Very Low Leverage Puzzle and Family Ownership: Evidence from Indonesia Ownership

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Abstract. This study investigates the determinants of low leverage among publicly listed firms in Indonesia over the period 2015–2024. Using a panel dataset of 299 non-financial firms comprising 2,990 firm-year observations, the study examines family ownership as the primary explanatory variable, with profitability, liquidity, and firm size included as control variables. Very Low leverage is defined as a debt-to-equity ratio (DER) of 10 per cent or below, consistent with prior studies that treat zero or near-zero debt as a distinct financing policy choice. Logit and probit models with year fixed effects are employed to estimate the probability of firms maintaining low leverage positions. The results indicate that family ownership does not significantly influence the likelihood of adopting very low leverage policies in Indonesia. Instead, financial fundamentals emerge as stronger explanatory factors: firms with higher profitability and greater liquidity are more likely to sustain very low leverage, whilst larger firms are less likely to do so. These findings suggest that the low leverage phenomenon in Indonesia is driven predominantly by financial strength rather than by ownership structure. This study contributes to the capital structure literature by providing long-period empirical evidence from an emerging market context. The findings suggest that managers ought to prioritize financial flexibility when formulating financing policies, whilst policymakers should acknowledge that family ownership alone does not necessarily engender conservative debt practices.

Keywords: Very Low Leverage, Family Ownership, Profitability, Liquidity, Firm Size, Capital Structure.

1 Introduction

The phenomenon of zero leverage and very low leverage has become an increas-ingly important topic in corporate finance. Although debt offers tax advantages ac-cording to traditional finance theory, many firms maintain minimal or zero debt [1]. This pattern gives rise to what is commonly referred to as the zero-leverage puzzle, as it contradicts the predictions of classical capital structure theories and suggests that other factors may influence corporate financing decisions.

Two main theoretical frameworks inform the analysis of capital structure. The trade-off theory posits that firms balance the tax benefits of debt against the poten-tial costs

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of bankruptcy and financial distress [2]. The pecking order theory, by con-trast, proposes a financing hierarchy whereby firms prefer internal funds first, fol-lowed by debt, and finally new equity [3]. Internal financial factors including profita-bility, liquidity, and firm size therefore constitute important determinants of leverage. Highly profitable and liquid firms tend to rely on internal financing, whilst larger firms generally have broader access to external funding and accordingly exhibit higher leverage [4].

Very low leverage is also commonly observed among firms with family or concentrated ownership. Family-run companies often use conservative financing, relying on internal funds rather than debt to protect control and lower bankruptcy risk for long-term stability and succession planning. Prior studies in emerging markets have found that family firms are more inclined to maintain conservative capital structures, in-cluding low or zero leverage [5].

Against this backdrop, this study aims to analyze the determinants of very low leverage among publicly listed firms in Indonesia over the period 2015–2024. Specifically, the study examines the role of family ownership in determining the probability of a firm maintaining a very low leverage position, with profitability, liquidity, and firm size included as financial control variables. Employing fixed-effects panel logit and probit models, the study seeks to enrich the capital structure literature in emerg-ing market contexts and to offer practical implications for investors and regulators.

2 Methods

This study adopts a quantitative research design using secondary data drawn from publicly listed non-financial firms in Indonesia over the period 2015–2024. The unit of analysis is the firm-year observation. Following the exclusion of financial institutions and firms with incomplete records, the final sample comprises 299 non-financial firms, yielding 2,990 firm-year observations. Financial data were sourced from the Indonesia Stock Exchange (IDX/BEI), company annual reports, Refinitiv Eikon, and other capital market publications. The dataset is organized in a balanced panel format to facilitate longitudinal analysis.

The dependent variable is very low leverage, defined as a dummy variable equal to 1 if the debt-to-equity ratio is 10% or lower. The primary independent variable is family ownership, a dummy variable. A value of 1 is assigned if family ownership is at least 20%. Control variables comprise profitability (return on assets, ROA), liquidity (current ratio, CR), and firm size (natural logarithm of total assets, ln A).

To examine the determinants of low leverage, panel logit and probit regression models with year fixed effects are employed. These models are appropriate for binary dependent variables and accommodate unobserved firm-level heterogeneity. The Hausman test is applied to assess the suitability of the fixed-effects specification relative to random effects. The general model is specified as follows:

$$VLL_{it} = \alpha + \beta_1 FO_{it} + \beta_2 ROA_{it} + \beta_3 CR_{it} + \beta_4 \ln A_{it} + \mu_i + \varepsilon_{it} \qquad (1)$$

where VLL_{it} denotes very low leverage; FO family ownership; ROA, CR, and ln A the control variables; μ_i unobserved firm-specific heterogeneity; and ε_{it} the idiosyncratic error term.

The models are estimated using maximum likelihood methods for binary outcomes. Both logit and probit specifications are presented, and marginal effects are reported to provide a clear interpretation of the economic significance of the explanatory variables. Finally, model performance is evaluated using diagnostic measures such as classification accuracy, confusion matrices, pseudo-R^2, and receiver operating characteristic (ROC) curves with the area under the curve (AUC), to assess both explanatory power and predictive accuracy.

3 Results and Discussion

The estimation results derived from the logit and probit models outlined above are presented in this section, beginning with an overview of the sample characteristics. Table 1 reports the descriptive statistics of all variables used in the analysis during the period 2015–2024.

Table 1. Descriptive Analysis

Variable	N	Mean	Std.Dev	Min	Max
Very Low Leverage (Dummy)	2990	0.1983	0.3988	0.0000	1.0000
Family Ownership (Dummy)	2990	0.6957	0.4602	0.0000	1.0000
Profitability (ROA)	2990	0.0528	0.1091	0.8363	0.9234
Liquidity (CR)	2990	4.3878	54.8038	0.0107	2726.4511
Firm Size (Ln Asset)	2990	19,4645	1,6213	13,6297	23,6912

Source : Author's Work

The descriptive analysis shows that 19.8 percent of firms are classified as Very low leverage (DER ≤ 10%), while about 70 percent are family-owned, underscoring the dominance of family control in Indonesian companies. The average ROA is 5.3 percent with a median of 3.9 percent, suggesting moderate profitability. The median current ratio is 1.49, indicating generally adequate liquidity, though extreme outliers inflate the variation. Firm size averages 19.46 (log of total assets), consistent with medium- to large-sized firms.

Descriptive statistics in Table 1 indicate heterogeneity among sample firms, particularly in profitability and liquidity, with striking differences between the VLL and non-VLL groups. Hypothesis testing was then conducted using logit and probit models with year fixed effects to identify the effect of family ownership on the probability of firms adopting a very low-leverage strategy, while simultaneously controlling for profitability, liquidity, and firm size. The estimation results are presented in Table 2.

The estimation results in Table 2 generally demonstrate good model quality, as reflected by an AUROC of 0.819 (considered excellent discrimination), a McFadden's Pseudo R^2 of 0.2235, and a correct classification rate of 84.05%. The consistency of results across the logit and probit specifications confirms that the findings are insensitive to the choice of distribution, making the inferences robust.

The main independent variable, family ownership, exhibits a negative but statistically insignificant coefficient in both models (logit: -0.1867; probit: -0.1075; $p > 0.10$). This finding indicates that the family ownership structure does not statistically affect the probability of adopting a very low-leverage strategy in Indonesian public companies. Therefore, the hypothesis that family ownership is a significant determinant of VLL is not supported by the data in this sample. All control variables are significant at the 1% level.

Table 2. Regression Results: Logit and Probit Models and Goodness Fit

Variable	Logit (YEAR FE)	Probit (YEAR FE)
Family Ownership (Dummy)	−0.1867	−0.1075
	(0.1212)	(0.0671)
Profitability (ROA)	6.0842***	4.3682 **
	(0.4986)	(0.2652)
Liquidity (CR)	0.4146***	0.2160***
	(0.0287)	(0.0136)
Firm Size (LnA)	−0.35070***	−0.2021***
	(0.0368)	(0.0202)
Constant	3.6299***	2.1434***
	(0.7285)	(0.4036)
Year Fixed Effects	Yes	Yes
Log-Likelihood	−1156.44	−1162.11
Pseudo R^2	0.2235	0.2197
AIC	2340.88	2352.23
AUROC	0.8192	0.8177
Correct Classification Rate	84.05%	83.81%
Observations (N)	2,990	2,990
Number of Firms	299	299

Notes: Standard errors in parentheses. Dependent variable: Very Low Leverage dummy (DER ≤ 10%). *** $p < 0.01$, ** $p < 0.05$, * $p < 0.10$.

Profitability (ROA) is the strongest predictor, with a logit coefficient of 6.0842, consistent with pecking order theory, which predicts that companies with high profits tend to fund operations from retained earnings, thereby minimizing reliance on external debt. Liquidity (CR) has a significant positive effect (0.4146***), supporting the financial flexibility hypothesis that companies with large liquid asset reserves use liquidity as a debt substitute. On the other hand, company size has a significant negative effect (−0.3507***), indicating that larger companies are actually less likely to become VLL, in line with the trade-off theory argument that large companies have easy access to credit markets and can optimize the tax shield benefits from debt more effectively.

The results of the regression analysis indicate that family ownership has no significant effect on the probability of Indonesian firms adopting very low leverage. This outcome differs from previous findings in East Asia and the United States, where family-controlled companies were generally more cautious in their use of debt to protect control and limit external oversight [6].

In Indonesia, the lack of significance suggests that families may rely on other mechanisms, such as concentrated ownership, crossholdings, or board dominance, to maintain control, even when debt is used. This aligns with [7], who argued that in emerging markets, concentrated ownership can substitute for formal governance mechanisms, weakening the role of leverage in protecting control. It is also possible that family firms

pursue different financial strategies depending on factors such as industry or generational stage [10], thereby diluting the statistical relationship between family ownership and leverage. Recent studies further highlight the complexity of this relationship. [8] found that Indonesian family firms tend to maintain higher leverage, using debt as a disciplinary mechanism, while [9] showed that family firms across generations often substitute lower dividends with higher debt, emphasizing the monitoring role of creditors. At a broader level, cross-country evidence indicates that the effect of family ownership on leverage is heterogeneous and shaped by institutional environments [10], which helps explain why the Indonesian case diverges from patterns observed in developed markets.

These findings suggest that theories emphasizing debt conservatism in family firms may not fully apply in Indonesia, and that institutional and contextual factors must be considered when analysing the financing behaviours of family-controlled firms. By contrast, the control variables provide strong evidence that financial fundamentals drive capital structure choices. Profitability and liquidity are both positive and highly significant, supporting the pecking order theory [11] and aligning with [12], who showed that more profitable and liquid firms prefer internal resources over debt. Firm size, however, is negatively associated with low leverage, consistent with the trade-off theory [13] and [14], indicating that larger firms are more likely to exploit their debt capacity. Together, these findings show that Indonesian firms' leverage decisions are better explained by financial strength than by ownership concentration.

4 Conclusion

Taken together, the findings discussed above provide a coherent empirical picture of the very low leverage phenomenon among Indonesian listed firms. This study examined the role of family ownership as the primary explanatory variable over the period 2015–2024, with profitability, liquidity, and firm size included as financial control variables. The results indicate that family ownership does not significantly influence the likelihood of adopting very low leverage. Among the control variables, profitability and liquidity exhibit positive and significant associations, whilst firm size is negatively associated with very low leverage, consistent with theoretical expectations. These findings suggest that family ownership alone does not sufficiently explain conservative debt behavior in the Indonesian context.

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