
Does Company Size Mediate the Relationship between Leverage and Firm Value in Indonesia Technology Companies?

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Abstract

This research aims to prove and test the effect of leverage on firm value, with firm size as a moderating variable in technology companies listed on the Indonesia Stock Exchange (BEI) for the 2019-2022 period. This study used a quantitative approach with an independent variable on leverage. Dependent variable on firm value and firm size as moderating variable. This study uses convenience sampling with a sample of 32 companies. The data used in this research is secondary data, which is 94 financial reports. The analysis used moderated regression analysis with eViews version 13. The research results show that leverage influences firm value. Firm size weakens the influence of leverage on firm value. This research was developed from previous research by adding firm size as a moderating variable in technology companies listed on the Indonesia Stock Exchange (BEI) for 2019-2022. It proves that investors pay more attention to a company's future growth potential. Large technology companies are considered to have sufficient resources to deal with changes in profitability and the flexibility to adapt to market changes.

Keywords: *firm size, firm value, leverage, technology companies*

INTRODUCTION

The technology sector index (IDXTECHNO) contains shares of companies in the technology sector, which was the only sector that weakened. In contrast, other sectors strengthened in the Composite Stock Price Index (IHSG) in August 2023. The average increase in stock prices in the industrial classification index was 0.54%, but IDXTECHNO was the lowest, with a growth rate of -0.91% (CNBC Indonesia, 2023). This is undoubtedly an anomaly amidst the soaring development of the technology industry, with its stock prices declining. This decline also occurred in the same period in the previous year (YoY) at -2.22%. Several falling stock prices from companies in this category caused the decline in IDXTECHNO. Examples of companies experiencing a decline in stock prices are Gojek (GOTO) and Bukalapak (BUKA), which recorded an increase in their consumer base. However, there was a decline instead of an increase in stock prices. This decline can affect the firm value, which is undesirable for investors. Companies must maintain their stock prices to continue providing the best returns to shareholders. (Ayem & Ina, 2023) (FITRIA, 2021) (Hirdinis, 2019).

PBV (Price to Book Value) is considered appropriate for measuring firm value because it describes the comparison between share price and book value. Demand for company shares can increase in line with share prices; many factors, including increased profitability, high dividend levels, and high company liquidity, can cause this. There is an expectation that an improvement in a company's financial performance will lead to an equal

rise in its value. In other words, as economic performance improves, firm value increases, and investors receive significant returns (Widagdo et al., 2020).

Fahmi, (2014) Explains that ratios can be used to evaluate a company's financial condition and performance, which compare the numbers in the financial report items. Financial reports must be prepared to determine whether the company's performance is increasing or decreasing. According to (Helfert, 1997), various analytical techniques, including various financial ratios, can assess a company's performance. According to Fahmi, (2014) An investor will look at the three most important financial ratios to reference when assessing a company's performance: liquidity, leverage, and profitability ratios.

Financial ratios are often used to measure a company's leverage and assess its overall firm value. Changes in these ratios can affect overall financial performance. Companies with low leverage tend to have higher values. (Sukarya & Baskara, 2018). Gibson, (2012) The ROA (Return on Asset) ratio measures a company's ability to utilize its assets to generate income.

Kasmir, (2019) It was explained that the leverage ratio measures the extent to which a company's assets are financed with debt. This means the company carries more debt than its assets. According to (Ardiyos, 2013) The leverage ratio measures the size of debt against a company's total capitalization. A higher leverage ratio indicates excessive debt, which may mean the company cannot fulfill its obligations. (Rosihana, 2023) (Reschiwati et al., 2020) Managers who are motivated to pay off debt will try to increase sales volume to cover existing debt obligations and, at the same time, increase company profits. (Calvin Febri Yanto, 2021) These actions can be considered a positive indication of a company's financial health, which may interest investors because it shows its ability to manage debt effectively. Demand for a company's products or services can increase, causing an increase in share prices in the market and, ultimately, increasing the company's overall value. (Soge & Brata, 2020).

According to Brigham & Houston, (2011) That firm size is a measure of the size of a company, which is indicated or assessed by total assets, total sales, total profits, tax burden, and so on. According to Indonesian Law number 20 of 2008, firm size is classified into four categories: micro-businesses, small businesses, medium businesses, and large businesses. Significant assets provide additional stability for a company compared to smaller ones. Companies with abundant assets have high production levels to generate substantial sales. High sales result in relatively large profits, satisfying investors because their dividends will also increase. Therefore, companies can attract investors to invest their capital, which in turn can cause an increase in share prices on the market, which will further increase firm value. (Soge & Brata, 2020) One factor that investors consider before investing is the firm's size. Large companies typically offer comprehensive information to satisfy the information requirements of people who use it, including government agencies, investors, managers, and other information users. (Hapsoro & Falih, 2020) (Nadiya et al., 2023).

The decline in company performance in the tourism sector due to the COVID-19 pandemic is a global phenomenon that also significantly impacts Indonesia. This sector was previously a significant contributor to economic growth but faced considerable challenges during the pandemic. Research that examines the factors that affect the

profitability of tourism companies, such as company size, leverage, liquidity, and the impact of the pandemic, is essential to help companies understand how to mitigate financial risks and restore profitability. In addition, the results of this study can be a necessary reference for policymakers in designing economic recovery strategies, especially in the highly affected tourism sector.

This study aimed to answer the research gap caused by inconsistent findings from previous research regarding firm size. The firm size variable was considered a variable that was thought to be a moderator of the effect of leverage on the firm value. Research conducted by (Novia & Triyonowati, 2018), (Husna & Satria, 2019), Mudjijah et al., (2019), (Markonah, M., Salim, A., & Fransiska, 2020), (Sari et al., 2023), and (Jihadi et al., 2021), shows that profitability is influential and significant to firm value. However, the results of research conducted by Firdaus, (2019) Find that profitability (ROA) is not influenced by the firm value (PBV). Ali et al., (2021) Research results also stated that proxied profitability with influential ROA is negative and significant to the firm value.

Leverage significantly contributes to maximizing firm value. Research by (Novia & Triyonowati, 2018), Firdaus, (2019) (Markonah, M., Salim, A., & Fransiska, 2020), and (Jihadi et al., 2021) Found a positive relationship between leverage and firm value. However, Fajaria & Isnalita, (2018) Concluded that leverage has a significant negative effect on firm value. Conversely, studies by (Farooq & Masood, 2016), (Anjani & Yuliana, 2023), (Panjaitan & Supriyati, 2023), and (Sari et al., 2023) Indicate that higher leverage is associated with increased firm value. A higher leverage ratio implies that a company often uses debt as part of its capital structure, which can enhance returns and attract investors. According to signaling theory, companies with positive equity and a certain level of debt demonstrate effective management and operational funding. This is seen as a positive signal by investors, who believe such companies can generate maximum returns. When making investment decisions, investors should look at financial information and non-financial aspects such as implementing corporate social responsibility. (Hasanah et al., 2023).

H1 = Leverage positively affects firm value in technology companies on the Indonesian Stock Exchange.

Research by Husna & Satria, (2019) Found that firm size has a significant positive impact on firm value. However, Hirdinis (2019) found that firm size significantly negatively impacts firm value. Larger firms attract investors who wish to acquire firm shares, leading to an increase in stock prices and thereby enhancing firm value. Large firms are seen as having the capacity to achieve significant profitability and market control, allowing them to achieve higher profitability than smaller firms. (Panjaitan & Supriyati, 2023). As a firm grows, it becomes easier to obtain funds, which can lead to higher profitability. (Hery, 2017) (Syamsuddin, 1987).

Large technology firms benefit from economies of scale, meaning they can produce goods or offer services at lower costs due to their size. This enhances their profitability and leads to a higher firm value when recognized by the market. Higher profitability increases firm value by indicating that the company can generate substantial profits, promising future shareholder returns. The size of a firm, reflected by its assets, sales, and market capitalization, influences its public visibility and market perception. Research by (Mudjijah

et al., 2019), (Welly et al., 2019), and (Panjaitan & Supriyati, 2023) supports the idea that firm size can strengthen the relationship between profitability and firm value.

A big company has substantial total assets, making obtaining operational funding through debt easier. Consequently, firm size can increase leverage, leading to a higher risk of default. This scenario can be a negative signal to the market, causing investors to respond unfavorably since high leverage reduces the company's attractiveness as an investment. A high leverage ratio also implies high-interest costs, reducing dividends for shareholders and indicating a conflict of interest between creditors and shareholders. This situation often leads to a company's stock price decrease and a subsequent drop in firm value.

Large firms are generally perceived as more stable and less risky than smaller firms. Therefore, the market might not react as negatively to leverage in large firms compared to smaller firms, where high leverage could signal financial instability. At the same time, more considerable company assets naturally lead to more outstanding capital, which typically increases the Price to Book Value (PBV). Research by Husna & Satria, (2019) and (Panjaitan & Supriyati, 2023), and Sari et al., (2023) Found that firm size can negatively moderate the relationship between leverage and firm value.

H2 = Firm size weakens the effect of leverage on the firm value of technology companies listed on the Indonesia Stock Exchange.

RESEARCH METHODS

The data source used in this study is the companies' annual financial statements, including the technology index listed on the Indonesia Stock Exchange for 2019-2022. This study uses a quantitative approach using financial data with independent variables (liquidity, profitability, leverage) and moderating variables (firm size). The dependent variable, namely the firm value through the minimum, maximum, and average values of each indicator. Profitability uses the ROA indicator, liquidity uses the current ratio indicator, leverage uses the DER indicator, firm size uses the natural log indicator of total assets, and firm value uses the PBV indicator.

This research can be categorized as causal research because it aims to identify, describe, and show the direction of the relationship between profitability, liquidity, and leverage on firm value moderated by firm size. The population of this study is all annual financial reports of technology companies listed on the IDX. The sample used convenience sampling, a sample selection method that refers to collecting information from a suitable or excellent population to be sampled. In total, the sample was chosen by 32 companies, and 94 financial reports were obtained. Operational definition and variable measurement are shown in Table 1.

Table 1. Operational Definition

Variable	Definition	Measurement	Source
Firm Value	Firm value is investors' perceptions of the level of frequent success firms linked with price stocks.	Price Book Value	(Brigham & Houston, 2011)
Leverage	Leverage is the ability of a firm to fulfill the debt obligation with several assets owned.	Debt to Equity Ratio	Syamsuddin, (1987)
Firm Size	Firm size describes how big or small a firm is, and it is seen as how a great firm more easily gets funds from investors.	Natural Log indicator of Total Assets	(Munawir, 2004)

Source: Data Processed, 2024

Hypothesis testing and data analysis in this study include descriptive analysis, panel data regression test, and Moderated Regression Analysis (MRA). Before selecting the panel data regression model estimate, it is necessary to take three approaches, which are the Common Effect Model (CEM), Fixed Effect Model (FEM), and Random Effect Model (REM). The model used in this study can be done by conducting three tests: the Chow Test, the Hausman Test, and the Lagrange Test. The following is the regression equation in this study:

$$Y_{it} = \alpha + \beta_1 X_1 + \beta_1 X_{1M} + \epsilon$$

In this study, the moderator variable is firm Size. Firm size will moderate the relationship between DER and Firm Value. Thus, the panel data moderation regression equation can be formulated as follows:

$$Y = \alpha + \beta_1 X_1 + \beta_2 X_2 + \beta_3 X_3 + \beta_4 M + \beta_5 X_{1M} + \beta_6 X_{2M} + \beta_7 X_{3M} + \epsilon$$

Description:

Y = Predicted value

α = Constant

β_1-4 = Regression coefficient

β_5-7 = Regression coefficient of X and M variable interaction

X1 = DER

M = Firm Size

X1M = Interaction between DER and Firm Size variables

ϵ = Residual Value

RESULTS AND DISCUSSION

Descriptive analysis provides a description of data from each variable's average value (mean), maximum, minimum, and standard deviation. The results of the descriptive statistical analysis are shown in Table 2.

Table 2. Descriptive Statistics

Variable	N	Minimum	Maximum	Mean	Std. Deviation
Leverage	94	-81,31083	15,76881	-0,309812	9,364150
Firm Size	94	23,15952	32,56705	27,53480	1,842407
Firm Value	94	-17,17689	86,03392	5,357202	13,15878

Source: The Processed Primary Data (2024)

Descriptive leverage test results show that Anabatic Technologies Tbk (ATIC) has a minimum of -81.31. The maximum value is 15,769, also from Anabatic Technologies Tbk (ATIC). Mean -0,309. The standard deviation value is more significant than the mean in the sample identification, meaning that the leverage variable has high data variation.

The descriptive firm size test results show that Tourindo Guide Indonesia Tbk (PGJO) has a minimum of 23,16. Maximum value 32,57 from GoTo Gojek Tokopedia Tbk. The mean value of 27,53, which is more significant than the standard deviation in the sample identification, has been optimal for representing the overall observation data.

Descriptive firm value test results show that Anabatic Technologies Tbk (ATIC) has a minimum of -17,18. The maximum value is 86,03 from DCI Indonesia Tbk. Mean 5,35, the standard deviation value more significant than the mean in the sample identification, meaning that the leverage variable has a high level of data variation.

A moderated regression analysis (MRA) was conducted to examine the moderating effects of firm size on the relationship between profitability, liquidity, leverage, and firm value. The results of the MRA provide insights into whether and how firm size strengthens or weakens these relationships. Table 3 presents the detailed findings of the MRA statistical test results.

Table 3. MRA statistical test results

Model	Coefficient	Std.Error	t-statistics	Prob.
(Constant)	3.584499	19.70462	0.181911	0.8560
X1	16.58084	7.676033	2.160080	0.0334
M	0.054724	0.714242	0.076619	0.9390
X1M	0.560072	0.264724	2.115682	0.0371

Source: Eviews13

Based on the MRA regression results in the table above, the MRA equation can be formulated:

$$PBV = 16.78061 \text{ DER} - 0.566887 \text{ DER} * \text{FirmSize} + e$$

Effect of Leverage on Firm Value

The leverage variable has a regression coefficient of 0.278680 with a probability of 0.0006. The value is smaller than the α value ($0.0005 < 0.05$), indicating that the leverage variable affects company value. Apart from that, it can also be seen from the comparison between t-statistics and stable results, which shows that the t-statistics value is 3.549222, while the table value is 1.662. From these results, it can be seen that $t\text{-statistics} > \text{table}$ ($3.549222 > 1.662$), meaning that the first hypothesis is accepted, namely that leverage positively influences company value in technology companies listed on the Indonesia Stock Exchange.

There is a positive influence of leverage on the firm value of technology companies listed on the Indonesia Stock Exchange. This indicates that technology companies tend to use debt as a source of financing, as an increase in debt is considered a sign of confidence in the company's prospects. Investors believe companies with high debt levels can use that

capital for expansion or development. With the hope of company growth, both the company's profits and investor returns are expected to increase, making investors interested in buying the company's shares. This finding is supported by research conducted by (Masood, 2016) and Triyonowati, 2018), (, which concluded that leverage, approximated by the debt-to-equity ratio, has a positive and significant effect on firm value (PBV).

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Firm Size Moderates the Effect of Leverage on Firm Value

The estimated results of the interaction variable between leverage and company size have a regression coefficient of 0.566887 with a probability of 0.0398. The probability value shows below the α value ($0.0371 < 0.05$). Apart from that, it can also be seen from the comparison between t-statistics and ttable results, which shows that the t-statistics value is 2.115682, while that of ttable is 1.662. From these results, it can be seen that t-statistics $<$ ttable ($2.115682 < 1.662$). These results indicate that company size can weaken the relationship between leverage and value.

The firm size weakens the effect of leverage on firm value. This finding is consistent with the research by Markonah et al. (2020), Husna & Satria, (2019), Panjaitan & Supriyati, (2023), and Sari et al., (2023). A larger firm size means higher total assets, which can help the company obtain operational costs in the form of debt. Therefore, it is expected that the firm size can increase leverage because it results in the company having a higher default risk. This can be a negative signal to the market, where investors may respond negatively because high leverage can reduce the attractiveness for investors to invest their capital. High leverage ratios also indicate high interest costs, thereby reducing dividends received by shareholders, indicating a conflict of interest between creditors and shareholders. This condition will be responded to by a decrease in the company's stock price, resulting in a decrease in the firm's value.

CONCLUSION

This study investigates firm size's role in moderating leverage's effect on firm value. The results indicate that profitability and liquidity do not significantly influence firm value. The results also showed that leverage has a positive influence on firm value. The results showed that firm size weakens the effect of profitability, liquidity, and leverage on firm value because technology companies have sufficient resources to cope with profitability changes and are flexible to adapt to market fluctuations.

Based on the research findings, companies should preferably utilize internal capital to optimize revenue rather than rely solely on external funding. This can enhance positive perceptions among investors. Companies should also manage cash efficiently and reduce unproductive assets to ensure adequate liquidity. Companies should manage their debts carefully and consider options between debt, internal capital, or issuing new shares for funding. It is more advisable to use internal capital to avoid additional costs.

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