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Capital structure dynamics in Indonesia: Understanding the role of ROA in the relationship between firm age, size, and leverage

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ABSTRACT

This study examines the dynamics of capital structure in Indonesia by exploring the role of Return on Assets (ROA) in mediating the relationship between firm age, size, and leverage usage. Employing a quantitative approach, the research analyzes panel data from 424 non-financial companies listed on the Indonesia Stock Exchange during 2019-2021. The analysis utilizes Partial Least Squares (PLS), emphasizing that the data does not need to be normally distributed and can accommodate small sample sizes. The findings indicate that ROA acts as a negative, albeit statistically insignificant, mediator in the relationship between both firm age and size with leverage. Despite theoretical frameworks like Pecking Order and Market Timing Theories suggesting explanatory mechanisms, the study reveals that ROA's mediation is not robust enough to substantiate these theories. Consequently, the results suggest that other factors may be more pivotal in explaining the observed relationships. This study underscores the need for further research into how firm characteristics influence capital structure, particularly in emerging markets like Indonesia. It contributes to the theoretical and practical understanding of capital structure management, providing crucial insights for investors and managers.

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1. Introduction

Leverage is a critical element in improving a company's productivity and performance (Bui, 2020). Large-scale companies often record higher and more stable leverage and profitability. On the other hand, smaller companies tend to show the opposite due to limited funds for investment (Hadi & Suryanto, 2017). Moreover, leverage is an essential component of an organisation's capital structure. It has long been recognised that firm size and age play a role in a firm's decision on the use of leverage (Kieschnick & Moussawi, 2018). However, these influences on companies in Indonesia have yet to be explored in depth. Existing research mostly focuses on the effect of firm size and age on financial performance or firm value. Therefore, it is important to explore how firm size affects leverage in the Indonesian context.

Firm size is an indicator that highlights the financial strength of a firm (Virgantara, 2022). Larger companies generally have easier access to funding sources, both internal and external. Suseno et al., (2023) states that firm size has a positive influence on the use of debt in its financing. This means that the larger the size of the company, the higher its funding needs, so it is more likely to use debt to finance these needs. As size increases, the use of debt increases. Firm age is considered an important factor, as older firms generally have a better track record and credit reputation, which is beneficial for creditors to assess credit risk (Hadi & Suryanto, 2017). Soesetio et al., (2021) also found that the lack of long-term loans is a major obstacle for

small businesses in gaining access to debt, suggesting the importance of firm age in influencing the relationship between tangible assets and corporate debt.

Despite the recognized impact of firm size and age on leverage decisions, a nuanced understanding of these relationships remains underexplored in Indonesia, a rapidly developing market with unique financial dynamics. This gap in research not only limits theoretical advancements in capital structure analysis but also hampers practical applications for local businesses striving to optimize their financial strategies. Pecking Order theory suggests that firms tend to use retained earnings first, then debt, and finally equity, due to the negative signal minimisation factor of equity issuance. It is argued that high profitability, indicated by high ROA, may allow firms to be more self-sufficient in financing and reduce dependence on debt. In addition, Market Timing Theory states that capital structure adjustments depend on current market conditions, focusing on management's efforts to take advantage of market conditions to maximise shareholder wealth.

Myers' 1984 Pecking Order Theory indicates corporations prioritize internal funds, debt, and equity financing. Adair & Adaskou (2015) explained how capital structure affects leverage. Bhat et al., (2023) discovered supportive evidence for the Pecking Order Theory in company size and leverage. Hariyanti & Pangestuti (2021) examined dividend policy factors using this hypothesis. According to the Pecking Order Theory, profitability affects a firm's capital structure and leverage, according to Chipeta & McClelland (2018). Anita et al., (2023) and Lambey et al., (2021) found that profitability affects Indonesian manufacturing enterprises' earnings management.

Older enterprises have stronger debt market access, which affects capital structure (Elsas & Florysiak, 2015). Ibhagui & Olokoyo (2018) confirmed that company age affects capital structure decisions in emerging nations like Nigeria. Yahaya & Tijjani (2021) found an inverse association between company age and leverage in Nigerian oil and gas businesses. Serrasqueiro & Caetano (2014) found that larger enterprises may get more collateral and access the lending market more quickly, affecting leverage. Isık et al., (2017) found that business size affects profitability and capital structure. In Indonesia's food and beverage industry, Kartiningsih & Daryanto (2020) analyzed firm size and profitability.

Good corporate governance, leverage, age, size, and profitability affect profits management in Indonesian enterprises, according to Indracahya & Faisol (2017). Leverage and other factors affect earnings management in Indonesian non-financial enterprises, according to Chandra & Djashan (2019) and Gozali et al., (2021) analyze how firm characteristics and earnings management methods affect Singapore-listed companies, particularly Indonesian ones. This study supports the capital structure and leverage implications of the Pecking Order Theory by showing that business size and age affect earnings management approaches.

Serrasqueiro & Caetano (2014) claim that Market Timing Theory predicts firms will organize their capital structure to take advantage of favorable market conditions. Your study includes the impact of firm age and size on leverage. Lambey et al., (2021) studied how profitability, firm size, equity ownership, and age effect value in leveraged Indonesian manufacturing enterprises. Market Timing Theory is supported by thisstudy's business value correlations. Anton (2016) studied how leverage affects Romanian-listed firms' growth. He found that corporations use debt in good markets, supporting Market Timing Theory. Size affects listed corporations' capital structures. Bhat et al., (2023) observed in India that larger enterprises can better capitalize on market opportunities and wield leverage more freely.

Including Market Timing Theory, Elsas & Florysiak (2015) analyzed capital structure and adjustment theory. Research shows that Market Timing Theory influences firms' capital structure decisions, but firms adjust leverage later than predicted by this theory. This theory can play an important role in determining the effect of firm age/size on leverage adjustment, but it may not produce results as quickly as predicted.

Based on these theories and concepts, the purpose of this study is to investigate how profitability mediates the relationship between firm size and age on leverage. This study is unique in that it uses financial leverage as the dependent variable, rather than as an independent or control variable. The two main factors to be considered are firm size and age of the listed firm. This research has both theoretical and practical implications. By testing Market Timing Theory and Pecking Order Theory within the Indonesian context, we aim to provide additional insights into how these theories operate in a developing country, characterized by unique market and firm dynamics that differ from those in developed nations. This investigation not only enhances our understanding of capital structure management in such environments but also fills a critical information gap regarding capital structure practices in Indonesia.

Theoretically, this study advances the discourse on the role of profitability as a mediator by examining its influence on firm age, size, and leverage in the context of business valuation. This exploration is poised to substantially enrich our comprehension of how profitability interplays with other fundamental factors in shaping capital structure decisions, thereby extending the existing body of knowledge on capital

management influenced by profitability metrics. Moreover, the research delves into additional factors that impact leverage, aiming to uncover elements not previously considered. This in-depth analysis provides greater clarity on the drivers of corporate capital structure decisions, presenting a more nuanced understanding of leverage dynamics in the Indonesian market.

From a practical perspective, this study offers actionable guidance to Indonesian firms on optimizing their capital structure decisions based on age, size, and profitability. By adopting more efficient and effective funding strategies, firms can enhance their financial stability and growth potential. Additionally, the findings provide valuable data for investors and other stakeholders on how companies in Indonesia manage their capital structures, thereby enabling more informed investment decisions and a clearer understanding of the associated risks. Regulatory bodies such as the Financial Services Authority (OJK) and the Indonesia Stock Exchange (IDX) will benefit from insights into the factors influencing capital structure decisions. This knowledge can facilitate the development of more effective regulations, fostering an environment conducive to corporate growth and the overall development of Indonesia's financial markets. Lastly, this research emphasizes the significance of contextual factors in financial theory application and proposes further empirical studies in emerging markets, where financial practices and market conditions may deviate from established theoretical norms.

This research directly addresses the practical needs of Indonesian companies in making informed capital structure decisions. By elucidating the interplay between firm size, age, and profitability, the study equips local businesses with the strategic insights necessary to navigate their unique market conditions. Specifically, the results will help firms to tailor their leverage strategies to better align with their developmental stage and financial health, ultimately fostering more robust financial planning and execution in the Indonesian economic landscape.

Since older enterprises are more financially secure and profitable, profitability may mediate age and leverage (Anita, Suseno, et al., 2023; Brawn & Šević, 2018; Crouzet & Mehrotra, 2020). Profitable enterprises can repay loans and improve credit limits, which might affect leverage (Adair & Adaskou, 2015; Anton, 2016; Elsas & Florysiak, 2015). Based on market reputation and creditor relationships, older enterprises frequently have better funding sources (Ibhagui & Olokoyo, 2018; Lewis & Tan, 2016). Better loan terms may increase leverage for older enterprises with higher profitability (Chipeta & McClelland, 2018; Serrasqueiro & Caetano, 2014; Yahaya & Tijjani, 2021).

Because older firms have more mature capital structures, profitability may also alter the link between Firm Age and Leverage, according to Bhat et al., (2023), Ghafoorifard et al., (2015) and Isık et al., (2017). Adair & Adaskou (2015) and D'Amato & Falivena (2020) and Elsas & Florysiak (2015) suggest that older, more profitable enterprises can better manage their capital structure and attain optimal leverage levels. Effective resource management may make older enterprises more profitable (Isayas, 2022; Kartiningsih & Daryanto, 2020; Putri & Suseno, 2024a). Improvements in loan and debt management can help older enterprises stay profitable despite increased leverage (AL-Homaidi et al., 2020; Hariyanti & Pangestuti, 2021; Muslih & Marbun, 2022).

Better debt management may be found in older, more profitable companies (Anton, 2016; Brawn & Šević, 2018; Yahaya & Tijjani, 2021). Adair & Adaskou (2015); Elsas & Florysiak (2015) and Serrasqueiro & Caetano (2014) imply that increased profitability may give older firms more flexibility in handling financial risks and shifting market conditions, moderating the ratio of leverage to company age. As observed by Crouzet & Mehrotra (2020), Yahaya & Tijjani (2021) and Younis & Sundarakani (2019) the resilience of elderly enterprises to changes in economic and business cycles may also influence the relationship between profitability, Firm Age, and leverage The capital structure of older, more profitable enterprises may be better equipped to adapt to economic developments and sustain enough leverage (Ibhagui & Olokoyo, 2018; Lewis & Tan, 2016).

In conclusion, D'Amato & Falivena (2020), Gozali et al., (2021) and Laurencia & Mulyana (2022) suggest that older firms' commitment to excellent corporate governance and CSR may boost profitability and change the link between "Firm Age and leverage." Higher-profit, well-governed older enterprises may get better loans with better terms and leverage. H_1: Profitability mediates the relationship between Firm Age and leverage.

According to Bhat et al., (2023); Ibhagui & Olokoyo (2018) and Nguyen et al., (2020), larger enterprises have better access to capital markets and can negotiate better borrowing conditions, which may affect leverage. Profitability may mediate the relationship between Firm Size and Leverage by reflecting larger firms' financial performance and ability to generate consistent cash flows to meet debt obligations, according to AL-Homaidi et al., (2020), Isayas (2022) and Serrasqueiro & Caetano (2014). Successful and

larger enterprises may receive more loans due to perceived legitimacy and reduced risk of failure (Anton, 2016; Brawn & Šević, 2018; Ghafoorifard et al., 2015).

Anita, Suseno, et al., (2023), Isık et al., (2017) and Putri & Suseno (2024) suggest that increased profitability may balance the link between Firm Size and Leverage by demonstrating financial soundness and debt risk management. Larger, more lucrative enterprises may be able to expand and reduce debt using profits from operations (Anita, Abdillah, et al., 2023; Hariyani et al., 2021; Yahaya & Tijjani, 2021). According to Chandra & Djashan (2019), Khanh & Khuong (2018) and Rujiin & Sukirman (2020), larger businesses may be driven to lower leverage and focus more on organic development through improved profitability, mediating Firm Size and Leverage.

Due to operational efficiency and financial risk management, larger companies may be more lucrative (Adair & Adaskou, 2015; Kartiningsih & Daryanto, 2020; Lambey et al., 2021). According to Elsas & Florysiak (2015), Millenia & Jin (2021) and Serrasqueiro & Caetano (2014), larger firms can better manage the risks associated with higher debt and maintain an appropriate balance between growth and financial stability through higher profitability, which may mediate Firm Size and Leverage.

Profits may imply that larger companies are better at growth plans and can finance investments Gozali et al., (2021), Laurencia & Mulyana (2022) and Lewis & Tan (2016). Business size can affect leverage through profitability, according to Indracahya & Faisol (2017) and Joson & Susanti, (2017). As companies grow, internal resources may be better than debt.

Finally, success in market rivalry may explain larger enterprises' higher profitability (Ibhagui & Olokoyo, 2018; Muslih & Marbun, 2022; Serrasqueiro & Caetano, 2014). Greater profitability may moderate the relationship between business size and leverage, implying that larger firms can better control their leverage to confront competitive pressures and maintain a strong market position. Increased profitability may moderate the ‘relationship between Firm Size and Leverage’ in numerous business and industry circumstances.

H_2: Profitability mediates the relationship between Firm size and leverage.

2. Research Method

A positivist philosophy and a quantitative methodology grounded in causal relationships are employed in this research. Utilized in this study is secondary data, manifesting as a blend of time series and cross-sectional data, which is referred to as panel data. This study employed financial ratios (“Firm age, Firm size, ROA, and Leverage”) from www.idx.co.id annual reports and journals and the internet. Smart PLS version 3.2.9 was used to analyze this research using "Partial Least Squares" (PLS The PLS method can be applied to small sample sizes and does not require normal data distribution., according to Hair et al., (2017). Ghozali (2021) stated that research with secondary data does not require validity and reliability testing using one indicator (outer model), so this study only tests the inner model. P-values below 0.05 or T statistics above 1.96 indicate statistical significance (Ghozali, 2021).

Population and sample

The population for this study includes all non-financial companies listed and publicly disclosed on the Indonesia Stock Exchange (IDX) from 2019 to 2021, totaling 568 companies. Using a non-probability purposive sampling method, which selects data based on specific criteria representing the population, a sample of 424 companies was chosen for this study. The sample criteria are:

Table 1. Research sample criteria

No	Sample criteria	Number of samples
1.	Companies listed on the IDX for the period 2019-2021	568
2.	Companies that do not have complete data needed for this study	(114)
3.	Number of company samples	424
4.	Total data	1272

Source: data processed by researchers in 2023

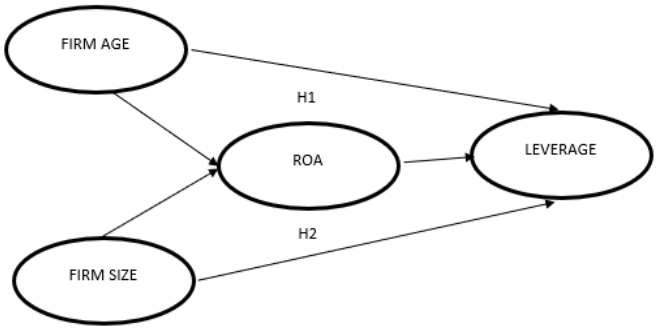

Figure 1. Research framework

Variable definitions

Firm age refers to the duration of time since the company was founded or began operations. According to several studies, firm age can affect various aspects of firm performance, such as profitability (Isık et al., 2017), capital structure (Ibhagui & Olokoyo, 2018), and intellectual capital disclosure (Joson & Susanti, 2017). To measure firm age using Log N (age of the company)

Firm size refers to the size of the company that can be measured by various methods, such as the number of employees, total assets, or revenue. Firm size impacts various financial and operational metrics, such as profitability (Isık et al., 2017), capital structure (Ibhagui & Olokoyo, 2018) and dividend policy (Brawn & Šević, 2018). To measure firm size accurately, Log N (total assets) is commonly employed.

Within this research, return on assets (ROA) can be understood as an indicator of profitability that depends on factors like firm size (Isık et al., 2017) or age (Crouzet & Mehrotra, 2020). ROA measures profitability as an index which illustrates whether an organization can produce profits through their assets.

$$\text{ROA} = \frac{\text{Net income}}{\text{Total assets}} \quad \text{.....(1)}$$

Leverage refers to a firm's use of debt financing its assets and operations (Ibhagui & Olokoyo, 2018). Leverage can be measured as the ratio between Debt to Equity ratio or total long-term debt to total assets of the business (or total long-term debt to total assets of its holding company).

$$\text{PBV} = \frac{\text{Total debt}}{\text{Total equity}} \quad \text{.....(2)}$$

3. Results And Discussions

"Descriptive statistics" are statistical techniques that offer a concise summary of research projects and the associations between independent variables, making the data easily understandable. Descriptive statistical analysis involves calculating measures such as the minimum, maximum, average, and standard deviation of variables to understand data characteristics. These metrics provide an overview of the data, helping to identify trends and patterns.

Table 2. Descriptive statistics ratio

Variable	Firm Age	Firm Size	Leverage	ROA
Minimum	1,386	16,524	0,001	-33,400
Maximum	5,866	26,616	694,300	66,600
Average	3,289	21,630	103,531	1,238
Standard Deviasi	0,620	1,751	257,829	6,349

Source: Data processed by researchers in 2023

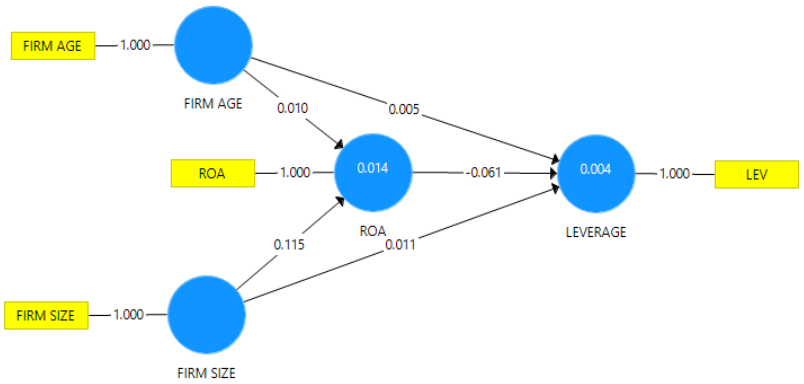

Figure 2. Partial least squares path diagram

The coefficient of determination, denoted as R-square, indicates the extent to which the independent variables in a regression model account for the variation in the dependent variable. A low R-square value implies that the model's independent variables have a limited ability to explain or predict the dependent variable.

Table 3. Coefficient of determination

Variabel	R Square
ROA	0,014
Leverage	0,004

Source: Data processed by researchers in 2023

Based on the table above, the "R-square" value for "Return on assets" (ROA) is 0.014, indicating that "Firm age and Firm Size" can affect "Return on assets" (ROA) by 1.4%. The R-square value for Leverage is 0.004, indicating that "Firm age", "Firm Size" and "Return on assets" (ROA) together can affect Tobins'Q by 0.4%.

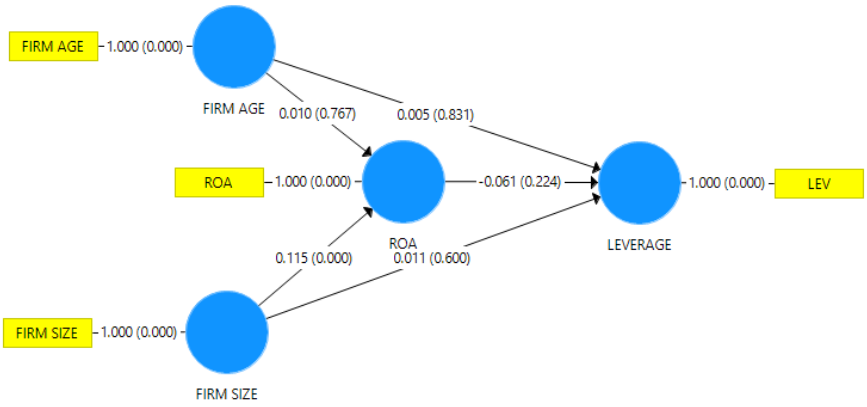

Figure 3. Partial least squares path diagram

Table 4. Direct effect

	Original Sample (O)	T Statistics (|O/STDEV|)	P Values
Firm Age -> Leverage	0,005	0,213	0,831
Firm Age -> ROA	0,010	0,296	0,767
Firm Size -> Leverage	0,011	0,525	0,600
Firm Size -> ROA	0,115	3,786	0,000
ROA -> Leverage	-0,061	1,218	0,224

Source: Data processed by researchers in 2023

The path coefficient for Firm Age on Leverage is 0.005, indicating a positive but negligible influence. With a P-value of 0.831, which is above the 0.05 threshold, and a T-statistic of 0.213, which is

below 1.96, the effect of Firm Age on Leverage is statistically insignificant. Therefore, it can be concluded that Firm Age positively affects Leverage, but the effect is not significant.

Similarly, the path coefficient for Firm Age on ROA is 0.010, showing a positive effect. However, the P-value of 0.767 exceeds 0.05, and the T-statistic of 0.296 is less than 1.96, indicating that the impact is statistically insignificant. Thus, Firm Age has a positive but insignificant effect on ROA.

The path coefficient for Firm Size on Leverage is 0.011, suggesting a positive relationship. However, the effect is not statistically significant, as indicated by a P-value of 0.600 and a T-statistic of 0.525, both falling outside the significance range. Therefore, Firm Size positively affects Leverage, but this effect is insignificant.

The path coefficient for Firm Size on ROA is 0.115, demonstrating a positive effect. The relationship is statistically significant, with a P-value of 0.000 (less than 0.05) and a T-statistic of 3.786 (greater than 1.96). Hence, Firm Size has a positive and significant effect on ROA. Lastly, the path coefficient for ROA on Leverage is -0.061, indicating a negative relationship. However, this effect is not statistically significant, as evidenced by a P-value of 0.224 and a T-statistic of 1.218, both outside the significance range. Consequently, ROA negatively affects Leverage, but the effect is insignificant.

Table 5. Specific indirect effect

	Original Sample (O)	T Statistics (|O/STDEV|)	P Values
Firm Age -> ROA -> Leverage	-0,001	0,235	0,815
Firm Size -> ROA -> Leverage	-0,007	1,183	0,237

Source: Data processed by researchers in 2023

The indirect effect of Firm Age on Leverage through Return on assets (ROA) is -0.001, with a P-Value of 0.815 which is greater than 0.05 and a statistical t-value of 0.235 which is smaller than 1.96. This indicates that Return on assets (ROA) negatively mediates but is not statistically significant on the relationship between Firm Age and Leverage. The indirect effect of Firm Size on Leverage through Return on assets (ROA) is -0.007, with a P-Value of 0.237 which is greater than 0.05 and a statistical t-value of 1.183 which is smaller than 1.96. This indicates that Return on assets (ROA) negatively mediates but is not statistically significant on the relationship between Firm Size and Leverage.

ROA negatively affects firm age and leverage, although not significantly. This implies that company age indirectly influences leverage, but not statistically. Crouzet & Mehrotra (2020) found that firm age affects business cycle responses, including capital structure. According to Myers 1984 Pecking Order Theory implies companies will seek internal funding before debt or equity. In this study, firm age and leverage may be affected by firms' preference for ROA over leverage to produce profits. We found that ROA is not a statistically significant mediator, making pecking order theory difficult to apply. Serrasqueiro & Caetano (2014) Market Timing Theory posits that firms will adapt their capital structure based on market conditions, hence older firms may have more time to progressively adjust leverage. We observed no association between company age and leverage in our investigation.

This study indicated that ROA negatively but insignificantly mediates firm size and leverage, suggesting that ROA indirectly affects leverage. Nigerian developing economies can use Ibhagui & Olokoyo (2018)'s findings on business size and leverage. Myers 1984 proposed the Pecking Order Theory to explain business size and leverage. ROA-generated internal finance may reduce debt for larger companies. ROA's mediating role was not statistically significant, hence the pecking order theory could not be used. Market Timing hypothesis Serrasqueiro & Caetano (2014) may affect business size and leverage. Larger companies may lower leverage better in good markets. This study implies Market Timing theory needs a stronger link between business size and leverage. Therefore, it is difficult to determine if Market Timing theory influences company size and leverage in this study. This study does not explain age, business size, and leverage's insignificance. Other variables may have contributed. Research indicates that factors including profitability, liquidity, and expansion might impact a firm's capital structure (AL-Homaidi et al., 2020; Anton, 2016; Isık et al., 2017). So, other reasons may explain the association between company age, size, and leverage.

Capital structure has been linked to firm age and size in some research. Bhat et al., (2023) found that business size influences leverage in India, while Yahaya & Tijjani (2021) found a high correlation between age, size, and leverage in Nigeria. Thus, regional or sectoral differences may affect this study's outcomes. These results do not prove that company age and size do not effect leverage in this investigation. This shows that ROA does not statistically mediate firm age, size, and leverage. Other factors may explain such connections better than ROA.

Finally, our analysis emphasizes the need for more research on firm characteristics and capital structure. For deeper firm age, size, and leverage relationships, future studies may include other variables or techniques. Comparative country or sector study may uncover unique influences.

4. Conclusion

This study found that Return on Assets (ROA) acts as a negative but statistically insignificant mediator in the relationship between firm age and leverage. Although Pecking Order theory and Market Timing theory have been proposed to explain this relationship, the study results show that the role of ROA is not strong enough to support this theory. It was also found that firm age and size have an insignificant influence on leverage through ROA, suggesting that both factors do not influence leverage as expected based on previous theories. These findings emphasise the need for further research to understand how firm characteristics affect capital structure. The results of this study should not be interpreted that firm age and size do not affect leverage. Rather, these results suggest that ROA does not play a statistically significant mediating role in the relationship between firm age, firm size and leverage. Therefore, additional factors may be more responsible for explaining the relationship than ROA alone, and future research may need to include additional variables or methods to explore the deeper relationship among firm age, firm size and leverage.

This study holds practical implications for decision-makers in Indonesian firms. Understanding that traditional financial metrics like ROA may not sufficiently explain the nuances of leverage decisions in local contexts can guide executives towards more contextual and comprehensive analyses. Firms might benefit from considering a broader array of factors, including market conditions and internal capabilities, when making decisions about their capital structure. This could lead to more tailored and effective financial strategies that are aligned with both corporate objectives and the specific economic environment of Indonesia. This study contributes to the ongoing discourse on capital structure by highlighting the potential limitations of widely accepted financial theories when applied in a developing market context like Indonesia. It calls for a reassessment of theoretical assumptions and encourages the exploration of other influential factors that could better explain the dynamics of leverage within different economic environments.

Research limitations

This research only considered three variables of company age, size and return on assets (ROA). Other considerations such as profitability, liquidity and growth may influence capital structure of firms as well. Integrating these additional variables will create a clearer picture of all factors impacting capital structure for any firm. As this study's scope is restricted to Indonesia-listed companies, its findings may not apply equally well to companies operating across other markets or unlisted firms. Research in various countries or with unlisted firms could offer new insight into how firm characteristics impact capital structure. This study does not investigate any moderating variables, such as macroeconomic environment, industry regulations or firm ownership characteristics that might modulate between firm characteristics and capital structure relationships. Modifying variables should be factored into an analysis to gain more of an insight into how firm characteristics impact capital structure. Here, ROA was chosen as an indication of firm profitability. However, other measures of profitability might prove more suitable to this study, including return on equity (ROE) or net income. Utilizing different measures may lead to different and more comprehensive results from analysis.

Suggestion for further research

Future researchers should investigate additional variables that affect capital structures of companies, including profitability, liquidity, growth and risk. By including additional factors affecting firm capital structures - such as profitability, liquidity growth or risk - researchers can gain a fuller picture of all factors contributing to its composition. Future scholars could investigate relationships between firm characteristics and capital structure across markets or countries for greater insight. This would give additional knowledge as to how firm characteristics shape capital structure differently depending on the environment where firms exist.

Future researchers should carefully assess any moderating variables, such as macroeconomic conditions, industry regulations or firm ownership characteristics which might alter the relationship between firm characteristics and capital structure. This analysis will offer an in-depth examination of how firm characteristics affect capital structure in specific environments. Future researchers could use alternative profitability measures, like return on equity (ROE) or net income, to investigate the relationship between firm profitability and capital structure. Doing this would enable researchers to see how different measures of profitability affect this relationship; additionally they could include other theories related to capital structure

such as trade-off theory or agency theory for further understanding the factors affecting firm capital structure decisions.

References

Adair, P., & Adaskou, M. (2015). Trade-off-theory vs. pecking order theory and the determinants of corporate leverage: Evidence from a panel data analysis upon French SMEs (2002–2010). *Cogent Economics & Finance*, *3*(1), 1–12. https://doi.org/10.1080/23322039.2015.1006477

AL-Homaidi, E. A., Tabash, M. I., AL- Ahdal, W. M., Farhan, N. H. S., & Khan, S. H. (2020). The Liquidity of Indian Firms: Empirical Evidence of 2154 Firms. *The Journal of Asian Finance, Economics and Business*, *7*(1), 19–27. https://doi.org/10.13106/jafeb.2020.vol7.no1.19

Anita, R., Abdillah, M. R., & Suseno, G. (2023). Leverage On Firm Value: The Role of Financial Performance Mechanisms. *Jurnal Aplikasi Bisnis Dan Manajemen*. https://doi.org/10.17358/jabm.9.3.751

Anita, R., Suseno, G., Abdillah, M. R., & Andira, A. R. (2023). The Influence of Family Control and Gender Diversity on Financial Performance: Leverage and Tangibility as Mediating Role. *Jurnal Akuntansi Dan Bisnis*, *23*(1), 121. https://doi.org/10.20961/jab.v23i1.1011

Anton, S. G. (2016). The Impact of Leverage on Firm Growth. Empirical Evidence from Romanian Listed Firms. *Review of Economic and Business Studies*, *9*(2), 147–158. https://doi.org/10.1515/rebs-2016-0039

Bhat, D. A., Chanda, U., & Bhat, A. K. (2023). Does Firm Size Influence Leverage? Evidence from India. *Global Business Review*, *24*(1), 21–30. https://doi.org/10.1177/0972150919891616

Brawn, D. A., & Šević, A. (2018). "Firm size matters: Industry sector, firm age and volatility do too in determining which publicly-listed US firms pay a dividend." *International Review of Financial Analysis*, *58*, 132–152. https://doi.org/10.1016/j.irfa.2018.05.002

Bui, T. N. (2020). How do financial leverage and supply chain finance influence firm performance? Evidence from construction sector. *Uncertain Supply Chain Management*, *8*(2), 285–290. https://doi.org/10.5267/j.uscm.2019.12.003

Chandra, M. S., & Djashan, A. I. (2019). Pengaruh Leverage Dan Faktor Lainnya Terhadap Manajemen Laba Pada Perusahaan Non Keuangan. *Jurnal Bisnis Dan Akuntansi*, *20*(1), 13–20. https://doi.org/10.34208/jba.v20i1.403

Chipeta, C., & McClelland, D. (2018). In search of conclusive evidence on the trade-off and pecking order theories of capital structure : evidence from the Johannesburg Stock Exchange. *Investment Analysts Journal*, *47*(1), 15–30.

Crouzet, N., & Mehrotra, N. R. (2020). Small and Large Firms over the Business Cycle. *American Economic Review*, *110*(11), 3549–3601. https://doi.org/10.1257/aer.20181499

D'Amato, A., & Falivena, C. (2020). Corporate social responsibility and firm value: Do firm size and age matter? Empirical evidence from European listed companies. *Corporate Social Responsibility and Environmental Management*, *27*(2), 909–924. https://doi.org/10.1002/csr.1855

Elsas, R., & Florysiak, D. (2015). Dynamic Capital Structure Adjustment and the Impact of Fractional Dependent Variables. *Journal of Financial and Quantitative Analysis*, *50*(5), 1105–1133. https://doi.org/10.1017/S0022109015000496

Ghafoorifard, M., Sheykh, B., Shakibaee, M., & Joshaghan, N. S. (2015). Assessing the Relationship between Firm Size, Age and Financial Performance in Listed Companies on Tehran Stock Exchange. *International Journal of Scientific Management and Development*, *2*(11), 631–635.

Ghozali, I. (2021). *Partial least squares : konsep, teknik dan aplikasi menggunakan program SmartPLS 3.2.9 untuk penelitian empiris + CD* (3rd ed.). Badan Penerbit Universitas Diponegoro.

Gozali, E. O. D., Hamzah, R. S., Pratiwi, C. N., & Octari, M. (2021). Firm Characteristics and Earnings Management in Listed Singaporean Corporations. *Jurnal Riset Akuntansi Kontemporer*, *13*(2), 72–81. https://doi.org/10.23969/jrak.v13i2.4102

Hadi, A. R., & Suryanto, T. (2017). Capital Structure Determinants: Evidence from Palestine and Egypt Stock Exchanges. *IKONOMIKA*, *1*(2), 118. https://doi.org/10.24042/febi.v1i2.147

Hair, J. J. F., Matthews, L. M., Matthews, R. L., & Sarstedt, M. (2017). PLS-SEM or CB-SEM: updated guidelines on which method to use. *International Journal of Multivariate Data Analysis*, *1*(2), 107. https://doi.org/10.1504/IJMDA.2017.087624

Hariyani, D. S., Ratnawati, T., & Rahmiyati, N. (2021). The Effects of Macroeconomics, Dividend Policy, Good Financial Governance on Corporate Value: Moderation of CSRD. *International Journal of Scientific and Research Publications (IJSRP)*, *11*(4), 303–309. https://doi.org/10.29322/IJSRP.11.04.2021.p11240

Hariyanti, N., & Pangestuti, irene R. D. (2021). Pengaruh Profitabilitas, Leverage, Likuiditas, Collateralizable Assets, dan Growth in Net Assets Terhadap Kebijakan Dividen Dengan Firm Size, Firm Age, dan Board Size Sebagai Variabel Kontrol (Studi Kasus Pada Perusahaan Manufaktur Yang Terdaftar di Bursa. *Diponegoro Journal of Management*, *10*(3), 10–24.

Ibhagui, O. W., & Olokoyo, F. O. (2018). Leverage and firm performance: New evidence on the role of firm size. *The North American Journal of Economics and Finance*, *45*, 57–82. https://doi.org/10.1016/j.najef.2018.02.002

Indracahya, E., & Faisol, D. A. (2017). The Effect of Good Corporate Governance Elements, Leverage, Firm Age, Company Size and Profitability on Earning Management (Empirical Study of Manufacturing Companies in Bei

2014 – 2016). *Profita: Komunikasi Ilmiah Dan Perpajakan*, *10*(2), 203–227.
Isayas, Y. N. (2022). Determinants of banks' profitability: Empirical evidence from banks in Ethiopia. *Cogent Economics & Finance*, *10*(1). https://doi.org/10.1080/23322039.2022.2031433
Isık, O., Unal, A. E., & Unal, Y. (2017). The Effect of Firm Size on Profitability: Evidence from Turkish Manufacturing Sector. *Pressacademia*, *6*(4), 301–308. https://doi.org/10.17261/Pressacademia.2017.762
Joson, M., & Susanti, M. (2017). Pengaruh Firm Size, Profitability, Firm Age, Firm Growth, Leverage, dan Independent Commissioner terhadap Intellectual Capital Disclosure pada Perusahaan Sektor Keuangan yang Terdaftar di Bursa efek Indonesia Pada tahun 2012-2014. *Jurnal Ekonomi*, *20*(2), 287–303. https://doi.org/10.24912/je.v20i2.161
Kartiningsih, D., & Daryanto, W. M. (2020). The Effect of Firm Characteristics to Profitability of Food and Beverages Companies Listed in Indonesia Stock Exchange. *International Journal of Business, Economics and Law*, *22*(1), 69–76.
Khanh, H. T. M., & Khuong, N. V. (2018). Audit Quality, Firm Characteristics and Real Earnings Management: The Case of Listed Vietnamese Firms. *International Journal of Economics and Financial Issues*, *8*(4), 243–249.
Kieschnick, R., & Moussawi, R. (2018). Firm age, corporate governance, and capital structure choices. *Journal of Corporate Finance*, *48*, 597–614. https://doi.org/10.1016/j.jcorpfin.2017.12.011
Lambey, R., Tewal, B., Sondakh, J. J., & Manganta, M. (2021). The Effect of Profitability, Firm Size, Equity Ownership and Firm Age on Firm Value (Leverage Basis): Evidence from the Indonesian Manufacturer Companies. *Archives of Business Research*, *9*(1), 128–139. https://doi.org/10.14738/abr.91.9649
Laurencia, V., & Mulyana, R. A. (2022). Firm Characteristics, Profitability and Corporate Governance Effect on Earnings Management. *International Journal of Business, Economics and Law*, *26*(1), 224–232.
Lewis, C. M., & Tan, Y. (2016). Debt-equity choices, R&D investment and market timing. *Journal of Financial Economics*, *119*(3), 599–610. https://doi.org/10.1016/j.jfineco.2016.01.017
Millenia, E., & Jin, T. F. (2021). Determinan Manajemen Laba: Financial Leverage, Profitabilitas, dan Karakteristik Perusahaan. *Jurnal Bisnis Dan Akuntansi*, *23*(2), 243–252.
Muslih, M., & Marbun, S. O. (2022). The Effect of Risk Management, Firm Age, and Firm Size on the Performance of Banking Companies Registered in Indonesia Stock Exchange Moderated By Corporate Governance and Budget as Control Variable. *International Journal of Science and Society*, *2*(4), 274–290.
Nguyen, C. D. T., Dang, H. T. T., Phan, N. H., & Nguyen, T. T. T. (2020). Factors Affecting Financial Leverage: The Case of Vietnam Firms. *The Journal of Asian Finance, Economics and Business*, *7*(11), 801–808. https://doi.org/10.13106/jafeb.2020.vol7.no11.801
Putri, E. A., & Suseno, G. (2024). Peran Mediasi Profitabilitas pada Pengaruh Solvabilitas terhadap Nilai Perusahaan di Sektor Perbankan Indonesia. *JURNAL SYNTAX IMPERATIF: Jurnal Ilmu Sosial Dan Pendidikan*, *5*(1), 193–209.
Rujiin, C., & Sukirman, S. (2020). The Effect of Firm Size, Leverage, Profitability, Ownership Structure, and Firm Age on Enterprise Risk Management Disclosures. *Accounting Analysis Journal*, *9*(2), 81–87. https://doi.org/10.15294/aaj.v9i2.33025
Serrasqueiro, Z., & Caetano, A. (2014). Trade-Off Theory Versus Pecking Order Theory: Capital Structure Decisions in A Peripheral Region of Portugal. *Journal of Business Economics and Management*, *16*(2), 445–466. https://doi.org/10.3846/16111699.2012.744344
Soesetio, Y., Rudhiningtyas, D. A., Sudarmiatin, S., & Mukhlis, I. (2021). Does internationalization moderate the effect of SMEs size, age, and other financial determinants on investment opportunities set? Evidence from Indonesia. *JEMA: Jurnal Ilmiah Bidang Akuntansi Dan Manajemen*, *18*(2), 164. https://doi.org/10.31106/jema.v18i2.10393
Suseno, G., Oemar, F., & Anita, R. (2023). PERAN MEDIASI RETURN ON EQUITY PADA HUBUNGAN LEVERAGE TERHADAP NILAI PERUSAHAAN DI INDONESIA. *SeNaSPU: Seminar Nasional Sekolah Pascasarjana*, 110–119.
Virgantara, D. Z. (2022). Pengaruh Ukuran Perusahaan, Leverage, dan Profitabilitas Terhadap Nilai Perusahaan Papan Utama (Yang Terdaftar dalam Bursa Efek Indonesia Tahun 2014-2018). *JURNAL STUDI MANAJEMEN ORGANISASI*, *17*(1), 1–9.
Yahaya, O. A., & Tijjani, B. (2021). Size, Age and Leverage of Nigeria Quoted Oil and Gas Corporations. *Advanced International Journal of Banking, Accounting and Finance*, *3*(6), 51–60. https://doi.org/10.35631/AIJBAF.36005
Younis, H., & Sundarakani, B. (2019). The impact of firm size, firm age and environmental management certification on the relationship between green supply chain practices and corporate performance. *Benchmarking: An International Journal*, *27*(1), 319–346. https://doi.org/10.1108/BIJ-11-2018-0363