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Assessing Bankruptcy Risk in Indonesia's Textile Industry: A Financial Ratio-Based Prediction Model Using the Grover Approach

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Abstract

The increasing risk of bankruptcy that occurs in the textile industry today is a result of macroeconomic pressures, such as decreased demand and inflation, which has resulted in 7 textile companies closing and 8 companies making efficiency. The intent of this study is to investigate the effect of financial ratios such as profitability ratios, operational ratios, and liquidity ratios on the level of financial distress as measured by the Grover model (G-Score), as well as to develop a financial ratio-based risk prediction model. The study methodology employs a positivist perspective, a quantitative approach, secondary data, and a purposive sampling procedure. The data were analyzed using the IBM SPSS 26 tool, which included descriptive statistical tests, classical assumptions, multiple regression, and hypothesis testing. The profitability ratio, operational ratio, and liquidity ratio were found to have a 79.5% influence on the extent of financial distress. Each ratio has a substantial impact on the level of financial difficulty. This study adds theoretically to signaling theory regarding the financial ratios as indications of bankruptcy risk. Practically, this model can be an early detection tool for bankruptcy risk, assist in the preparation of risk mitigation strategies, and increase investment attractiveness in the Indonesian textile industry.

Keywords *financial distress, liquidity ratio, operational ratio, profitability ratio, signal theory*

INTRODUCTION

Research on operational ratios (BOPO) continues to grow, initially this ratio was used in the banking sector. Based on Bank Indonesia Circular Letter No. 6/23/DPNP Year 2004, the assessment of the health level of banks includes an assessment of the earnings or profitability factor consisting of the BOPO component. Then the BOPO ratio has been widely adopted by researchers with related issues in the non-banking sector. Such as the manufacturing sector (Permatasari & Cahyono, 2024), sharia business units (Harahap & Gusniarti, 2024), and the transportation sector (Fitriyani, 2019). To evaluate the business's financial performance, the textile industry, which is a subset of the manufacturing sector, must also examine the BOPO ratio. Costs associated with labor, storage, transportation, and the acquisition of raw materials must all be effectively controlled in the textile sector. This is done in order to prevent cost waste and boost the company's profit. This rise in earnings shows that the business is doing well financially and that there are no signs of financial hardship.

Beginning in 2015, Indonesia is experiencing a demographic boom that is expected to peak between 2020 and 2035 (BPS, 2023). With an abundant and productive workforce, Indonesia can increase textile production capacity, encourage innovation in technology, and expand export sales to international markets. In addition, this demographic bonus also creates a large domestic market, where the increase in income of people of productive age has the potential to increase demand for clothing and textile products. The making Indonesia 4.0 roadmap predicts that by 2030, textiles will become one of the top five players in the global textile industry, in line with the National Industrial Development Master Plan (RIPIN) which designates it as one of the most strategic and key industries (Nada et al., 2023).

The problem gap of this research is that in the past few years, the textile and apparel industry in Indonesia has faced significant challenges. The challenges experienced in the form of the

consequences of the global recession and the Russia-Ukraine conflict which resulted in difficulty in obtaining raw materials, as well as other challenges related to the lack of fashion product innovation and tend to stagnate (Hermawan et al., 2024). Data shows that the contribution of the textile industry to the GDP of the non-oil and gas manufacturing sector, which was originally 7.08% in 2019, has decreased to 5.97% in 2023. This indicates the pressure faced by this industry. Even the distribution in GDP has also decreased in value since before the pandemic (BPKP, 2024). A significant wave of layoffs is also occurring in the labor-intensive textile sector. Based on KSPN records, 67 thousand workers in the textile and footwear industry were affected by layoffs in 2021-2023 (Katadata, 2024). Then, throughout 2024 there were 8 companies that carried out efficiency and 7 companies that closed and carried out layoffs (Idntimes, 2024).

This study will provide a contribution to the body of information regarding signaling theory. This study highlights the role of profitability ratios, operational ratios, and liquidity ratios as signals for stakeholders evaluating a company's financial standing. The research question formed in this study is whether the profitability ratio, operational ratio, and liquidity ratio affect the level of financial distress in textile industry companies for the 2019-2023 period?. Therefore, this study aims to explain the phenomenon of bankruptcy of textile industry companies through the role of profitability ratio variables, operational ratios, liquidity ratios, and financial distress. Then to formulate a model that is relevant in detecting and mitigating the risk of financial distress in textile industry companies and as a strategic step so that this industry is able to increase competitiveness in attracting investment.

LITERATURE REVIEW
Signaling Theory

According to Spence's (1973) signaling theory, signaling is the process by which one party (the sender) communicates significant information about itself to another party (the recipient) in an effort to sway decisions, particularly when there is an informational imbalance between the two. The idea of signal theory is a reflection of the company's attempts to tell investors about its current and future prospects. Investors' investment decisions may be influenced by the significance of the signals the company provides (Brigham & Houston, 2019).

Financial Statement Analysis

According to Kasmir (2019), the advantage of financial statement analysis is that it aids in the correct understanding of financial statements by a variety of stakeholders. We may determine the financial condition, strengths, and weaknesses, as well as evaluate the management's performance thus far, by analyzing financial statements. Through understanding the financial position, company owners and management can plan strategic steps and make the right decisions for the future of their business.

Financial Ratios

According to Kasmir (2019), financial ratios are a method used to compare numbers in financial statements, both between components in one report and between reports and in one period or several periods. Then, the results of these financial ratios are used to assess management performance in achieving targets, the effectiveness of using resources, and as evaluation material to improve or maintain performance according to company targets. In addition, financial ratios also help company owners determine strategic policies, including management changes if needed.

Profitability Ratio

The concept of this ratio was developed by Graham & Dodd (1934) who stated that the

capacity of a business to make profits off of its assets is a key indicator of its financial strength and future prospects so that profit analysis and return on assets become important aspects in evaluating the true value and feasibility of an investment. One method to assess profitability is Return on Assets (ROA). According to Hery (2015), ROA is the amount of return on assets in obtaining net income. The amount of net profit earned from the money invested in the company's total assets is determined by this ratio.

Operating Ratio

The concept of this ratio was developed by Church (1908) who stated that proper cost allocation ensures that each operating cost is linked to a corresponding result, thus providing a clear picture of efficiency and effectiveness in the use of resources. Operating efficiency (BOPO) is a ratio of operating expenses to operating income. BOPO reflects the extent to which the company utilizes its resources efficiently (Dendawijaya, 2009).

Liquidity Ratio

The concept of this ratio was developed by Graham & Dodd (1934) who stated that investors need to ensure a margin of safety in their securities, such as in bonds or preferred stocks that need to ensure there are sufficient current assets to meet current debt through significant profits. According to Weston & Eugene (2004), this ratio demonstrates a company's ability to settle its current debt. This ratio serves as a measuring tool regarding how liquid a business entity is. Current ratio is a method that can be utilized to assess a company's liquidity.

Financial Distress

When financial accounts from different eras are compared, financial distress is indicated by issues like diminishing profitability and the company's inability to pay debts and obligations (Putri & Aminah, 2019). Indications or symptoms of financial distress include cost reductions in all areas, massive layoffs, employee salary cuts, and a significant decline in stock prices (Santoso & Nugrahanti, 2022). It is feared that the company would face financial challenges and ultimately go bankrupt if its performance keeps declining. Bankruptcy is something that companies must be aware of.

Financial distress prediction with the Grover Model

Grover is a model that predicts bankruptcy, developed by Jeffrey S. Grover after assessing and redesigning the Altman Z-Score (Ishak et al., 2024). In 1968, Grover took a sample like that of the Altman Z-Score and then incorporated 13 other financial ratios into it. There were 70 companies as a sample, 35 of which experienced bankruptcy, while the other 35 did not go bankrupt (Munawarah et al., 2019). (Ishak et al., 2024) tested that the Grover model's predictive accuracy for financial trouble is 100% which is explained by the three independent variables (X1, X3, and ROA) used so that the Grover model is called better than other models, namely Altman Z-Score, ZM-Score, Zmijewski, and Springate S-Score.

Relationship between Profitability Ratio and Financial distress

Through the profitability ratio, a business entity can evaluate the volume of profit produced (Kasmir, 2019). The height and low of this ratio illustrates the good and bad of a business entity in getting profit. The value of the profitability ratio that continues to increase indicates that the business has a low risk of financial distress, while the more the company loses, the possibility of financial distress increases (Islamiyatun et al., 2021). According to signal theory, signals are sent to investors through income statements or dividends. Positive signals occur when profitability is high

and negative signals when profitability decreases. The results of previous research show mixed findings. In the research of Isayas (2021), Kalbuana et al. (2022), and Safitri & Yuliana (2021) suggest that financial distress is strongly and negatively impacted by profitability. While Erwan et al. (2023) and Islamiyatun et al. (2021) revealed that financial difficulties are driven by profitability in a positive direction. In addition, Anisa et al. (2023) and Antoniawati & Purwohandoko (2022) found that profitability has no influence on financial distress.

H1: Profitability ratio partially has a significant effect on the level of financial distress in textile industry companies for the 2019-2023 period.

Relationship between Operational Ratio and Financial distress

The operational ratio shows how efficient a company is in using available resources (Dendawijaya, 2009). The company must utilize its resources to increase revenue, so that it can cover its operating costs. This can then make the company's operational processes more effective. A higher BOPO ratio indicates the company's inefficiency, which makes it more vulnerable to financial distress (Permatasari & Cahyono, 2024). Based on signal theory, efficient resource management provides a positive signal while poor management provides a negative signal. The results of previous studies provide diverse findings Sagita et al. (2022) and Permatasari & Cahyono (2024) mention that BOPO affects financial distress, while Hariono & Azizuddin (2022) show that BOPO has no bearing on financial distress.

H2: Operational ratios partially have a significant effect on the level of financial distress in textile industry companies for the 2019-2023 period.

Relationship between Liquidity Ratio and Financial distress

The capacity of a business to make payments off debts when due can be determined through liquidity ratios (Kasmir, 2019). Liquidity refers to the proficiency of a business entity to capitalize on its current assets to clear its liquid debts (Cahyani & Nugraeni, 2024). If the business's existing obligations are able to be settled on schedule, the company can avoid financial distress (Antoniawati & Purwohandoko, 2022). Conversely, when the company shows financial problems characterized by the inability to meet its current debt, this illustrates that the company is facing liquidity difficulties, which if left unchecked can have an impact on business bankruptcy (Putri & Aminah, 2019). Based on signal theory, a company with sufficient and stable liquidity will give a positive signal while a decrease in liquidity can give a negative signal. Previous research states different results regarding this relationship. Isayas (2021) and Putri & Aminah (2019) found that financial distress impacted by liquidity strongly and in a negative direction. Then, Islamiyatun et al. (2021) stated that liquidity affects financial distress positively and strongly. Meanwhile, Valentina & Jin (2020) and Idawati & Wardhana (2021) suggest that liquidity does not affect financial distress.

H3: Liquidity ratio partially has a significant effect on the level of financial distress in textile industry companies for the 2019-2023 period.

Relationship between Profitability Ratio, Operational Ratio, and Liquidity Ratio to Financial distress

The use of profitability, operational and liquidity ratios has implications in knowing the financial position of a business entity. Through the use of operational ratios, it can be determined how well a business entity uses the resources under its control. Operational efficiency will reduce costs and increase profit margins so that profitability will also increase. The business entity's capacity to generate enough cash flow to settle its short-term debt will be impacted by this high level of profitability. It is anticipated that this will improve the company's financial standing and reduce the likelihood of financial difficulties.

H4: Profitability ratios, operational ratios, and liquidity ratios simultaneously have a significant

effect on the level of financial distress in textile industry companies for the 2019-2023 period.
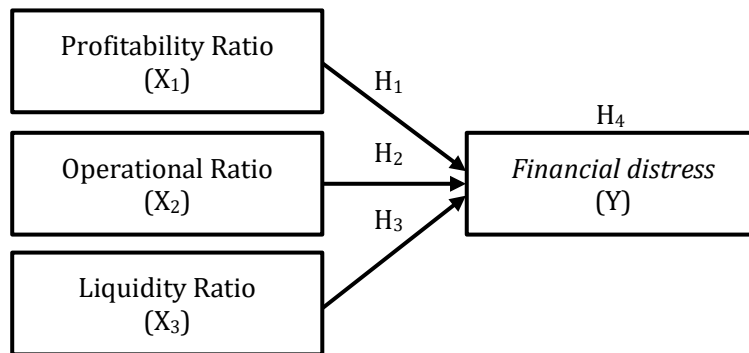

Figure 1. Theoretical Framework Chart

RESEARCH METHOD

This research applies the positivism paradigm, which analyzes research data objectively and logically according to the actual situation (Saunders et al., 2009). This study is applied research with a quantitative approach. This research data is taken secondarily through the official IDX website and the company's website. The data required is in the form of financial reports of textile industry companies listed on the Indonesia Stock Exchange for the 2019-2023 period. This study uses 15 out of 19 textile companies obtained by purposive sampling technique. Based on the observation time of 5 years, the total sample in this study amounted to 75 companies. This number has met the sample adequacy according to Hair et al. (2019), namely the minimum sample is 5-10 times the number of variable indicators so that the calculation results obtained 60 samples (5 * 12). The IBM SPSS Statistics 26 program was used to conduct the data analysis for this study. The following is the sample selection process.

Table 1. Selection of Sample Criteria

No	Sampling Criteria	Amount
1	Textile industry companies listed on the Indonesia Stock Exchange during the period 2019-2023	19
2	Textile industry companies that do not consistently publish financial reports consecutively during the 2019-2023 period	(3)
3	Companies whose financial statements do not end on December 31st	(1)
	Amount of companies that meet the sample criteria	15
	Amount of observations	5
	Total observation sample	75

The two types of variables that form the foundation of this study are independent and dependent variables. Dependent variables are those that are influenced by independent factors, whereas independent variables effect dependent variables. The following are measurements for each variable in this study.

Table 2. Operational Definition of Variables

Variable	Operational Definition (Indicator / Formula)	Scale
Ratio Profitability (X1)	$ROA = \dfrac{\text{Earning After Tax}}{\text{Total Assets}}$	Ratio
Operational Ratio (X2)	$BOPO = \dfrac{\text{Operating Expenses}}{\text{Operating Income}}$	Ratio
Liquidity Ratio (X3)	$Current\ Ratio = \dfrac{\text{Current Assets}}{\text{Current Liabilities}}$	Ratio
Financial distress (Y)	$G = 1.650X_1 + 3.404X_3 + 0.016\ ROA + 0.057$	Ratio

X1 = Working Capital/Total Assets
X3 = Earning Before Interest and Taxes/Total Assets
ROA = Net Income/Total Assets

G ≤ -0.02 → distress
G ≥ 0.01 → non distress
-0.02 ≤ G ≤ 0.01 → grey area

FINDINGS AND DISCUSSION
Data Analysis
Descriptive Statistical Analysis

The features of the lowest, greatest, average, and standard deviation scores may all be described with the use of this analysis. The table below displays the analytical test's findings.

Table 3. Descriptive Statistical Analysis Results

	N	Min	Max	Mean	Std. Deviation
ROA	75	-0.871	0.120	-0.03517	0.132740
BOPO	75	0.849	1439.991	20.54271	166.124862
CR	75	0.039	16.282	1.86298	2.308566
G-Score	75	-8.007	1.539	-0.43368	2.087213
Valid N (listwise)	75				

Classical Assumption Test
1. Normality Test

This test ensures that the regression model's residuals are properly distributed (Ghozali, 2018). By use of Kolmogorov-Smirnov testing, the following outcomes are displayed.

Table 4. Normality Test Results

Description	Unstandardized Residual
Asymp. Sig. (2-tailed)	0.200[c,d]

The test resulted in a sig value 0.200 is more than 0.05, it is assumed that the data is normally distributed and that the chosen regression model is adequate for further testing.

2. Multicollinearity Test

Furthermore, Ghozali (2018) clarifies that when there is no association between each

independent variable, the regression model is judged adequate. Therefore, multicollinearity testing is needed to find out if there is a correlation relationship. The following are the test results.

Table 5. Multicollinearity Test Results

Independent Variable	Tolerance	VIF
ROA	0.985	1.015
BOPO	0.987	1.013
CR	0.973	1.027

Referring to the results above, the three independent variables show VIF values not reaching 10.00 and tolerance values exceeding 0.10. This suggests that the regression model is adequate for research usage, as there is no evidence of multicollinearity among the three independent variables.

3. Heteroscedasticity Test

This study made observations on more than one company so it is called cross section data. Ghozali (2018) said that a good regression model for cross section data is when the residual value's variance is constant or homogeneous. Therefore, the Glejser test was chosen to determine the sign of heteroscedasticity. Below are the test results.

Table 6. Heteroscedasticity Test Results

Model	Unstandardized Coefficients		Standardized Coefficients	t	Sig.
	B	Std. Error	Beta		
(Constant)	0.828	0.689		1.202	0.235
ROA	-0.553	1.294	-0.106	-0.427	0.671
BOPO	-0.455	0.694	-0.162	-0.656	0.515
CR	-0.004	0.016	-0.040	-0.271	0.787

The test revealed that each of the study's independent variables generated sig. values exceeding 0.05, meaning that they did not experience signs of heteroscedasticity. It can also be interpreted that the residual value's variance is homogeneous or called homocedasticity.

4. Autocorrelation Test

This research is included in the time series data because observations were made in five years, namely the 2019-2023 period. Ghozali (2018) said that in this time series data, problems can arise due to disturbances in the object of observation which tend to be related to each other so that an autocorrelation test is needed. The Durbin-Watson test was utilized in this investigation and the findings are as follows.

Table 7. Autocorrelation Test Results

Description	Value
Durbin-Watson	1.792

Referring to the Durbin-Watson test, the result is 1.792. This value indicates the absence of positive and negative autocorrelation in the regression model because it meets the assumption du < d < 4 - du (1.7092 < 1.792 < 2.2908). Based on this, the regression model used has no autocorrelation problem.

5. Linearity Test

The goal of this test is to ensure that the model parameters utilized are adequate (Ghozali, 2018). Below are the test results.

Table 8. Linearity Test Results

Independent Variable	Linearity Sig.
ROA	0,000
BOPO	0,004
CR	0,000

Referring to the table above, all three variables have linearity sig. which is below the 0.05 limit. This suggests that there is a linear relationship between the independent and dependent variables.

Multiple Regression Analysis

The purpose of this analysis is to ascertain the direction of the relationship between the independent and dependent variables and to quantify the intensity of the connection between at least two variables (Ghozali, 2018).

Table 9. Multiple Regression Analysis Results

Model	Unstandardized Coefficients		Standardized Coefficients	t	Sig.
	B	Std. Error	Beta		
(Constant)	0.113	0.075		1.519	0.134
ROA	5.073	0.383	0.750	13.245	0.000
BOPO	-0.001	0.000	-0.197	-3.484	0.001
CR	0.137	0.023	0.342	5.998	0.000

Table 8 allows the regression equation to be made into $Y = 0,113 + 5,073X_1 - 0,001X_2 + 0,137X_3 + e$

Description:
Y   = G-Score
X1   = ROA
X2   = BOPO
X3   = CR
e   = Error

Based on the regression equation, the constant value of 0.113 indicates that if the independent variables, namely profitability, operations, and liquidity, are zero, then financial distress is 0.113. The profitability variable regression coefficient value of 5.073 indicates that profitability impacts financial distress positively. This value explains that every time profitability increases by one unit and ceteris paribus, there is an increase in financial distress by 5.073. The operational variable regression coefficient value of -0.001 means that operations negatively affect financial distress. This value explains that every time there is an addition of one operational unit and ceteris paribus, there will be a decrease in financial distress by -0.001. The liquidity variable regression coefficient value of 0.137 describes that liquidity impacts financial distress positively. This value explains that every time liquidity increases by one unit and ceteris paribus, there will be an increase in financial distress by 0.137. The increasing financial distress value shows that the business is getting farther from bankruptcy and vice versa, the decreasing financial distress value suggests that the business is getting closer to bankruptcy.

A series of classic assumption tests above are carried out to avoid biased assumptions and understand the condition of the data in the study so that it can be used to determine the appropriate analysis model.

Hypothesis Test
1. T Statistical Test
   (Ghozali, 2018). The following are the test results.

Table 10. T Statistical Test Results

Model	Unstandardized Coefficients		Standardized Coefficients	t	Sig.
	B	Std. Error	Beta		
(Constant)	0.113	0.075		1.519	0.134
ROA	5.073	0.383	0.750	13.245	0.000
BOPO	-0.001	0.000	-0.197	-3.484	0.001
CR	0.137	0.023	0.342	5.998	0.000

Table 9 yields the result that the sig. value on the three independent variables did not reach 0.05 so that hypotheses 1, 2, and 3 are accepted.

2. F Statistical Test
   The goal of this test is to see if the independent and dependent variables have a simultaneous influence (Ghozali, 2018). The test findings are as follows.

Table 11. F Statistical Test Results

Model	Sum of Squares	Df	Mean Square	F	Sig.
Regression	46.746	3	15.582	84.814	0.000[b]
Residual	11.391	62	0.184		
Total	58.137	65			

Through the F test results, the sig. 0.000 does not reach 0.05 meaning that profitability, operational, and liquidity variables have a significant impact on the level of financial distress together.

3. Coefficient of Determination (R^2)
   To evaluate the model's capacity to identify variations in the independent variables, the R^2 test is used (Ghozali, 2018).

Table 12. Determination Test Results (R^2)

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	0.897[a]	0.804	0.795	0.428625

The results show adjusted R^2 worth 0.795. This condition shows that the financial distress variable is impacted by the profitability, operational, and liquidity factors all at the same time, to the tune of 79.5%. Other factors, however, affect the remaining 20.5%.

Discussion
Effect of Profitability Ratio on Financial Distress Level

Referring to the test results, the t-count of ROA of 13.245 is positive and sig. 0.000 below the 0.05 limit. This means that profitability affects financial distress positively and significantly. In conclusion, H1 which reads that the profitability ratio has a significant effect on the level of financial distress is approved. A positive influence is a unidirectional relationship. This means that when ROA increases, the G-Score value also increases so that companies tend to be in a healthy or non-distress condition. Likewise, when ROA decreases, the G-Score value also decreases as a result the company tends to be in an unhealthy or distress situation.

~~These findings are in harmony with signal theory.~~ A rise in profitability emits a positive signal to the owner or shareholder that the business is doing well financially and able to generate sustainable profits. Then this condition brings the company away from the possibility of financial trouble allowing it can make the level of investor confidence increase and also increase the share price. Conversely, companies with low profitability will send negative signals to investors. Providing evidence that the business is having financial issues and struggles to generate enough revenue to support its operations. This result supports Erwan et al. (2023) that during the pre-Covid-19 period in oil and gas sector companies recorded by the IDX for the period 2018 to 2021, profitability had a positive and significant influence on financial difficulties. Then, studies by Islamiyatun et al. (2021) that profitability has a strong and positive significant effect on financial distress in companies listed in the LQ 45 index.

Effect of Operational Ratio on Financial Distress Level

Through the test findings, the t count of BOPO is -3.484 with a negative value and sig. 0.001 is below 0.05. This means that the operational ratio affects financial distress negatively and significantly. It can be concluded, H2 which reads that operational ratios have a significant effect on the level of financial distress is accepted. The negative effect is a reverse relationship. The meaning is that when BOPO rises, the G-Score will decrease so that the company tends to be in an unhealthy or distressed state. Likewise, when BOPO goes down, G-Score will increase so that companies tend to be in a healthy or non-distress state.

~~These findings are in harmony with signaling theory.~~ Low BOPO provides a positive signal because it reflects efficient resource management. Conversely, companies with high BOPO reflect poor resource management and appear wasteful and show inefficiency. This will lead to a decrease in profit margins, which means fewer resources are available for investment, debt repayment, or business development. Ultimately, it may leave the business open to financial difficulties. This situation emits a negative signal to outsiders such as creditors and investors that the company is at high risk, then reduces their confidence to invest and provide funding. The findings of this investigation harmony with Sagita et al. (2022) that BOPO as a representative of the CAMEL ratio in the management indicator has a negative effect on financial distress in all banks listed on the IDX for the 2014-2018 period.

Effect of Liquidity Ratio on Financial Distress Level

Through the test findings, the t count of CR of 5.998 is positive and sig. 0.000 below the 0.05 limit. This means that liquidity affects financial distress positively and significantly. It can be concluded, H3 which reads that the liquidity ratio has a significant effect on the level of financial distress is accepted. This positive influence is a unidirectional relationship. This means that if the CR increases, the G-Score number likewise increases, indicating that the company is in a healthy or non-distressed position. Likewise, G-Score will also decrease when CR decreases so that companies tend to be in an unhealthy or distressed state.

~~These findings are in harmony with signaling theory.~~ The increase in the liquidity ratio sends a positive signal to owners and creditors that the business's liquidity position is healthy and has the

ability to cover its present liabilities. Finally, the business can avoid the possibility of financial trouble. Positive signals can increase the level of creditor confidence and encourage the provision of loans or credit facilities. Conversely, companies with low liquidity can send negative signals to creditors, indicating that the company has difficulty completing its current obligations according to the deadline, and indicating that the business is having financial distress. The results of this study are in harmony with the research of Islamiyatun et al. (2021) which states that liquidity (CR) has a strong positive and significant effect on financial distress in companies listed on the LQ 45 index.

The Effect of Profitability Ratios, Operational Ratios, and Liquidity Ratios on the Level of Financial Distress

Through the test findings, the f count is 84.814 and sig. 0.000 does not reach 0.05. It can be concluded that H4 which reads profitability ratios, operational ratios, and liquidity ratios simultaneously have a significant effect on the level of financial distress is accepted. Profitability, operational, and liquidity ratios that are included in the financial ratios can be used as indications or parameters of the likelihood of financial distress. Operational ratios can determine the degree of efficiency in using the resources that the organization possesses. This operational efficiency will reduce costs and increase profit margins so that profitability will also increase. This high level of profitability will affect the business's capacity to generate sufficient cash flow to settle its current liabilities. This can then strengthen the business's financial standing and it may be able to lower its risk of financial crisis.

CONCLUSIONS

This study found that the profitability ratio and liquidity ratio affect financial distress in a positive and significant direction, while the operational ratio has a negative effect on financial distress significantly. This study successfully built a financial ratio-based prediction model that can be used to identify the risk of financial distress in textile industry companies listed on the IDX for the 2019-2023 period. Profitability is the strongest predictor of financial distress, followed by liquidity and operations. Companies tend to face higher financial risk when their profitability and liquidity are low, while their operating expenses are relatively high. This condition illustrates the company's difficulty in generating profits, managing cash flow, and reducing operating costs. If this problem is overcome too late, the company may experience bankruptcy. This model serves as an early detection tool for companies that have a high level of risk so that more focused mitigation steps can be taken. The model serves as a guide to formulate strategies that can improve the financial performance of textile companies and increase the investment attractiveness of this industry in the capital market.

This research has practical implications for the Indonesia Stock Exchange that to increase investment flows in the textile industry, the IDX needs to make several efforts such as developing a financial ratio-based early warning system to detect potential financial distress of textile companies so that it can help investors anticipate risks before making investment decisions. Establish a special index for textile companies that prioritizes their company performance based on financial ratios, especially profitability, operational, and liquidity ratios. This index can be used by investors as a guide in assessing the possible risk of financial distress and choosing companies that have more stable finances. Encourage textile companies to increase transparency by publishing more detailed financial reports. Develop digital platforms such as blockchain technology in financial reporting to improve data accuracy and transparency as well as more detailed and real time presentation so as to reduce investor doubts in investing. Encourage textile companies to avoid information asymmetry while minimizing conflicts between owners and management through the application of good corporate governance. Encourage textile companies to utilize capital market-based

financing, such as the issuance of green bonds as a sustainability effort. This is an attractive alternative form of financing for investors that focuses on ESG (Environmental, Social, and Governance) and is relevant to current global investment trends. Established partnerships with the ministry of industry and textile associations to provide mentoring programs, such as financial management training and market expansion strategies. Establish partnerships with the government and Bank Indonesia to address macroeconomic impacts to create policies that support business growth. Incentivize textile companies that manage financial risks well, thereby improving their reputation with investors. Offer special incentives for foreign and institutional investors to attract them to invest in textile companies. In addition, stakeholders also need to consider the thresholds of profitability, operational, and liquidity ratios to formulate strategic policies that can mitigate the risk of financial distress of textile companies. Ultimately, these practical implications can increase the investment attractiveness and business sustainability of Indonesia's textile industry.

LIMITATION & FURTHER RESEARCH

The financial ratios used as independent variables in this study are limited to profitability ratios calculated by Return on Assets (ROA), operational ratios calculated by the ratio of Operating Costs and Operating Income (BOPO), and liquidity ratios calculated by Current Ratio (CR). Based on this, there is still the possibility that other factors can affect the level of financial distress as an independent variable, such as macroeconomic factors. Then, the model chosen in determining the financial distress condition is limited to the Grover model (G-Score). In addition, the limitation of the sample size of this study is the number of textile industry companies listed on the Indonesia Stock Exchange (IDX) that meet certain selection criteria so that the results cannot be generalized to other sectors. Furthermore, the research period is limited to five years, namely the 2019-2023 period, which may not reflect the full business cycle. Suggestions for future research are to consider adding other variables such as capital structure, macroeconomic conditions and other external factors such as government policies. Then it can use different prediction models, extend the research period, and expand the research sample from various sectors to SMEs. Other researchers can also conduct comparative studies, integrate qualitative factors such as management quality, and test hybrid models such as Grover with machine learning.

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