a positive and significant effect on firm value. In connection with the *trade off theory put* forward by Modigliani and Miller (1963) that companies exchange the benefits and risks arising from the use of debt. Debt interest can reduce the tax burden borne by the company in the sense that the company gets tax savings benefits. The use of debt at a certain limit will increase firm value (6).

The use of debt can be used as capital to finance expansion, expand business scope, product development, etc. so as to achieve faster growth and increase company revenue. In addition, companies can use debt to invest in projects that generate high returns so that it can increase the value of the company. However, companies must be able to balance the benefits and risks received from using debt optimally.

The results of hypothesis testing state that liquidity has a positive and significant effect on firm value, in line with previous research conducted by (15) and (16) that liquidity has a positive and significant effect on firm value. In accordance with the signal theory put forward by George Arkelof (1970) that a high level of liquidity provides a positive signal to investors regarding the company's ability to pay off its short-term debt well. Cash and cash equivalents are the most liquid current assets or are completely ready to be used by the company without having to wait a long period of time to turn them into cash.

The availability of adequate cash and cash equivalents can be used by the company to meet its current obligations immediately such as paying employee salary debt, rental debt, etc. The increasing level of liquidity indicates that the company is increasingly able to pay its short- term obligations in a timely manner so that investors put their interest and trust in investing in the company so that demand for shares will increase and followed by an increase in firm value.

Based on the test results in this study, it states that firm size has a negative and significant effect on firm value, in line with previous research conducted by (17) and (18) that firm size has a negative and significant effect on firm value. In connection with the signal theory put forward by George Arkelof (1970) that large firm size gives bad signals to investors. The very large size of the company is interpreted to trigger the management to minimize the efficiency of maintaining operational activities and strategies, which in turn can reduce firm value (17).

A large amount of assets must be properly utilized to generate profits. If total assets increase without an equivalent increase in revenue or profit, it indicates that the assets are not being properly utilized. As the company's assets

increase, overhead costs such as maintenance, security, administration, etc., will increases which can reduce profit margins and also have an impact on decreasing firm value.

Based on the test results in this study, it states that Leverage moderated by Profitability has a negative and insignificant effect on firm value, in line with previous research conducted by (19) that the profitability variable is unable to moderate the influence between leverage on firm value. This is not in line with the *trade off theory* proposed by Modigliani and Miller (1963) which argues that companies trade off the benefits and risks arising from the use of debt.

In the condition that the company has reached the optimal level of leverage, namely when the debt to equity ratio is considered the most appropriate and appropriate to maximize firm value, the level of profitability will not affect the company's decision to change the proportion of leverage because the company may already have a very consistent financing policy. Therefore, the ups and downs of profitability are not the only consideration factor for corporate decision making when using external funds, namely debt.

Based on the test results in this study, it states that Liquidity moderated by Profitability has a negative and insignificant effect on firm value, in line with previous research conducted by (20) and (21) that the profitability variable is unable to moderate the influence between liquidity on firm value. This is not in line with the signal theory put forward by George Arkelof (1970) because profitability does not provide good or bad signals regarding the relationship between liquidity and firm value. This could be because investors think that the profit earned by the company can be used as the company's retained capital or distribute dividends to its shareholders rather than the funds being reserved to pay off the company's debt.

Companies that have the ability to manage and control the level of liquidity that is maintained effectively and efficiently, do not depend on the level of profitability they get. Cash and cash equivalents are the most liquid assets owned by the company and the most liquid assets owned by the company. Profitability can be improved in various ways such as managing receivables more effectively, managing inventory etc. Therefore, the rise and fall of profitability is not the only factor that determines the level of liquidity of a company.

Based on the test results in this study, it states that firm size moderated by profitability has a positive and significant effect on firm value, in line with previous research conducted by (22) that the profitability variable is able to moderate the influence between firm size on firm value. This is in line with the signal theory put forward by George Arkelof (1970) that the large size of the company is captured by investors as a bad signal because it indicates that the company is unable to process abundant assets to take the firm's value.

In addition, the accumulation of unproductive and less profitable assets can reduce the value of the company because it is seen as ineffective and inefficient. The negative effect of firm size on firm value is also because investors argue that companies that have a large number of assets often decide on greater retained earnings than the dividends distributed to shareholders (17). This can reduce investors' investment interest in the company and will have an impact on the decline in firm value so that it is concluded that profitability can strengthen the negative effect of firm size on firm value.

4. Conclusion

Based on the results of the research conducted, it shows that leverage is able to contribute to firm value, liquidity is able to contribute to firm value, while firm size is able to contribute in the opposite direction to firm value. In this study, profitability is unable to contribute to the relationship between the influence of leverage and liquidity on firm value, but profitability contributes to the relationship between the influence of firm size on firm value. Suggestions that the author can give are as follows.

1. Company management must continue to control and balance the benefits and risks received by the company from using debt properly because it has an impact on the rise and fall of firm value.
2. Company management is expected to be able to manage the availability of current assets that are really ready to be used to pay off short-term debt such as cash by managing inventory levels, receivables, etc.
3. Company management is expected to pay more attention to the optimal management of abundant assets and the efficiency of operating costs so that they can provide maximum revenue or profit, if these idle assets are not used properly to take advantage of existing opportunities, it will have an impact on reducing revenue which can harm the company.
4. For future researchers, it is expected to add other variables outside of this study, update the research year, and use other research objects in the hope of obtaining more representative results and expanding the scope of research.

Compliance with ethical standards

Disclosure of conflict of interest

No conflict of interest to be disclosed.

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