

Healthcare Industries' Capital Structure Determinants: Evident Listed Companies on the Indonesian Stock Exchange



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ABSTRACT: The purpose of this paper is to examine the capital structure and its determinants within the Health Industry in Indonesia. Utilizing a panel data model, this study analyzes the financial data of Healthcare Companies listed on the Indonesia Stock Exchange, covering the period from 2017 to 2023, with data processing conducted using the Eviews Software version 13 application. The findings confirm the dominant role of firm-specific factors, indicating that Company Growth, Profitability, Asset Tangibility, and Revenue Volatility significantly affect Book Leverage (BL), while Company Size has a notable effect of 17%. This research provides a novel contribution by focusing on the capital structure analysis specialized in the Pharmaceutical Industry in Indonesia, an area that has not been extensively explored before

KEYWORDS: capital structure determinant, company growth, profitability, asset tangibility, revenue volatility

1. INTRODUCTION

The main objective of this study is to examine the capital structure and its determinants in the Healthcare Industry in Indonesia. This study confirms the dominant role of firm-specific factors, building a model of capital structure in the pharmaceutical industry in Indonesia, which has never been done before.

The healthcare sector plays a vital role in the economy by providing quality and essential healthcare products and services (Zhang, 2021). The Healthcare industry's significance has been greatly emphasized, particularly in the wake of the Covid-19 pandemic that took place from 2019 to 2021 (Editors, 2022). On the other hand, the current global economic climate has intensified competition among companies, compelling them to strive for survival and enhance performance to achieve their goals of maximizing profits and increasing shareholder welfare (Ellul et al., 2020). A crucial aspect in this pursuit is the company's capital structure, which directly impacts its financial health. An optimal capital structure enables cost efficiency and drives up stock prices and overall company value (Fukui et al., 2017). When selecting sources of funding, managers must carefully consider how these funds can be used to improve the company's value through investment activities. Furthermore, a high level of fixed assets allows companies easier access to debt as collateral security for creditors (Saidova et al., 2020). Profit stability plays a significant role in determining external funding availability; higher profit volatility makes it challenging for managers to make decisions and obtain additional funding such as debt due to creditor reluctance (Cai & Wu, 2020). The evaluation of capital structure has always been a crucial concern for both corporate executives and researchers.

Modigliani and Miller (1958) initially proposed that the value of a company is unaffected by its financing methods, under the assumption of market efficiency with no taxes, bankruptcy fees, and no uneven distribution of information (Rochmah & Ardianto, 2020). The primary objective of every organisation is to maximise the value of the firm, which is the proprietors' welfare. It is imperative for the firm to exercise caution when reaching any decision (Susila et al., 2020). To maximise the value of the firm, numerous factors must be considered (Afolabi et al., 2019). In order to minimise the cost of capital to a certain extent, suggest that the proportions of debt and equity should be preserved (Villadsen et al., 2017). This cost of capital will lead to an increase in the firm's value as the investment is optimized. Consequently, in order to optimize shareholder value, organizations must be capable of determining the most effective balance of debt and equity as their primary financing sources. (Khan & Hidayat, 2022). Those corporate activities that aim to increase shareholder value are referred to as financing decisions and investment decisions.

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Companies require funding or capital to carry out their operational and investment endeavours (Corporate Finance, 2020). As a result, capital is an essential variable in financial administration. Capital may originate either internally or externally to the organisation. Owner equity and retained earnings constitute the intrinsic capital of the organisation, whereas debt constitutes the external capital. "Capital structure" refers to the amalgamation of these two financing elements.

Numerous theories of capital structure attempt to elucidate the inclinations and conduct of businesses with respect to their corporate financing. The Pecking Order Theory and the Trade-Off Theory are two well-known theories (El-Diftar, 2020). The First theory published in 1984 by Myers & Majluf was predicated on the asymmetry of information between investors and company administrators (Wadood et al., 2020). While this theory does not propose an ideal capital structure as a goal, it does advise the company to begin by prioritizing internal sources over external ones. The Trade-Off theory, the second theory, originated from the Miller and Modigliani theorem (Modigliani & Miller, 1963). The incorporation of the corporate income tax into irrelevant theory generates a financial gain for the debtor. The premise of trade-off theory is that a business exchanges profits, debt service costs, and equity (Mujwahuzi & Mbogo, 2020). This theory attempts to determine the most advantageous capital structure by considering agency costs, bankruptcy benefits, and bankruptcy expenses. The aforementioned theories assist in comprehending the capital structure of a company and distinguishing between internal and external factors.

Achieving the ideal capital structure might be complicated by a number of issues. Whether to employ debt or equity depends on a number of things. The research has identified a number of variables that are referred to be firm-specific factors. These include firm-specific factors as well as external macroeconomic variables (Trade-off theory of capital structure, 2007) (Robb & Robinson, 2012) (Yoon & Wasser, 2022) (Guest, 2015) and external macroeconomic variables like inflation, gross domestic product, and others (Khanna et al., 2015; Muthama et al., 2013; Hanousek & Shamshur, 2011). Furthermore, the firm life cycle also establishes the financial structure of the company, particularly the degree of leverage (Nidar & Utomo, 2017). Companies must evaluate these elements and how they impact the choice of capital structure.

The significance or influence of macroeconomic variables and firm characteristics on capital structure has been the subject of much discussion. It is generally agreed upon that both of these aspects are more important in reaching the goal of an optimal capital structure (Hussain et al., 2020). The body of research demonstrates that opinions on the relationship between capital structure and macroeconomic factors and firm characteristics are widely divided. In the Indonesian Manufacturing sector (Nini & Patrisia, 2020), empirical research revealed a significant correlation between the primary factors of capital structure and the tangibility of assets. Profitability is a significant factor in determining the capital structure of Iranian enterprises (Malik, 2023).

The correlation between leverage and inflation was discovered by (Zhang & Guo, 2020). A study (Cook & Tang, 2010) examined the recent literature concerning the impact of GDP on leverage. According to a study by Drobetz and Wanzenried (2006), there is a correlation between firm size and variations in capex structure (Dewi & Fachrurrozie, 2021). This variable also influences the capital structure of the organization, as evidenced by the role that firm size plays in determining optimal leverage (Albart et al., 2020). Furthermore, they suggested that this phenomenon could transpire due to the fact that analysts attend to larger corporations more closely, resulting in an abundance of information pertaining to those corporations. This will reduce the information asymmetry that exists between company managers and shareholders (Cai et al., 2015). Furthermore, providing comprehensive details regarding the organization will facilitate its access to essential financial resources. Adjustment costs are diminished by these advantages and conveniences. The company's ability to make adjustments will be expedited by the minimal adjustment costs, in accordance with the Trade-Off theory (Myers & Majluf, 1984). Firm size is thus considered a moderator in the empirical model between leverage and independent variables (Mujwahuzi & Mbogo, 2020).

Priority one of this investigations is the examination of the variables that impact capital structure. Firm-specific factors (such as liquidity, profitability, and tangibility) comprise these elements.

2. LITERATURE REVIEW

2.1. Financial Gains

According to the trade-off theory, companies that possess secure, tangible assets and a substantial amount of taxable income to safeguard should aim for high target debt ratios (Mujwahuzi & Mbogo, 2020). However, firms that are unprofitable and have high-risk intangible assets should predominantly depend on equity financing. Consequently, a positive correlation between leverage and profitability is predicted by trade-off theory. According to the free cash flow theory, agency conflicts between shareholders and managers are mitigated when leverage increases and subsequent future payments occur, as this reduces the cash flow available for discretionary spending by managers (Nusaputra & Basana, 2021). On the contrary, pecking order theory posits that organizations have a preference for internal financing due to the absence of detrimental signals that could potentially depress the stock price when external financing is necessary, however corporations issue debt will be prioritized and equity issuance as a final option. Pecking order theory posits that profitability and leverage are inversely correlated (Dewi & Sedana, 2019). Numerous

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empirical investigations, including those by Titman and Wessels (1988), Rajan and Zingales (1995), Wald (1999), Booth et al. (2001), Frank and Goyal (2009), Qureshi (2009), Sheikh and Wang (2011), and Sheikh and Qureshi (2014), have demonstrated a negative correlation between leverage and profitability (Hossain, 2020). Few empirical studies on commercial banks have found leverage and profitability to have a muddled relationship (Abbas et al., 2019). Profitability is negatively correlated with the total debt ratio and the short-term debt ratio, but positively correlated with the long-term debt ratio (Nguyen, 2023). It was determined that there exists an inverse relationship between profitability and capital ratio in the financial industry (Hasbiah, 2022). Gropp and Heider (2010) observed that book leverage and market leverage have a negative correlation with profitability (Lapavitsas & Mendieta-Muñoz, 2019). In their study, Shibru et al. (2015) identified an inverse correlation between leverage and profitability. The obtained results were consistent with the hypotheses proposed by the ascending order hypothesis.

2.2. Firm Size

Larger corporations, according to proponents of trade-off theory, are typically more diversified and less susceptible to insolvency. As an inverse proxy for the likelihood of insolvency, firm size ought to exhibit a positive correlation with debt supply. However, size could also serve as an indicator of the level of information available to external investors, which would elevate their inclination towards equity investments as opposed to debt ones (Rajan and Zingales, 1995). Pecking order theory therefore predicts that leverage and firm size will have an inverse relationship. Many empirical investigations focusing on non-financial organizations, including those conducted by Titman and Wessels (1988), Rajan and Zingales (1995), Wald (1999), Booth et al. (2001), Frank and Goyal (2009), and Sheikh and Wang (2011), have obtained outcomes that align with the hypotheses posited by the trade-off theory. (Nini et al., 2020), demonstrated that the relationship between bank size and various measures of leverage is ambiguous. As an illustration, he noted that the magnitude of a bank exhibits a positive correlation with both the total debt ratio and the short-term debt ratio, but a negative correlation with the long-term debt ratio. Gropp and Heider (2010) found a positive correlation between the scale of a bank and both book leverage and market leverage (Martynova et al., 2020). It was observed by Tchuigoua (2014) that external debt is substantially and positively correlated with size. Furthermore, he noted that sizable microfinance institutions have a more favorable reputation, manage their risks more effectively, and are therefore less hazardous. Shibru et al. (2015) found a positive correlation between the scale of a bank and its leverage.

2.3. Growth

According to Myers (1977), organizations with high levels of leverage are more prone to forgoing lucrative investment prospects (Berg & Gider, 2017). Hence, companies anticipating increased future development ought to implement an increased proportion of equity financing (Weixiang et al., 2022). In their study, Barclay and Smith (1999) utilized the market-to-book ratio to assess growth options. They noted that, on average, companies with greater growth opportunities have lower leverage ratios (Vakrman & Krištoufek, 2015). Changing the market-to-book ratio from the 10th to the 90th percentile was also associated with 89% reductions in leasing, 71% reductions in secured debt, 78% reductions in ordinary debt, and nearly 250% reductions in subordinated debt. In their 1995 study, Rajan and Zingales identified a negative correlation between leverage and the market-to-book ratio. In all nations except Australia, growth is negatively correlated with leverage (Artikis & Nifora, 2011), according to Deesomsak et al. (2004); however, in Thailand and Singapore, the relationship is significant. Growth is positively correlated with the total debt ratio of the firm (Blackburn & Cakici, 2019), according to Amidu (2007); however, this correlation is insignificant. Furthermore, his research revealed that growth exhibits a positive correlation with the short-term debt ratio but a negative correlation with the long-term debt ratio. Gropp and Heider (2010) identified development opportunities using the market-to-book ratio and found that book leverage and market leverage are negatively correlated with growth. Even though Shibru et al. (2015) found a negative correlation between leverage and growth (Teng et al., 2016), the relationship is insignificant.

2.4. Tangibility

Tangibility plays a significant role in determining the capital structure of firms. (Kusairi et al., 2023) According to the trade-off theory, companies with tangible assets are more inclined to borrow compared to those with intangible assets, as tangible assets can serve as collateral and hold their value during liquidation. This theory predicts a positive correlation between tangibility and leverage. On the other hand, the pecking order theory suggests that firms with a higher proportion of tangible assets experience less information asymmetry and are more likely to issue equity (In, 2023). Additionally, Berger and Udell (1994) argue that firms with strong relationships with creditors may require less collateral, as these relationships can act as substitutes for physical assets (Dang et al., 2019). However, challenges arise in environments with underdeveloped legal systems, as the enforceability of debt contracts may be hindered. In such cases, the recovery of collateral in default situations can be both costly and time-consuming. Furthermore, the presence of a thin and illiquid secondary market for a firm's assets can introduce uncertainty regarding the market value of these assets (Markou et al., 2017). Empirical studies on both non-financial and financial firms have

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shown a mixed relationship between tangibility and leverage, highlighting the complex interplay of factors influencing capital structure decisions.

Earnings Volatility

According to the trade-off theory of capital structure, leverage and earnings volatility are negatively correlated (Oppong et al., 2023). Therefore, companies that maintain consistent profits may exhibit a greater propensity to borrow due to their capacity to promptly fulfill contractual obligations and leverage the advantages of a tax shield. Moreover, an increase in the volatility of a company's earnings may also result in a reduction in its debt capacity. Several empirical investigations, including those of Booth et al. (2001), Fama and French (2002), and de Jong et al. (2008), have obtained results that align with the hypotheses put forth by trade-off theory. A negative and statistically insignificant correlation was identified by Shibru et al. (2015) between the leverage of Ethiopian commercial banks and earnings volatility.

3. RESEARCH METHODOLOGY

Population and Sampling This study focuses on manufacturing firms that were publicly traded on the Indonesian Stock Exchange (IDX) from 2017 to 2023. The data collected over the past three years aims to provide up-to-date information. Purposive sampling, a method used to select specific samples based on predetermined criteria, was employed in this study. The decision to use purposive sampling was based on its simplicity and adaptability to the researchers' requirements. The sampling criteria included: (1) healthcare firms consecutively listed on the IDX between 2017 and 2023; (2) Firms using Rupiah in their financial statements during the 2017-2023 period; (3) Firms that did not incur consecutive losses from 2017 to 2023; and (4) Firms with comprehensive data available for resampling purposes.

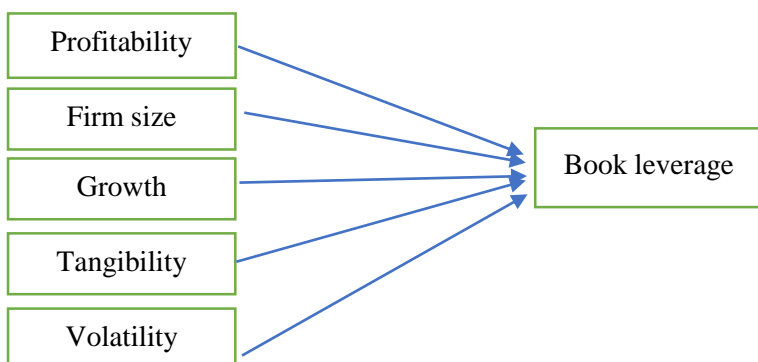
Variables and Measurement Techniques The variables in this study were categorized as independent and dependent. The researchers analyzed four independent variables: firm size (control variable), liquidity, tangibility, growth and profitability. The dependent variable in this study was the Leverage.

The variables' definitions are provided in Table 1. For a meaningful comparison with earlier empirical studies, the variables and definitions utilized in this research are primarily taken from prior works. Book leverage is the dependent variable, whereas profitability, Firm size, growth, tangibility, and earnings volatility are explanatory variables. In their research, Gropp and Heider (2010) employed two surrogates representing the capital structure of Firm : book leverage and market leverage (Soesetio et al., 2021). The utilization of book leverage is restricted in this study due to the unavailability of pertinent market price data for certain banks that were included in the research.

4. RESEARCH APPROACH

The dataset comprises panel data, as it spans multiple companies and a period of time. To estimate the impact of Company variables on book leverage (a proxy for capital structure) of conventional and Islamic commercial banks, we employ panel data techniques, including pooled ordinary least squares [OLS], fixed effects, and random effects. When Companies and time-specific effects are absent, the aggregated OLS is the most suitable method to use (Jonas, 2023). While permitting variation in the intercept for each bank, the fixed effects method imposes a constraint that the slope parameters remain constant across all banks and time periods. Conversely, the random effects method posits that the variability observed among institutions is presumed to be stochastic and independent of explanatory variables (Hedges & Vevea, 1998). Additionally, the Hausman (1978) test was employed to determine whether random effects or fixed effects, the one panel econometric technique, provided the best explanation for our estimates (Regis et al., 2021). The Hausman test is predicated on the null hypothesis that there is no significant difference between the estimators of fixed effects and random effects.

5. RESEARCH FRAME WORK



6. VARIABLE

Variables Definition

Table 1, Variables Definition

Variable	Proxy	Definition
Book leverage	BLEVit	Total liabilities divided by total assets
Profitability	PROFit	Net profit after taxes divided by total assets
Firm size	SIZEit	Natural logarithm of total assets
Growth	GROWit	Percentage change in total assets from the previous period
Tangibility	TANGit	Fixed operating assets divided by total assets
Earnings volatility	EVOLit	Percentage change in profit before taxes from the previous period

7. RESEARCH MODEL AND HYPOTHESIS

Model

$$LEVit = \alpha_0 - \beta_1PROFit + \beta_2SIZEit - \beta_3GROWit + \beta_4TANit + \beta_5EVOLit + \epsilon it \dots (1)$$

8. RESULT AND DISCUSSION

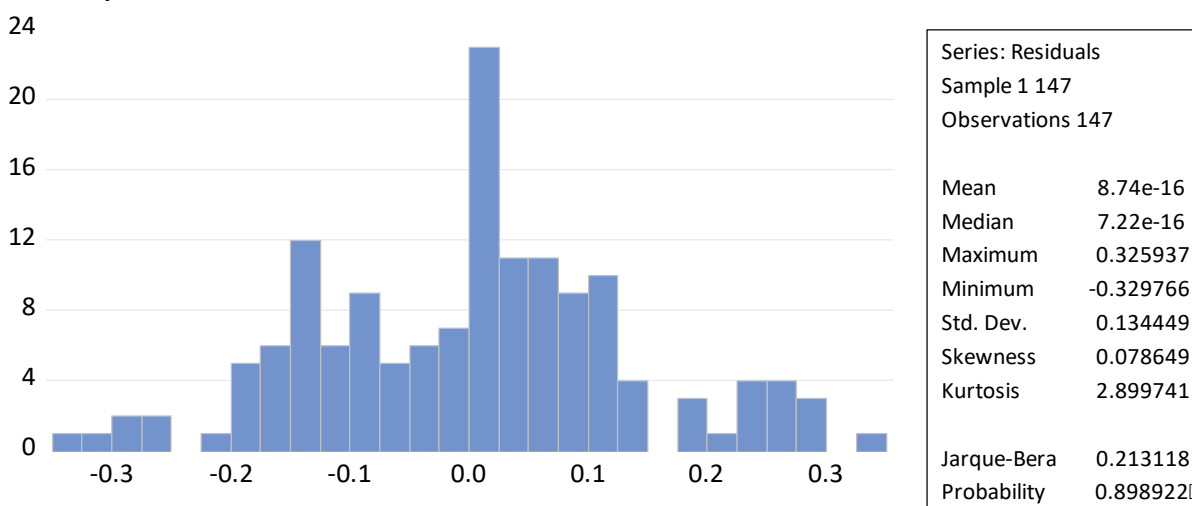
8.1. Descriptive Statistic

Table 2, Descriptive Statistic Result

	Book Leverage	GROWTH	PROFIT	TANG	VOL	ZISE
Mean	0.645032	0.278661	0.557578	0.107075	0.012105	0.246676
Median	0.604756	0.278686	0.614576	0.082077	0.002073	0.172164
Maximum	1.438395	0.304095	0.866465	0.605761	0.202778	1.145012
Minimum	0.178297	0.260337	0.097199	0.000303	6.00E-06	0.000207
Std. Dev.	0.229838	0.008336	0.190939	0.099491	0.029283	0.220967
Skewness	0.762558	-0.046344	-0.670288	2.087273	4.728594	1.740419
Kurtosis	3.772057	2.874462	2.507780	9.078636	27.48162	6.475403

From Table 2 : standard deviation for Book Leverage is 0.230, GROWTH is 0.008, PROFIT is 0.191, TANG is 0.099, VOL is 0.029, and ZISE is 0.221. Book Leverage has a standard deviation of 0.230, indicating a moderate spread around the mean. On the other hand, GROWTH has a standard deviation of 0.008, suggesting the data points are very close to the mean.

8.2. Normality Test



Picture 1, Normality Test Result

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From Picture 1, the results of the Normality test, it was found that the data was normally distributed. Jarque Bera : 0.213118 ; Probability : 0.898922 > 0.05

8.3. Model Selection

8.3.1. Chow Test

Table 4, Chow test result

Redundant Fixed Effects Tests
Equation: Untitled
Test cross-section fixed effects

Effects Test	Statistic	d.f.	Prob.
Cross-section F	6.845304	(20,121)	0.0000
Cross-section Chi-square	111.250332	20	0.0000

From Table 4, Chow Test results, the Prob. result is less than 0.05 so that the selected model is REM

8.3.2. Hausman Test

Table 5, Hausman Test result

Correlated Random Effects - Hausman Test
Equation: Untitled
Test cross-section random effects

Test Summary	Chi-Sq. Statistic	Chi-Sq. d.f.	Prob.
Cross-section random	11.016492	5	0.0511

From the Hausman test results, Chi Sq : 11.016492 df. 5 and Prob. 0.0511, from the result the Prob is more than 0.05 so REM is chosen.

8.3.2. Lagrange Multiplier Test

Table 6, Multi Lagrang Test Result

Lagrange Multiplier Tests for Random Effects
Null hypotheses: No effects
Alternative hypotheses: Two-sided (Breusch-Pagan) and one-sided
(all others) alternatives

	Test Hypothesis		
	Cross-section	Time	Both
Breusch-Pagan	64.50872 (0.0000)	0.745654 (0.3879)	65.25437 (0.0000)

From Table 6, the Multi Lagrange test results obtained Breusch Pagan results less 0.05 selected Random Effect Model

8.3.3. Matrix Selection of Regression Model.

	CEM	FEM	REM
CHOW TEST		V	
HAUSMAN TEST			V
LM TEST			V

After conducting the CHOW Test, Hausman Test and Multi Lagrang Test, the best model chosen is the RANDOM EFFECT MODEL.

8.4. Multi Collinearity Test

	GROWTH	PROFIT	TANG	VOL	ZISE
GROWTH	1.00000				
PROFIT	-0.08531	1.00000			
TANG	0.39837	0.12173	1.00000		
VOL	0.12518	0.00149	0.71576	1.00000	
ZISE	0.36299	-0.13443	0.23773	0.07129	1.00000

From the multi collinearity test table, we can conclude that there is no multicollinearity between the independent variables.

8.5. Regression Results

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	3.15837	0.5142	6.142303	0.00000
GROWTH	-8.457484	1.856269	-4.556174	0.00000
PROFIT	-0.206952	0.067485	-3.066634	0.00260
TANG	-0.983822	0.22077	-4.456314	0.00000
VOL	1.800844	0.729175	2.469702	0.01480
ZISE	0.08155	0.059647	1.367217	0.17390
R-squared	0.657806	Mean dependent var		0.64503
Adjusted R-squared	0.612710	S.D. dependent var		0.22984
S.E. of regression	0.143034	Akaike info criterion		-0.93719
Sum squared resid	2.639191	Schwarz criterion		-0.57101
Log likelihood	86.88312	Hannan-Quinn criter.		-0.78840
F-statistic	14.58698	Durbin-Watson stat		0.76285
Prob(F-statistic)	0.000000			

GROWTH, PROFIT, TANG, VOL, and ZISE are the independent variables comprising this regression model. A coefficient, standard error, t-statistic, and probability are integral to each of these variables.

Coefficient -8.457484 is associated with the variable GROWTH. It can be inferred that the dependent variable will decrease by 8.457484 units for every one-unit increase in GROWTH, assuming all other variables remain constant. Its t-statistic is -4.556174, and the standard error for GROWTH is 1.856269. GROWTH is also extremely significant in the model, but it has a negative impact, as indicated by the extremely low probability (0.00000).

The dependent variable is anticipated to decrease by 0.206952 units for every one-unit increase in PROFIT, assuming all other variables remain constant. This is indicated by the coefficient of -0.206952. With a t-statistic of -3.066634, the standard error for PROFIT is 0.067485. PROFIT has a negative impact on the model, as indicated by its significance level of 0.00260 (probability). Given that all other variables remain constant, a one-unit increase in the dependent variable TANG is anticipated to result in a 0.983822-unit decrease in the aforementioned variable, as indicated by the negative coefficient of -0.983822. With a t-statistic of

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-4.456314, the standard error for TANG is 0.22077. The exceedingly small probability (0.00000) suggests that TANG exerts a substantial negative influence on the model.

The mean value of the dependent variable is anticipated to increase by 1.800844 units for every unit increase in the positive coefficient of 1.800844. All other variables are held constant. T-statistic 2.469702 represents the standard error for VOL, which is 0.729175. VOL is statistically significant and has a positive effect, as indicated by the probability of 0.01480. Considering all other variables to be constant, a one-unit increase in the dependent variable ZISE is anticipated to result in a 0.08155-unit increase in the variable ZISE, as indicated by its small positive coefficient of 0.08155. 0.096721 is the t-statistic for ZISE, while the standard error is 0.059647. The model's ZISE is not particularly significant, as indicated by the probability of 0.17390.

The model demonstrates an explanatory power for the observed variation in the data to the extent of approximately 0.657806. The overall significance of the model is indicated by the significant F-statistic (14.58698 with a probability of 0.00000). The absence of autocorrelation in the model is implied by the Durbin-Watson statistic of 0.76285.

As a result, the dependent variable is significantly influenced by the variables GROWTH, PROFIT, TANG, and VOL; however, the variable ZISE does not exhibit a substantial impact. Contrary to VOL, which has a positive influence, GROWTH, PROFIT, and TANG all exert a detrimental effect. The significance of the constant variable³ further suggests that the dependent variable is influenced by factors not accounted for in this model. Interpreting the outcomes of subsequent analyses will be facilitated by a comprehensive comprehension of each variable.

9. CONCLUSION

The regression model comprises six variables: a constant term (C) and five independent variables, namely Firm Growth (GROWTH), Profitability (PROFIT), Asset Tangibility (TANG), Earnings Volatility (VOL), and Firm Size (ZISE). Each variable is associated with a coefficient, standard error, t-statistic, and probability.

In summary, the analysis shows that Firm Growth, Profitability, Asset Tangibility, and Earnings Volatility significantly affect Book Leverage (BL), while Firm Size does significantly effect at 17%. These insights can guide financial decisions, highlighting the importance of these variables in understanding and managing a company's leverage. This knowledge can inform strategic business decisions, identify performance areas, and guide future research to enhance the understanding of financial dynamics in businesses.

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