

Price Book Value Determination Panel Data Model on Property and Real Estate Companies (Compass 100 Stock Index in Indonesia Stock Exchange)

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ABSTRACT: This research is entitled Panel Data Model: Determining Price Book Value in Property and Real Estate Companies (The Case of the Kompas 100 Stock Index on the Indonesia Stock Exchange). The purpose of this study is to find the Effect of *Debt to Equity Ratio*, *Return On Asset*, and *Asset Growth* on *Price Book Value* using the panel data analysis method. The panel data estimation technique used in this study is a common effect, fixed effect or random effect model. In the common effect model of parameter estimation using the Ordinary Least Square (OLS) technique, where as for the fixed effect model of parameter estimation can be done using the Least Square Dummy Variable (LSDV), and for the random effect model of parameter estimation using the Generalized Least Square (GLS) technique. The final model used with the Fixed Effect Model approach from several property and real estate companies. The results showed that the capital structure proxied by debt to equity ratio (DER) had a positive and significant effect on the value of Price Book Value (PBV). This is because the amount of company capital obtained through debt can be used as a measure to see the success of managers' performance in managing the company. Profitability proxied Return on Assets (ROA) has a positive and significant effect on the value of Price Book Value (PBV), because the higher the ROA level, the better the company's ability to manage the assets it has. Meanwhile, the Asset Growth variable proxied by (TAG) is not significant to the Price Book Value (PBV).

KEYWORDS: Price Book Value, Debt to Equity Ratio, Return on Asset, and Asset Growth

1. INTRODUCTION

Property and Real Estate sector companies are one of the service company industries that have listed their names on the Indonesia Stock Exchange, including important companies because this sector can be used as an indicator to determine the development and progress of a country's economy. This can be seen from the many developments and buyers' interest that is increasing every year which will automatically increase the number of assets, sales and profits of the company in the property and real estate sector. Developments in this sector can be seen from several internal factors such as the company's ability to pay interest, the level of the company's total assets, the level of inventory, the growth of the company's sales and the capital structure owned by the company. To increase the value of the company, the welfare of shareholders is the top priority of a company that goes public. This is because, the higher the stock price, the higher the value of the company, (Wijaya & Sedana, 2020) . Company value is a value that reflects what price an investor must pay for a company which is usually measured by price to book value. The value of the company indicated by a high

price to book value (PBV) is the desire of the company owners, or is the goal of the business company at this time, because it will increase the prosperity of shareholders or stockholder wealth maximization. Price to book value (PBV) which is a ratio that compares the market price per share with the book value per share. The value of the company is also influenced by factors such as the capital structure in the company and the company's ability to make a profit. (Rhyne & Brigham, 1979) Looking at the capital structure itself is a balance of the amount of short-term debt that is permanent, long-term debt, preferred shares and ordinary shares. Capital structure decisions include the selection of sources of funds both from own capital and foreign capital in the form of debt, these two funds are external funds that can affect the value of the company.

The good and bad conditions of a company can be judged from financial performance by analyzing financial ratios, one of which is the profitability ratio which can be measured from return on assets. Profitability has an important meaning for the company because it is one of the basis for the assessment of the condition of a company. The level of profitability

describes the company's performance in terms of the company's ability to make a profit. The company's ability to make this profit shows whether the company has good prospects or not in the future. Companies that are able to grow are shown by the higher profitability generated by the company can utilize the resources or assets in the company to generate profits, which will later be able to create high company value and maximize the wealth of its shareholders and will get a positive response from outside parties, (Hadian et al., 2021). Profitability in this study was proxied with ROA. The profit obtained by the company is used as a parameter of the extent to which a company finances the company's activities by using internal funds and reducing the use of external funds (debt) for the achievement of company goals. The company must be able to manage and make the best use of these assets so as to generate profits or profits for the company.

Companies with high growth certainly require a lot of funds to finance their company's operational activities. The needs of these funds can be met, one of which is from the company's external sources of funds, namely debt, (Atidhira & Yustina, 2017). The combination of capital derived from the company's internal and external companies is also called the capital structure. The right combination in the selection of capital, will be able to produce an optimal capital structure, which is able to become a strong foundation for the company to carry out its production activities, as well as being able to bring optimal profits to the company. The issue of capital structure is an important problem for every company, because the good and bad capital structure of the company will have a direct influence on the financial position of the company. A company that has a bad capital structure, which has a very large debt, will give a strong give a load the company. Large companies have a large number of assets as well, so that the company is able to optimize the company's performance with the assets it owns. The number of assets owned by the company reflects the size of the company. The larger the size of the company, the greater the opportunity for the company's market share in marketing its products, thus opening up opportunities to obtain higher profits. So this study makes a mass formulation; Does the Debt To Equity Ratio, Return On Assets and Asset Growth affect together the Price Book Value of Property and Real Estate companies listed in the Kompas100 Index of the Indonesia Stock Exchange?

2. THEORY

Company value is an investor's perception of the company's success rate which is often associated with stock prices. The high share price makes the company's value also increase, and increases market confidence not only in the company's current performance but also in the company's future prospects. Maximizing company value is very important for a company because maximizing company value means also

maximizing the company's main goals. Increasing the value of the company is an achievement that is in accordance with the wishes of the owners, because with the increase in the value of the company, the welfare of the owners will also increase. According to the value of the company is defined as the price that investors are willing to pay in case a company is going to be sold. (Rhyne & Brigham, 1979)

The PER ratio reflects many of the occasional omissions that make its interpretation difficult. The higher the risk, the higher the discount factor and the lower the PER ratio. This ratio describes the market's appreciation of the company's ability to make a profit. Capital structure is a collection of funds that can be used and allocated by a company which is obtained from long-term debt and own capital. Another definition suggests that the capital structure is a mixture or collection of debt, preferred shares and own capital used to raise capital. The definition of capital structure according to is a permanent expenditure that is reflected through a balance between one's own capital and long-term debt.(Riyanto, 2010)

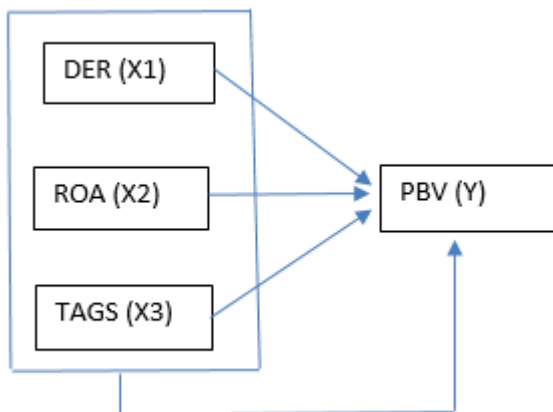
It is a ratio used to indicate how much a company uses funding obtained through debt when compared to funding obtained through own capital, (Stanley Isanzu, 2017). In this study, it is represented by DER which is a ratio used to measure the success of managers' performance in determining capital structure decisions and in managing a company. According to in his journal states that, profitability shows the level of the company's ability to make a profit. Profitability is often used to measure the efficiency of capital use in an enterprise by comparing profit with capital used in operations. The company always expects an increase in its profitability, if the company's profits increase regularly then the company can manage assets effectively and efficiently so as to be able to generate high profitability. However, large profits do not guarantee or are not a measure that the company can carry out its life further.(Rose et al., 2021)

Profitability is one of the factors considered in determining the capital structure. Profitability describes the income that a company has to finance investments companies that have high profitability tend to use relatively small debt because high retained earnings are sufficient to finance most of the funding needs in the company's operational activities including investments. And this ROA or Return on Asset ratio can help management or investors to see how well the company is able to convert its investment in assets into profit. A company that has a high growth rate, the greater the need for funds to finance the growth of the company. According to (Keown et al., 2017) states that a company with relatively stable sales means that it has a relatively stable cash flow, it can use greater debt than companies that have(Ratnasih & Purbayani, 2018)unstable sales. Growth or company growth can be calculated from the growth of total assets and growth sales. Growth of total assets or growth of total assets in the

company shows the company's ability to change either an increase or decrease in the total assets owned by the company. The company's growth in terms of assets describes the growth of the company's assets which are believed to affect the company's profitability and is an indicator that is able to measure the company's growth. The growth of the company is measured using changes in total assets. Meanwhile, sales growth is an indicator that can also measure company growth by looking at the company's sales level. Sales growth is calculated by the percentage change in the company's sales level at the time of a given year against the previous year.

3. METHOD

This research uses quantitative and associative research methods that aim to test theories, show the relationships between variables, provide statistical descriptions, build facts, estimate, and forecast the results using statistical figures in the form of variables with a ratio size scale, (D. N. Gujarati & Porter, 2009). The data analysis technique used in this study is a multiple linear regression analysis with panel data which aims to be able to determine the influence between independent variables on dependent variables. Operational variables in this study are independent variables, namely Debt to Equity Ratio (DER) as X1, Return on Asset (ROA) as X2, Asset Growth (AG) as X3 and the dependent variable, namely Price Book Value (PBV) as Y. Here's the research model:



Multiple Regression Models:

$$\text{Equation: } Y = \alpha + \beta_1 X_1 + \beta_2 X_2 + \beta_3 X_3 + \varepsilon$$

$$\text{Double log transformation to: } \log Y = \alpha + \beta_1 \log X_1 + \beta_2 \log X_2 + \beta_3 \log X_3 + \varepsilon$$

Where = Y = Price Book Value

α = Constants

β = Coefficients X1, X2, X3

ε = Epsilon

The data used is in the form of panel data where research observations consist of several companies (cross section) and within a period of several years (time series), (D. Gujarati,

2015). The data is then processed and analyzed quantitatively for further processing using the E-views 10 application and is linked to the theoretical basics that have been studied previously to explain the picture of the object under study. Furthermore, conclusions will be drawn based on the results obtained in this study.

In estimating the parameters of the panel data regression model, there are three techniques that can be used, namely: first, the Common Effect Model; This model is the simplest panel data model approach because it only combines time series and cross section data. In this model, neither time nor individual dimensions are paid attention to, so it is assumed that the behavior of company data is the same over various periods of time. This method can use the Ordinary Least Square (OLS) approach or the least squares technique (Rose et al., 2021) to estimate panel data. Second, Fixed Effect Model; This model assumes that differences between individuals can be accommodated from their interception differences. To estimate the fixed effects model panel data by using dummy variable techniques to capture the differences in interceptions between companies, however so the same slope is between companies. This estimation model is often also referred to as the Least Squares Dummy Variable (LSDV) technique. Third Random Effect Model; This model will estimate panel data where interference variables may be interconnected between times and between individuals, (D. Gujarati, 2015). In the Random Effect model, interception differences are accommodated by the error terms of each company. The advantage of using the Random Effect Model is that it eliminates heteroskedasticity. This model is also called the Error Correction Model (ECM) or the Generalized Least Square (GLS) technique. To choose which model is the most appropriate among the three models above, there are several tests that can be done, including:

Chow Test (Statistical Test F); This test was carried out to find out whether the panel data regression technique with the fixed effect model method is better than the regression of the panel data model without dummy or common effect variables. If the calculated F value is greater than the critical F then the null hypothesis is rejected which means that the right model for panel data regression is the Fixed Effect model. Conversely, if the calculated F value is smaller than the critical F then the null hypothesis is accepted which means that the proper model for panel data regression is the Common Effect Model. It can also be seen from the output results of the Fixed effect model with the hypothesis as follows: H0: common effect model, H1: fixed effect model. The decision-making of this chow test is that if the p-value value ≤ 0.05 then H0 is rejected which means that the right model for panel data regression is fixed effect, while if the p-value value > 0.05 then H0 is accepted which means that the right model for panel data regression is the common effect model.

Hausman Test; Hausman has developed a test to choose whether the Fixed Effect model method and the Random Effect model method are better than the Common Effect model method. If Hausman's statistical value is greater than the critical value of Chi-Squares then the null hypothesis is rejected which means that the right model for panel data regression is the Fixed Effect model. Conversely, if Hausman's statistical value is smaller than the critical value of Chi-Squares then the null hypothesis is accepted which means that the right model for panel data regression is 1 Random Effect model. The determination of the pituitary hypothesis is as follows: H0: random effect model, H1: fixed effect model. If the prob value of $F \leq 0.05$ then H0 is rejected which means the right model for panel data regression is the fixed effect model, while if prob value $F > 0.05$ then H0 is accepted which means the right model for panel data regression is the random effect model (D. Gujarati, 2015).

LM Test; The Breusch Pagan Lagrange Multiplier (LM) test is carried out when the CHOW test is selected PLS while in the Hausman test, the Random Effect model is selected. So the LM test was carried out to choose between the PLS model and the R and on Effect model. The determination of the hypothesis as follows: H0: common effect model, H1: random effect model. If the prob value of $F \leq 0.05$ then H0 is rejected which means that the right model for panel data regression is the random effect model, while if the prob value of $F > 0.05$ then H0 is accepted which means that the right model for panel data regression is the common effect model. In addition, classical assumption tests such as multicholinerity testing are also used on all estimates of both the Common Effect Model, Fixed Effect Model, and Random Effect Model. The multicholinerity test in this study can be determined whether multicholinerity occurs or not by looking at the correlation coefficient between all free variables greater than 0.9. (Sugiyono, 2016) Furthermore, uji autocorrelation is performed to find out whether in a linear regression model there is a choleration between the disruptive error in the t period and the n error in the t-1 period (previously), In the procedure of detecting the autocorrelation problem can use the Durbin-Waston magnitude. The heteroskedasticity test is used also to see whether the residual of the formed model has a constant variance or not. A good model is one that has a variance of each disorder or its residual is constant. Heteroscedasticity is a state in which the assumption is not achieved, and the expectations of error and the variance of error differ each time period. The heteroscedasticity test is only performed when using Fixed Effect and OLS estimations. In the Random Effect estimation model, there is no need to test for autocorrelation and heteroskedasticity because in theory the estimation used for the Random Effect is GLS (Generalized Least Square). Receiving H1 or heteroskedasticity problems occurs if the value $(\text{Prob} > \text{Chi}^2) < \text{Alpha} (0.05)$.

4. RESULT AND DISCUSSION

The t-test aims to determine the influence of independent variables consisting of Debt to Equity Ratio (X1), Return On Asset (X2), and Asset Growth (X3) partially. The t-test is performed by comparing among t-table with a t-count. Then t test (partially) between:

Debt to Equity Ratio affects the Price Book Value with a t-statistical value of 3.550476 and a probability value of 0.0005, thus the probability value of $< \alpha 0.05$. The results of this study state parsial that the Debt Equity Ratio has a positive and significant effect on the Price Book Value of Property and Real Estate companies listed in the Kompas100 Index of the Indonesia Stock Exchange for the 2016-2020 period.

Return On Asset affects the stock price with a t-statistical value of 3.603986 and a probability value of 0.0004, thus the probability value $< \alpha 0.05$. The results of this study state partially that Return on Asset has a positive and significant effect on the Price Book Value on Property and Real Estate companies listed in the Kompas 100 Index of the Efek Indonesia Exchange for the 2016-2020 period. (Hadian et al., 2021)

Asset Growth affects the Price Book Value with a t-statistic value of 0.153592 and a probability value of 0.8781, thus the probability value $> \alpha 0.05$. The results of this study partially state that Asset Growth is not significant to the Price Book Value of Property and Real Estate companies listed in the Kompas100 Index of the Indonesia Stock Exchange for the 2016-2020 period.

The coefficient of determination is used to determine the magnitude of the contribution between independet variable to the rise or fall of dependent variable. The Adjusted R-squared value is $0.654943 \times 100\% = 65.49\%$, the figure shows that the contribution of the influence of Debt to Equity Ratio (X1), Return On Asset (X2), and Asset Growth (X3) to Price Book Value (Y) is 65.49%. While the remaining 34.51% is the influence of other factors outside the study. From the results of processing the data, the regression equation is obtained as follows:

$$\hat{Y} = 0.205773 + 0.826986\text{DER} + 3.390385\text{ROA} + 0.136221\text{AG} + e$$

(3.550476) (3.603986) (0.153592)

Based on the above equations can be seen: Constants; This means that if the variables Debt to Equity Ratio (X1), Return On Asset (X2), and Asset Growth (X3) have a fixed or constant value then the value of the Variable Price Book Value (Y) changes by the constant value of 0.205773. Debt to Equity Ratio (DER) (X1) to Price Book Value (Y) of 0.826986. This implies that every increase in one unit of Debt to Equity Ratio, the Price Book Value (Y) value will increase by 0.826986 assuming that the other free variables of the regrecept model are fixed or constant (Daniswara & Daryanto, 2019). Return On Asset (ROA) (X2) to Price Book

Value (Y) of 3.390385. This means that every increase in one unit of Return On Asset, the value of price book value (Y) will increase by 3.390385 assuming that the other free variables of the regression model are fixed or constant. Meanwhile, Asset Growth (AG) (X3) is not significant to the Price Book Value (Y). This does not mean the increase of each unit of Asset Growth to the value of Price Book Value (Y). This is in line with research from research (Daniswara & Daryanto, 2019)

The Debt to Equity Ratio (DER) shows the company's attitude in utilizing its own capital to minimize debt, both long-term and short-term debt. According to (Keown et al., 2017) DER is a ratio between total debt and total equity in the company which gives a comparative picture between total debt and own capital (equity) of the company. The higher the DER value in the company, the higher the company's dependence on using debt. In other words, the funds obtained by the majority of companies come from outside in this case, namely debt. This ratio can also see how far the company depends on creditors. (Ratnasih & Purbayani, 2018) Return on Asset (ROA) is a profitability ratio to determine the rate of return on investment by comparing profit after tax with the company's total assets. The ROA level is influenced by the amount of profit after tax earned by the company and the total assets owned by the company. The higher the ROA level, the better the company's ability to manage its assets. The lower ROA level indicates that there is still a lack of management in managing assets to increase revenue or to reduce the burden on the company. Some of the following researchers, (Daniswara & Daryanto, 2019)(Zhang & Aboud, 2019)(Hadian et al., 2021) .

The company's growth is highly expected by internal parties and external parties, because good company growth can provide a positive signal for the company's development. Companies that have a large growth in total assets will find it easier to get attention from investors and creditors because they reflect that the company is able to generate profits that are used to increase the number of assets which can then increase the value of the company. (Gadzo et al., 2019)(Stanley Isanzu, 2017)

CONCLUSION

Here are the conclusions obtained in this study:

1. The capital structure proxied by the Debt To Equity Ratio (DER) has a positive and significant effect on the price book value (PBV). This is because the amount of company capital obtained through debt can be used as a measure to see the success of managers' performance in managing the company. Companies with a large capital structure have a great responsibility to return the capital provided to debtholders as soon as possible. This is because the capital structure obtained from debt will be accompanied by debt interest payments to debtholders. The debt interest burden will have an impact on

reducing the company's profits so that it can reduce investors' perception of the company. The decline in investor perceptions of the company's will have an impact on the value of the company. However, the company also believes that the amount of debt obtained from debtholders will provide benefits in the future. Debts that can be managed properly by the company will provide benefits to the company in the long run exceeding the interest burden on its loans. This can have an impact on increasing the value of the company in the long term. The use of debt in the funding of the enterprise is also an indicator of the value of the structure of the assets of an enterprise. Large asset structures have easy access to obtain external sources of funds (debt). This level of debt can also see how far the company depends on creditors. So the company must be able to balance debt with capital. This result supports the trade off theory where the company considers the benefits derived from going into debt.

2. Profitability proxied Return on Assets (ROA) has a positive and significant effect on the value of Price Book Value (PBV), because the higher the ROA level, the better the company's ability to manage the assets it owns. In managing assets to make a profit, it will have an impact on the company's value research. High profits give an indication of the company's good prospects, so it can trigger investors to increase demand for stocks. The increased demand for shares will result in the value of the company increasing. The stakeholder theory says that the value of the company greatly affects the survival of investors, because the higher the value of the company, the more investors will be interested in taking part in the company.

3. Asset growth proxied with (AG) is not significant to Price Book Value (PBV). Even if there is an increase in asset growth, it will reduce the value of the company. The greater the growth rate of the company, the greater the costs that will be required to manage the company's operational activities, because the company will focus its funds more on the purposes of the company's growth compared to the welfare of shareholders. This will cause investors to not trust the company and the value of the company will decrease.

REFERENCES

1. Atidhira, A. T., & Yustina, A. I. (2017). The Influence of Return on Asset, Debt to Equity Ratio, Earnings per Share, and Company Size on Share Return in Property and Real Estate Companies. *JAAF (Journal of Applied Accounting and Finance)*, 1(2).
2. Daniswara, H. P., & Daryanto, W. M. (2019). Earning Per Share (Eps), Price Book Value (Pbv), Return on Asset (Roa), Return on Equity (Roe), and Indeks Harga Saham Gabungan (Ihsg) Effect on Stock Return. *South East Asia Journal of*

“Price Book Value Determination Panel Data Model on Property and Real Estate Companies (Compass 100 Stock Index in Indonesia Stock Exchange)”

- Contemporary Business, Economics and Law, 20(1).
3. Gadzo, S. G., Kpourtorgbi, H. K., & Gatsi, J. G. (2019). Credit risk and operational risk on financial performance of universal banks in Ghana: A partial least squared structural equation model (PLS SEM) approach. *Cogent Economics and Finance*, 7(1). <https://doi.org/10.1080/23322039.2019.1589406>
 4. Gujarati, D. (2015). Panel Data Regression Models. In *Econometrics*. https://doi.org/10.1007/978-1-137-37502-5_17
 5. Gujarati, D. N., & Porter, D. C. (2009). Basic of Econometric, Fifth Edition. In *Econometrics*.
 6. Hadian, N., Tri, D., & Phety, O. (2021). The Effect of Non-Performing Loans and Loan to Deposit Ratio on Return On Assets in the Banking Industry. *Turkish Journal of Computer and Mathematics Education*, 12(8).
 7. Keown, A. J., Martin, J. D., & Petty, J. W. (2017). *Foundations of Finance* Ninth edition. In Pearson Education Limited.
 8. Ratnasih, C., & Purbayani, D. M. (2018). Pengaruh Return on Asset (Roa), Loan To Deposit Ratio (Ldr), Dan Capital Adequacy Ratio (Car) Terhadap Harga Saham Pada Pt. Bank Negara Indonesia Tbk. In *Oktober (Vol. 06, Issue 2)*.
 9. Rhyne, R. G., & Brigham, E. F. (1979). *Fundamentals of Financial Management*. The Journal of Finance, 34(5). <https://doi.org/10.2307/2327254>
 10. Riyanto, B. (2010). *Dasar-dasar Pembelanjaan Perusahaan Edisi 4 Cetakan 10*. Yogyakarta: BPFYogyakarta.
 11. Rose, E. S., Arbainah, S., Raharjo, S., & Widiarto, A. (2021). The The Influence of Corporate Governance Perception Index, Profitability Ratio and Firm Size to Company Value (CGPI And Listed Companies On The IDX). *Ilomata International Journal of Tax and Accounting*, 2(3). <https://doi.org/10.52728/ijtc.v2i3.238>
 12. Stanley Isanzu, J. (2017). The Impact of Credit Risk on the Financial Performance of Chinese Banks. *JOURNAL OF INTERNATIONAL BUSINESS RESEARCH AND MARKETING*, 2(3). <https://doi.org/10.18775/jibrm.1849-8558.2015.23.3002>
 13. Sugiyono. (2016). *Sugiyono, Metode Penelitian. Uji Validitas*.
 14. Wijaya, D. P., & Sedana, I. B. P. (2020). Effects of Quick Ratio, Return on Assets and Exchange Rates on Stock Returns. *American Journal of Humanities and Social Sciences Research*, 4(1).
 15. Zhang, J., & Aboud, A. (2019). Determinants of economic value added (EVA) in Chinese listed banks. *Asian Review of Accounting*, 27(4). <https://doi.org/10.1108/ARA-11-2018-0216>