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The Effect of Capital Structure and Company Size on Bonds in Pharmaceutical Companies listed on IDX in 2020 - 2023

Pengaruh Struktur Modal dan Ukuran Perusahaan Terhadap Obligasi Pada Perusahaan Farmasi Terdaftar di IDX Tahun 2020 - 2024

Nehru Rizki Achrommico[1], Indra Wijayanto [2], Yanna Eka Pratiwi[3], Siwidyah Desi Lastianti[4], Ida Budiarti[5]
Accounting major, Faculty of Economics, Universitas Merdeka Surabaya[1,2,3,4,5]
rizkymiko38@gmail.com[1], indrawijayanto@unmerbaya.ac.id[2], yannapratiwiy@gmail.com[3], siwi,dy@gmail.com[4], idabudiarti.unmerbaya@gmail.com[5]

ABSTRACT

This research uses a qualitative method with an explanatory causality approach to see and examine the cause-and-effect relationship between variables, which includes the variables of capital structure, company size, and bonds. The purpose of this study is to analyze the effect of capital structure and company size on bond issuance in pharmaceutical companies listed on the IDX from 2020 to 2024. The results of this study indicate that capital structure has a positive but insignificant effect on bond issuance. Company size also shows a positive but insignificant effect. Large companies do have a greater capacity to issue bonds. Simultaneously, capital structure and firm size do not significantly affect bond issuance. These findings contribute to understanding the internal dynamics of companies in making funding decisions, especially related to bond issuance, and can be a reference for company management and investors in making strategic decisions in the future.

Keywords: *Capital Structure, Company Size, Bonds*

ABSTRAK

Penelitian ini menggunakan metode kualitatif dengan pendekatan kausalitas eksplanatori untuk melihat dan memeriksa hubungan sebab-akibat antara variabel, yaitu meliputi variabel struktur modal, ukuran perusahaan, dan obligasi. Tujuan dari penelitian ini adalah untuk menganalisis pengaruh struktur modal dan ukuran perusahaan terhadap penerbitan obligasi pada perusahaan farmasi yang terdaftar di IDX pada tahun 2020 sampai dengan 2024. Hasil penelitian ini menunjukkan bahwa struktur modal berpengaruh positif namun tidak signifikan terhadap penerbitan obligasi. Ukuran perusahaan juga menunjukkan pengaruh positif tetapi tidak signifikan. Perusahaan besar memang memiliki kapasitas lebih besar untuk menerbitkan obligasi. Secara simultan, struktur modal dan ukuran perusahaan tidak signifikan memengaruhi penerbitan obligasi. Temuan ini memberikan kontribusi dalam memahami dinamika internal perusahaan dalam mengambil keputusan pendanaan, khususnya terkait penerbitan obligasi, serta dapat menjadi referensi bagi manajemen perusahaan dan investor dalam mengambil keputusan strategis di masa depan.

Kata Kunci : Struktur Modal, Ukuran Perusahaan, Obligasi

1. Introduction

The capital market is a vital instrument in the modern economy, especially as a long-term fundraising mechanism for corporations. Among the various instruments available, bonds occupy a strategic position as a funding alternative to equity and financing through financial institutions. According to the European Central Bank (2010), bonds are transferable debt with a promise of interest and principal payments, while Fakhrudin (2008) explains that bonds are

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debts to the public that provide fixed income if coupons are paid periodically. For issuers, bonds are often considered cheaper than stocks and do not cause dilution of ownership, although they still carry the risk of default - as in the case of Mobile 8 Telekom which in 2010 failed to pay interest, resulting in FREN's bond rating being downgraded from "CC" to "D" by PEFINDO (Husnan, 2007; Raharja & Sari, 2008).

The pharmaceutical sector listed on the Indonesia Stock Exchange (IDX) is an interesting object of study given its central role in realizing national health security and quality. In the period 2020-2024, the dynamics of the COVID-19 pandemic triggered a surge in funding needs for research, product development, and production capacity expansion. In response to this pressure, many pharmaceutical companies have chosen to issue bonds as a source of long-term funds to maintain operational sustainability and product innovation. Quantitative indicators of bond issuance-such as the number of bonds issued, frequency of issuance during the 2020-2024 period, and Yield to Maturity (YTM)-become a measure of the risk and attractiveness of this instrument for investors.

From a corporate financing perspective, capital structure-the composition of permanent short-term debt, long-term debt, preferred stock, and shareholders' capital-is different from financial structure, which includes all sources of funds (including non-permanent short-term debt) and is an important indicator in determining the balance of risk and return and lowering the overall cost of capital (Brigham & Houston, 2011). The components of debt as short- and long-term liabilities and equity as ownership claims after deducting liabilities, are also measured through ratios such as Debt to Equity Ratio (DER), Debt to Asset Ratio (DAR), Equity Ratio (ER), and Long-Term Debt to Capitalization Ratio (Fabozzi, 2020; Tobing & Hasibuan, 2022; Hoshi et al., 2025).

To maintain long-term competitiveness, an optimal capital structure is required so that the company can minimize the cost of capital and maximize shareholder value (Brigham & Houston, 2011). Modigliani and Miller (1958) argued that debt provides a tax shield effect that increases firm value, and Mardiyati et al. (2012) confirmed the effect of capital structure on funding decisions, including bond issuance.

Firm size-described through indicators such as total assets, market capitalization, and total revenue-determines business classification (small: net worth of IDR 50 million-Rp 500 million; medium: IDR 500 million-Rp 10 billion; large: > IDR 10 billion) as well as the micro to large category according to Law No. 20/2008. Large companies, with higher total assets and revenues, tend to demonstrate the reputation, managerial capabilities, and business diversification that attract investor confidence (Ibrahim, 2008; Fahmi, 2011; Prasetya & Riyanto, 2020).

Based on the above framework, this study then formulates the following hypothesis:

H_1 : Capital Structure has a significant influence on Obliagsi in pharmaceutical companies listed on the IDX in 2020 - 2024.

H_2 : Company size has a significant influence on bonds in pharmaceutical companies listed on the IDX in 2020 - 2024.

H_3 : Capital structure and company size have a significant influence on bonds in pharmaceutical companies simultaneously listed on the IDX in 2020 - 2024.

2. Research Method

This study uses a quantitative approach with an explanatory causality method to test the cause-and-effect relationship between variables. The population consists of 14 pharmaceutical companies listed on the IDX in the 2020-2024 period, while the sample is taken purposively following the criteria:

1) Listed on IDX until 2024
2) Publish annual reports 2020-2024
3) Issuing bonds in the 2020-2024 period

Table 1. Research Population

No	Company Name	Exchange Code	IDX	Report					Bonds
				Annual Report					
				2020	2021	2022	2023	2024	
1	PT Kimia Farma (Persero) Tbk.	KAEF	√	√	√	√	√	√	√
2	PT Indofarma (Persero) Tbk.	INAF	√	√	√	√	√	√	×
3	PT Darya Varia Laboratories Tbk.	DVLA	√	√	√	√	√	√	×
4	PT Kalbe Farma Tbk.	KLBF	√	√	√	√	√	√	×
5	PT. Mercks Indonesia Tbk.	MERK	√	√	√	√	√	√	×
6	PT Tempo Scan Pacific Tbk.	TSPC	√	√	√	√	√	√	×
7	PT Pyridam Farma Tbk.	PYFA	√	√	√	√	√	√	√
8	PT Industri Jamu dan Farmasi Sido Muncul Tbk.	SIDO	√	√	√	√	√	√	×
9	PT Phapros Tbk.	PEHA	√	√	√	√	√	√	×
10	PT Ikapharmindo Putramas Tbk.	IKPM	√	√	√	√	√	√	×
11	PT Brigit Biopharmaka Teknologi Tbk.	MEDICINE	√	√	√	√	√	√	×
12	PT Organon Pharma Indonesia Tbk.	SCPI	√	√	√	√	√	√	×
13	PT Soho Global Health Tbk.	SOHO	√	√	√	√	√	√	×
14	PT Muncul Tbk.	MUNC	√	√	√	√	√	√	×

From the table above, it was found that only 2 pharmaceutical companies met the three sample criteria, namely PT. Kimia Farma (Persero) Tbk. And PT Pyridam Farma Tbk.

Furthermore, research data is obtained through annual reports displayed on the official website of each bank. Hypothesis testing is done through multiple regression analysis to measure the effect of capital structure and company size on bonds in pharmaceutical companies. Due to the limited sample size and potential violation of classical assumptions, the Partial Least Square (PLS) method was chosen to produce more stable estimates without relying on normal distribution (Hair et al., 2021). To improve accuracy and overcome bias, this study uses the PROCESS v5.0 add-on in SPSS-a macro that simplifies observed variable analysis (Hayes et al., 2017)-with steps ranging from data input, running the Analyze > Regression > PROCESS menu, to the interpretation of path coefficients and p values ($p < 0.05$ is considered significant). The results obtained are expected to be more robust and statistically justified.

3. Results and Discussion

Description of Research Data

KAEF shows a relatively stable DAR in the range of 0.59-0.64 throughout 2020-2023, signaling that about 60% of its assets are financed by debt and reflecting a conservative but consistent financing policy. In contrast, PYFA experienced sharp fluctuations, from a DAR of 0.31 in 2020, it jumped to 0.79 in 2021, fell slightly to 0.71 in 2022, then rose again to 0.77 in 2023. This spike illustrates an aggressive financing strategy for capital expansion or restructuring, although it also increases liquidity risk if not balanced with effective asset management.

On the DER side, KAEF maintains moderate leverage, with a ratio of 1.47-1.75 over 2020-2023, indicating debt that is 1.5-1.7 times its equity and controlled debt management although the increase in 2023 is cause for concern. PYFA displays a very high and volatile DER-from 0.45 in 2020 to 3.82 in 2021, down to 2.44 in 2022, then up again to 3.26 in 2023-reflecting a heavy reliance on debt. The stable balance of DAR and DER at KAEF indicates prudent financial

management, while the spike in both at PYFA underscores the risk of high leverage if debt-based expansion fails to generate adequate returns.

KAEF, as a state-owned pharmaceutical company, has large and relatively stable total assets in the tens of trillions of rupiah range. After recording IDR 17.56 trillion in 2020 and edging up to IDR 17.76 trillion in 2021, there was a significant spike in 2022 to IDR 19.79 trillion-signaling expansion or addition of productive assets-before dropping back to IDR 17.58 trillion in 2023. This fluctuation indicates management's challenge in maintaining long-term asset growth, which may be due to asset disposals, impairments, or efforts to streamline the asset structure to reduce expenses.

In contrast, PYFA, a mid-sized private pharmaceutical company, showed more dynamic asset growth: from just IDR 228.58 billion in 2020 it jumped to IDR 806.22 billion in 2021, then almost doubled to IDR 1.52 trillion in 2022 and stabilized at that level in 2023. This surge reflects an aggressive expansion strategy supported by high DAR and DER, as well as ambitions to enlarge operating scale and competitiveness. Asset stability in 2023 may mark the transition to the asset utilization optimization phase so that revenues and profits can support debt obligations. The different asset growth patterns between KAEF and PYFA reflect contrasting business strategies and risk management: KAEF relies on large asset capacity with measured risk, while PYFA pursues fast growth even with higher financial risk.

The bond variable in this study is measured through an indicator of the number of bonds issued (in nominal value of trillion rupiah). In the 2020-2021 period, neither KAEF nor PYFA has issued any bonds, indicating that their long-term financing still relies on bank loans or internal capital. However, in 2022 PYFA began actively issuing bonds worth IDR 0.4 trillion, then doubled the value to IDR 0.8 trillion in 2023. This aggressive move is in line with the surge in PYFA's total assets and high debt ratio, reflecting an expansion strategy that utilizes bonds for working capital flexibility and investment funding without releasing equity, although accompanied by increased interest expenses and the potential risk of default if cash flow is not well managed.

In contrast, KAEF only utilized bonds in 2023 with an issuance of Rp 0.303 trillion-a relatively small amount compared to the scale of its tens of trillions of rupiah assets-signaling a prudent attitude in diversifying funding sources. The bond issuance is more aimed at increasing working capital or financing specific projects without burdening the bank loan structure, while expanding the funding base at a competitive cost. These policy differences illustrate contrasting approaches to financial risk management: PYFA is aggressive and opportunistic in utilizing the bond market, while KAEF adopts a more controlled conservative strategy in line with its established profile.

Hypothesis Testing

Regression testing using the Partial Least Square method using the PROCESS v 5.0 add-on in SPSS resulted in the following findings:

Model Summary

R	R-sq	Adj R-sq	F	p	SEest
,372	,138	-,207	,400	,690	15,270

	SS	df	MS
Regress	186,737	2,000	93,369
Residual	1165,829	5,000	233,166
Total	1352,567	7,000	193,224

Model

	coeff	se	t	p	LLCI	ULCI
constant	-2,834	99,439	-,029	,978	-258,449	252,781
StrM	8,382	9,479	,884	,417	-15,986	32,749
TotA	,064	3,325	,019	,985	-8,482	8,610

Figure 1. test results using PROCESS v.5 in SPSS

The coefficient value for the capital structure variable (StrM) is recorded at 8.382 with a p value of 0.417 (p > 0.05). This means that although the direction of the effect is positive - indicating that an increase in the proportion of debt to equity tends to be followed by an increase in the amount of bonds - the effect does not reach the level of statistical significance.

Meanwhile, the firm size variable (TotA) has a coefficient of 0.064 with a p value of 0.985 (p > 0.05). This indicates that although larger companies tend to issue a slightly higher number of bonds, the effect of company size is also not statistically significant on bond issuance.

Simultaneously, the F test results in a calculated F value of 0.400, which is still below the F table of 3.81, with a p value of 0.690 (p > 0.05). Thus, it can be concluded that together the capital structure and firm size variables do not have a significant influence on the bond variable in this study.

Discussion

Effect of Capital Structure on Bonds

The research shows that capital structure has a positive effect on bond issuance, although statistically the effect is not significant. This means that an increase in the proportion of debt to assets and equity tends to be followed by an increase in the value of bonds issued, but the effect is relatively small. This finding is in line with the results of Elizabeth (2021) who noted the positive effect of capital structure on bond ratings, while at the same time differing from Manalu & Silalahi (2023) who found a negative effect.

This condition can be understood within the framework of Trade-Off Theory, where companies balance the benefits of debt interest tax shields with financial risks due to high leverage. In practice, bond issuance is chosen to increase long-term debt at competitive interest costs without relinquishing ownership, but companies do not automatically rely on bonds every time leverage rises-they still consider the potential for bankruptcy and the ability of cash flows to pay interest in the future.

Financial data from KAEF and PYFA reinforce this picture. PYFA, with a high debt ratio (DAR & DER), actively issued bonds since 2022 to support its expansion, while KAEF only started utilizing bonds in 2023 in relatively small amounts, reflecting a conservative approach. Thus, bond policies need to be carefully designed so that the benefits of leverage remain optimal without causing excessive risk, both for aggressive companies such as PYFA and more established ones such as KAEF.

Effect of Company Size on Bonds

The study shows that the Company Size variable has a positive effect on bond issuance, but the effect is not statistically significant. This means that although an increase in total assets tends to be followed by an increase in the value of bonds issued, the effect is relatively small. This result is not in line with the findings of Nuratriningrum et al. (2021) who reported a negative effect, as well as Kaltsum & Anggraini (2021) and Listiawati & Pramita (2018) who found no significant relationship between firm size and bond issuance.

Conceptually, the Theory of Firm Size and Financial Policy explains that large companies generally have greater access to external funding and a better reputation, making it easier to issue bonds. However, the fact of non-significance shows that although firm size opens up opportunities, not all large companies rely on bonds predominantly. The empirical examples of KAEF and PYFA support this: KAEF only issued bonds in 2023 worth IDR 302 billion - relatively small compared to its tens of trillions of assets - while PYFA, despite its much smaller assets, has been actively issuing bonds since 2022 with the value increasing significantly in 2023.

Thus, bond issuance decisions are not solely dictated by company size, but also by managerial strategies, market conditions, internal policies, and other financing alternatives. Large companies have the flexibility to choose the most efficient source of funds based on cost and risk, making bonds an option-not a necessity. Company size is more of a supporting factor for market confidence, but not the only determinant of long-term funding policy.

Simultaneous Effect of Capital Structure and Company Size on Bonds

This study shows that simultaneously the capital structure and company size variables do not have a significant influence on bond issuance, meaning that an increase in the proportion of debt to assets and equity and the amount of total assets together does not increase the value of the bonds offered.

Theoretically, both Trade-Off Theory and the theory of firm size and access to capital markets underscore the role of capital structure and firm size in funding decisions, with the benefits of interest tax deductions and a large reputation that facilitates investor access. However, this non-significant result confirms that these two factors are not always the main determinants when firms decide to issue bonds.

The empirical data of KAEF and PYFA reinforce these findings: KAEF, despite having large assets and moderate leverage, only issued a relatively small amount of bonds in 2023, relying on bank loans, retained earnings, or owner support. In contrast, PYFA, which has smaller assets, has been aggressive in issuing bonds since 2022 to fund expansion. This illustrates that bond decisions are more influenced by managerial strategy, capital market conditions, and short-term funding needs rather than company size or capital structure alone.

4. Conclusion

Based on the results of data analysis and hypothesis testing, it can be concluded that neither capital structure nor company size individually or simultaneously has a significant influence on bond issuance in pharmaceutical companies that are the object of research. Although there is a tendency that an increase in the proportion of debt or total assets is followed by an increase in the value of bonds issued, the relationship is not statistically strong enough to be used as a basis for making funding decisions. This finding shows that capital structure and company size are not the only or dominant factors in determining the company's decision to issue bonds.

An examination of the financial statements of KAEF and PYFA reinforces this conclusion. KAEF, which has large assets and a stable debt structure, is slow in utilizing bond instruments, while PYFA with a smaller size and high leverage takes aggressive steps in issuing bonds to support expansion. This indicates that other factors such as managerial strategy, funding needs, capital market conditions, and long-term financial risk considerations are more decisive in bond issuance policy. Therefore, the approach in funding analysis should consider contextual and qualitative aspects in addition to quantitative financial indicators alone.

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