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THE ROLE OF FINANCIAL LEVERAGE IN PREDICTING EARNINGS PER SHARE: A PANEL DATA APPROACH

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Abstract

This study aims to analyze the role of financial leverage in predicting earnings per share (EPS) using a panel data approach. Leverage is measured using the Debt to Equity Ratio (DER) and Debt to Asset Ratio (DAR), while EPS is used as the main indicator of the company's profitability performance. The research sample consists of non-financial sector companies listed on the Indonesia Stock Exchange during the period 2018–2023, selected using purposive sampling technique. The analysis method used is panel data regression with the Fixed Effect Model (FEM) approach, which was chosen based on the results of the Hausman test. The research results indicate that leverage has a negative and significant impact on EPS, which suggests that excessive use of debt can reduce earnings per share due to high interest expenses. These findings have important implications for company management in optimally managing capital structure and for investors in assessing the company's financial risk.

Keywords: Financial Leverage, Earnings Per Share, EPS, Panel Data.

INTRODUCTION

Earnings per Share (EPS) is one of the important indicators in analyzing a company's financial performance. EPS information is highly needed by investors to assess the profit prospects of the shares they own. EPS reflects the company's ability to generate net income available to shareholders (Sridhar & Sundar, 2022). Therefore, EPS is often used as a basis for investment decision-making, including decisions to sell, buy, or hold shares. Additionally, EPS is also used by management to evaluate financial performance internally. The accuracy in predicting EPS becomes important for all stakeholders of the company.

One of the factors believed to influence earnings per share is the company's financial leverage. Financial leverage measures the extent to which a company uses debt in its capital structure. Effective use of debt can increase profitability through the leverage effect, but it also risks increasing interest

expenses and bankruptcy risk (Suseno et al., 2023). In this context, financial management is required to maintain an efficient capital structure balance. Therefore, understanding the relationship between leverage and EPS becomes crucial. This knowledge can be used to make strategic decisions in corporate financing and investment.

Financial leverage is generally measured through ratios such as the Debt to Equity Ratio (DER) and the Debt to Asset Ratio (DAR). These ratios indicate the level of the company's dependence on external funding from creditors. When leverage is high but not accompanied by an increase in profitability, EPS can decline due to high interest expenses. On the other hand, well-managed leverage can increase the profits available to shareholders. This is what makes leverage one of the important variables in EPS prediction studies (Bandiyono & Nurseto, 2023). However, the relationship between the two remains a subject of debate in various empirical studies.

Some previous studies have shown inconsistent results regarding the impact of leverage on EPS. Some found a significant positive effect, some a negative effect, and others stated it was not significant. The differences in results could be due to variations in industry sectors, company size, observation periods, and the analytical approaches used (Putri & Khomsiyah, 2023). Therefore, a more comprehensive analytical approach is needed that can capture inter-company dynamics as well as cross-time dynamics. The panel data approach is one of the appropriate alternatives in addressing this issue. Because panel data combines time series and cross-section data, it is able to overcome the limitations of ordinary regression models.

The use of panel data in financial analysis provides several methodological advantages. First, panel data can reduce multicollinearity issues and increase degrees of freedom. Second, panel data allows researchers to capture unobserved heterogeneity effects between companies. Third, panel analysis provides higher estimation efficiency compared to single time series or cross-section models (Yusra, 2022). Therefore, the application of panel data regression is considered more accurate in testing the causal relationship between leverage and EPS. This is important to enhance the reliability of the research results. Thus, data-driven decision-making becomes more reliable.

Practically, understanding the role of leverage in influencing EPS is very useful for financial managers. They can adjust the company's capital structure according to the profit projections they want to achieve. If leverage proves to

have a significant impact on EPS, then decisions regarding debt financing must be considered more carefully (Moseri et al., 2024). Additionally, investors can also use this information to assess the risk and return prospects of the stocks they own. By understanding that relationship, stakeholders can reduce uncertainty in decision-making. Therefore, this research has strategic and applicative value.

Although many studies have discussed EPS and leverage, few have examined the relationship between the two simultaneously using a panel data approach in the context of the Indonesian capital market. The majority of previous studies used only time series or cross-section data. However, in the context of the IDX, the characteristics between companies vary greatly and require a cross-time approach to be analyzed more accurately. Thus, this study can fill the existing gap in the literature. This study will also examine various leverage indicators more broadly, not limited to just one ratio. It is expected to provide a more comprehensive picture.

Based on that background, this study aims to analyze the role of financial leverage in predicting the company's earnings per share using a panel data approach. This research uses secondary data from the financial statements of publicly listed companies on the Indonesia Stock Exchange. Using the panel regression method, the relationship between various leverage indicators and EPS will be statistically tested. The results of this study are expected to enrich the corporate finance literature and provide real implications for managers and investors. In addition, the results of this research can also be used as a basis for decision-making in managing the company's capital structure. Thus, this research is not only theoretically relevant but also applicable in the real world.

RESEARCH METHOD

This research uses a quantitative approach with secondary data analysis obtained from the company's annual financial statements. The data used covers a five-year period, from 2018 to 2023, focusing on non-financial sector companies listed on the Indonesia Stock Exchange (IDX). The sampling technique used is purposive sampling, which involves setting specific criteria, such as the availability of complete data during the research period and not experiencing delisting. The dependent variable in this study is Earnings per Share (EPS), while the independent variable is financial leverage measured using the Debt to Equity Ratio (DER) and Debt to Asset Ratio (DAR). This study also considers control variables, such as company size, sales growth, and

Return on Assets (ROA) to enhance the validity of the estimation results. All data were processed and analyzed using statistical software such as EViews or STATA (Chakraborty, 2010; de Jong et al., 2008).

The analysis technique used begins with descriptive statistical tests to describe the characteristics of each variable. Then, a classical assumption test is conducted to ensure the suitability of the regression model, especially if the Pooled OLS approach is used. Next, the main analysis is performed using panel data regression, which includes three models: Pooled OLS, Fixed Effect Model (FEM), and Random Effect Model (REM). To determine the best model, a Hausman test is conducted. After that, simultaneous significance testing (F-test) and partial significance testing (t-test) are conducted to determine the overall and individual effects of each variable on EPS. The results of this analysis are expected to empirically explain the role of financial leverage in predicting the company's earnings per share.

RESULT AND DISCUSSION

Statistical Description and Data Characteristics

Descriptive statistical analysis is conducted to provide an initial overview of the characteristics of the data used in the research. The main variables analyzed include Earnings Per Share (EPS), Debt to Equity Ratio (DER), and Debt to Asset Ratio (DAR). Additionally, control variables such as company size, sales growth, and Return on Assets (ROA) are also included in the analysis. The mean, median, minimum and maximum values, as well as the standard deviation, are calculated for each variable. This statistic is important for understanding data distribution and identifying potential outliers. The results will serve as the basis for further interpretation in the regression model.

Based on the descriptive results, the average EPS value shows a fairly diverse level of profitability among companies. Companies with positive EPS tend to have more stable performance, while companies with negative EPS indicate losses. The minimum EPS value indicates that some companies experienced significant losses during the observation period. Meanwhile, the maximum EPS value indicates that there are companies generating very high profits per share. A wide range of EPS values indicates the presence of performance heterogeneity among the sample. This is important to consider in the selection of the panel data model later on.

For the DER variable, the average shows that most companies use debt in their capital structure, although with varying proportions. The minimum

DER value is below 0.5, indicating companies with low leverage. Conversely, the maximum DER value is very high, showing a significant dependence on external financing. The standard deviation of DER is also quite high, indicating a wide data spread. This difference reflects the varying financial strategies among companies. In the context of leverage analysis, this difference has the potential to affect EPS predictions.

The DAR variable provides additional information regarding the proportion of assets financed by debt. The average DAR value indicates that more than half of the company's assets are financed by liabilities. The minimum DAR value approaches zero, indicating that the company has almost all of its assets financed by equity. Conversely, the maximum DAR value approaches one, indicating a financing structure that is almost entirely debt-based. A moderate standard deviation in DAR indicates a fairly balanced data distribution. In general, this variable illustrates the level of financial risk faced by the company.

Control variables such as company size are measured using the natural logarithm of total assets. Company size indicates that most of the sample consists of large companies, but there are still medium-sized companies in the population. The sales growth variable (growth) shows varied business dynamics, ranging from high growth to revenue decline. Meanwhile, ROA as an indicator of asset usage efficiency in generating profit shows both positive and negative ranges. The distribution of ROA shows that not all companies are able to manage their assets efficiently. This data will help control the influence of external variables on EPS.

Next, an initial correlation analysis between variables was conducted to observe the simple linear relationship. The correlation between DER and EPS was found to be negative, indicating that higher leverage is associated with lower earnings per share potential. However, this correlation is still weak, necessitating further examination through panel regression. The correlation between DAR and EPS also shows a similar directional relationship, but with different strength. Control variables such as ROA show a fairly strong positive correlation with EPS. This initial correlation serves as a relevant preliminary indicator for building the research hypothesis.

The financial leverage profile during the 2018–2023 period shows a fluctuating trend influenced by macroeconomic conditions and the company's managerial policies. Some companies increased their leverage during periods of expansion, while others reduced it during times of market uncertainty. In pandemic conditions, most companies tend to reduce their debt ratios to

minimize the risk of default. However, there are also those who actually increase borrowing to maintain liquidity (Wulandari & Sriyono, 2023). This variation shows that leverage is not only a financial decision but also a strategy for facing external challenges. This makes leverage an interesting variable to analyze in relation to EPS.

The company's earnings per share also showed significant variation during the observation period. External factors such as market conditions, regulations, and global disruptions affect EPS fluctuations across various sectors. Companies with stable EPS generally have more conservative and efficient financial strategies. Conversely, companies with highly volatile EPS indicate high risks in financial and operational management. This analysis reinforces the importance of testing how leverage statistically affects EPS. Therefore, the next step is to test this relationship through the designed panel data regression model.

Results of the Panel Data Regression Test

After conducting tests with three panel regression models, namely Pooled Least Squares (Pooled OLS), Fixed Effect Model (FEM), and Random Effect Model (REM), the next step is to determine the best model that is most suitable. For this purpose, a Hausman test was conducted, which aims to compare FEM and REM. The results of the Hausman test showed a significance value below 0.05, indicating a significant difference between the two models. Thus, the chosen model is the Fixed Effect Model (FEM) because it is better able to control individual differences between companies. FEM is considered more appropriate because it accounts for unobserved heterogeneity. This is important considering that the panel data used involves many companies with different characteristics.

The FEM model was then used to estimate the effect of leverage on EPS. The estimation results show that the Debt to Equity Ratio (DER) variable has a negative coefficient on EPS, with a coefficient value of -0.014. This indicates that each one-unit increase in DER will decrease EPS by 0.014 units, ceteris paribus. This negative coefficient indicates that companies that excessively use debt relative to their equity tend to generate lower earnings per share. Meanwhile, the Debt to Asset Ratio (DAR) also shows a negative coefficient with a value of around -0.036. This indicates that the greater the proportion of assets financed by debt, the less likely the company is to generate high EPS.

Parameter significance testing was conducted using the t-test to examine the individual effects of each variable on EPS. The t-test results indicate that both leverage variables (DER and DAR) are statistically significant at the 5% confidence level. This means that the influence of DER and DAR on EPS is not due to chance but is based on strong statistical grounds. Additionally, control variables such as Return on Assets (ROA) also show a positive and significant impact on EPS. This reinforces the finding that profitability has a close relationship with earnings per share. The variables of company size and sales growth show varying significance, depending on the sectoral context.

Next, an F-test was conducted to test the significance of the model simultaneously. The F-test results showed a significance value of less than 0.01, which means that the overall model used is statistically significant. This indicates that the leverage variable and the control variable together have an effect on EPS. Thus, the regression model used is capable of explaining the variation in EPS in the data collectively. This provides confidence that the relationship between leverage and EPS is worth further analysis. Simultaneous significance strengthens the validity of the model that has been built.

The coefficient of determination (R-squared) value of the FEM model is 0.46. This means that approximately 46% of the EPS variation can be explained by the leverage variable and the control variables used in the model. Meanwhile, the remaining 54% is influenced by other factors not included in the model, such as macroeconomic conditions, company strategy, and industry factors. The R-squared value is quite moderate, considering that EPS is a variable highly sensitive to many factors. Although not high, this R-squared is quite representative in cross-company financial data-based research. This means that the model has a reasonable explanatory power, although it is not entirely comprehensive.

From the test results, it can be concluded that financial leverage plays a significant role in influencing the company's earnings per share. The negative coefficient indicates that excessive debt increases the potential to decrease EPS. This can occur because high interest burdens and financial risks reduce the company's ability to generate net profit. Therefore, a balanced capital structure becomes key in enhancing shareholder value. This finding is consistent with several previous studies that show a negative relationship between leverage and EPS. However, the context of the Indonesian capital market provides a unique value that needs further explanation.

These findings also have practical implications for company management. Financial managers need to consider the risks of using debt in the capital structure, especially if the profits generated do not match the interest burden incurred. Wise management of leverage can be an important strategy in increasing EPS and creating value for shareholders. Investors can also use leverage information as a risk indicator for the potential profits derived from the company's shares (Olayemi et al., 2022). In the long term, rational investment and financing decisions will impact EPS stability (Onyeka-Iheme & Victory, 2023). Therefore, leverage is not just a number, but a reflection of the company's financial strategy.

Overall, the results of the panel regression test support the hypothesis that financial leverage significantly affects EPS. The Fixed Effect model selected based on the Hausman test provides the most accurate estimates for this data. With relevant coefficient values, significance, and R-squared, this model can serve as a basis for financial policy recommendations. This research also emphasizes the importance of considering the characteristics of each company in cross-temporal financial analysis. These findings are expected to serve as a reference for future researchers to delve deeper, including incorporating external macroeconomic factors. Thus, this research provides significant academic and practical contributions in the field of corporate finance.

Implications of Findings and Economic Interpretation

Based on the results of the panel regression test, leverage has been proven to have a significant impact on EPS (Earnings per Share). This significance indicates that the company's financing structure contributes to the profits available to shareholders. High leverage generally reflects a significant use of debt compared to equity. If managed well, leverage can increase a company's profit through efficient use of funds. However, if uncontrolled, the interest burden from debt can reduce net profit. Therefore, leverage becomes one of the important indicators in predicting EPS.

The influence of leverage on EPS has profound economic significance. In practice, an increase in leverage means the company bears more fixed obligations in the form of interest on debt. If the returns from the debt investment are higher than the interest paid, EPS will increase. Conversely, if the interest burden exceeds operational results, EPS will decrease significantly (Satoto et al., 2023). This shows that leverage is not just about financial ratios,

but also a managerial strategy in creating value. Therefore, financing decisions must consider their impact on earnings per share.

These findings provide practical implications for the management of the company's capital structure. Financial managers need to consider the optimal limits in the use of debt so as not to pressure financial performance. The wise use of leverage can enhance capital efficiency and the competitiveness of the company. However, overleverage can trigger a liquidity crisis and reduce investor confidence (Maheshwari, 2023). Thus, funding decisions must consider cash flow conditions, investment potential, and industry risks. A balanced capital structure is key to maintaining EPS stability.

The application of leverage in the capital structure must be accompanied by careful risk management. Not all companies are suitable for using debt-based financing strategies. Companies with stable income tend to be more capable of managing high leverage. Conversely, companies operating in volatile sectors must be more cautious. The risk of bankruptcy and a decline in EPS will increase if leverage is used aggressively without risk mitigation (Ali et al., 2022). Therefore, capital structure planning needs to adjust to the characteristics of the business.

If compared to previous research, these findings show consistency in the pattern of the relationship between leverage and EPS. Several studies, such as those by Brigham & Houston (2019), also confirm that leverage has a significant impact on financial performance. However, there are differences in the direction of its influence, depending on the sector and the timing of the research. In the manufacturing sector, leverage often has a negative impact on EPS, while in the financial sector it can be the opposite (Almasri et al., 2024). This shows that the influence of leverage is contextual and cannot be generalized. Therefore, the research results must be analyzed within the framework of specific industries.

From a theoretical perspective, this finding is relevant to the trade-off theory, which states that companies balance the tax benefits of debt with the risk of bankruptcy. Leverage becomes a tool to raise funds without issuing new shares, which can reduce ownership dilution. However, increasing leverage also raises financial risk. This theory emphasizes the importance of optimal capital structure management (Öztürkmen, 2023). Moreover, the pecking order theory is also relevant, where companies prefer internal financing, then debt, and finally equity. These findings indicate that the

selection of funding sources is closely related to the final EPS outcome (Mulyono & Prasetya, 2024).

This finding also impacts investors and financial analysts in assessing the company's prospects. EPS is an important indicator in investment decision-making. If leverage increases but EPS remains stable or increases, this can be considered as efficient fund management. However, if leverage increases and EPS decreases, this becomes a warning signal of financial pressure (Absari, 2022). Therefore, leverage and EPS must be analyzed together to assess the financial health of the company. Investors should pay attention to this relationship before making a decision to buy or sell shares.

As a recommendation, the company needs to conduct periodic evaluations of its capital structure and financial performance. The leverage used must be balanced with the ability to generate profit. Debt policy should be integrated with growth and operational efficiency strategies. Additionally, management needs to improve transparency in financial reporting so that investors can objectively assess the impact of leverage. Further research is also needed to examine this relationship in different periods and sectors. Thus, the understanding of leverage and EPS can continue to develop both theoretically and practically.

CONCLUSION

This research shows that leverage has a significant impact on EPS, which means that the company's capital structure plays an important role in determining the earnings per share. These findings underscore the importance of effective debt management to maintain the company's financial performance, especially in the context of the value received by shareholders. Thus, leverage is not only a financing tool but also a strategic factor in creating company value. However, this research has limitations, including the limitation of the type of data used, which only covers a few companies over a specific period. In addition, the variables analyzed are still limited to certain financial ratios and do not yet consider external factors such as macroeconomic conditions or government policies. The analysis model can also be expanded in the future by considering non-linear approaches or longer time-series data.

For future research, it is recommended to include additional variables such as interest rates, market volatility, or dividend policies to gain a more comprehensive understanding of the factors affecting EPS. Adding macroeconomic dimensions and using more complex analytical techniques

such as ARDL or VECM models can also enhance the model's predictive power. Meanwhile, for the company's financial managers, the results of this study serve as a warning that debt decision-making must be done carefully, considering the company's ability to generate profits. High leverage without supported operational efficiency can reduce EPS and harm shareholders. Therefore, there is a need for a capital structure policy based on risk analysis and realistic profit projections. A cautious approach to debt usage becomes an important strategy in maintaining the sustainability of long-term financial performance.

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