

The Effect of Leverage, Operating Cash Flow Ratio, and Total Asset Turnover on Financial Distress Risk with Operating Profit Margin as a Moderating Variable in Textile Companies in Indonesia

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ARTICLE INFO

Article History

Received : 02.07.2026

Revised : 25.08.2026

Accepted : 27.08.2026

Article Type :

Research Article



ABSTRACT

Financial distress denotes an erosion of financial soundness that, absent timely detection, may culminate in insolvency. Indonesia's textile and textile products industry contends with intensifying strain arising from global economic vicissitudes, escalating production outlays, and the repercussions of the COVID-19 pandemic, amplifying susceptibility to financial distress. This study scrutinises the effect of Leverage (Debt to Equity Ratio), Operating Cash Flow Ratio (OCFR), and Total Asset Turnover (TATO) on financial distress, with Operating Profit Margin (OPM) as a moderator. Employing a quantitative approach, the study draws upon secondary data from the financial statements of textile and textile product subsector firms listed on the Indonesia Stock Exchange in 2017–2025. A sample comprising 10 firms, furnishing 90 observations, was delineated through purposive sampling. Financial distress is gauged via the Grover Score, and the data are subjected to panel data regression employing the Random Effect Model (REM) with Moderated Regression Analysis (MRA). The findings disclose that Leverage exerts a significant negative effect upon the Grover Score, betokening heightened exposure to financial distress. OCFR manifests no significant effect, whereas TATO and OPM yield significant positive effects, suggesting that judicious asset utilisation and robust operating profitability attenuate financial distress risk. Moderation analysis discloses that OPM fortifies the effect of Leverage on financial distress and augments the positive nexus between TATO and the Grover Score, yet does not moderate the effect of OCFR. These findings underscore the salience of capital structure stewardship, asset efficiency, and profitability as stratagems for mitigating financial distress within Indonesia's textile industry.

Keywords: Financial Distress, Leverage, Operating Cash Flow Ratio, Operating Profit Margin, Total Asset Turnover

1. INTRODUCTION

Financial distress constitutes a state of deteriorating corporate financial performance antecedent to bankruptcy, wherein a firm commences to encounter impediments in discharging its financial obligations as they fall due (Lubis & Aisjah, 2024). Such a condition is customarily betokened by waning profitability, an elevated degree of leverage, enfeebled operating cash flow, and a diminution in the firm's capacity to sustain long-term operational stability (Wardhana & Idawati, 2021). Timely detection of financial distress is accordingly consequential for management, investors, creditors, and regulators, inasmuch as a failure to forestall it may precipitate restructuring and, ultimately, corporate bankruptcy (Sunaryo et al., 2025). In the context of the capital market, this condition is also reflected in sustained operating losses and declining company equity value (Junior & Bangun, 2024).

One factor thought to affect financial distress is capital structure as proxied by Leverage (Debt to Equity Ratio/DER), in which a high leverage indicates an increased risk of default due to an increasingly large debt burden (Hanafi & Purwanto, 2025). In addition, Operating Cash Flow Ratio gauges a firm's capacity to generate operational cash, serving as a liquidity indicator (Junior & Bangun, 2024), while Total Asset Turnover measures asset utilisation efficiency in revenue generation, with a diminished ratio signalling operational

inefficiency (Apriyani et al., 2025; Mahesh et al., 2025). Meanwhile, Operating Profit Margin (OPM) shows the level of operating profitability that plays a role in strengthening a company's resilience to financial pressure (Hanafi & Purwanto, 2025; Khresat & Jassar, 2025).

The textile and textile products (TPT) industry in Indonesia is a strategic sector that contributes to the national economy, both in terms of exports and labor absorption. However, this sector faces significant pressure due to global economic fluctuations, rising production costs, dependence on imported raw materials, and declining purchasing power after the COVID-19 pandemic. Based on Statistics Indonesia (BPS) data, the TPT industry provides an important contribution to national Gross Domestic Product (GDP), but its performance is greatly affected by unstable export fluctuations.

The development of textile exports over the 2012 to 2024 period shows a fluctuating pattern, with an increase up to 2018, a decline in 2019 to 2020, a recovery in 2021 to 2022, and a renewed weakening in 2023 before rising again in 2024. This pattern intimates that notwithstanding the growth potential inherent in the TPT industry, the sector remains acutely susceptible to shifts in global conditions. Such instability likewise bears directly upon cash flow, profitability, and the firm's capacity to discharge its financial obligations. This condition is worsened by global competition, geopolitical uncertainty, and an increasing number of layoff cases in the textile sector.

Classification results using the Altman Z-Score model on TPT subsector companies for the 2020 to 2024 period show that most companies are in the grey zone and distress zone categories. In fact, the number of companies in distress conditions increased after the COVID-19 pandemic, which indicates that financial pressure has continued even though the crisis has subsided. A number of firms, among them PT Sri Rejeki Isman Tbk, PT Panasia Indo Resources Tbk, and PT Asia Pacific Fibers Tbk, have persistently occupied distress conditions, whereas but a scant few, such as PT Tifico Fiber Indonesia Tbk and PT Star Petrochem Tbk, have remained in safe condition.

The case of PT Sri Rejeki Isman Tbk shows that even large scale companies can experience financial distress due to a high debt burden, declining demand, and sustained external pressure (Soni et al., 2021). The repercussions of the COVID-19 pandemic aggravated industry conditions still further through disruptions to supply chains, contracting exports, and mounting production costs. Prior research, conversely, evinces inconsistency in its findings concerning the effect of Leverage, OCFR, and TATO upon financial distress (Luu Thu, 2023; Mahesh et al., 2025; Tong & Serrasqueiro, 2021). This inconsistency shows that there are other factors that can strengthen or weaken this relationship. Therefore, this study proposes Operating Profit Margin (OPM) as a moderating variable that is expected to be able to explain the variation in the results of previous research, because OPM reflects operating profit efficiency that can increase a company's resilience to financial pressure (Khresat & Jassar, 2025). In light of the foregoing, the present research is designed to assess the effects of DER, OCFR, and TATO upon financial distress, while positioning OPM as a moderating variable, among IDX-listed textile companies during both the pre-COVID and post-COVID eras.

2. LITERATURE REVIEW

2.1. The Effect of Leverage (DER) on Financial Distress

The Debt to Equity Ratio serves as a leverage metric denoting the balance between total debt and shareholder equity, which captures the extent of reliance upon external funding, and elevated leverage amplifies corporate risk due to fixed periodic debt service commitments regardless of operational outcomes, and within the textile industry, characterised by substantial capital requirements and erratic revenues, this dynamic constrains cash flows and undermines short- and long-term solvency, thus raising distress likelihood, and this rationale is reinforced by prior findings that leverage negatively correlates with distress (Jati et al., 2021; Kristanti & Pancawitri, 2024), supporting its role as a predictor variable.

H1: Leverage (DER) has a positive effect on Financial distress risk

2.2. The Effect of Operating Cash Flow Ratio on Financial Distress

Operating Cash Flow Ratio (OCFR) is enlisted as a salient variable in forecasting financial distress conditions inasmuch as cash constitutes the “lifeline” of corporate sustainability. OCFR furnishes a more dispassionate depiction than accrual-based ratios susceptible to earnings management, and evinces a firm’s capacity to generate cash sufficient to discharge short-term obligations and routine operating costs, thereby mirroring the degree of financial autonomy and veritable liquidity a company commands. Antecedent research corroborates this role: Tong and Serrasqueiro (2021) discerned that failed firms characteristically exhibit negative operating cash flow whereas sound firms exhibit positive cash flow; Thu (2023) posited that augmented profit derived from genuine operations begets positive cash flow and abates the hazard of financial difficulty; Sethi and Mahadik (2025) affirmed that operating cash flow proves more forward-looking than historical accounting profit; Ali and Rahim (2024) demonstrated that negative operating cash flow amplifies the likelihood of distress owing to an incapacity to defray costs and service debt; Felicia and Lindrianasari (2025) situated operating cash flow as a consequential indicator within going concern audit opinion; and a significant negative effect of prudent operating cash flow management upon financial distress was adduced by Junior and Bangun (2024). Such evidence warrants the inference that OCFR curtails distress risk, with heightened operational cash generation diminishing the probability of corporate financial trouble.

H2: Operating Cash Flow Ratio (OCFR) has a negative effect on Financial distress risk

2.3. The Effect of Total Asset Turnover on Financial Distress

TATO is employed as an independent variable to forecast financial distress through its measurement of asset efficiency in revenue creation, with elevated ratios signifying effective asset management that bolsters cash inflow stability and provides an objective assessment of operational performance and the firm’s ability to derive cash from primary activities. Therefore, TATO is also an important signal for stakeholders regarding growth prospects and business sustainability, and serves as an early warning instrument for potential inefficiency that could trigger a financial crisis in the future (Ali & Rahim, 2024; Apriyani et al., 2025; Felicia & Lindrianasari, 2025; Kristanti & Dhaniswara, 2023; Luu Thu, 2023; Mahesh et al., 2025). Empirically, Thu (2023) proved that an increase in operating asset turnover is positively related to financial health and reduces the probability of financial distress, while Kristanti and Dhaniswara, 2023 positioned TATO as a key predictor because a low turnover value is often an early indicator of a company’s financial difficulty, Felicia and Lindrianasari (2025) confirmed that the ability to generate revenue from asset capacity is an important factor in business sustainability, Apriyani et al. (2025) also used this ratio to identify the potential for company failure on the Indonesia Stock Exchange, Mahesh et al. (2025) found that the effectiveness of asset use has a significant effect in predicting financial health amid economic uncertainty, and according to Ali and Rahim (2024), sound operational efficiency prevents companies from liquidating fixed assets for operational expenses, and from this it follows that Total Asset Turnover exerts a negative effect on financial distress, with higher turnover diminishing the probability of corporate financial trouble.

H3: Total asset turnover has a negative effect on Financial distress risk

2.4. The Effect of Operating Profit Margin on Financial Distress Risk

Operating Profit Margin (OPM) reflects core operational efficiency and a company’s ability to manage production costs and operating expenses, and occupies a strategic position in the income statement that connects net revenue with earnings before interest and taxes (EBIT). This ratio provides an objective picture of management’s productivity in generating profit from every rupiah of sales after accounting for variable and fixed operating costs, while also serving as an important signal for stakeholders regarding a company’s resilience to market fluctuations, so that OPM acts as an early warning instrument for inefficiency that could trigger a financial crisis. Previous research shows that profitability as measured through operating margin is negatively related to financial distress, as proven by Tong and Serrasqueiro (2021), Thu (2023), Mahesh et al. (2025), Felicia and Lindrianasari (2025), Apriyani et al. (2025), and Junior and Bangun (2024), who consistently confirm that increased efficiency and operating profit margin are able to strengthen financial position, dampen economic volatility, and reduce the risk of bankruptcy. Thus, it can be concluded that Operating Profit Margin has a negative effect on Financial distress risk, meaning that the higher the operating profit margin, the lower the risk of a company experiencing financial difficulty.

H4: Operating Profit Margin has a negative effect on Financial distress risk

2.5. The Effect of Operating Profit Margin in Moderating Leverage (DER) on Financial Distress Risk

Financial distress describes a crisis condition when a company experiences difficulty continuing operations and meeting its financial obligations. In financial statements, Leverage (Debt to Equity Ratio/DER) serves as a leverage indicator that reflects capital structure risk, where a high ratio can increase a company's financial pressure, while Operating Profit Margin (OPM), recorded in the income statement, functions as an indicator of operational efficiency as well as a moderating variable that strengthens a company's resilience through its ability to generate operating profit before interest and taxes, thereby providing a cushion against a high debt burden and maintaining business sustainability. Thus, the synergy between leverage and operating profitability becomes an important factor in the early detection of financial distress risk, as confirmed by Tong and Serrasqueiro (2021) that profitability is negatively related to business failure, Thu (2023) who showed that a high profit margin can reduce distress risk in emerging markets, Felicia and Lindrianasari (2025) who found that a highly leveraged capital structure increases the risk of failure without adequate revenue efficiency, Mahesh et al. (2025) who stated that a positive operating ratio is a predictor of financial health, Hanafi and Purwanto (2025) who emphasized the importance of asset profitability in suppressing bankruptcy risk in the retail sector, and Apriyani et al. (2025) who highlighted the importance of monitoring profitability to anticipate a liquidity crisis.

H5: Operating Profit Margin weakens the positive effect of Leverage (DER) on Financial distress risk

2.6. The Effect of Operating Profit Margin in Moderating Operating Cash Flow Ratio on Financial Distress Risk

The OCFR is employed to measure a company's fundamental ability to produce cash from operations for meeting near-term liabilities, with cash flow statement data being comparatively more reliable than accrual accounting subject to earnings distortion, while OPM indicates management's effectiveness in containing costs to generate earnings before interest and taxes as reported in the income statement. Thus, the synergy between the two becomes important because a high profit margin supports the conversion of revenue into more stable operating cash flow and strengthens a company's financial resilience. Various empirical findings show that profitability and cash flow are key predictors of financial health, where Tong and Serrasqueiro (2021) confirmed that profitability is negatively related to Financial distress, Thu (2023) found that cost efficiency through a high profit margin reduces distress risk, Felicia and Lindrianasari (2025) emphasized the importance of operating cash flow in assessing business sustainability, Mahesh et al. (2025) showed that profitability and asset effectiveness determine financial health amid economic uncertainty, and Junior and Bangun (2024) proved that good cash flow management is able to suppress the risk of financial difficulty. Overall, Operating Profit Margin strengthens the effect of Operating cash flow ratio on Financial distress risk because a higher margin efficiency will further reduce the likelihood of financial failure occurring.

H6: Operating Profit Margin strengthens the negative effect of Operating Cash Flow Ratio (OCFR) on Financial distress risk

2.7. The Effect of Operating Profit Margin in Moderating Total Asset Turnover on Financial Distress Risk

Total Asset Turnover (TATO) functions to connect the statement of financial position and the income statement through sales to measure the efficiency of asset utilization in generating revenue. However, high asset turnover does not always guarantee financial resilience if it is not accompanied by the ability to generate an adequate profit margin. Therefore, Operating Profit Margin (OPM) becomes important because it reflects the effectiveness of management in suppressing operating expenses, thereby supporting profit stability and strengthening a company's ability to cover financial risk. The findings of Tong and Serrasqueiro (2021) confirm that the ratio of earnings before interest and taxes to revenue is significantly negatively related to failure risk, while Thu (2023) showed that the combination of asset turnover efficiency and a high profit margin is able to reduce the potential for financial distress, in line with Mahesh et al. (2025) who stated that the effectiveness of asset use in generating revenue is a major determinant of financial health, and Felicia and Lindrianasari (2025) who emphasized the importance of operational efficiency stability for the assessment of business sustainability by auditors, and Hanafi and Purwanto (2025) who confirmed that the ability to generate profit from efficient assets plays a role in suppressing bankruptcy risk. Based on this synthesis, it can be concluded that Operating Profit Margin moderates the effect of Total Asset Turnover on Financial Distress risk, where the higher the profit margin, the stronger the contribution of asset efficiency in reducing the probability of financial failure.

H7: Operating Profit Margin strengthens the negative effect of Total asset turnover on Financial distress risk (Z Score)

The seven hypotheses developed above are summarised in the research model presented in Figure 1, which depicts the direct effects of DER, OCFR, and TATO on financial distress risk together with the moderating role of OPM on each of these relationships.

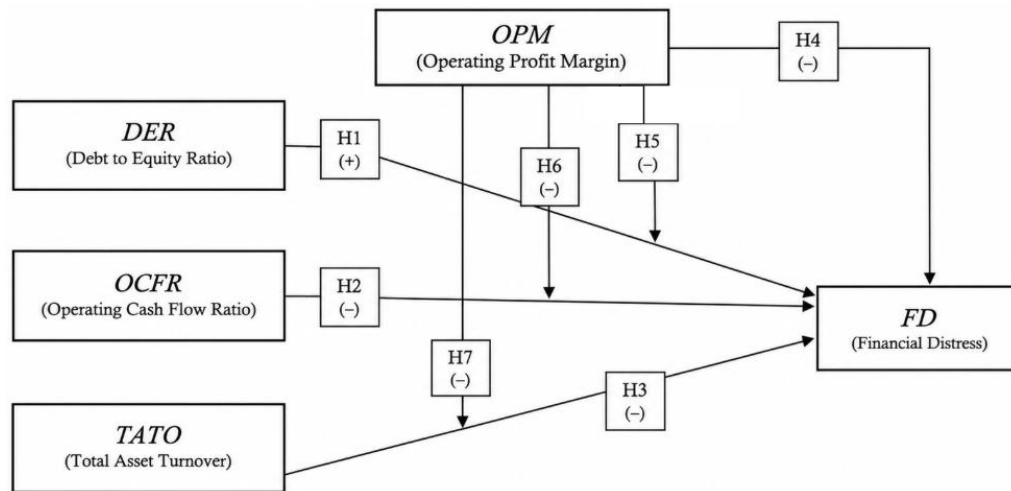


Figure 1. Conceptual Framework

Source: Authors' compilation

3. RESEARCH METHODS

This investigation espouses a quantitative causal design to scrutinise the influence of Leverage (DER), OCFR, and TATO upon financial distress, with OPM serving as moderator, its object encompassing IDX-listed textile subsector firms across 2017–2025 and drawing upon secondary data culled from annual financial statements and reports procured via the IDX portal, corporate websites, and ancillary channels. The whole of the textile companies quoted on the Indonesia Stock Exchange constitutes the research population, and purposive sampling was administered under selection criteria embracing uninterrupted listing, unabridged financial reporting, requisite data availability, and freedom from delisting, which yielded a definitive sample of 10 firms furnishing 90 observations in total.

The dependent variable in this study is financial distress, measured using the Grover Score (Hadityo & Indrawati, 2024). Since the Grover Score is inversely related to financial distress risk, a higher score indicates a financially healthier firm, a negative regression coefficient on the Grover Score is interpreted as supporting a positive effect on financial distress risk, and vice versa. The independent variables consist of Leverage (Debt to Equity Ratio/DER) (Apriyani et al., 2025), Operating Cash Flow Ratio (OCFR) (Hanafi & Purwanto, 2025), and Total Asset Turnover (TATO) (Khresat & Jassar, 2025), while Operating Profit Margin (OPM) is used as a moderating variable (Luu Thu, 2023).

Panel data regression was performed using EViews for data analysis, with model selection conducted through the Lagrange Multiplier test to determine the appropriate specification between the Common Effect Model and the Random Effect Model. This test was selected as the relevant basis for model determination given the structure of the dataset, in which a relatively small number of cross-sectional units limits the degrees of freedom available for estimating firm-specific fixed effects, making the comparison between the Common Effect and Random Effect specifications the pertinent decision for this study. Subsequent classical assumption checks addressed normality, multicollinearity, heteroscedasticity, and autocorrelation, while hypothesis testing applied the t test and the F test, with the Adjusted R^2 reported as a measure of model explanatory power, and the moderation effect was examined through MRA utilizing interaction variables between OPM and the independent factors.

4. RESULTS AND DISCUSSION

4.1. Research Results

4.1.1. Regression Model Selection

Selection between the Common Effect and Random Effect models is accomplished through the Lagrange Multiplier Test to identify the preferable approach, with the results presented in Table 1.

Table 1. Lagrange Multiplier Tests for Random Effects

Test Hypothesis	Cross-section	Time	Both
Breusch-Pagan	169.2986 (0.0000)	1.790533 (0.1809)	171.0892 (0.0748)
Honda	13.01148 (0.0000)	-1.338108 (0.9096)	8.254321 (0.0000)
King-Wu	13.01148 (0.0000)	-1.338108 (0.9096)	7.952186 (0.0000)
Standardized Honda	15.29078 (0.0000)	-1.192772 (0.8835)	6.225505 (0.0000)
Standardized King-Wu	15.29078 (0.0000)	-1.192772 (0.8835)	5.861379 (0.0000)
Gourieroux, et al.	--	--	169.2986 (0.0000)

Source: Processed data

As shown in Table 1, a Breusch-Pagan probability of 0.0000 for the cross-section effect was obtained from the Lagrange Multiplier selection test, far less than the 5% significance level, which rejects H0 in favour of H1 and validates the existence of cross-section random effects, and consequently the Random Effect Model is deemed more appropriate than the Common Effect Model.

4.1.2. Classical Assumption Test

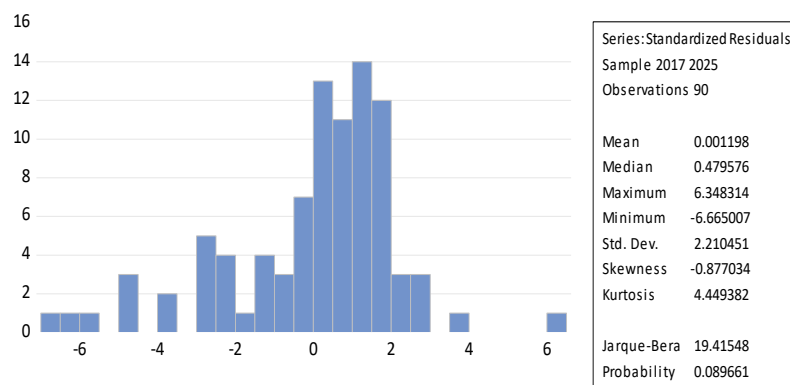


Figure 2. Normality Test

Source: Processed data

As presented in Figure 2, the probability value of 0.089661, exceeding the 0.05 threshold, leads to acceptance of H0, indicating normally distributed residuals and confirming that the normality assumption is satisfied, thereby rendering the regression model suitable for subsequent hypothesis testing including t and F tests.

Table 2. Multicollinearity Test

	DER	OCFR	TATO	OPM
DER	1.000000	-0.000107	0.040980	-0.005387
OCFR	-0.000107	1.000000	-0.103138	0.101605
TATO	0.040980	-0.103138	1.000000	0.088114
OPM	-0.005387	0.101605	0.088114	1.000000

Source: Processed data

As shown in Table 2, all correlation coefficients among independent variables were found to be under 0.80 from the multicollinearity test, where the highest correlation in absolute terms, -0.103138 emerged for the OCFR-TATO relationship, substantially below the 0.80 benchmark, leading to the conclusion that no multicollinearity issue exists. Thus, the regression model meets the assumption of being free from multicollinearity, making it feasible to use for further analysis.

Table 3. Heteroscedasticity Test

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	-1.341772	1.327279	-1.010920	0.0117
DER	-0.001979	0.000720	-2.750000	0.5809
OCFR	0.302232	1.183807	0.255000	0.6604
TATO	0.478937	0.168000	0.850000	0.1764
OPM	2.742445	0.668900	4.100000	0.1536
DER*OPM	1.621297	0.981902	1.651180	0.1052
OCFR*OPM	7.424837	5.744843	1.292435	0.2024
TATO*OPM	3.675436	4.657716	0.789107	0.4339
Root MSE	0.300733	R-squared		0.126355
Mean dependent var	0.312441	Adjusted R-squared		-0.001051
S.D. dependent var	0.324658	S.E. of regression		0.324829
Akaike info criterion	0.720527	Sum squared resid		5.064662
Schwarz criterion	1.009863	Log likelihood		-12.17476
Hannan-Quinn criter.	0.832702	F-statistic		0.991749
Durbin-Watson stat	1.508683	Prob(F-statistic)		0.448628

Source: Processed data

As reported in Table 3, with probability values surpassing 0.05 for every independent variable and interaction, the panel data regression is concluded to be free from heteroscedasticity, and the residual variance is stable (homoscedastic), thus satisfying a key prerequisite of the linear regression classical assumptions.

Table 4. Autocorrelation Test

Root MSE	2.198136	R-squared	0.566097
Mean dependent var	-0.515974	Adjusted R-squared	0.529057
S.D. dependent var	3.349378	S.E. of regression	2.302868
Sum squared resid	434.8623	F-statistic	15.28321
Durbin-Watson stat	1.969048	Prob(F-statistic)	0.000000

Source: Processed data

As presented in Table 4, a Durbin-Watson value of 1.969048, close to the ideal threshold of 2, was obtained from the autocorrelation test, signifying the absence of autocorrelation (Ghozali, 2021), and thus the residuals are independent, fulfilling this classical assumption and confirming the model's viability for further testing.

4.1.3. Moderated Regression Analysis

Using EViews software, the Panel EGLS approach with Cross section random effects was applied for this test at a 5% alpha level, and the estimation output in the above table yields the subsequent multiple linear equation and probability figures indicating direct associations among the variables.

$$G \text{ Score} = 1.341772 + -0.021979DER_{it} + 0.302232OCFR_{it} + 0.478937TATO_{it} + 2.742445OPM_{it} + 0.115773(OPM \times DER)_{it} + 2.562660(OPM \times OCFR)_{it} + 7.354954(OPM \times TATO)_{it} + \varepsilon_{it}$$

Table 5. Moderated Regression Analysis

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	1.341772	1.327279	1.010920	0.0061
DER	-0.021979	0.083720	-2.625243	0.0305
OCFR	0.302232	1.128430	0.267834	0.7895
TATO	0.478937	0.231371	2.069996	0.0416
OPM	2.742445	0.983852	2.787456	0.0006
DER*OPM	0.115773	0.05193	2.229719	0.0285
OCFR*OPM	2.562660	5.849639	0.438089	0.9625

Variable	Coefficient	Std. Error	t-Statistic	Prob.
TATO*OPM	7.354954	2.696416	2.727678	0.0078
Weighted Statistics				
Root MSE	2.198136	R-squared		0.566097
Mean dependent var	-0.515974	Adjusted R-squared		0.529057
S.D. dependent var	3.349378	S.E. of regression		2.302868
Sum squared resid	434.8623	F-statistic		15.28321
Durbin-Watson stat	1.969048	Prob(F-statistic)		0.000000
Unweighted Statistics				
R-squared	0.152411	Mean dependent var		-0.963979
Sum squared resid	928.8359	Durbin-Watson stat		1.160314

Source: Processed data

As shown in Table 5, and following the interpretation rule stated in the Methods whereby a negative coefficient on the Grover Score corresponds to a positive effect on financial distress risk, a negative significant effect of Leverage (DER) upon the Grover Score is observed, meaning higher debt diminishes financial health and heightens distress likelihood, whereas OCFR produces a positive but non-significant result, offering no evidence of real impact on Grover Score changes, while TATO shows positive significance, suggesting asset utilisation efficiency enhances financial status via Grover Score increases, and OPM also demonstrates strong positive significance, indicating that elevated profitability fortifies the firm's financial position.

With respect to moderation, OPM is adjudged to attenuate the negative effect of DER upon the Grover Score by way of a significant interaction, such that profitability serves to mitigate the deleterious impact of elevated leverage. OPM, however, proves incapable of moderating the relation between OCFR and the Grover Score, its interaction failing to attain significance. Conversely, OPM is adjudged to fortify the positive effect of TATO upon the Grover Score, betokening a synergistic effect between efficiency in asset deployment and profitability in ameliorating corporate financial health. Concurrently, the F test attests that all variables within the model exert a significant effect in the aggregate, whereupon the model is pronounced fit for use. The model furnishes an Adjusted R^2 of 52.90%, signifying that the predictors elucidate somewhat over half the variability in the Grover Score, the residual portion being attributable to influences left unexamined.

4.2. Discussion

4.2.1. The Effect of DER on Financial Distress

A coefficient of -0.021979 and probability of 0.0305 ($p < 0.05$) are obtained for DER from the panel regression, supporting H1 and demonstrating that increased leverage lowers the Grover Score significantly, thus heightening distress vulnerability in the textile sector. Theoretically, high dependence on external funds creates a fixed interest burden, which if not balanced with adequate revenue, will disrupt cash flow stability. This finding accords with the research of Naibaho and Natasya (2023) as well as Hidayat and Yuniati (2024), who aver that the loftier the debt ratio, the more susceptible a firm's financial condition becomes to business failure.

Consistent with Agency Theory, this finding reflects how reliance on debt financing heightens agency risk, since managers may utilise borrowed capital to pursue growth activities while inadequately assessing the company's ability to meet extended obligations (Thu, 2023; Kristanti & Pancawitri, 2024). Excessive use of debt can indeed provide benefits in the form of additional funding sources and tax savings (tax shield), but at the same time also increases the fixed obligation to pay interest and loan principal (Diep To, 2024; Orcid et al., 2025). This condition is clearly reflected in the case of PT Pan Brothers Tbk (PBRX) and PT Asia Pacific Fibers Tbk (POLY), where high dependence on credit facilities and bonds to finance textile manufacturing working capital resulted in the accumulation of a massive fixed burden. When companies were faced with the threat of insolvency, management made the decision to add working capital through a corporate action such as a rights issue. This decision was taken by the agent to save the company's going concern, but directly harmed minority shareholders through the massive risk of dilution of share ownership value.

This condition is worsened by information asymmetry, in which managers may hide the actual financial risk to protect their professional reputation (Movsesyan & Seissian, 2025). When a company experiences a decline in sales or operating profit, this fixed burden will narrow financial flexibility, thereby increasing the

likelihood of financial distress occurring (Isayas, 2021; Naibaho & Natasya, 2023; Pratitasari & Kusumawati, 2025). As a result, PBRX had to face a Debt Payment Suspension (PKPU) lawsuit from its creditors, while POLY was forced to halt operations of its main business line due to a deadlock in debt restructuring. Therefore, the agent's inability to align funding strategy with internal asset capacity becomes the main trigger of entity financial failure (Abdu, 2022).

4.2.2. The Effect of Operating Cash Flow Ratio (OCFR) on Financial Distress Risk

A coefficient of 0.302232 and probability of 0.7895 ($p > 0.05$) are obtained for OCFR from the test results, which rejects H2 and indicates that operating cash flow fails to demonstrate a meaningful effect on financial health as measured by the Grover Score among these textile firms. This lack of significance confirms the Agency Theory perspective that in industry crisis conditions, the capital structure management variable (leverage) is far more dominant in triggering bankruptcy than the company's daily operating cash flow capability. This condition is likely caused by extremely volatile cash flow fluctuations in the textile industry after the pandemic, where the availability of operating cash was often used to cover accumulated losses or the buildup of inventory that was not absorbed by the market. This result is consonant with the research of Junior and Bangun (2024), who similarly ascertained that cash flow does not uniformly serve as a significant predictor of financial distress conditions, most notably within a manufacturing sector beset by considerable uncertainty.

Based on Signaling Theory, financial statements function as a communication medium from management to investors regarding the entity's future prospects. In general, positive operating cash flow should be "good news" that indicates the entity's ability to meet obligations without new debt. However, in a textile industry experiencing extreme fluctuations, the signal from OCFR becomes irrelevant or distorted (a noisy signal). Investors and the market may perceive that the availability of cash is temporary and does not reflect a sustainable earning power, so it does not affect the overall assessment of the financial health score. This supports the argument of Mahesh et al. (2025) that cash flow indicators sometimes fail to provide a direct effect because they are often distorted by management accrual policies and unstable macroeconomic conditions.

4.2.3. The Effect of Total Asset Turnover (TATO) on Financial Distress Risk

Total Asset Turnover (TATO) shows a coefficient of 0.478937 with a probability value of 0.0416 ($p < 0.05$). This result proves that H3 is accepted, where every increase in asset turnover will raise the Grover Score and reduce the risk of financial distress. Management's efficiency in utilizing all asset resources to generate sales volume is a positive signal regarding the entity's operational productivity. This finding reinforces the research of Apasya et al. (2023) and Soni et al. (2021), who confirmed that the effectiveness of asset use is very significant in predicting the financial health position of manufacturing companies. This condition is clearly reflected in the performance of PT Eratex Djaja Tbk (ERTX) and PT Trisula International Tbk (TRIS) throughout the 2017 to 2025 period. Amid the onslaught of the national textile crisis, ERTX was consistently able to record a high TATO value above the industry average (reaching its peak of 1.51 times), driven by the optimization of factory capacity to meet the denim export market niche.

Viewed from a signaling theory perspective, it can be said that TATO is able to reduce information asymmetry and provide confidence to the market that the company has a stable ability to generate future cash flow through the optimization of fixed assets (Apasya et al., 2023; Thu, 2023). In addition, from an Agency Theory perspective, an increase in TATO indicates a reduction in agency costs because managers as agents demonstrate compliance in managing the principal's resources productively rather than wasting assets (Kristanti & Pancawitri, 2024; Mahesh et al., 2025). This confirms that efficient asset use is very crucial in keeping an entity away from the financial failure zone (Soni et al., 2021). This finding reinforces the research of Apasya et al. (2023) and Soni et al. (2021), who confirmed that the effectiveness of asset use is very significant in predicting the financial health position of manufacturing companies.

4.2.4. The Effect of Operating Profit Margin (OPM) on Financial Distress Risk

The test results pertaining to the principal independent variable disclose that Operating Profit Margin (OPM) bears a positive coefficient of 2.742445 with a probability of 0.0006 ($p < 0.05$). This evinces that H4 is upheld, whereby a substantial augmentation in operating profit margin fortifies a firm's financial health. A firm's capacity to generate profit from its core activities affords a robust internal liquidity cushion wherewith to sustain the burden of fixed costs. This research result is supported by Tong and Serrasqueiro (2021), who stated that operating profitability is the most significant indicator in suppressing the potential for a financial

crisis. This phenomenon is strongly confirmed through real conditions in the field, where throughout the 2017 to 2025 period, PT Trisula International Tbk (TRIS) and PT Tifico Fiber Indonesia Tbk (TFCO) became representative samples that were able to maintain operating margin resilience amid the collapse of the national textile industry. TRIS consistently recorded a positive OPM through the flexibility of its export garment business model (integrated apparel provider) and high value added functional products. On the other hand, TFCO, which is in the upstream polyester commodity sector, experienced margin fluctuations but was able to recover significantly after the pandemic (2021 to 2024) thanks to cost efficiency and a solid capital structure with a very low debt ratio (non distress).

Agency Theory emphasizes that the sustained positive OPM performance at TRIS and TFCO indicates the success of managers as agents in aligning their operational decisions with the interests of the principal (shareholders). This shows a reduction in agency costs because management focuses on core asset productivity rather than opportunistic actions that could drain the company's cash reserves. This research result is supported by Tong and Serrasqueiro (2021) as well as Khresat and Jassar (2025), who confirmed that operating profitability is the most significant indicator in mitigating financial distress risk.

4.2.5. The Role of OPM in Moderating the Effect of Leverage (DER) on Financial Distress

In the moderation test, the interaction between $DER \times OPM$ produces a positive coefficient of 0.115773 with a probability value of 0.0285 ($p < 0.05$), proving that H5 is accepted. This result indicates that strong operating profitability is significantly able to moderate (weaken) the negative effect of debt burden on the level of financial health of textile companies. Viewed from Agency Theory, the ability to generate a high profit margin shows the agent's success in productively managing external funds for value creation activities, thereby mitigating the risk of failure arising from the conflict of interest of debt. In a high leverage situation, agency conflict is higher because creditors worry that agents will misuse debt funds for risky projects. However, when agents are able to prove strong OPM performance, this agency conflict subsides drastically. Abundant operating profit minimizes agency costs in the form of monitoring costs from banks or bondholders, because a secure internal cash supply guarantees creditors' debt repayment rights without sacrificing shareholders' future investment.

From a Signaling Theory perspective, achieving a stable operating profit gives a positive signal to creditors regarding the entity's capacity to continue meeting its financial obligations despite having high leverage. Therefore, operational efficiency acts as a primary buffer that absorbs financial shocks and maintains company stability from the threat of bankruptcy. This finding is consistent with research by Naibaho and Natasya (2023) as well as Wilujeng and Yulianto (2020), which proved that high profitability weakens the adverse impact of debt burden on financial crisis risk.

4.2.6. The Role of OPM in Moderating the Effect of OCFR on Financial Distress

The $OCFR \times OPM$ interaction variable yields a coefficient of 2.562660 with a probability of 0.9625 ($p > 0.05$). This evinces that H6 is repudiated, signifying that OPM proves incapable of moderating to any significant degree the effect of operating cash flow upon the level of financial health. Such a condition intimates that within the sampled textile firms, the availability of operating cash and the operating profit margin operate independently of one another in bearing upon financial stability, the synergy between the two being insufficiently potent to alter the probability of distress arising. This result accords with the research of Naibaho and Natasya (2023), who discerned that profitability is not invariably capable of fortifying the effect of cash flow upon distress.

Viewed from Signaling Theory, this failure of moderation shows a distorted signal (a noisy signal) in which investors see accrual profit and cash flow as unsynchronized information in the post pandemic textile industry (Mahesh et al., 2025; Thu, 2023). A high profit margin does not automatically strengthen cash position if the funds are held up in the form of unproductive receivables or inventory (Apasya et al., 2023). In addition, based on Agency Theory, this result reflects the agent's ineffectiveness in managing the relationship between profitability and real liquidity, which triggers high agency costs due to suboptimal resource allocation (Pratitasari & Kusumawati, 2025; Kristanti & Pancawitri, 2024). This result is in line with research by Naibaho and Natasya (2023) as well as Thu (2023), who found that profitability is not always able to be a significant mitigating variable in strengthening the effect of cash flow on financial failure risk in sectors with high uncertainty.

4.2.7. The Role of OPM in Moderating the Effect of TATO on Financial Distress

The TATO×OPM interaction test results show a positive coefficient of 7.354954 with a probability value of 0.0078 ($p < 0.05$). Thus, H7 is accepted, meaning that Operating Profit Margin (OPM) is significantly able to moderate (strengthen) the positive effect of TATO on company financial health. Based on signaling theory, the synergy between fast asset turnover and a thick profit margin sends a very strong message to the market that the company has a sustainable competitive advantage (Thu, 2023; Apasya et al., 2023). This positive signal convinces investors and creditors that every rupiah of sales generated from asset optimization can be efficiently converted into net profit to strengthen capital structure (Soni et al., 2021). This condition drastically reduces information asymmetry and increases company value in the eyes of stakeholders (Orcid et al., 2025). This finding supports the argument of Thu (2023) that operational efficiency accompanied by a high margin is the most formidable shield in facing the threat of bankruptcy.

Viewed from Agency Theory, OPM's success in strengthening the effect of TATO reflects management's (the agent's) effectiveness in managing resources entrusted by the owner (the principal). This synergy shows that the agent not only focuses on achieving sales volume alone, but is also very meticulous in cost control to minimize resource waste (Mahesh et al., 2025; Walela et al., 2022). This automatically lowers agency costs because managers have aligned their actions with the principal's main goal of maximizing profit and business continuity (Isayas, 2021). When core asset productivity is balanced with margin efficiency, a company has a more solid liquidity cushion to absorb external shocks (Hidayat & Yuniati, 2024). Thus, optimal margin management becomes an absolute requirement for asset turnover activity to genuinely contribute to the prevention of financial distress risk (Abdu, 2022).

5. CONCLUSION

The effects of DER, OCFR, TATO, and OPM on financial distress are analyzed here using REM for textile subsector companies, with findings indicating Leverage negatively and significantly impacts the Grover Score (increasing distress), while OCFR, TATO, and OPM exhibit positive significant coefficients (lowering distress), and OPM is confirmed as a moderator for the Leverage relationship but not for those involving OCFR or TATO.

Four elements emerge from these results as jointly shaping whether a textile firm remains financially stable: capital structure, operating cash flow, asset efficiency, and profitability. Both Agency Theory and Signaling Theory find support. Debt behaves as the former anticipates, with heavier borrowing translating into greater financial risk, while the latter is borne out by operational performance and profitability, which outside parties can read as evidence that a firm will continue operating. Profitability's capacity to moderate proved narrower than anticipated, reshaping only the debt–distress relationship.

Several caveats bear on how far these results travel. The model accounts for 52.91% of the variation in financial distress; whatever drives the remaining share, governance arrangements, macroeconomic movements, shifts in external policy, sits outside it. The sample was also drawn from a single subsector in a single country, which constrains generalisation. Testing Logit or Probit specifications against these findings would be worthwhile, as would distress measures other than the Grover Score, among them the Interest Coverage Ratio or the incidence of negative EPS.

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