AN ESTIMATION OF SIGNIFICANT CORPORATE FINANCIAL CHOICES AND THEIR ANTECEDENTS APPLYING BAYESIAN INFORMATION CRITERIA: A CASE OF INDONESIA

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-RESEARCH ARTICLE-

AN ESTIMATION OF SIGNIFICANT CORPORATE FINANCIAL CHOICES AND THEIR ANTECEDENTS APPLYING BAYESIAN INFORMATION CRITERIA: A CASE OF INDONESIA

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—Abstract—

The existing literature is contradictory regarding the primary determinants of corporate financial decisions in developing nations. This study utilized Bayesian Information Criteria (BIC) to address firms' capital structure determinants and outfitting issues. To report the variety of capital structure decisions made by Indonesian listed firms, we analyzed literature from developed and developing nations, such as China, the United States, Pakistan, etc. Profitability, tangibility, cash on hand, liquidity, uniqueness, asset utility, size, and industry leverage emerged as more reliable capital structure determinants. In addition, these predictors demonstrated the capital structure of the selected firms based on their size, ownership concentration, maturity, and growth rate with reliability. In addition, the current study is a valuable addition to the existing corpus of literature on corporate financial choices in developing nations because it presents eight fundamental predictors of capital structure in terms of corporate financial choices.

Keywords: Corporate Financial Choices; Capital Structure; Indonesian Stock Exchange; Bayesian Information Criteria (BIC).

1. INTRODUCTION

Demirgüc-Kunt et al. (1999) and Booth et al. (2001) provided a solid foundation for studying capital structure in developing economies. Additionally, scholars have highlighted the distinctions between developed economies regarding corporate financial decisions (Angelino et al., 2021). Manogna (2021) simultaneously demonstrated the

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institutional differences between capital structure and decision-making processes in

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developing nations. Recently, scholars have emphasized the need to examine the financial behavior of developing nations regarding their institutional and legal structures (Nasrallah et al., 2022). Researchers have identified several predictors of capital structure in developing nations within particular corporate contexts. However, there is inconsistency in the reliability determinants when applied to various corporate settings. Consequently, the study of capital structure has been regarded as an unresolved phenomenon characterized by ongoing surprises.

In addition, scholars demonstrate the importance of assessing capital structure determinants specifying corporate financial decisions in a country for clarity purposes based on inconsistent results of various predictors from previous studies (Khoa et al., 2021). In addition, the literature reveals that it is challenging to identify a single consistent factor among the most prevalent corporate financial decisions from previous studies (Dudley, 2021). The same problem exists in the available literature on capital structure in Indonesian publicly traded companies (Haron et al., 2021; Lim et al., 2022). Therefore, this study aims to investigate the numerous capital structure specifications to identify the most prominent and consequential factors for Indonesian firms.

Indonesia is a developing nation whose government has recently opened lucrative investment platforms for international investors as part of an ongoing reform policy (Chandra et al., 2021). In addition, clarification of Indonesian companies' corporate financial decisions is of the utmost importance and has become a matter of necessity. This necessitates the identification of the critical determinants of capital structure in Indonesian publicly traded companies. Using the Bayesian information criterion (BIC) approach developed by Schwarz (1978) for U.S.-listed firms, several academics have investigated the procedure of identifying the most critical predictors of capital structure. The BIC approach is preferred by social scientists when selecting a suitable model for a specific phenomenon (Liao & Fasang, 2021). It adds numerous parameters to a model and resolves the fitting bases (Ayala et al., 2021). Therefore, the BIC approach was used to identify the most appropriate predictors of corporate financial decisions and Indonesian-listed firms to reduce previous research's contradictory findings (Carreras Simó et al., 2021). In addition, to develop a theoretical framework to explain the consolidated financial decisions of corporations, researchers advocated emphasizing dependability rather than developing an uncertain theoretical model. We followed Chang et al. (2014)'s and Frank and Goyal's (2009) guidelines and procedures to estimate a more reliable framework of capital structure in Indonesian firms from 2010 to 2020. We added debt supply, uniqueness, cash holding, asset utility, and liquidity as new determinants of corporate leverage in Indonesia. Moreover, this investigation intends to;

- To determine the most reliable and consistent predictors of capital structure in Indonesia
- To identify the ways the selected predictors, remain stable over time and across

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firms' characteristics.

- To identify the significant differences in various factors affecting the capital structure of Indonesia-listed firms
- To interpret the reliable determinants of capital structure in Indonesian firms based on common leverage theories.

In addition, the present study contributes to the existing body of knowledge by introducing a list of capital structure determinants from the existing literature and advancing them with novel predictors based on institutional and country-specific data. In addition, the reliability of corporate leverage predictors across various firm characteristics in Indonesia has been emphasized in this study. This study addresses the inconsistencies discovered in previous literature regarding the determinants of capital structure, which will assist Indonesian firms in making the best corporate financial decisions.

2. LITERATURE REVIEW

Most of the literature on corporate financial decisions is founded on four fundamental theories: agency theory, market timing theory, pecking order theory, and trade-off theory. Following the agency theory, debts are crucial in reducing agency conflicts between equity holders and managers (Ankamah-Yeboah et al., 2021). However, its effectiveness in reducing agency costs among debt investors and equity holders is limited (Gusni et al., 2022). Following the market timing theory, firms select equity or debt based on market notions because markets value security more than any other assumptions (Li & Islam, 2019). In addition, the pecking order theory suggests that the fundamental cost of corporate financial decisions includes asymmetries in information (Yldrm et al., 2021). To avoid these costs, businesses make internal adjustments to avoid information asymmetry (Agyei et al., 2020). In contrast, when it comes to external financing, they favor debt. According to the trade-off theory, the tax benefits equilibrium and tax cost are the foundation of corporate financial decisions (Nicodano et al., 2019).

Historically, the literature on capital structure in the Indonesian context presents several differences founded on various theories. For instance, Tamba et al. (2021) identified sales growth, tangibility, business risk, liquidity, and firm size as significant predictors of real estate-related Indonesian firms. Concurrently, Sari et al. (2021) emphasized the importance of earnings management in determining capital structure among firms listed on the Indonesian Stock Exchange. Simultaneously, Oztekin (2015) researched 37 nations and reported the significant dependability of corporate financial decisions.

Similarly, Huang et al. (2018) reported that the financial decision-making behavior of businesses depends on the legal system and institutional environment of a particular country. Therefore, the validity of all predictors of corporate decisions cannot be

generalized without extensive systematic testing. To resolve these concerns, the current study attempts to identify the most reliable determinants of capital structure in Indonesian publicly traded companies. We have compiled a comprehensive inventory of all capital structure determinants from previous research. The majority of these predictors have already been identified as significant in the Chinese market (Chang et al., 2014), the American market (Frank et al., 2009), and the Pakistani market (Shahzad et al., 2022). Profitability, tangibility, cash holdings, liquidity, uniqueness, firm size, assets utility, industry leverage, taxes, firm age, growth, corporate taxes, debt supply, economic conditions, management concentration, expected inflation, and GDP growth, etc. are the final list of predictors included in the current study. In addition, the following is a comprehensive description of all predictors of capital structure investigated in the present study.

2.1 Profitability

Profitability measures evaluate a company's ability to generate profits (Ahmed et al., 2020). It is also measured by a company's net profit margins, which are calculated by dividing its net income after taxes by its total revenue (Nguyen, 2020). Additionally, a firm's profitability is frequently correlated with its effectiveness in paying financial distress costs, increasing the capital structure's debt level (Chandra et al., 2019). Concurrently, a high quantity of debt is essential for resolving agency conflicts between equity holders and managers (Pandey & Sahu, 2019). Therefore, more profitable companies are better positioned to manage their agency issues. According to the ascending order theory, the adverse selection cost significantly impacts corporate financing (Pandey & Sahu, 2019).

Regarding higher information asymmetry costs, insight investors are in a prime position to assess a company's advantages. Therefore, profitable companies typically issue more equity than debt to reduce the asymmetric cost of information. Historically, most researchers demonstrated a negative relationship between leverage and profitability in various country contacts. In Indonesian firms, profitability has been regarded as one of the most consistent predictors of the capital structure due to the country's unique institutional settings and feeble legal framework (Chandra et al., 2021; Wijaya et al., 2020). Similarly, the current study proposes a direct relationship between firm leverage and profitability.

2.2 Firm Size

Their market value of equity determines most businesses' scale, sales volume, and total assets. According to the research, mature companies have lower debt-related agency costs based on their reputational advantage in the debt market (Khan et al., 2021). Larger businesses are distinguished by their functional diversity and stable cash flow. It further reduces the insolvency profitability issues of such businesses (Gusni et al., 2022). Therefore, it can be asserted that the trade-off theory better explains the existence of

mature and large businesses. In addition, the operational diversification of such companies reduces the asymmetric information cost, resulting in low leverage. Prior research has demonstrated a correlation between firm size and leverage, whereas in the current study case, which is conducted within the context of a developing nation, it is assumed that, due to the weak legal structure, the Indonesian financial institutions are highly dependent on mature and large firms, resulting in a solvency advantage over smaller firms despite their high leverage.

2.3 Firm Growth

A company with a history of swift growth relative to its rivals is regarded with a high growth rate (Chandra et al., 2021). Based on the trade-off theory, which implies an indirect association between leverage and growth, the primary concern of rapidly expanding firms is the management of equity holders (Nicodano et al., 2019). In contrast, the precedence order theory suggests that, in the event of profitability issues, a company will continue to prioritize debt over equity (Yldrm & elik, 2021). Moreover, the market-to-book ratio is regarded as highly essential for growth opportunities. In volatile markets, most of a company's development is determined by capturing the historical growth rate of its assets. On the other hand, debt recovery is one of the primary concerns for financial institutions in developing countries that provide short-term obligations as their primary financial instruments (Ameen & Shahzadi, 2017). This study also investigates how a company's development affects its leverage in a developing nation such as Indonesia.

2.4 Assets Utility and Classification

Assets are resources with economic value that are possessed or controlled by individuals, corporations, or nations and are expected to provide future benefits (Carreras Simó & Coenders, 2021). Typically, assets are created or acquired to increase a company's value or benefits and are recorded on its balance sheet (Velliscig et al., 2022). According to research, valuing a company based on high tangible investments at the time of debt issuance reflects its feasibility based on its low financial distress costs (Carreras Simó et al., 2021). According to the trade-off theory, asset utility can positively correlate with leverage.

2.5 Tangibility and Uniqueness

The tangibility of a company reflects the proportion of its fixed assets to its total assets. There are two contradictory perspectives regarding the relationship between tangibility and leverage. Based on the adverse selection cost, the dominance order theory does not concur with the direct association of tangibility with leverage (Simatupang et al., 2019). In contrast, the trade-off theory anticipates a positive relationship between leverage and tangibility due to the low financial distress cost of firms with a higher level of tangibility (Khoa & Thai, 2021). Inconsistent outcomes regarding tangibility as a predictor of leverage are found in the literature on Indonesian firms (Chandra et al., 2021; Sari et al.,

2021). Concurrently, uniqueness has been regarded as a sophisticated proxy for classifying assets in Indonesia (Chandra, 2015). However, firms in developing nations are believed to be less innovative than those in developed nations (Li et al., 2019; Nguyen, 2020). Consequently, tangible investment probability remains high in developing nations. Based on this high likelihood of tangible investment, we foresee a direct correlation between tangibility, uniqueness, and leverage.

2.6 Corporate Taxes

According to the trade-off theory, higher tax costs serve as an interest tax shield and mislead debt incentives. Additionally, depreciation is regarded as a non-debt tax shield to protect against tax burden. Therefore, where tax rates are high, firms favor tax financing (Simatupang et al., 2019). Whereas the literature in the context of developing nations suggests a feeble association between corporate tax and leverage, we find the opposite to be true (Ahsan et al., 2016). In addition, very little research exists on tax-related proxies as predictors of leverage. Based on the available literature, we anticipate a feeble association between corporate tax and leverage in Indonesian listed firms, which will be evaluated based on effective tax rates and depreciation expenses.

2.7 Volatility

Volatility is a statistical measure of the depreciation of returns for a market index or given security (Susanto et al., 2021). Literature suggests that security is riskier when its volatility is greater (Susanto et al., 2021). It is typically measured as the variance or standard deviation between the returns of a security's market index. According to the trade-off theory, the higher cost of financial distress is related to the high stability of monetary flows (Nicodano et al., 2019). With the aid of debts, firms with high volatility strive to keep their leverage low. In contrast, the dominance order theory asserts that information failure results from instability (Simatupang et al., 2019). To mitigate the instability of their securities, companies prefer debt over equity. Alternatively, some researchers found a direct correlation between volatility and leverage (Susanto et al., 2021). However, most studies used trade-off theory to account for volatility and risk.

2.8 Liquidity

The capacity of a company to use its current assets to satisfy its short-term or current liabilities demonstrates its liquidity (Haron et al., 2021). Additionally, businesses evaluate the cash they generate more than their liabilities. Previous research depicts an uncertain relationship between liquidity and leverage (Chandra et al., 2019). Additionally, researchers found that firms' ability to satisfy contractual debt obligations is enhanced by liquid investments. Therefore, according to the trade-off theory, liquidity and leverage have a direct relationship. Previously, many studies in developing nation markets used the current ratio as a proxy for liquidity and reported inconsistent results (Nguyen, 2020). In contrast, studies conducted on the US market indicate an indirect relationship between liquidity and leverage. As a result, companies are assumed to favor

internal sources over debts, given that they attempt to deal with limited debt opportunities in developing nations. Consequently, we hypothesized that liquidity has a direct relationship with leverage.

2.9 Cash Holding

According to the trade-off theory, enterprises choose their cash holdings by weighing the marginal costs and benefits of holding cash (Guo et al., 2021). In contrast, the dominance order theory posits that the issuance of debts increases internal financial deficits (Yldrm & elik, 2021). Deficit financing necessitates a substantial amount of cash on hand, indicating a negative relationship between leverage and cash on hand. Based on their debt constraints and weak legal systems, the currency holding ratio is the primary concern for developing nations. According to research, cash holdings vary across nations based on institutional differences, capital market conditions, and corporate governance concerns (Chandra et al., 2019). The current study adheres to the conceptualization of cash holding presented by Ferreira et al. (2004), which suggests that cash and cash equivalents to net assets represent cash holding.

2.10 Asset Turnover

The ratio of sales to assets reveals a company's corrosive turnover. Researchers previously reported a direct correlation between a company's asset turnover and financial performance (Nurlaela et al., 2019). According to the efficiency utilization approach, a company's turnover is determined by its invested capital. Companies that use a high proportion of assets to increase operational efficacy issue more debt (Haralayya et al., 2021). As proposed in the present study, the relationship between asset turnover and leverage has not been supported by sufficient evidence.

2.11 Debt Supply

Scholars have demonstrated the direct significance of debt supply in determining a firm's capital structure based on trivial opportunities and limited supply, considered a costly option in an economy. In developed nation studies, however, debt supply has been deemed a poor predictor of capital structure (Li & Islam, 2019). In developing nations, however, where the government influences financial institutions, corporate governance issues, and feeble legal systems exist, debt supply plays a crucial role in making debts available (Wijaya et al., 2020). Thus, we presume a direct relationship between leverage and debt supply, which has never been tested in Indonesian publicly traded companies before.

2.12 Industry Structure

Before now, most studies have focused on industry structure as a more reliable predictor of capital structure in developed nations, where industry leverage serves as a benchmark for managers (Kabeer & Rafique, 2018). However, capital structure forecasting has previously been disregarded in the context of Indonesian markets. In contrast,

researchers in other developing nations reported a direct relationship between capital structure and industrial leverage (Ahsan et al., 2016; Shahzad et al., 2022). It has been considered based on industry sales growth and median leverage.

2.13 Economic and Country-specific Factors

Previous researchers have identified economic contractions as significant predictors of debt issuance for larger firms (Oztekin, 2015). In addition, agency costs are anticipated to influence a firm's purchasing decisions during the expansion phase as firms increase their borrowings (Ankamah-Yeboah et al., 2021). Due to these increased borrowings, firms improve their cash holding practices, their bankruptcy costs decrease, and stock prices rise. During the contraction phase, managers' wealth decreases relative to shareholders (Wijaya et al., 2020). Consequently, according to the ranking order theory, managers are in a favorable position to utilize internal financing during the expansion phase. It also aids in resolving agency conflicts between shareholders and managers and maintaining the firm's low leverage. Moreover, inflation is believed to directly impact a country's GDP growth leverage.

3. METHODOLOGY

3.1 Data Collection and Sampling Measures

The sample for this investigation consists of companies listed on the Indonesian Stock Exchange. The Indonesian Stock Exchange had 750 listed companies as of September 2021 statistics. The total number of investors increased to 6,400,000 from 2,500,000 in 2019. In December 2020, the market capitalization of Indonesia contributed 45.2% of its nominal GDP. To empirically examine this study, multiple data sources were utilized. The Indonesian central bank provided information on the financial statements of firms listed on the Indonesian Stock Exchange (IDX). PT Pemeringkat Efek Indonesia, commonly known as PEFINDO, is Indonesia's earliest and most reputable credit rating agency. The following filters reduced the number of observations from 6345 to 5266.

For this reason, firms with negative net worth were excluded from the sample. Additionally, extreme bottom and top values were eliminated to reduce the outliner effect. Thirdly, this research did not include the companies involved in the most significant mergers. Finally, forms with missing values and small groups were also eliminated from the sample. In addition, we use the MCAR method to replace missing values when and where possible based on the missing values chosen at random. Following these criteria, the final sample consisted of 623 firms with 5266 observations from 2010 to 2020. Finally, all variables were winsorized to reduce the outliner effect in the 1-99 percentile data set.

4. RESULTS

4.1 Descriptive Statistics

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Table 1 contains descriptive statistics for all variables in the present investigation. The results revealed that the mean leverage values are more significant than the median. The median values of multiple variables diverge significantly from the average statistics. In addition, consistent with previous research in the context of developing nations, the mean leverage reported in this study is 0.255. (Booth et al., 2001; De Jong et al., 2007). In contrast, the mean descriptive of firm growth proxies (0.832) is significantly lower than the mean values reported by researchers in developed nation studies.

Table 1. Descriptive Analysis

Variables	Proxies	N	Mean	Median	Std.	Min	Max
Leverage	**LEV**	5266	0.255	0.242	0.198	0	0.695
Profitability	**PRO**	5266	0.074	0.059	0.111	-0.211	0.560
Firm Age	**Age**	5266	32.501	29.704	14.670	3	95
Firm Size	**Size**	5266	15.292	15.414	3.67	0	17.612
Firm Growth	**Growth**	5266	0.832	0.768	1.097	0.060	8.318
Asset Utility	**AU**	5266	0.131	0.089	0.378	-0.432	2.070
Tangibility	**TAN**	5266	0.421	0.429	0.209	0.003	0.879
Uniqueness	**UNIQ**	5266	0.214	0.150	0.431	0.435	1.000
Liquidity	**LIQ**	5266	1.484	1.191	1.543	0.059	9.530
Volatility	**VOL**	5266	0.0753	0.694	0.033	0.021	0.188
Corporate Taxes	**CT**	5266	0.179	0.143	0.211	0	1.200
Cash Holdings	**CH**	5266	0.047	0.039	0.102	0.003	0.645
Debt Supply	**CS**	5266	0.277	0.210	0.387	0.009	1.320
Industry Conditions	**IC**	5266	0.076	0.068	0.123	-0.134	0.391
Economic Conditions	**EC**	5266	0.423	0.411	0.143	0	0.78
Management Concentration	**MC**	5266	0.265	0.198	0.176	0	0.564
Expected Inflation	**EI**	5266	0.113	−0.086	0.460	−0.598	1.233
GDP Growth	**GDPG**	5266	0.065	0.061	0.054	0.033	0.089

It also demonstrates that firms in developing nations have limited growth opportunities due to regulatory issues and limited debt supply from financial institutions. The difference between the company's mean and median ages is lesser, 32.501 and 29.704 years, respectively. In the context of developing nations, the results for assets, utility, tangibility, and uniqueness are consistent with the mean values reported by various studies (Chavali & Rosario, 2018; Muritala, 2012).

Moreover, in terms of liquidity, the mean values (1,484) are comparable to those of companies from developing nations. The mean descriptive values for cash holdings (0.047) are significantly lower than those of firms from Pakistan, Spain, and Portugal (Ferreira & Vilela, 2004). This may be because Indonesian businesses do not set aside

sufficient funds and endeavor to meet their working capital needs. In addition, the average corporate tax rate is approximately 17.9%, significantly lower than that in other developing nations. This results in a more significant income tax burden for companies listed on the Indonesian Stock Exchange.

4.2 Correlation Matrix

The correlation between all study variables has been reported in Table 2. The findings demonstrate that firms' leverage is substantially and directly related to firm size, asset utility, tangibility, corporate taxes, liquidity, uniqueness, and debt supply. The correlation between age, profitability, volatility, cash on hand, and industry conditions is indirect and significant. Moreover, regardless of the significance of the correlation values between the independent variables, there is no multicollinearity problem, as all correlation values fall within the scholars-suggested range of < 0.70. (Henseler et al., 2015; Mansoor, 2021). Thus, the measures' discriminant validity has been demonstrated.

4.3 VIF Index

In addition, the Variance Inflation Factor (VIF) was computed to determine the multicollinearity issue among all the study variables (Dalle et al., 2020). The results of the VIF are shown in Table 3. There are no multicollinearity issues, as all the values are less than 3.0, as shown by the results.

4.4 Model Specification and Statistical Outcomes for the Basic Predictors of the Capital Structure

This study seeks to identify the most significant and consistent capital structure determinants. To accomplish this, a comprehensive list of capital structure determinants was regressed on leverage using techniques employed by researchers in developed and developing economies. The current study's fundamental model, depicted in equation 1, is structured.

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Table 2. Correlation Matrix

VAR	LEV	PRO	Age	Size	GRO	AU	TAN	UNIQ	LIQ	VOL	CT	CH	DS	IC	EC	MC	EI	GDPG
LEV	1																	
PRO	-0.324***	1																
Age	-0.156***	0.413***	1															
Size	0.104**	0.345***	0.095**	1														
GRO	-0.187***	0.271***	0.083***	0.356***	1													
AU	0.105**	0.198***	0.111***	0.165***	0.342***	1												
TAN	0.432***	-0.321***	-0.032*	-0.127**	-0.237***	-0.134**	1											
UNIQ	-0.265***	0.156**	0.098**	0.114**	0.243***	0.170**	-0.189***	1										
LIQ	-0.456***	0.380***	0.101**	-0.211***	0.287***	-0.256***	-0.323***	0.010	1									
VOL	-0.231***	0.543***	-0.093**	0.119**	0.432***	0.013	-0.479***	0.077*	0.345***	1								
CT	-0.119**	-0.242***	-0.081**	0.290***	0.023	-0.220***	-0.326***	-0.184***	0.020	-0.069**	1							
CH	-0.411***	0.571***	0.083**	0.099**	0.345**	0.060*	-0.498***	0.209***	0.367***	0.356***	0.023	1						
DS	0.217***	0.187***	0.023*	0.389***	-0.122**	0.166***	0.014	0.087*	-0.123**	0.120**	0.056*	-0.129**	1					
IC	0.121**	0.135**	−0.054	0.029	−0.034	0.110***	−0.011	0.073**	0.015	0.014	0.005	0.019	−0.018	1				
EC	−0.123***	0.073***	0.065**	0.155***	0.149***	−0.009	−0.050*	0.185***	−0.021	0.136**	−0.015	0.131**	0.013	0.109**	1			
MC	0.156***	−0.141***	−0.075***	−0.190***	−0.217***	0.013	0.234***	−0.149***	−0.055**	−0.208***	−0.069**	−0.207***	0.110**	0.097**	-.006	1		
EI	−0.208***	0.003	−0.087**	−0.022	−0.015	0.088**	0.027	−0.009	−0.030	−0.010	−0.019	0.019	−0.017	−0.241***	0.009	0.088**	1	
GDP	−0.389***	0.047**	−0.013	−0.017	0.079**	−0.016	0.031	−0.004	−0.017	−0.013	−0.013	0.152***	0.014	−0.011	−0.019	−0.347***	−0.159***	1

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Table 3. VIF Statistics

Variables	1/VIF	VIF Scores
Leverage	1.49	0.671
Profitability	1.37	0.729
Firm Age	1.41	0.709
Firm Size	1.21	0.826
Firm Growth	1.11	0.901
Asset Utility	1.48	0.675
Tangibility	1.29	0.776
Uniqueness	1.34	0.746
Liquidity	1.56	0.641
Volatility	1.71	0.584
Corporate Taxes	1.87	0.534
Cash Holdings	1.65	0.606
Debt Supply	1.26	0.793
Industry Conditions	1.19	0.840
Economic Conditions	1.17	0.854
Management Concentration	1.13	0.884
Expected Inflation	1.19	0.840
GDP Growth	1.67	0.598

$$Lev_{i,t} = a + \beta F_{i,t-1} + \varepsilon_{it}. \quad (1)$$

Where;

Levi,t = the leverage of the firm i on time period t.

Fi, t-1 = the long list of the determinants of form i with one here lagged time.

β = constant value

εit = the error term of the firm in time t.

The linear regression model was used to determine the effect of the factors on the firm's leverage. We corrected the t value by clustering at the time and firm level to reduce the clustering effect on the reported standard error. In addition, to improve the explanatory power of the industry condition variables, we favored the linear regression model over the fixed effect regression model. Besides, latent variables were utilized to reduce the possibility of endogeneity. Furthermore, the primary objective of the present study is to identify, from a lengthy list of seventeen determinants, the most consistent factors that influence the capital structure of a developing nation. Numerous academics believe BIC is the most reliable methodology for this purpose. It provides the dependability to drop

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or hold affecter and regulates outfitting concerns (Ayala & Blazsek, 2021). The method is described in Equation 2.

$$BIC = -2 \times \text{logprobability} + P \times \log(N) \quad (2)$$

Where;

P= parameter frequency.

N= Observation frequency in a fitted model.

In addition, according to the rule of thumb, the lower the BIC values, the more advantageous the results. BIC is indirectly related to log probability. In contrast, BIC is indirectly associated with the number of observations and parameters (Jaworski & Czerwonka, 2021). The Akaike Information Criterion (AIC) method follows the same principles, with the exception that Log(N) is replaced by the number 2. (Noreen, 2019). Nonetheless, in both cases, the optimal model of the study is constituted by predictors with smaller numbers. Previously, researchers have used the same methodology to investigate the most accurate predictors of capital structure in developed and developing countries. Using this method, a lengthy list of determinants was initially complemented in equation 1, where each predictor's t statistics and beta () values were recorded. In the second step, we repeatedly performed regression with residuals and eliminated the variables with the lowest t values. The first two stages were repeated until a residual with the highest t value was identified. Each model's BIC and AIC statistics were recorded simultaneously. The model with the smallest BIC and AIC values was deemed optimal. In addition, only those factors that did not satisfy the BIC and AIC criteria were eliminated.

4.5 Overall Predictors' Regression Outcomes

In the present study, we only regarded as core predictors those variables that had the smallest BIC values and remained consistent in at least fifty percent of annual and random subsamples. This helped us strengthen our analysis across random subsamples and years. In addition, the capital structure determinants of Indonesian listed firms were compared to those of other developed and developing countries. This is elaborated further with the aid of equation 3.

$$Lev_{i.t} = a + \sum_{j=20}^{n} \beta_j CV_{i,t-1} + \varepsilon_{i,t}. \quad (3)$$

Table 4 displays the statistical results of the current study's analysis based on equation 3. According to BIC statistics, the result explains leverage at 39.37% and R2 value at (-3,178.23). The overall specification identified industry growth sales as the worst-performing factor with the lowest t value and the maximum concentration (-1.12). Repeating the regression process with residuals after removing this factor revealed a

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decrease in value from -3,178.23 to -2934.52 with residuals. The economic conditions were identified as the second-worst performing factor, with the lowest t value (-1.09). After removing this factor, we reran the regression with residuals and found that the BIC and AIC statistics continued to improve. Simultaneously, 17 regression models were performed, and model 10 was the most appropriate based on BIC (-2,645.46) and AIC (-2,873.89). This model's optimal specifications were firm age, growth, corporate taxes, debt supply, economic conditions, management concentration, anticipated inflation, and GDP growth. We continue this procedure for annual analyses and ten random subsamples of a population of equal size. The findings identified eight factors, including firm size, tangibility, profitability, uniqueness, assets utility, cash holding, liquidity, and industry leverage, as the primary determinants of firms' capital structure on the Indonesian Stock Exchange. Shahzad et al. (2022) identified six factors, including liquidity, currency holdings, profitability, size assets tangibility, and industrial leverage, as the primary determinants of capital structure in a developing nation, Pakistan. In contrast, Chang et al. (2014) and Frank et al. (2009) identified profitability, average industrial size, and tangibility as key determinants for the Chinese and American markets. According to the current study, the utility and uniqueness of the firm's assets are also crucial determinants of its capital structure in a developing economy. Compared to other nations, the nature of capital structure research in Indonesia is more critical, as evidenced by the following findings. Moreover, Table 4 presents the results of the present investigation.

4.6 Core Predictor's Reliability Across the Year

To enhance the current study's analysis, the yearly dependability of the primary determinants was calculated. This study's period was divided into four equal-sized three-year classes, with group 5 comprising observations from 2019 to 2020. Table 5 displays the statistical results for the primary predictors' reliability throughout the year. In addition, the most consistent description of industry leverage in the overall study is presented in column 8, which accounts for 41.2% of capital structure. Simultaneously, the more consistent predictors and residuals explained approximately 3.02 percent of the total leverage based on the regression analysis of the current study. In addition, to further strengthen the analysis process, the consistency of these factors following various business practices was evaluated and reported.

4.7 Core Predictors' Reliability Across the Firm's Characteristic

The reliability of the central predictors extracted from the regression analysis with residuals was analyzed further across various firm risks, including ownership concentration, maturity growth, and size (Gungoraydinoglu & Oztekin, 2011). Researchers reported the significance of institutional and national differences in predicting financial decisions.

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Table 4. Core Predictors Applying Book Value Leverage Definition for Indonesian-Listed Firms

								Robustness			
					Model selection criteria			By Year		By Group	
Models	Variables	Coeff	t-value	Cum.R2	AIC	BIC	Own R2	+ve	-ve	+ve	-ve
		1	2	3	4	5	6	7	8	9	10
1	PROF	−0.398	−10.23	0.219	1,934.82	−1,823.44	0.205	0	100	0	100
2	TAN	0.278	9.36	0.222	−1,987.15	−1,920.37	0.196	100	0	80	0
3	CH	−0.249	−8.67	0.234	−2,056.88	−1,985.16	0.189	0	80	0	60
4	LIQ	−0.211	−7.86	0.251	−2,101.34	−2,049.86	0.209	0	76	0	90
5	UNIQ	0.189	6.27	0.259	−2,245.91	−2,152.73	0.176	67	0	50	0
6	SIZE	0.156	5.98	0.272	−2,356.97	−2,213.64	0.146	60	0	55	0
7	AU	0.149	5.02	0.272	−2,409.03	−2,294.03	0.136	50	0	40	10
8	INDL	0.141	4.98	0.298	−2,478.44	2,301.37	0.120	50	0	40	0
9	DS	0.098	2.11	0.311	−2,529.61	−2,339.92	1.01	41	0	40	0
10	VOL	−0.087	−1.56	0.320	−2,602.81	−2,467.55	0.070	0	14	0	20
11	GROWTH	0.012	0.99	0.337	−2,667.13	−2,508.31	0.016	14	0	30	0
12	EXPINF	−0.032	−1.07	0.340	−2,750.51	−2,690.43	0.112	0	0	20	0
13	AGE	−0.041	−2.93	0.343	−2,877.24	−2,789.91	0.138	0	14	0	20
14	TAX	0.009	0.27	0.359	−2,911.02	−2,792.54	0.109	0	12	0	10
15	MGTCON	0.027	0.98	0.368	−2,920.41	−2,812.64	0.111	12	0	20	10
16	EQCON	−0.049	-1.09	0.370	-2,934.57	−2,843.5	0.126	0	12	20	30
17	IGS	−0.038	-1.12	0.376	-3,178.28	-2,999.4	0.123	12	0	0	10

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Table 5. Core Determinants' Regression Outcome Across Years

Variables	2011–12	2013–14	2015–16	2017–18	2019–20	Overall
	1	2	3	4	5	6
PORO	−0.302*** (−6.13)	−0.418*** (−9.31)	−0.165** (−3.06)	−0.271** (−5.59)	−0.403*** (−8.66)	−0.379*** (−7.73)
TAN	0.286*** (5.91)	−0.380*** (7.57)	0.291*** (6.05)	0.253*** (4.96)	0.176**(3.87)	0.312*** (7.14)
CH	−0.268*** (−5.27)	0.310** (−6.68)	−0.233*** (−5.09)	−0.242*** (−5.19)	−0.209*** (−4.30)	−0.298*** (−6.71)
LIQ	−0.216** (−4.67)	−0.276** (−5.76)	−0.132*** (−2.89)	−0.201*** (−4.38)	−0.226*** (−4.97)	−0.229*** (−5.02)
UNIQ	−0.198** (−4.15)	−0.256*** (−5.46)	−0.167*** (−3.86)	−0.159*** (−3.75)	−0.213*** (−4.50)	−0.188*** (−3.96)
AU	0.107** (2.54)	0.124** (2.73)	0.277*** (5.79)	0.097* (2.27)	0.187** (3.91)	0.115*** (2.68)
SIZE	0.094**(2.18)	0.078* (2.06)	0.096**(2.22)	0.081* (2.10)	0.057(1.87)	0.084** (2.15)
INDL	−0.276*** (−5.88)	0.308*** (6.17)	0.405*** (8.63)	−0.239*** (−5.13)	−0.253*** (−5.32)	0.207*** (4.21)
Constant	−0.112** (−2.77)	0.217** (4.86)	0.082* (2.13)	0.197*** (4.13)	0.137** (2.90)	0.097 (2.26)
AIC	−517.81	−680.35	−612.14	−694.77	−823.39	−2,643.31
BIC	−456.52	−505.23	−431.56	−584.62	−732.76	−2,361.16
N	967	1021	1013	1049	1216	5266
R2	0.57	0.51	0.43	0.33	0.41	0.39
F-test	27.42***	51.27***	41.16***	55.78***	37.26***	98.23***

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Additionally, the current study implies that fundamental capital structure predictors are consistent across various firm characteristics. Table 6 displays the statistical results of the investigation. According to the findings, profitability was a consistent and significant predictor of leverage. The profitability's explanatory power was reported to be -0.379. This explanatory power was considerably greater than previous findings reported in the contexts of developed and developing nations (Fan et al., 2012). Profitability remains dependable regardless of ownership concentration, maturity level, firm size, or expansion rate. However, the profitability beta values of smaller firms (-0.245) were lower than those of larger firms (-0.364). The explanatory power of profitability was higher for junior firms than for older ones. Similar findings were made regarding the explanatory power of profitability in firms with low ownership concentration and high growth. These results indicate that the earning efficiency and debt capacity of mature, massive, high-growth firms are superior to their peers. These results are consistent with previous research demonstrating the significance of increasing leverage through debt and severing profits in resolving agency conflicts by the managers of highly concentrated firms to defend their rights (Chandra et al., 2021). The second most reliable predictor across the firm's characteristics was tangibility, which had a positive and statistically significant effect on the firm's leverage. According to the trade-off theory, when enterprises have more fixed assets than total assets, they experience less financial distress (Khoa & Thai, 2021). In the Indonesian context, previously very inconsistent reserves regarding the impact of tangibility on leverage have been reported (Sari et al., 2021). Moreover, tangibility has a more significant impact on the leverage of developing nation firms than developed nation firms due to the high tangible investment in developing nations due to their lower levels of innovation.

Cash on hand was the third most reliable predictor with a negative and significant effect on the leverage of Indonesian firms. Similar to the characteristics of previous years, the firm's cash reserves continue to be a significant component of its overall profile. Previously, it was reported that firms with a larger size limit high currency volumes (Ferreira & Vilela, 2004). Following previous research, the present study demonstrates that the beta value of cash holdings for smaller firms (-0.234) is lower than for larger firms (-0.321). In contrast, the coefficient value of firms with more significant growth is lower than that of firms with lower growth. These findings indicate that firms with a higher growth rate invest their cash in opportunities rather than retaining it in the bank, as do firms with a lower growth rate. In addition, older companies' cash generation capacity is superior to younger companies. Ultimately, the currency-on-hand variable remained significant and consistent across all firm characteristics. It has never before been examined in the context of Indonesian firms, which is an essential addition to the existing literature in the context of developing nations. In addition, liquidity was the fourth most accurate predictor, followed by firm size, uniqueness, asset utility, and industry leverage.

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Table 6. Core predictors' reliability across the firm's characteristic

	Size		Growth		Ownership Concentration		Maturity		Overall
Variables	**Large**	**Small**	**High**	**Low**	**High**	**Low**	**Old**	**Young**	
	1	**2**	**3**	**4**	**5**	**6**	**7**	**8**	
ROA	−0.364***	−0.245***	−0.373***	−0.317***	−0.224**	−0.333***	−0.357***	−0.245***	−0.379***
TAN	0.198**	0.265***	0.267***	0.310***	0.328***	0.134**	0.256***	0.314**	0.312***
CH	−0.321***	−0.234***	−0.333***	−0.411***	−0.213***	−0.291***	−0.223***	−0.297***	−0.298***
LIQ	−0.151**	−0.122**	−0.167**	−0.110**	−0.199***	−0.134**	−0.214***	−0.143**	−0.229***
UNIQ	−0.211**	−0.197***	−0.241***	−0.177***	−0.156***	−0.121***	−0.175***	−0.133***	−0.188***
AU	0.132**	0.112**	0.120**	0.096*	0.185**	0.109**	0.213***	0.126**	0.115***
SIZE	−0.065*	0.089**	0.091**	0.105***	−0.056*	0.095**	0.081***	0.111*	0.084**
INDL	0.331***	0.269***	0.276**	0.332**	0.233***	0.317***	0.304***	0.167**	0.407***
Constant	0.331***	−0.059	0.093*	−0.080*	0.078**	0.021	0.013	−0.027	0.101*
N	2,739	2,527	2,927	2,338	1,245	4,021	3,970	1,296	5266
R2	0.521	0.462	0.480	0.315	0.530	0.410	0.389	0.363	0.392
AIC	−2,139.21	−2,062.41	−2,181.57	−1,489.70	−934.63	−2,637.32	−2,566.43	−893.91	−2,643.31
BIC	−1,975.62	−1,833.20	−2,030.41	−1,251.29	−723.71	−2,450.25	−2,349.47	−673.23	−2,361.16
F-test	57.92***	45.32***	68.78***	53.26***	24.17***	69.38***	64.90***	22.11***	98.23***

5. DISCUSSION

Using model selection criteria, the current study identified the most dependable and consistent determinants of capital structure in Indonesian listed firms from 2010 to 2020. The results uncovered eight determinants (profitability, tangibility, cash holdings, liquidity, assets utility, uniqueness, size, and industry leverage) that are most reliable and significant for explaining the capital structure and the definition of leverage across the years' different firm characteristics. In addition, profitability was the most influential factor in determining firms' capital structure on the Indonesian Stock Exchange. In terms of developed and developing nations, i.e., the US, China, the United Kingdom, Australia, and Pakistan, it was found to be more significant than previously reported values (Enakirerhi & Chijuka, 2016; Li & Islam, 2019). This may be due to financial constraints and limited debt opportunities in developing countries. In addition, tangibility was positively correlated with firms' leverage. Similarly, cash on hand and high liquidity harmed the leverage of the sample forms. This demonstrates that sample firms were likelier to evade strict debt requirements in favor of internal financing based on opportunities for trivial debt.

6. RESEARCH IMPLICATIONS

In addition, the current study assessed the significant influence of firm liquidity and uniqueness on leverage for the first time. However, the firm scale and industry leverage findings were consistent with prior research in developed and developing countries. The institutional and country-level determinants, such as economic conditions, inflation, GDP growth, marginal concentration, etc., had the most negligible impact on leverage, so they were eliminated from the robustness test.

7. LIMITATIONS AND FUTURE RESEARCH DIRECTIONS

In addition, the current study is limited to a structural test of the various theories across the capital structure, which future researchers can elucidate and investigate in greater depth. Moreover, the current study's data are restricted to a single developing nation, Indonesia. In contrast, researchers can conduct future comparative studies of developed and developing nations to effectively evaluate the significance of various predictors of capital structure, thereby assisting businesses with their financial decisions. In addition, the dynamic context of the capital structure has been omitted from the current study, an area that future researchers can investigate in greater depth to gain valuable insights into the firm's financial decisions. To this end, we anticipate that our eight fundamental determinants of the capital structure of Indonesian listed firms will contribute to the existing literature and aid future researchers in conducting comparative studies.

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