Research Paper

The Influence of Collateral and Firm Age on the Capital Structure of Property and Real Estate Companies

Michael Teddy Fernando[1], Noer Azam Achsani[2], Lukytawati Anggraeni[3]

[1,2,3]School of Business, IPB University, Bogor, Indonesia.

Corresponding Author: Michael Teddy Fernando

ABSTRACT

This study examined the roles of collateral and firm age in shaping capital structure and their consequences for profitability among Indonesian listed property and real estate firms. Using secondary financial data for 32 company over 2017–2023, we employed panel-data regression. Capital structure was proxied by debt to total assets (DTA) and debt to equity ratio (DER), while performance is proxied by return on assets (ROA). The main variables include collateral (the proportion of inventories, PP&E, and accounts receivable to total assets), firm age, and the interaction between collateral and age, with controls for firm size, growth, liquidity, and a COVID-19 dummy. DTA and DER models are estimated to be using Panel-Corrected Standard Errors (PCSE), and the ROA model uses a Random-Effects Model (REM). The results indicate a relatively conservative capital structure. Collateral has a positive and significant effect on DTA, whereas firm age is not directly significant; however, the collateral–age interaction is positive and significant, implying that reputation and operating maturity enhance the ability of tangible assets to secure debt. Regarding performance, DTA exhibits a non-linear (inverted U-shape) relationship with ROA: higher leverage initially improves profitability up to an optimal point. The estimated optimal DTA is approximately 0.42 (≈42% of total assets), which maximizes ROA. These findings underscore the importance of managing collateral quality and leveraging firm maturity in financing policies and adopting dynamic capital-structure policies that keep leverage near the optimal range to maximize financial performance.

Keywords: collateral; firm age, capital structure; debt to total assets, debt to equity ratio, return on assets, PCSE, random effects, inverted U-shape; optimal leverag.

INTRODUCTION

The property and real estate sector were among the most severely affected industries during the COVID-19 pandemic. Many firms in this sector experienced financial distress due to heightened risks and declining solvency. A considerable number also exhibited interest coverage ratios below 1, indicating that most of their earnings were absorbed by interest payments.

Like firms in other industries, property and real estate companies must determine an appropriate capital structure. Given their industry characteristics, these firms tend to obtain financing more easily as the value of their assets increases. In addition, firm age plays an important role in shaping capital structure, as older firms are perceived to

possess more established credit histories and stronger reputations (Hall, 2012).

In both developed and emerging markets, the determinants of capital-structure decisions are largely driven by firm-specific characteristics (internal factors). Zafar et al. (2019) argue that the determinants identified in advanced economies also apply to emerging economies such as Indonesia. However, the magnitude of these effects differs across developed and emerging markets (Kahya et al., 2020).

Capital-structure decisions in the property and real estate sector also differ from those in other industries because firms commonly secure their debt with tangible assets (Alcock et al., 2010). According to annual statistics released by the Indonesia Stock Exchange (IDX), the sector recorded an average debt-to-equity ratio (DER) of 0.46 in 2022, indicating that total equity still exceeds liabilities. Firms with substantial collateralizable assets are generally able to access financing more easily (Hall, 2012). Beyond asset size, Dewaelheyns and Van Hulle (2010) suggest that older firms have stronger reputations, deeper credit relationships, and greater access to long-term debt markets because they are viewed as more competitive (Damodaran, 2012). However, capital-structure decisions also influence firm performance.

The relationship between capital structure and firm performance concerns how leverage affects profitability. Although prior studies have produced mixed findings, many report a negative relationship between leverage and performance. This evidence aligns with the Pecking Order Theory, which suggests that more profitable firms rely more on internal financing and reduce their need for external debt (Tripathi et al., 2024).

Research on capital structure in Indonesia's property and real estate industry has been conducted by several scholars. Ahmad et al. (2020) examine the effects of capital structure, dividend policy, and working capital on firm value. Hendrawan and Heliola (2017) analyze optimal capital-structure models and financial performance.

Soesanto and Fun (2014) evaluate firm efficiency in the use of fixed assets. Yurisafira et al. (2023) investigate the effects of macroeconomic and financial dimensions, including capital structure and performance, on firm value. Indomo and Lubis (2022) explore capital-structure behavior across business cycles.

This study differs from prior work (Ahmad et al., 2020; Hendrawan & Heliola, 2017; Soesanto & Fun, 2014; Yurisafira et al., 2023; Indomo & Lubis, 2022) on at least three dimensions.

First, contextually, this research analyzes capital-structure decisions through the interaction between collateral value and firm age within the framework of the company life cycle.

Second, regarding variable measurement, collateral is not limited to fixed assets such as land, buildings, machinery, and factories; instead, it is measured using inventories, PP&E, and accounts receivable relative to total assets. These asset types can also serve as collateral for creditors when firms seek additional borrowing (Da Silva et al., 2019). Third, to assess the impact of capital-structure decisions on financial performance, this study employs a quadratic function, allowing identification of the optimal leverage level that maximizes performance and the threshold at which leverage begins to diminish profitability.

Research Questions
1. What is the composition of the capital structure of property and real estate companies listed on the Indonesia Stock Exchange?
2. How do collateral, firm age, and the interaction between collateral and firm age influence the capital structure of property and real estate companies listed on the Indonesia Stock Exchange?
3. How does capital structure affect the financial performance of property and real estate companies listed on the Indonesia Stock Exchange?

Research Objectives

1. To analyze the composition of the capital structure of property and real estate companies listed on the Indonesia Stock Exchange.
2. To analyze the effects of collateral, firm age, and the interaction between collateral and firm age on the capital structure of property and real estate companies listed on the Indonesia Stock Exchange.
3. To analyze the impact of capital structure on the financial performance of property and real estate companies listed on the Indonesia Stock Exchange.

Research Contributions

1. For practitioners, this study provides insights to help corporate leaders—particularly in property and real estate firms—make financing decisions that align with the company's life cycle and improve debt-governance practices, thereby reducing potential financial risks.
2. For academics, this research is expected to enrich the financial literature, especially concerning capital structure in property and real estate companies, including the roles of firm age, collateral, and leverage levels.

Research Scope

The scope of this study focuses on capital structure, particularly the influence of collateral and firm age, as well as its impact on financial performance. The research is limited to property and real estate companies listed on the Indonesia Stock Exchange during the period 2017 to 2023.

LITERATURE REVIEW

Capital structure refers to a firm's financing decisions in funding its assets and operational activities through a combination of debt and equity (Damodaran, 2001). The development of capital-structure theory highlights several major perspectives explaining corporate financing behavior. The Trade-Off Theory posits that firms increase their use of debt until the marginal tax benefits from interest deductibility (tax shields) are offset by the marginal costs of bankruptcy and agency problems (Kraus & Litzenberger, 1973; Myers, 1984). In contrast, the Pecking Order Theory argues that financing decisions follow a hierarchy of preferences—internal funds first, followed by debt, and finally equity issuance—due to information asymmetry between managers and investors (Myers & Majluf, 1984). Meanwhile, the Life Cycle Theory emphasizes that capital-structure choices are dynamic and evolve along the stages of a firm's life cycle, as financing needs, access, and sources change from the start-up and growth stages to maturity and decline (Berger & Udell, 1998). Collectively, these three theories provide complementary theoretical foundations for understanding corporate financing patterns.

Various variables have been empirically shown to influence capital structure, and their effects are often interpreted through different theoretical lenses. Collateral—commonly proxied by tangible assets—has been found to positively affect leverage because the availability of pledgeable assets enhances a firm's access to debt financing, consistent with Trade-Off Theory (Deesomsak et al., 2014). The influence of firm age on capital structure is mixed: Trade-Off Theory suggests that older firms tend to use more debt due to lower bankruptcy risk and greater tax benefits, whereas Pecking Order Theory argues that mature firms prefer internal financing from retained earnings and therefore rely less on debt (Rocca et al., 2011). Beyond collateral and age, other factors such as profitability, firm size, growth opportunities, and liquidity have also been found to shape financing decisions, with the direction of their effects varying depending on whether the analysis is grounded in the Trade-Off or Pecking Order perspectives (Frank & Goyal, 2009; Pattanaik & Sengupta, 2018; Soekarno et al., 2021). This indicates that capital-structure determination is a multidimensional decision influenced not only by internal firm characteristics but also by life-cycle context and market conditions.

RESEARCH METHOD

This study uses secondary data obtained from the financial statements of property and real estate companies listed on the Indonesia Stock Exchange (IDX) for the period 2017–2023. The data were collected from the official IDX website and the respective companies' official websites. The sampling method employed is non-probability sampling, resulting in 32 listed firms selected as the research sample. The research variables consist of dependent, independent, interaction, and control variables. The dependent variable for capital structure is proxied by the Debt-to-Equity Ratio (DER) and Debt-to-Total-Assets Ratio (DTA). Financial performance is measured using Return on Assets (ROA). The independent variables include collateral (AG) and firm age (U). The interaction variable is represented by the interaction between collateral and firm age (AG × U).

The control variables include return on assets (ROA), liquidity as measured by the current ratio (CR), firm size (SIZE), firm growth (GROWTH), and a COVID-19 dummy (COV), where the years 2017–2019 represent the normal period and 2020–2022 represent the COVID-19 period.

Table 1. Operational Definitions of Research Variables

No	Akronim	Tipe	Formula
1	DTA	D	$DTA = \frac{Debt}{TA}$
2	DER	D	$DER = \frac{Debt}{E}$
3	ROA	D	$ROA = \frac{Net\ profit}{TA}$
1	AG	I	$AG = \frac{INV + NPP + REC}{TA}$
2	U	I	$U = (CY - YF)$
3	AG*U	I	$AG * U = AG\ X\ U$
4	CR	C	$CR = \frac{CA}{CL}$
5	SIZE	C	$SIZE = Ln(TA)$
6	GROWTH	C	$GROWTH = \frac{S_t - S_{t-1}}{S_{t-1}}$
7	COV	D	Merupakan variabel *dummy,* COV. 0 = untuk periode sebelum Covid, 1 = pada saat Covid

To address the first research objective—analyzing the composition of the capital structure of property and real estate companies listed on the Indonesia Stock Exchange—this study employs descriptive analysis, which aims to provide a comprehensive overview of the capital-structure composition of the sampled firms. To address the second research objective—analyzing the effects of collateral, firm age, and the interaction between collateral and firm age on capital structure—panel data regression analysis is applied. To answer the third research objective, a quadratic function model of financial performance is used. Financial performance is measured using return on assets (ROA), with capital structure serving as the independent variable in this model.

RESULTS AND DISCUSSION

Composition of Capital Structure in the Property and Real Estate Sector

Based on the data presented in Table 2 and Table 3, which show the frequency distribution of the Debt-to-Equity Ratio (DER) and the Debt-to-Total-Assets Ratio (DTA), several important findings regarding the capital structure of the firms can be identified. Table 2 indicates that most companies have a DER within the range of 0 to 0.5, with 14 firms (38.89% of the sample) falling into this category. The range of 0.501 to 1 includes 11 firms (30.56%), while the remaining 30.56% have a DER greater than 1. These results suggest that the majority of firms maintain relatively low leverage levels, although a portion of the sample exhibits higher levels of debt relative to equity.

Table 2. Frequency Distribution of *Debt-to-Equity Ratio*

Debt to equity ratio	Frekuensi	Persentase	kumulatif
0 - 0.5	14	38.89	38.89
0.501-1	11	30.56	69.44
>1	11	30.56	100
Total	36	100	

Meanwhile, Table 3, which presents the distribution of the Debt-to-Total-Assets Ratio (DTA), shows that the majority of firms (72.22%) have a DTA in the range of 0 to 0.5. This indicates that most companies

rely primarily on their own assets to finance their operations and maintain relatively low levels of debt. Additionally, 25% of the firms fall within the range of 0.501 to 1, while only 2.78% exhibit a DTA greater than 1, suggesting an extremely high dependence on debt in their capital structure.

Table 3. Frequency Distribution of *Debt to Total Assets Ratio*

debt to total asst	Frekuensi	Persentase	kumulatif
0 - 0.5	26	72.22	72.22
0.501-1	9	25	97.22
>1	1	2.78	100
Total	36	100	

Overall, these findings indicate that most firms tend to maintain a conservative capital structure, with debt playing a relatively limited role compared to equity and total assets. The frequency distributions of the Debt-to-Equity Ratio (DER) and the Debt-to-Total-Assets Ratio (DTA) consistently show that the majority of companies adopt a prudent financing approach. This pattern aligns with the capital structure theories proposed by Modigliani and Miller (1958) as well as the traditional view of capital structure.

Panel Data Regression Analysis

Table 4 presents the descriptive statistics of the research variables used in the analysis, based on 252 firm–year observations from property and real estate companies in Indonesia.

Table 4. Descriptive Statistics of Research Variables

Variable	Obs	Mean	Std. Dev.	Min	Max
Debt to total asset (DTA)	252	0.367	0.182	0.029	0.787
Debt to equity ratio (DER)	252	0.753	0.588	0.030	3.093
Agunan (AG)	252	0.45	0.416	0.007	5.416
Usia (U)	252	31.27	10.863	2	56
Pertumbuhan (Growth)	252	0.11	0.859	-0.944	8.752
Likuiditas (CR)	252	3.95	7.272	.143	65.592
Return on asse (ROA)	252	3.8	5.388	-5.51	23.921
Ukuran (Size)	252	1,159	1,400.	5,522	6,683

Keterangan: Size dalam miliar rupiah

Panel data analysis in this study was conducted using two approaches: the fixed-effects model and the random-effects model. To determine the most appropriate model, the Hausman test was performed. The selected model must satisfy the BLUE (Best Linear Unbiased Estimator) criteria; therefore, a series of diagnostic tests were carried out, including tests for multicollinearity, autocorrelation, and heteroskedasticity.

Table 5 presents the panel regression results examining the effects of collateral and firm age on capital structure, as well as the extent to which firm age moderates the relationship between collateral and capital structure. Additionally, the analysis evaluates the impact of capital structure on the financial performance of property and real estate companies listed on the Indonesia Stock Exchange.

Table 5. Regression Results

Variabel	DTA	DER	ROA	ROA
DTA	-	-	0.11*	-
DTA^2	-	-	-0.151**	-
DER	-	-	-	0.086
DER^2	-	-	-	-0.042
AG	0.724 ***	0.024	0.086*	0.073
U	-0.034	0.003	-0.09	-0.141
AG*U	0.248***	-0.002	-	-
SIZE	0.061	0.169**	0.061	0.344
GROWTH	0.024*	0.047**	0.049*	0.084
CR	-0.06***	-0.108***	0.037	0.045
COV	0.066	0.162**	-0.18**	-0.038**
KONS	-0.047	-0.038	0.228	0.459
	PCSE	PCSE	REM	REM

*** $p<.01$, ** $p<.05$, * $p<.1$

Table 5 also presents the coefficients, significance levels, and the direction of influence for each independent variable, including the main variables (DTA/DER and their squared terms), the moderation variable (AG×U), and the control variables such as firm size (SIZE), growth (GROWTH), liquidity (CR), and the COVID-19 dummy (COV). The DTA and DER models were estimated using Panel-Corrected Standard Errors (PCSE), while the ROA model was analyzed using the Random-Effects Model (REM) to obtain robust and reliable estimates.

Model Interpretation

The regression results for Model 1.a (DTA) show that collateral (AG) has a positive and significant effect on capital structure (DTA). This finding indicates that the higher the proportion of collateralizable assets, the greater the tendency for property and real estate firms to increase their use of debt financing. Theoretically, this result is consistent with the Trade-Off Theory, which argues that firms with a high level of tangible

assets face lower bankruptcy risk from the perspective of lenders, thereby facilitating access to debt-based financing (Myers, 1984).

This finding is consistent with the results of Moradi and Paulet (2019), who show that higher collateral value enhances a firm's ability to obtain debt financing. However, the present result contrasts with the findings of Dakua (2019), who conducted an empirical study on the steel industry in India. Dakua (2019) found that a higher proportion of tangible assets—used as a proxy for collateral—actually reduces the debt-to-asset ratio. He argues that liquidity plays the most dominant role in determining a firm's debt-financing decisions.

In contrast to collateral, firm age (U) does not have a significant effect on DTA. This insignificance may be attributed to industry characteristics that provide similar financing access to both younger firms and those that have operated for a long time. Furthermore, in certain sectors, more mature firms may have already reached their optimal capital structure and are no longer aggressive in increasing debt, which makes the empirical effect of age on leverage inconsistent.

Although firm age does not have a direct significant effect, an important finding emerges from the interaction term between collateral and age (AG×U). The positive and significant interaction coefficient indicates that firm age strengthens the effect of collateral on debt usage. This suggests that firms with high collateral are more effective in using these assets as loan guarantees when they have a longer operational track record. This finding implies that operational experience and corporate reputation enhance creditors' confidence in the collateral provided. Thus, age functions as a credibility enhancer for collateral in determining a firm's capacity to obtain debt financing.

Life-cycle theory also suggests that the influence of collateral on capital structure depends on the stage of firm maturity. Huynh and Petrunia (2010) explain that start-up firms with limited assets rely more heavily on external financing to support their

operations and growth opportunities. Their study also notes that asset quality acts as a driver of firm development, indicating that firm growth is simultaneously related to firm age.

Based on the regression results of Models 2.a and 2.b in Table 5, capital structure, as measured by the Debt-to-Total-Assets ratio (DTA), has a significant effect on financial performance (ROA). The DTA variable shows a positive and significant coefficient, indicating that an increase in the proportion of debt to assets can still enhance a firm's ROA up to a certain point. However, the squared term of DTA (DTA²) is negative and significant, demonstrating a non-linear, inverted U-shaped relationship. This means that after reaching the optimal point, additional borrowing reduces profitability. This finding is consistent with the Trade-Off Theory, which proposes that there is an optimal level of debt that maximizes firm value.

Figure 8 clearly illustrates the non-linear relationship between DTA and ROA for property and real estate companies listed on the Indonesia Stock Exchange. After all variables were transformed into z-scores and the control variables were set at their mean value (0), the inverted U-shaped curve shows that leverage initially increases ROA, but beyond the optimal point, higher leverage lowers profitability. The red marker indicates the optimal leverage level (DTA*), estimated at 0.36 (equivalent to approximately 42% when converted back to the original scale), where the predicted maximum ROA is 0.25 (≈ 5.14% in the original scale).
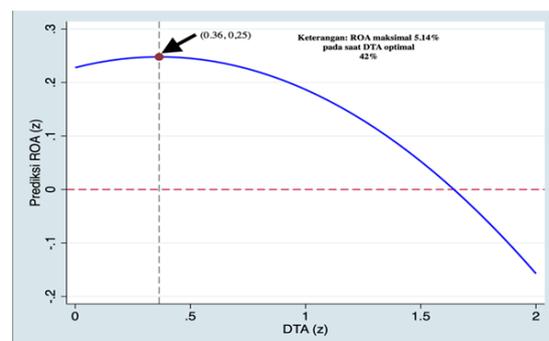

Figure 8. Non-linear Relationship Between Capital Structure and Financial Performance

Managerial Implications

Based on the research findings, three managerial implications can be formulated. First, the management of collateral is a strategic aspect in securing debt financing. Companies need to strengthen the quality and legal validity of their collateral—such as property inventories, land, buildings, and fixed assets—to enhance creditor confidence and improve access to financing. Effective collateral management, including stronger appraisal processes, comprehensive asset documentation, and efforts to increase the economic value of productive assets, not only facilitates access to external financing but also helps reduce the cost of capital and the credit risk borne by the firm.

Second, the finding that firm age strengthens the effect of collateral on leverage implies that companies with longer operational histories should leverage their reputation, credibility, and established relationships with financial institutions as non-physical advantages in their financing strategies. Mature firms need to optimize their business track record, governance quality, and performance stability to obtain more flexible credit access, such as longer loan tenors, lower interest rates, and syndicated loan facilities. Conversely, younger firms should accelerate the development of their financial reputation through transparent financial reporting, high-quality audits, and strong risk management so that the collateral they possess is valued more favorably by creditors.

Third, the presence of an optimal capital structure provides a strategic guideline for managers in determining the ideal level of leverage. With an optimal DTA of 0.42—corresponding to a maximum ROA of approximately 5.14%—firms should not focus solely on increasing debt for expansion, but instead manage their capital structure dynamically in line with business cycles. Debt usage should be increased only up to the point at which it continues to enhance ROA. Beyond this optimal threshold, additional debt reduces performance due to higher interest expenses and increased financial distress risk. Therefore, firms need to adopt a dynamic capital structure policy based on periodic evaluations to ensure that leverage decisions remain within the optimal range and continue to support overall firm performance.

CONCLUSION AND RECOMMENDATIONS

The capital structure of property and real estate companies demonstrates a generally conservative composition. The average debt-to-total-assets (DTA) and debt-to-equity ratio (DER) levels are not aggressive, with most firms maintaining DTA and DER ratios below 0.5. This indicates that companies rely more heavily on internal financing and equity rather than debt to support their asset investments and operational activities.

Collateral has a positive and significant effect on capital structure, particularly on the DTA ratio. In contrast, firm age does not have a direct effect on capital structure. However, the interaction between collateral and firm age is positive and significant, suggesting that firms with longer operational histories are able to utilize collateral more effectively when securing debt financing. This finding highlights that firm reputation and operational experience play an important role in strengthening creditor confidence regarding a firm's capacity to manage debt.

This study confirms that capital structure has a significant impact on financial performance. The non-linear model estimation reveals an inverted U-shaped relationship between DTA and return on assets (ROA). Up to a certain point, an increase in DTA enhances firm profitability; however, once the optimal point is exceeded, additional debt reduces financial performance. The optimal capital structure is identified at a DTA level of approximately 0.42, or 42%, which represents the ideal leverage level for property and real estate companies to maximize their financial performance.

Future research is recommended to incorporate additional variables that may influence capital structure, such as business

risk, ownership structure, and corporate governance. Subsequent studies may also be extended to different sectors in order to compare financing patterns across industries. In addition, future research is encouraged to employ dynamic panel data methods or the Generalized Method of Moments (GMM) to capture the adjustment dynamics of capital structure over time, thereby providing a more comprehensive understanding of firms' leverage behavior in the long run.

REFERENCES
1. Ahmad BS, Essy MF, Sudjono, Novawiguna K. 2020. The effect of capital structure, dividend policies, and working capital routing on company value and profitability as intervening variables in property and real estate companies in indonesia stock exchange 2014-2018. *International Research Journal of Innovations in Engineering and Technology, 4*(10), 14-19. doi:https://doi.org/10.47001/IRJIET/2020.4 10003
2. Ahmad N, Ariffin N M. 2015. Does Age of the Firm Determine Capital Structure Decision? Evidence from Malaysian Trading and Service Sector. International Business Management, 9, 200-207. DOI: 10.3923/ibm.2015.200.207.
3. Alcock J, Finn F, Tan KJK. 2010. The determinants of debt maturity in Australian Firms. Accounting and Finance. 52. 10.1111/j.1467-629X.2010.00397.
4. Berger A, Udell G. 1998. The economics of small business finance: The roles of private equity and debt markets in the financial growth cycle. *Journal of Banking & Finance,* 22(6/8), 613–673.
5. Da Silva WHL, Jucá M N, Campos ALS, Júnior E H. 2019. Influence of collateral and age on corporate capital structure. In Investment Management and Financial Innovations (Vol. 16, Issue 4, pp. 123–132). LLC CPC Business Perspectives.
6. Dakua S. 2019. Effect of determinants on financial leverage in Indian steel industry: a study on capital structure', International Journal of Finance & Economics, Vol. 24, No. 1, pp.427–436.
7. Damodaran A. 2001 Corporate Finance: Theory and Practice. 2nd International Edition, John Wiley & Sons, New York.
8. Dewaelheyns N, Hulle CV. 2010. Internal Capital Markets and Capital Structure: Bank Versus Internal Debt. European Financial Management, European Financial Management Association, vol. 16(3), pages 345-373.
9. Deesomsak, R., Paudyal, K., & Pescetto, G. (2004). The determinants of capital structure: evidence from the Asia Pacific region. *Journal of Multinational Financial Management*, *14*(4-5), 387-405. https://doi.org/10.1016/j.mulfin.2004.0 3.001
10. Frank, M.Z. and Goyal, V. (2009), "Capital structure decisions: which factors are reliably important?", Financial Management, Vol. 38 No. 1, pp. 1-37
11. Hall, T. W. 2012. The collateral channel: Evidence on leverage and asset tangibility. Journal of Corporate Finance, 18(3), 570-583. https://doi.org/10.1016/j.jcorpfin. 2011.12.003.
12. Hendrawan R, Heliola S. 2017. Optimal Capital Structure Model and Company Performance Study on Property and Real Estate Company Listed in Indonesia Stock Exchange During the 2012-2016 Period. International Journal of Economic Research. 14. 501-521.
13. Indomo IL, Arief, WL. 2023. Capital structure behavior among Indonesian property developers during different business cycles. *Journal of Financial Management of Property and Construction, 28*(1), 91-106.
14. Jensen MC, Meckling WH. 1976. Theory of the firm: Managerial behavior, agency costs and ownership structure. Journal of Financial Economics. 3(4), pages 305-360.
15. Kahya EH, Ersen HY, Ekinci C, Ta¸s, O, Simsek KD. 2020. Determinants of Capital Structure for Firms in an Islamic Equity Index: Comparing Developed and Developing Countries. J. Cap. Mark. 4, 167–191.
16. Moradi A, Paulet E. 2019. 'The firm-specific determinants of capital structure – an empirical analysis of firms before and during

the Euro crisis', Research in International Business and Finance, Vol. 47, pp.150–161.

17. Myers, S. C. (1984). The capital structure puzzle. Journal of Finance, 39(3), 575-592. https://doi.org/10.1111/j.1540-6261.1984.tb03646.x

18. Myers, S. (1977). Determinants of corporate borrowing. Journal of Financial Economics, 5(2), 147–175. https://doi.org/10.1016/0304-405X(77)90015-0

19. Myers, S. C., & Majluf, N. S. (1984). Corporate financing and investment decisions when firms have information that investors do not have. Journal of Financial Economics, 13(2), 187-221.

20. Pattanaik A, Sengupta R. 2018, Business Cycle Effect on Leverage: A Study of Indian NonFinancial Firms, Indira Gandhi Institute of Development Research, Mumbai

21. Rocca LM, Tiziana LR, Alfio C. 2011. Capital Structure Decisions During a Firm's Life Cycle. Small Business Economics. 37. 107-130. 10.1007/s11187-009-9229-z

22. Soekarno S, Prayoga EM, Mambea IY. 2021. Determinants of Capital Structure's Adjustment Speed: Empirical Analysis of Real Estate, Property, and Construction Firms. *J. Bisnis Dan Manaj. 22*, 51–64.

23. Soesanto VT, Fun LP. 2014. Performance Evaluation Of Property And Real Estate Companies Listed On Indonesia Stock Exchange Using Data Envelopment Analysis. Jurnal Manajemen dan Kewirausahaan. 16. 10.9744/jmk.16.2.121-130.

24. Tripathi NN, Raj AB, Ahamed N. 2024. Debt financing, firm performance and agency costs during covid-19 pandemic: An empirical study. *IUP Journal of Corporate Governance, 23*(2), 5-41

25. Yurisafira O, Sunitiyoso Y, Rahadi R. 2023. Macroeconomic and financial dimensions influences on Indonesia's property and real estate companies value (2017-2022). International Journal of Research in Business and Social Science (2147- 4478). 12. 229-240. 10.20525/ijrbs.v12i9.3053.

26. Zafar Q, Wongsurawat W, Camino D. 2019. The Determinants of Leverage Decisions: Evidence from Asian Emerging Markets. Cogent Econ. Financ. 7, 1598836

******