



Cultural Determinants of Capital Structure in Indonesian Banking: A Macroeconomic Context



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Abstract

Capital structure decisions play a crucial role in shaping the financial landscape of companies, especially in developing countries. This study examines the cultural determinants of capital structure in Indonesian banking within the macroeconomic context from 2013 to 2022. The capital structure represents the mix of various company funding methods, impacting its value and influencing stakeholders. The debate on how the interplay of debt and assets affects a company's value continues, with the determining factors of capital structure still being explored in financial studies. Using STATA V.17, this research analyzes 30 banking companies listed on the Indonesia Stock Exchange, with leverage as the dependent variable. Financial ratios, including liquidity ratio, profit volatility, growth opportunities, bank size, and external macroeconomic variables such as inflation and Gross Domestic Product (GDP), are examined as potential influencers on the capital structure. The results reveal high leverage in Indonesian banks, with variations in financial approaches. Return on assets, growth opportunities, and inflation exhibit a positive and significant relationship with leverage, while profit volatility, tangibility, bank size, and GDP show a negative and significant relationship. The research suggests limitations in scope, recommending including all Indonesian banking companies and additional external macroeconomic variables like exchange and interest rates.

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1 Introduction

The capital structure signifies the amalgamation of various funding sources a company manages (Neves et al., 2022). The financing decisions directly impact the company's value, making it relevant for investors, directors, and other stakeholders (Puspitasari, 2022). The financial sector, particularly banking, plays a pivotal role in economic growth and development by channeling funds within the economy (Ramadan, 2019). However, this sector's increased competition and strategic changes have led to significant transformations worldwide (Al-Ahdal et al., 2020). This study aims to evaluate the overall financial strength of different banking groups in Indonesia, addressing the existing literature gap (Wikartika & Fitriyah, 2018; Zirek et al., 2016; Zedan, 2022).

The theory of optimal capital structure has garnered attention since the seminal work of Modigliani and Miller in 1958 and 1963 (Tareja et al., 2023). Extensive research has been conducted to understand the factors influencing a company's capital structure. Empirical studies indicate that firm characteristics, institutional arrangements, and macroeconomic uncertainty strongly influence capital structure and leverage (Khan et al., 2021; Al-Ahdal et al., 2020). The role of macroeconomic or external financial uncertainty is expected to impact a company's capital structure in various ways (Khan et al., 2021; Al-Ahdal et al., 2020). During crises, expected profits weaken alongside increased risks and uncertainty, making lenders hesitant to advance funds for long-term projects. Given the higher default risk during crises, lenders demand higher future premiums for their loans, making long-term, high-cost loans less attractive than short-term ones.

This study aims to investigate the overall financial strength of different banking groups in Indonesia and test the determining factors influencing banks' financial strength. To estimate financial strength, the study employs an additive value function using the interpretation of macroeconomic variables such as inflation and Gross Domestic Product (GDP), along with factors influencing capital structure, which are still debated in financial studies, such as liquidity, earning Volatility, growth opportunity, and bank size (Shyam-Sunder & Myers, 1999; Subekti & Rosadi, 2022; Sujana, 2017; Syafira & Zainul, 2021).

2 Materials and Methods

The research focuses on the financing choices of Indonesian banks and explores the most significant factors of their capital structure. Data is collected from 30 domestic banks listed on the Indonesia Stock Exchange, covering the period from 2013 to 2022. The sample is selected based on completeness and availability of financial data. Panel data analysis uses STATA V.17, with leverage as the dependent variable and various financial and macroeconomic indicators as independent variables. The research adopts existing variable definitions from the literature for meaningful comparisons (Le & Ngo, 2020; Leary & Roberts, 2010; Levin et al., 2002; Sangadah, 2022).

3 Results and Discussions

Panel Unit Root Test Results

A panel unit root test is employed to examine whether the data series are stationary at the level. Results are presented in Table 1, indicating that all explanatory and control variables are stationary at a 5% significance level. This implies that all dependent and independent variables are stationary. The cointegration test using the Pedroni approach further supports this, confirming that the variables in the study are cointegrated (Hoffman & Patton, 1997; Jensen & Meckling, 2019; Kartika et al., 2023; Krisnando & Novitasari, 2021).

Descriptive Statistics

Descriptive statistics are presented in Table 3. The mean leverage of banks is 3.35%, reflecting the proportion of Indonesian banks' assets funded by non-deposit and deposit liabilities. The average leverage in Indonesian banks is higher than in previous studies on non-financial companies in other countries, such as Neves et al. (2022); Al-Ahdal et al. (2020). However, it is lower than the average for banks in other countries like Pakistan (Sheikh & Qureshi, 2017). The higher leverage in banks compared to non-financial companies mirrors the deposit-taking nature of commercial

banks. The average profitability is 1.64%, lower than Eastern European banks but higher than Pakistan's Islamic banks and non-financial companies.

Table 1
Summary of Unit Root Test Results

Variable	Metode	Hipotesis	Probabilitas pada level
<i>DAR</i>	<i>Levin-Lin-Chu</i>	Common unit roots	0.0000***
<i>ROA</i>	<i>Levin-Lin-Chu</i>	Common unit roots	0.0000***
<i>EV</i>	<i>Levin-Lin-Chu</i>	Common unit roots	0.0000***
<i>TG</i>	<i>Levin-Lin-Chu</i>	Common unit roots	0.0000***
<i>PBV</i>	<i>Levin-Lin-Chu</i>	Common unit roots	0.0000***
<i>BZ</i>	<i>Levin-Lin-Chu</i>	Common unit roots	0.0000***
<i>INF</i>	<i>Levin-Lin-Chu</i>	Common unit roots	0.0000***
<i>GDP</i>	<i>Levin-Lin-Chu</i>	Common unit roots	0.0000***

Source: Appendix Stata.17, secondary data processed (2023)

Note: 1***, 5**, 10* Determination of significance at error tolerance levels (alpha) of 1%, 5%, and 10% respectively

Table 2
Cointegration Test

Pedroni Cointegration		
<i>Modified Phillips-Perron t</i>	11.3445	0.0000
<i>Phillips-Perron t</i>	-18.1303	0.0000
<i>Augmented Dickey-Fuller t</i>	-8.5815	0.0000

Source: Appendix Stata.17, secondary data processed (2023)

Table 3
Descriptive Statistics

Variable	Obs	Mean	Std. Dev	Min	Max
<i>DAR</i>	300	3.35	9.73	-30.62501	30.01067
<i>ROA</i>	300	1.64	9.77	-31.81565	27.31762
<i>EV</i>	300	1.65	9.77	-31.81129	27.31937
<i>TG</i>	300	.866	9.76	-27.61867	26.73991
<i>PBV</i>	300	1.77	11.00	-27.32098	28.62557
<i>BZ</i>	300	31.47	11.30	-10.08174	61.58947
<i>INF</i>	300	5.42	10.27	-24.89	32.34
<i>GDP</i>	300	6.27	10.22	-22.59198	32.72403

Source: Appendix Stata.17, secondary data processed (2023)

The results in the table above show a picture of 30 companies with each value they have. Where you can see the std deviation value, which has a different value for each variable, as well as the mean value. If the two values are compared, the std deviation has a value greater than the mean value, which shows that the distribution of the data variables is significant or that there is no large enough gap. The greater the standard deviation value, the more varied the values on the item or the less accurate they are with the mean; conversely, the smaller the standard deviation, the more similar the values on the item or the more accurate they will be with the mean (Graham, 2000; Gupta & Mahakud, 2020; Elok & Astari, 2021; Hirshleifer & Thakor, 1992).

Table 4
Model Selection Results

<i>Variable</i>	<i>Common Effect</i>	<i>Fixed Effect</i>	<i>Random Effect</i>
<i>DAR (c)</i>	-1.629698 [0.358]	5.101761 [0.000]***	1.085735 [0.410]
<i>ROA</i>	-.0059662 [0.619]	.0235991 [0.019]**	.0234843 [0.797]
<i>EV</i>	.0012238 [0.487]	-.0124819 [0.000]***	.0050774 [0.058]*
<i>TG</i>	.002974 [0.518]	-.0487837 [0.000]***	-.0820016 [0.135]
<i>PBV</i>	-.1113981 [0.069]*	.0113358 [0.005]**	.0223073 [0.407]
<i>BZ</i>	.270479 [0.000]***	-.101632 [0.000]***	.0174378 [0.771]
<i>INF</i>	.0117261 [0.877]	.0380549 [0.000]***	.0131372 [0.587]
<i>GDP</i>	-.0949893 [0.246]	-.1624813 [0.000]***	.1170868 [0.142]
<i>n</i>	300	300	300
<i>r2</i>	0.0801	0.0908	0.0472
<i>r2_a</i>	0.0580	0.0491	0.0395
<i>F</i>	3.36	28.87	10.86 (<i>wald chi2</i>)
<i>Prob > F</i>	0.00009	0.0000	0.1448
<i>Rho</i>	-	0.83227996	0.57451593

Legend: * p<0.05; ** p<0.01; *** p<0.001

Source: Appendix Stata.17, secondary data processed (2023)

Regression results To explore the effect of explanatory variables on leverage on the debt and asset ratio, this study uses pooled OLS, fixed effect, and random effect regression. Table 4 presents the results of these three estimates. The relationship of all explanatory variables with the dependent variable shows consistency in the three regression models. Based on the results of the Chow test (F , 11.20, p -value: 0.000) and the Hausman test (1978) (Chi-square: 60.66, p -value: 0.000) and the Breusch and Pagan Lagrangian multiplier test (Chibar; 211.66, p -value: 0.000) then the fixed-effects estimates are found suitable for discussion (Brusov & Filatova, 2023; Frank & Goyal, 2008).

Empirical Discussion

The selection of the best model resulted in the fixed-effects model. Based on the t-test results, the debt-to-assets ratio shows a significance level of less than 0.05 ($0.000 < 0.05$), indicating that the return on assets (ROA) significantly influences the debt-to-asset ratio partially. Furthermore, the panel data regression analysis indicates that the debt-to-assets ratio has a β value of 0.0235. This implies that ROA positively impacts the debt-asset ratio. The significant positive ROA result suggests that the net profit generated by the company is less than its assets, leading to a reduction in debt or, in other words, achieving ROA cannot be used to finance the company, supporting the trade-off theory. Based on the perfect capital market hypothesis, the Modigliani and Miller Propositions (MM) (Modigliani and Miller, 1958) suggest indifference between debt and equity. The trade-off theory supports using debt as a financing option by considering its costs and benefits (Kraus & Litzenberger, 1973). This theory suggests that companies can achieve an optimal capital structure by evaluating the costs and benefits of each additional dollar of debt.

Regarding Earning Volatility, the t-test results show a significance level of less than 0.05 ($0.019 < 0.05$). The operational profit-to-assets ratio has a β value of -0.0124. This implies that Earning Volatility hurts the debt-asset ratio, meaning that the generated operating profit can reduce the company's debt burden, enhancing its performance within the structural modal rules. This is supported by the trade-off theory, which shows a negative relationship between earnings volatility and corporate leverage. It is expected that unstable company income can reduce its borrowing capacity, especially when issuing debt, leading to financial difficulties. Empirical evidence on this is varied, with some studies supporting the trade-off theory, while others do not find a significant impact of earnings volatility on debt (Adesina, 2021; Afroj, 2022; Akabayashi & Psacharopoulos, 1999; Aldubhani et al., 2022).

Analyzing Tangibility, the t-test results show a significance level of less than 0.05 ($0.000 < 0.05$). Tangibility, represented by the fixed and total assets ratio, has a β value of -0.048. This implies that tangibility significantly impacts the debt-to-asset ratio, contrary to the trade-off theory assumption that physical assets can be used as collateral to borrow more. However, this may not apply to financial companies, especially banks. The trade-off theory argues that companies with more tangible assets tend to borrow more. On the other hand, the pecking order theory predicts a

negative relationship between company size and leverage (Hou & Cheng, 2017; Coscieme et al., 2020; Hadad et al., 2012; Huda, 2012).

For Growth Opportunity (PBV), the significance level is less than 0.05 ($0.005 < 0.05$), and it has a β value of 0.0113. This means that Growth Opportunity (PBV) positively impacts the debt-asset ratio. The growth potential is a crucial factor influencing a company's financing choices. According to the trade-off theory, companies with future opportunities tend to borrow less than those with tangible assets. Both pecking order and agency theories predict a negative relationship between growth opportunities and leverage.

As for Bank Size, with a significance level of 0.05 ($0.0000 < 0.05$), the total assets-to-debt ratio has a β value of -0.1016. This implies that Bank Size has a significant negative impact on the debt-asset ratio, meaning that the size of the bank can act as a proxy for information to external investors, enhancing equity preferences over debt. Additionally, larger banks have various alternative external financing sources besides leverage. Existing literature suggests larger companies usually have more borrowing power, highlighting size as a bankruptcy proxy. The pecking order theory assumes that larger companies with sufficient internal resources primarily rely on these resources for financing, predicting a negative relationship between company size and leverage (Dia & VanHoose, 2017; Gertler et al., 2016).

In summary, this research explores the most significant factors influencing the capital structure choices of banks in Indonesia. The study investigates financing mix choices using data from 30 banks listed on the Indonesia Stock Exchange from 2013 to 2022. The overall theories used, including agency theory and trade-off theory, support the findings of this research (Strahan & Weston, 1998; Adams & Mehran, 2012; Cebenoyan & Strahan, 2004; González & González, 2008).

4 Conclusion

The study concludes by exploring the most influential factors affecting the capital structure choices of banks in Indonesia. Recommendations for future research include adding macroeconomic control variables such as interest rates and exchange rates. Additionally, employing more supportive analytical techniques can explain an indicator serving as a control variable or moderation variable. The large number of observations and responses may lead to abnormal values, requiring classical assumption healing. Therefore, incorporating or calculating the variable values encoded with the original values is needed and should be allowed to pass classical assumption problems.

Conflict of interest statement

The authors declared that they have no competing interests.

Statement of authorship

The authors have a responsibility for the conception and design of the study. The authors have approved the final article.

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