

Financial Distress Analysis in Manufacturing Companies using The Panel Vector Auto Regression (PVAR) Approach

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Abstract. A good company's financial condition will attract investors in their investment decisions, managers in their financial decisions, and current ratio editors in supporting their funding decisions. If the company's financial condition is bad and has an impact on the company's fate, then external parties will not want to work with the company because the company is on the verge of bankruptcy. This study aims to determine the effect of profitability ratios, liquidity ratios, and leverage ratios on financial distress. This study uses the Panel Vector Auto Regression (PVAR) approach, which concludes that the liquidity ratio proxied by the current ratio has a greater influence on financial distress than other variables.

Keywords: Profitability ratio, liquidity ratio, leverage ratio, and Panel Vector Autoregression (PVAR).

1. Introduction

The Covid-19 pandemic that occurred in Indonesia in 2019 had an extraordinary impact on Indonesia's economic conditions. The increasing number of victims due to contracting Covid-19 has forced the Government to find a way to suppress the spread of the virus. In the end, the Government chose to use PSSB (Large-Scale Social Restrictions) with the aim of reducing the number of victims. Due to the existence of the PSBB, people are inevitably required to carry out their activities from home. In the structure of the national economy, PSBB has caused many companies to choose to stop their operations because product sales have decreased. In addition, the PSBB had an impact on companies, namely companies that went bankrupt. This can be seen from the decline in Indonesia's Purchasing Managers' Index which fell to its lowest level at 27.5.

High financial performance firms appeal to investors in their investment decisions, managers in their financial decisions, and creditors in supporting their funding decisions. Profit is the main goal of every company, and the desire of shareholders to maximize wealth. Thus, profit and business performance are increasingly concerning because their existence and survival depend on profits. Financial ratios ultimately help investors, managers, financial institutions, and other users of financial statements to better understand and measure company performance, ensure sustainable company performance, and help make an

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investment or funding decisions. Thus, the decision depends on the quality of the financial reports (Mayhad, S.R., dan Lestari, 2019).

In addition, not only endogenous variables such as financial ratios are calculated using accounting data, but also other relevant exogenous factors that can explain company performance or financial ratios that fluctuate, usually indicating a crisis. Financial performance is usually measured through Return on Assets and Return on Equity. Financial performance has been stated in the literature is influenced by certain factors such as liquidity, ownership, age, and size. In addition, other factors that can affect financial performance, such as leverage, productivity, solvency, and asset turnover, may change when facing a crisis. The financial crisis caused economic imbalance and affected the business environment.

The growth rate of world economic conditions has progressed quite a lot every year. Various ways are used by business people to maintain and develop a competitive advantage over their competitors. The competition between companies is getting tighter, causing the company's costs to increase. Factors that can make a company maintain the continuity of its business activities also need to be considered by understanding business failure because businesses always have weaknesses, namely experiencing difficulties and even financial failure. The company is an organization established with the aim of obtaining large profits.

In addition, the company also focuses on the survival of the company to continue its business continuity. The assumption of business continuity is used by a business entity in running its business. With a going concern, an entity is considered capable of maintaining its business in the long term and will not be liquidated in the short term. The ability of management in a company in order to maintain the condition of the company to continue its business continuity will prevent the company from experiencing financial distress which can lead to business bankruptcy in the future. The initial stage of business bankruptcy that occurs within a company usually begins with financial difficulties (Komala, 2018).

Detecting the potential for bankruptcy needs to be done from the start so that the company can know what to do or what kind of anticipation is needed so that bankruptcy does not occur. In detecting the potential for bankruptcy, a company can use Financial Distress as a reference. Financial distress is a situation where a company experiences a decline in its financial condition from year to year (M. Putri et al., 2021). Information about financial distress is urgently needed by investors who want to invest their capital, and creditors who will provide loans are also needed. External parties of the company will not want to cooperate with companies that are experiencing financial distress. To find out the condition of financial distress, companies can look at financial reports and then analyze the company's financial ratios. Analysis of financial ratios is used as a way to predict and determine the condition of a company's financial distress (Widhiari & Aryani Merkusiwati, 2015, p. 457). Financial ratios that can be used include profitability ratios, liquidity ratios, and leverage ratios.

The profitability ratio is a ratio or comparison to find out a company's ability to get profit (profit) from income (earnings) related to sales, assets, and equity-based on certain measurements (Ompusunggu & Wage, 2021). The profitability ratios in this study are proxied by Return On Assets and Net Profit Margins. Chairunesia (2021) said that profitability ratio proxied by ROA has a significant effect on the probability of the company experiencing Financial Distress. However, it is different from the research conducted by Putri et al. (2021). Meanwhile, research conducted by Yuliani & Anggaradana (2021) states that Net Profit Margin has a negative and significant effect on financial distress. However, it is different from the research conducted by Sudaryo et al. (2021).

The liquidity ratio of a company reflects the company's ability to pay its current liabilities or debts. The liquidity ratio aims to calculate how well a company can fulfill its current debt (short-term debt) (Ir. Kuswandi, 2008). The liquidity ratio in this study is proxied by the Current Ratio. Research conducted by Ch Pandegiro & Van Rate (2019) states that the Current ratio has a significant effect on Financial Distress, also according to research by

Rochman Marota, Asep Alipudin and Ayursila Maiyarash in (Sunaryo, 2021), the current ratio partially and simultaneously has a significant influence in predicting financial distress. However, it is different from the research conducted by Silanno & Loupatty (2021), which says that the Current ratio has no significant effect on Financial Distress.

The leverage ratio is the ratio used to calculate how much a company relies on debt to finance its assets. The leverage ratio can show the proportion of a company's debt to its total assets. Investors can use the leverage ratio to find out how much debt a company has compared to its assets. Creditors can also measure how high the risk is given to a company (Ompusunggu & Wage, 2021). The leverage ratio in this study is proxied by the Debt-to-Equity Ratio. Research conducted by Ginting (2017) states that the Debt To Equity Ratio has a significant negative effect on financial distress, also according to research by (Dwiantari et al., 2021) Debt to Equity Ratio has a positive and significant impact on financial distress. However, in contrast to research conducted by Silanno & Loupatty (2021) said that the Debt To Equity Ratio has no significant effect on Financial Distress.

Based on the background above, there are still inconsistencies in the results of previous studies regarding the effect of profitability, liquidity, and leverage on financial distress. In addition, there is little or no research on the effect of profitability, liquidity, and leverage on financial distress using the PVAR method. Therefore, researchers are interested in conducting research on the effect of Profitability, Liquidity, and Leverage on financial distress using the PVAR method.

The VAR model was first introduced by C.A. Sims (1972) as an extension of Granger's (1969) thinking. Vector Auto Regression or VAR is a time series method that is often used in the field of economic analysis. The VAR method is arguably a very simple method because there is no need to separate the independent and dependent variables. The Vector Auto Regression or VAR method can be used to analyze the causality (cause and effect) of the relationship between market forces, liquidity risk, stability, and profitability. VAR can be used if the data being analyzed is time series data and has a relatively large amount of data (more than 50 observations). Because this study uses panel data, it uses the Panel Vector Auto Regression (PVAR) model.

2. Literature Review

2.1 Profitability Ratio

According to Lyn M. Fraser in Sugiono & Untung, n.d., the profitability ratio is the ratio used to measure overall company performance and efficiency in managing assets, liabilities, and wealth. Return On Assets is a type of profitability ratio used to measure a company's performance in generating net profit from the use of its assets. Return on Assets (ROA) indicates how effective a firm is in managing its assets to cover all of its operating expenses and make substantial profits with little risk of going bankrupt (Habibi & Utami, 2022). At the same time, the Net Profit Margin is a type of profitability ratio that is used to measure the percentage of net profit associated with net sales. Net Profit Margin is said to be good if the number is high or in accordance with what the company is targeting. So it can be said that a company that has a high Net Profit Margin will avoid the potential for financial distress.

2.2. Liquidity Ratio

In the world of work, there are many companies that are experiencing financial difficulties so that they cannot finance the company's operational costs or even cannot pay off their debts. Companies that cannot pay off their obligations, namely paying off debt, are certain that the company will go out of business. According to research by Veithzal Rivai in (Negoro & Wakan, 2022) liquidity is the evaluation of a company's ability to meet its short-term liquidity

needs, including meeting its short-term commitments at any time or the maturity of those obligations. In other words, through this ratio, the company can measure how high the level of the company's ability to pay its debts is. In this liquidity ratio, researchers use the current ratio or Current Ratio. The Current ratio is the ratio used by a company to measure its ability to meet its short-term maturing obligations using the total assets that are available.

2.3 Leverage Ratio

The leverage ratio is a ratio that serves to measure the extent to which a company's financial needs are financed by loan funds. The Debt-to-Equity Ratio, also known as the debt-equity ratio, is a type of leverage ratio used to determine the financial leverage a company uses. The debt-to-equity ratio takes into account the company's liabilities and shareholder equity. In other words, the Debt-to-Equity Ratio calculates the extent to which a company uses debt compared to equity to run a business. The leverage ratio is one of several financial measurements that look at how much capital comes in the form of debt (loans) or assess a company's ability to meet its financial obligations (Rosyafah et al., 2021). The category of the leverage ratio is important because companies rely on a mix of equity and debt to finance their operations, and knowing the amount of debt a company has is useful in evaluating whether it can pay off its debts when they fall due (Rahmawati et al., 2020). In general, if the debt-to-equity ratio is too high, it is a signal that the company may be in financial trouble and unable to pay its debtors. But if it's too low, it's a sign that the company is relying too much on equity to finance the business, which can be expensive and inefficient. Leverage ratios can also be used to measure a company's mix of operating expenses to get an idea of how changes in output will affect operating income. Fixed and variable costs are two types of operating expenses; Depending on the company and industry, the mix will be different. Finally, the consumer leverage ratio refers to the level of consumer debt relative to disposable income and is used in economic analysis and by policymakers (Mayhad, S.R., dan Lestari, 2019).

2.4 Financial Distress

Financial distress is a term commonly used in corporate finance that describes a situation where the financial condition of an individual or company makes it difficult for them to pay their bills, especially loan payments due to creditors. Financial distress is classified into four terms written by Altman & Hotchkiss in (Wangsih et al., 2021) those are economic failure, business failure, insolvent, and legal bankruptcy. Severe and prolonged financial difficulties can eventually lead to bankruptcy. When a financial distress condition occurs, it must be addressed immediately so that the condition does not worsen. Financial problems often lead to more financial problems if they can't be fixed right away. There are many potential causes of financial distress, and some of them are beyond the control of the individual or the company. Financial distress is a situation in which any organization or individual is unable to meet its financial obligations due to insufficient income. Usually due to high fixed costs, outdated technology, high debt, improper planning and budgeting, and improper management, leading to bankruptcy (Aisyah, Nakhar Nur; Kristanti, Farida Titik; & Zultilisna, 2017)

When a company is in trouble, its assets are not more expensive, and its debt is more expensive. The interest rates charged by banks to companies are higher than those charged to other companies in the same industry. Technically, a company's period when the market price of a stock falls or the value of its assets decreases is usually the reason for a cash crunch and inaccurate projections (D. A. Putri, 2021). The author uses the Altman Z score formula to calculate financial distress. The Altman Z-Score is a numerical measurement used to predict the probability of a business going bankrupt in the next two years. The Altman Z-

Score model is considered an effective method for predicting the state of financial distress of any organization by using multiple company balance sheets and earnings values.

3. Research Method

This research is quantitative research. The data used in this study are Return On Assets, Net Profit Margin, Current Ratio, Debt To Equity Ratio, and Financial Distress obtained from the financial reports of manufacturing companies listed on the Jakarta Islamic Index 70 in 2015-2022 through the website www.idx.co.id which is then calculated by the researcher. This research includes panel data using the Panel Vector Auto Regression (PVAR) approach with several stages of analysis including stationary tests, optimal lag tests, stability tests, Johansen cointegration tests, PVAR model tests, and Variance Decomposition (V.D.) tests. The tools for processing data are E-Views 12.

4. Result and Discussion

4.1 Stationary Test

Stationary tests must be carried out when processing data using Vector Autoregression (VAR) or Panel Vector Auto Regression (PVAR). The stationarity test is an important requirement when using the PVAR method, which aims to find out that the data from a variable must be stationary or not have a unit root. The first step that must be taken is to carry out a unit root test in this study using the P.P. method (Phillips - Perron) - Fisher Chi-Square.

To see the use of whether a data level is sufficient or must be at the first difference or even the second difference, it can be seen from the probability value of the P.P. method (Phillips - Perron) - Fisher Chi-Square. If the probability value of all tests is less than 0.05, then the variable can be said to be stationary or does not have a unit root. However, if one of the data tests has a probability value of more than 0.05 at the level, then the variable is not stationary and must be tested at the first difference and second difference levels until the data is said to be truly stationary. From the results of data processing using E-Views in table 1, it can be seen that the data is said to be stationary at the first difference level. This can be seen from the results of the probabilities in the P.P. method (Phillips - Perron) - Fisher Chi Square < 0.05 , which is at the first difference level.

Table 1. Unit Root Test Results Using P.P. (Phillips - Perron) - Fisher Chi-Square

Variable	Level		First difference	
	Statistic	Prob.**	Statistic	Prob.**
Return On Asset	50.9474	0.0002	43.1640	0.0019
Net Profit Margin	20.3159	0.4383	45.0120	0.0011
Current Ratio	54.0204	0.0001	31.9516	0.0438
Debt To Equity Ratio	44.0095	0.0015	40.8077	0.0039
Financial Distress	50.4717	0.0002	62.1750	0.0000

4.2 Optimum Lag Test

After carrying out the stationary test, the next step is to perform the optimal lag test. Optimal lag is the amount of lag that gives a significant effect or response. The lag length tests can be determined by looking at the Aike Information Current Ratio (AIC) and Schwarz Current Ratio (S.C.), which have the lowest value, and looking at the highest number of stars (*) recommended from each of the lag length test criteria. Based on table 2, by looking at the lowest Schwarz Current Ratio (S.C.) value, this study uses lag 1.

Table 2. Optimum Lag Test Results

Lag	LogL	LR	FPE	MC	SC	HQ
0	15.03383	NA	3.53e-07	-0.668922	-0.435389	-0.594213
1	176.8765	258.9482	3.95e-11	-9.791764	-8.390567*	-9.343509
2	207.1837	38.38919*	3.23e-11*	-10.14558	-7.576719	-9.323780
3	228.1076	19.52893	6.55e-11	-9.873838	-6.137312	-8.678491
4	269.4661	24.81512	6.34e-11	-10.96441*	-6.060216	-9.395514*

4.3 Stability Test

The next step is the stability test. A stability test is a requirement for reliable Impulse Response Function (IRF) and Variance Decomposition (V.D.). To test the stability of the PVAR estimation, check the PVAR stability condition in the form of polynomial roots of characteristics. The PVAR model is said to be stable if it has a modulus value that is at a radius of less than 1 or the roots of the polynomial function are within 1 circle (unit circle). Based on table 3, it can be seen that all modulus values are less than 1, so the PVAR data is said to be stable. Because the PVAR data is stable, the Impulse Response Function (IRF) and Variance Decomposition (V.D.) can be trusted.

Table 3. Stability Test Result

Root	Modulus
0.985157	0.985157
0.939488	0.939488
0.719496-0.073206i	0.723211
0.719496+0.073206i	0.723211
0.403598	0.403598

4.4 Johansen Cointegration Test

After carrying out the stability test, the next step is cointegration testing. The cointegration test was carried out using the Johansen cointegration test. The cointegration test has a provision that if the probability value is < 0.05 , then it uses the Panel Vector Error Correlation Model (PVECM). However, if the probability value is > 0.05 , then use the Panel Vector Auto Regression (PVAR). Based on the processed Eviews output data, it can be seen in table 4 that the probability value in the None row and the At most 1 to At most 4 rows has a probability value of 0.1931, 0.9796; 0.9677; 0.868; 0.4301 which means > 0.05 , then the data does not have cointegration or does not have a long-term balance. Therefore, this study uses the Panel Vector Auto Regression (PVAR) method.

Table 4. Johansen Cointegration Test result

Hypothesized No. of CE(s)	Eigenvalue	Trace Statistic	0.05 Critical Value	Prob.**
None	0.512354	52.19977	60.06141	0.1931
At most 1	0.162240	16.29149	40.17493	0.9796
At most 2	0.088161	7.440298	24.27596	0.9677
ttmost3	0.039856	2.825710	12.32090	0.8689
At most 4	0.015718	0.792126	4.129906	0.4301

Trace test indicates nocointegration at the 0.05 level
 * denotes rejection of the hypothesis at the 0.05 level
 **MacKinnon-Haug-Michelis (1999) p-values

4.5 PVAR Model Estimation

To see the effect between variables, you can compare the t-count value with the t-table and see the significance of the results of data processing with $\alpha = (5\%)$ with $df = n-k$ or $df = 70 - 5 = 65$, then the t-table value in this study is equal to 1.66864. In this PVAR model, there is a provision that if the t-count value $>$ t-table, then it has a significant effect. If the t-count value $<$ t-table, then it has no significant effect. The results of the analysis can be seen in table 5, namely:

Table 5. PVAR Model Estimation Result

	Z	ROA	NPM	CR	DER
Z(-1)	1213484 (0.17250) [7.03459]	0.016625 (0.00924) [1.79995]	0.009059 (0.00869) [1.04263]	0.366414 (0.18791) [1.94992]	-0.187619 (0.09470) [-1.98123]
ROA(-1)	-0.823431 (2.42559) [-0.33948]	0.821629 (0.12987) [6.32642]	0.071579 (0.12218) [0.58586]	-0.804935 (2.64227) [-0.30464]	2.986711 (1.33157) [2.24300]
NPM(-1)	-3.601201 (2.16256) [-1.66525]	-0.159451 (0.11579) [-1.37708]	0.634567 (0.10893) [5.82549]	-4.523034 (2.35574) [-1.92000]	0.523558 (1.18718) [0.44101]
CR(-1)	-0.296655 (0.13629) [-2.17661]	-0.009656 (0.00730) [-1.32325]	-0.007746 (0.00687) [-1.12836]	0.405268 (0.14847) [2.72968]	-0.000212 (0.07482) [-0.00284]
DER(-1)	-0.107007 (0.18876) [-0.56689]	0.010239 (0.01011) [1.01311]	-0.007021 (0.00951) [-0.73846]	-0.391378 (0.20562) [-1.90337]	0.692287 (0.10362) [6.68076]
C	0.473126 (0.3401 9) [1.39077]	-0.006284 (0.01821) [-0.34501]	0.020535 (0.01714) [1.19840]	1.078246 (0.37058) [2.90962]	0.484581 (0.18675) [2.59476]

VAR Model - Substituted Coefficients:

$$\begin{aligned}
 Z &= 1.21348368184 * Z(-1) - 0.823430604858 * NPM(-1) - 3.60120099909 * NPM(-1) - \\
 & 0.296654672186 * CR(-1) - 0.107007222419 * DER(-1) + 0.473125995459 \\
 ROA &= 0.0166247551758 * Z(-1) + 0.821628746203 * ROA(-1) - 0.159451095515 * NPM(-1) \\
 & - 0.00965637065101 * CR(-1) + 0.010239321352 * DER(-1) - 0.00628433173663 \\
 NPM &= 0.00905947028632 * Z(-1) + 0.0715789942336 * ROA(-1) + 0.634566895199 * NPM(-1) \\
 & - 0.00774630606142 * CR(-1) - 0.00702125468567 * DER(-1) + 0.020535336572 \\
 CR &= 0.366413789456 * Z(-1) - 0.804934958041 * ROA(-1) - 4.5230339404 * NPM(-1) + \\
 & 0.405268378366 * CR(-1) - 0.391377599078 * DER(-1) + 1.07824570184 \\
 DER &= - 0.187618810152 * Z(-1) + 2.98671130941 * ROA(-1) + 0.523557819307 * NPM(-1) - \\
 & 0.000212198586933 * CR(-1) + 0.692287203576 * DER(-1) + 0.48458055092
 \end{aligned}$$

Based on the processed results of the Panel Vector Autoregression (PVAR) in table 5, it can be seen that Financial distress at lag 1 has a significant positive effect on itself where t-count $>$ t-table (7.03459 $>$ 1.66864), Return On Assets at lag 1 has no significant effect on financial distress (-0.33948 $<$ 1.66864), Net Profit Margin at lag 1 has no significant effect on financial distress (-1.66525 $>$ 1.66864), Current Ratio at lag 1 has a significant negative effect on financial distress where t-count $>$ t-table (-2.17661 $>$ 1.66864), and Debt To Equity Ratio has no significant effect on financial distress (-0.56689 $<$ 1.66864).

4.6 Variance Decomposition Test

The next step is to determine the variance decomposition (V.D.). Variance Decomposition (V.D.) shows how the movement of a variable due to the shock of the variable itself has its impact on other movements sequentially. In other words, the variance decomposition

explains safe variables whose shock plays a role in explaining changes in a variable. Variance decomposition can be seen in the following table:

Table 6. Variance Decomposition Financial Distress Result

Period	S.E.	Z	ROA	NPM	CR	DER
1	0.506348	100.0000	0.000000	0.000000	0.000000	0.000000
2	0.729566	94.40257	0.295204	2.686086	2.538573	0.077562
3	0.907681	88.24536	1.037266	5.315372	5.329846	0.072152
4	1.055715	83.13103	1.971676	7.205698	7.638244	0.053352
5	1.179628	79.12552	2.886509	8.475842	9.459369	0.052757
6	1.283442	76.03057	3.677215	9.319343	10.90053	0.072341
7	1.370406	73.63951	4.312550	9.883293	12.05855	0.106103
8	1.443273	71.78316	4.798404	10.26571	13.00461	0.148116
9	1.504383	70.33151	5.155522	10.52975	13.78896	0.194256
10	1.555712	69.18662	5.408139	10.71589	14.44731	0.242041

Based on Table 6, it can be seen that the financial distress variable is influenced by itself in the first period by 100%. In contrast, the variables net profit margin, current ratio, and debt to equity ratio in the first period have not had any effect on financial distress because these variables have a value of 0%. In the second period to the tenth period, shocks were still caused by the financial distress itself as evidenced by the relatively large variance value even though there was a decline until the tenth period.

Entering the second period, all independent variables begin to influence financial distress. Return on assets in the second period had an effect of 0.29% on financial distress and continued to increase until the tenth period at 5.40%. The existence of other influences is also shown by the variable net profit margin in the second period of 2.68% and has increased until the tenth period at 10.71%; the current ratio in the second period is 2.53% and continues to increase until the tenth period of 14, 47%. In addition, the debt-to-equity ratio variable in the second period has an influence on financial distress of 0.07% and tends to increase until the tenth period at 0.24%.

Table 7. Variance Decomposition Return on Asset Result

Period	S.E.	Z	ROA	NPM	CR	DER
1	0.027111	31.48901	68.51099	0.000000	0.000000	0.000000
2	0.035197	36.62166	60.57059	1.323808	1.178813	0.305135
3	0.040612	39.64261	52.89789	3.287573	3.184728	0.987200
4	0.044904	41.01257	46.44429	5.196152	5.435434	1.911562
5	0.048522	41.31091	41.36881	6.774527	7.601716	2.944031
6	0.051634	40.98824	37.49393	7.979310	9.542180	3.996338
7	0.054328	40.33253	34.56994	8.858084	11.21783	5.021609
8	0.056668	39.51060	32.37568	9.479326	12.63557	5.998826
9	0.058711	38.61412	30.74013	9.905788	13.81932	6.920644
10	0.060506	37.69215	29.53687	10.18756	14.79719	7.786222

Based on table 7, it can be seen that the variable return on assets is influenced by itself in the first period with a value of 68.51%, and financial distress affects the return on assets with a value of 31.48%. At the same time, the variables net profit margin, current ratio, and debt to equity ratio in the first period have not had any effect on return on assets because these variables have a value of 0%. If return on assets experiences a shock or shock, the most responsive or influential variable, namely return on assets itself is proven by a relatively large variance value even though there has been a decline until the tenth period.

In the second period, all variables begin to influence return on assets. Return on assets had an effect on itself in the second period of 60.57% and decreased until the tenth period at

29.53%. Financial distress in the second period had an effect of 36.62% on return on assets and fluctuated until the tenth period at 37.69%. The existence of other influences is also shown by the variable net profit margin in the second period of 1.32% and has increased until the tenth period at 10.18%. The current ratio in the second period is 1.17% and continues to increase until the tenth period at 14.79%. In addition, the debt to equity ratio variable in the second period has an influence on the return on assets of 0.30% and tends to increase until the tenth period at 7.78%.

Table 8. Variance Decomposition Net Profit Margin Result

Period	S.E.	Z	ROA	NPM	CR	DER
1	0.025505	5.066033	36.73217	58.20180	0.000000	0.000000
2	0.031663	9.371849	40.03197	49.50694	0.911955	0.177288
3	0.034982	14.17968	40.07959	43.08820	2.382013	0.270519
4	0.037246	18.90953	38.39874	38.35245	4.065177	0.274103
5	0.039078	23.13044	36.01958	34.84230	5.758025	0.249660
6	0.040707	26.63156	33.54983	32.23495	7.342008	0.241649
7	0.042209	29.39065	31.28736	30.29273	8.761432	0.267820
8	0.043595	31.49410	29.33720	28.83711	10.00268	0.328894
9	0.044862	33.06641	27.70448	27.73553	11.07517	0.418407
10	0.046005	34.22902	26.35308	26.89156	11.99788	0.528463

Based on table 8, it can be seen that the variable Net Profit Margin is influenced by itself in the first period with a value of 58.20%, financial distress affects Net Profit Margin with a value of 5.06%, and Return On Assets affects Net Profit Margin with a value of 36, 73%. Meanwhile, the Current Ratio and Debt To Equity Ratio variables have not had an effect on the Net Profit Margin because these variables have a value of 0%. If the Net Profit Margin experiences a shock or shock, the most responsive or influential variable, namely the Net Profit Margin itself, is proven by the relatively large variance value even though it has decreased until the tenth period.

In the second period, all variables begin to influence the Net Profit Margin. Net Profit Margin has an influence on itself in the second period at 49.50% and fluctuated until the tenth period at 26.89%. Financial distress in the second period had an effect of 9.37% on the Net Profit Margin and increased until the tenth period of 34.22%. The existence of other influences is also shown by the variable Return On Assets in the second period of 40.03% and fluctuated until the tenth period of 26.35%; the Current Ratio in the second period was 0.91% and continued to increase until the tenth period of 11, 99%. In addition, the Debt To Equity Ratio variable in the second period has an influence on the Net Profit Margin of 0.17% and tends to increase until the tenth period at 0.52%.

Table 9. Variance Decomposition Current Ratio Result

Period	S.E.	Z	ROA	NPM	CR	DER
1	0.551580	39.84559	2.096523	7.336357	50.72153	0.000000
2	0.685512	52.56564	2.746533	5.207949	38.30467	1-175213
3	0.791128	58.18698	4.346796	6.427646	29.01418	2.024391
4	0.885251	59.73806	6.575213	8.086448	23.25494	2.345341
5	0.968561	59.52046	8.946514	9.313722	19.83222	2.387087
6	1.040991	58.68347	11.1 4646	10.06318	17-78224	2.324651
7	1.103148	57.72290	13.04721	10.46749	16.52480	2.237597
8	1.156110	56.82963	14.63101	10.65291	15.73058	2.155879
9	1.201127	56.06233	15.92888	10.70782	15.21245	2.088515
10	1.239425	55.42583	16.98701	10.68840	14.86219	2.036567

Based on table 9, it can be seen that the Current Ratio variable is influenced by itself in the first period with a value of 50.72%, financial distress affects the Current Ratio with a value of 39.84%, Return on Assets affects the Current Ratio with a value of 2.09%, and Net Profit

Margin affects the Current Ratio with a value of 7.33%. Meanwhile, the Debt To Equity Ratio variable has not had an effect on the Current Ratio because this variable has a value of 0%. If the Current Ratio experiences a shock or shock, the most responsive or influential variable is financial distress rather than the Current ratio itself, as evidenced by the relatively large variance value even though it has fluctuated until the tenth period.

In the second period, all variables begin to influence the Current Ratio. The Current ratio had an effect on itself in the second period at 38.30% and decreased until the tenth period at 14.86%. Financial distress in the second period had an effect of 52.56% on the Current ratio and fluctuated until the tenth period at 55.42%. The existence of other influences was also shown by the variable Return On Assets in the second period of 2.74% and increased until the tenth period of 16.98%, Net Profit Margin in the second period was 5.20% and continued to increase until the tenth period of 10 .68%. In addition, the Debt To Equity Ratio variable in the second period has an influence on the Current Ratio of 1.17% and tends to increase until the tenth period at 2.03%.

Table 10. Variance Decomposition Debt to equity ratio Result

Period	S.E.	Z	ROA	NPM	CR	DER
1	0.277969	37.08091	1321551	3.031907	0.009755	46.66193
2	0.351166	44.99397	8.302138	3.445666	0.009304	43.24893
3	0.405735	48.85769	8.756435	3.880883	0.040278	38.46471
4	0.454491	50.03385	11.66421	4.246578	0.173590	33.88177
5	0.499171	49.85118	15.18055	4.507263	0.387484	30.07352
6	0.539801	49.10836	18.51143	4.666690	0.634239	27.07928
*-	0.576384	48.19985	21.41109	4.745278	0.877697	24.76609
8	0.609119	47.29848	23.85708	4.765780	1.098319	22.98034
9	0.638341	46.47007	25.90150	4.747432	1.288378	21.59262
10	0.664439	45.73230	27.61236	4.704661	1.446863	20.50382

Based on table 10, it can be seen that the Debt To Equity Ratio variable is influenced by itself in the first period with a value of 46.66%, financial distress affects the Debt To Equity Ratio with a value of 37.08%, Return On Assets affects the Debt To Equity Ratio with a value 13.21%, Net Profit Margin affects the Debt To Equity Ratio with a value of 3.03%, and Current Ratio affects the Debt To Equity Ratio with a value of 0.009%. If the Debt To Equity Ratio experiences a shock or shock, the most responsive or influential variable is the Debt To Equity Ratio itself because it is proven by the relatively large variance value even though it has decreased until the tenth period.

In the second period, the Debt To Equity Ratio had an effect on itself in the second period of 46.66% and decreased until the tenth period at 20.50%. Financial distress in the second period had an effect of 44.99% on the Debt To Equity Ratio and fluctuated until the tenth period at 45.73%. The existence of other influences is also shown by the variable Return On Assets in the second period of 8.30% and has increased until the tenth period at 27.61%. The Net Profit Margin in the second period was 3.44% and fluctuated until the tenth period at 4, 70%. In addition, the Current Ratio variable in the second period has an influence on the Debt To Equity Ratio of 0.009% and tends to increase until the tenth period at 1.44%.

5. Conclusion

Based on a series of Panel Vector Auto Regression (PVAR) test analyses that have been carried out, it can be concluded that based on the Panel Vector Auto Regression Model test, among the variable's profitability, liquidity, and leverage that have an influence on financial distress, namely only the liquidity variable proxied by the Current Ratio. Meanwhile, based on the Variance Decomposition test, it can be concluded that Return On Assets has the ability to influence Financial Distress by 5.408%, Net Profit Margin affects financial distress by

10.71%, Current Ratio affects financial distress by 14.44%, Debt To Equity Ratio affect financial distress by 0.24%.

From the results of the research above, it can be seen that financial distress in its development is more influenced by the Current ratio, which is equal to 14.44%, compared to the Debt To Equity Ratio, which is equal to 0.24%. Thus, a company must pay more attention to the stability of the Debt To Equity Ratio and must also pay attention to Return On Assets, Net Profit Margin, and Current Ratio so that the company avoids financial distress.

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