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Analysis of the Effect Liquidity, Leverage, Profitability and Sales Growth on Financial Distress (Altman Z-Score) (Empirical Study of Retail Sub – Sector Companies Listed on the Indonesia Stock Exchange (IDX) 2015-2019

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ABSTRACT: Financial distress is a condition when a company is experiencing financial difficulties, resulting in the company being unable to pay its obligations and leading to bankruptcy. This study was conducted to examine the liquidity ratio (Current Ratio), leverage (Debt to Equity Ratio), profitability (Return on Equity), and sales growth to financial distress (Altman Z-Score) in retail sub-sector companies listed on the Indonesia Stock Exchange (IDX) for the 2015-2019 period. The number of selected samples is 16 companies and has been determined using the purposive sampling method. The data collected is in the form of financial statements for the 2015-2019 periods. The analytical method used is the panel data regression method with the Common Effect model. The results of this study indicate that the current ratio, debt to equity ratio, sales growth have a positive effect on financial distress (Altman Z-Score), while return on equity does not affect financial distress (Altman Z-Score).

KEYWORDS: Financial Distress (Altman Z-Score), Current Ratio, Debt to Equity Ratio, Return on Equity, Sales Growth

I. INTRODUCTION

In 2019 the Indonesia Stock Exchange recorded an increase in the number of investors which reached up to 53% compared to the previous year. This increase is a concern for the company's management, especially companies that have been listed on the stock exchange to implement strategies in the face of tight competition in the business world and maintain company performance so that the company can be a going concern and increase profitable profits for investors. Likewise, investors are more selective in choosing companies that have healthy finances and have growth and generate profits. Hofer (1980) and Whitaker (1999) explain when a company experiences a negative net profit for several years running, then the company can be categorized into an unhealthy condition or financial distress.

Meanwhile, Indonesia's economic growth conditions, especially from 2015 to 2019 experienced a slowdown in growth. The slowdown in economic growth in Indonesia was due to several factors, including the sluggish global economy, rising commodity prices, declining household consumption, and various state political issues. Of these several factors, household consumption is the most influential factor in the downward movement of the economy in Indonesia. Based on data from the Central Statistics Agency (BPS), household consumption has contributed 57.32% to Indonesia's Gross Domestic Product (GDP), but in the fourth quarter of 2019 household consumption was only able to grow by 4.97%.

The decline in household consumption greatly affects the sales growth of companies in the retail sub-sector. The low household consumption is due to the declining purchasing power and public consumption. The decline caused the sales growth of the retail sub-sector companies to also decline. The following is a graph of the sales growth of retail sub-sector companies in Indonesia in 2015-2019.

Picture 1. Sales Growth Retail Indonesia 2015-2019
Sources: CEIC Data 2020

The decline in sales growth will affect the achievement of profit. Profit will tend to decrease even the company can suffer losses. If the company has suffered losses, the company will have liquidity difficulties and will have difficulty paying off its obligations on time to create financial distress conditions.

Financial distress in a company can be prevented by detecting it early. Various kinds of analytical models can be used by the company, one of which is the Altman Z-Score model (1968) which is considered more accurate because it can obtain a 95% level of predictive data accuracy for data one year before bankruptcy and 72% for data two years before bankruptcy compared to the previous model.

II. LITERATURE REVIEW

Theoretical studies are used as guidelines and support for hypotheses and research results, including Signal Theory, Capital Structure Theory, Modigliani and Miller Theory, Packing Order Theory, Trade-Off Theory, and Financial Statement Theory.

A. Liquidity (Current Ratio)

Liquidity explains the ability of the company in fulfilling obligations to its finances at the appropriate time. Indicators used the current ratio (CR) as a comparison between current assets with current liabilities (Kasmir, 2018).

B. Leverage (Debt to Equity Ratio)

Leverage is used to measure the company's ability to meet its obligations. The indicator used is the debt-equity ratio (DER) which is the comparison between total debt and total capital (Kasmir, 2018).

C. Profitability (Return on Equity)

Profitability describes the level of the company's ability to earn profits from invested capital. The indicator used is the return on equity ratio, which is a comparison between net income and capital (Fatmawati, 2015).

D. Sales Growth

Sales growth explains the company's ability to carry out its operations in a period that compares the value of this year's sales minus the sales value of the previous year (Fahmi, 2013).

E. Financial Distress (Altman Z-Score)

In predicting financial distress conditions, analysis of the Altman Z-Score model using a combination of five ratios finance with formula as follows:

$$Z = 1{,}2\ X_1 + 1{,}4\ X_2 + 3{,}3\ X_3 + 0{,}6\ X_4 + 0{,}999\ X_5$$

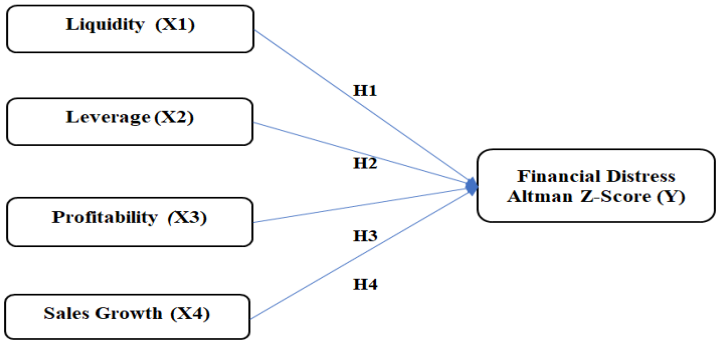
Description:

X_1 = Working capital / total assets
X_2 = Retained earnings / total assets
X_3 = EBIT / total assets
X_4 = Market value equity / total liabilities
X_5 = Sales / total assets

With interpretation as follows:

- If the Z- *Score* <1.81, the company is potential bankrupt
- If the Z- *Score is* 1.81 < Z < 2.99, the company in the *gray area*
- If the Z- *Score* > 2.99, the company is healthy

III. FRAMEWORK



IV. RESEARCH HYPOTHESES

A. The Effect of Liquidity on Financial Distress (Altman Z-Score)

Liquidity with the Current Ratio indicator can reflect the company's ability to pay its current obligations. A high Current Ratio value informs that the smaller the company's potential for financial distress. Liquidity with the Current Ratio indicator affects the positive on the financial distress, this hypothesis accordance with the results study by (Chiaramonte & Casu, 2017) and (Septyanto & Welandasari, 2020). While according to studies by (Masdupi et al., 2018) and (Pertiwi, 2018) state that liquidity takes effect negatively to financial distress.

H1: Liquidity affects positively financial distress (Altman Z-Score).

B. The Effect of Leverage on Financial Distress (Altman Z-Score)

Leverage with the Debt Equity Ratio indicator is a measure to assess how much the company uses the company's debt and equity. A high Debt to Equity Ratio indicates an unsafe signal for the company because it has a high level of default risk, thereby increasing the potential for financial distress. Studies from (Lucky & Michael, 2019) and (Fadilla, 2019) stated that leverage affects positively financial distress. Otherwise study from (Koske & Yegon, 2017) and (Saputra & Salim, 2020) that leverage is not taken effect in financial distress.

H2: Leverage affects positively financial distress (Altman-Z-Score).

C. The Effect of Profitability on Financial Distress (Altman Z-Score)

Profitability with Return on Equity indicator assesses the company's ability to generate profits from the investment of the company's shareholders. The higher the Return on Equity Ratio means the greater the profit generated by the company. Research conducted by (Waqas & Md-Rus, 2018) and (Zhafirah, 2019) state that profitability takes effect positively to financial distress. Whereas study from (Assaji & Machmuddah, 2019) and (Saputra & Salim, 2020) state that profitability does not take effect to financial distress.

H3: Profitability affects positively financial distress (Altman Z-Score).

D. The Effect of Sales Growth on Financial Distress (Altman Z-Score)

The increase in sales growth will influence enhancement profit in a company so that the potential for financial distress is small so that sales growth affects financial distress. A study conducted by (Xuan, 2015) and (Ranjbar & Amanollahi, 2018) states that sales growth effects positively financial distress, while a study from (Giarto & Fachrurrozie, 2020) that sales growth does not take effect to financial distress.

H4: Sales growth affects positively financial distress (Altman Z-Score).

V. RESEARCH METHODS

Study this aim for knowing influence liquidity, leverage, profitability, and sales growth on financial distress (Altman Z-Score) in retail sub-sector companies listed on the Indonesia Stock Exchange in 2015-2019. The population used in the study is there are 27 retail sub-sector companies listed on the Indonesia Stock Exchange in 2015-2019. Taking sample study using the purposive sampling method that produces a total of 16 retail sub-sector companies.

Variable independent on research that is liquidity, leverage, profitability, and sales growth. Variable dependent study namely financial distress (Altman Z-Score). Data used is secondary data in the form of report finance 2015-2019 retail sub-sector companies collected with technique documentation. The method used in a study is Panel Data Regression Method using E-views 11 tools.

In Panel Data Regression there are three estimation models namely the Common Effect Model, Fixed Effect Model, and Random Effect Model. There are three stages of testing to choose the right model, namely:

A. Chow test

H_0: If the value of probability F > α, then the right estimation model used is the Common Effects Model.

H_1: If the value of probability F < α, then the right estimation model used is the Fixed Effects Model.

If the value of probability F is bigger than α (0.05), then the right estimation model used is the Common Effect Model. H_0 accepted and H_1 rejected. If the value of probability F is smaller from α (0.05), then the right estimation model used is the Fixed Effect Model. H_0 rejected and H_1 accepted.

B. Hausman test

H_0: If the value of the Random Cross-Section probability > α, then the right estimation model used is the Random-Effects Model.

H_1: If the value of the Random Cross-Section probability < α, then the right estimation model used is the Fixed Effects Model.

If the value of Random Cross-Section probability is bigger than α (0.05) then the right estimation model used is the Random Effect Model. H_0 accepted and H_1 rejected. If the value of Random Cross-Section probability is smaller from α (0.05) then the right estimation model used is the Fixed Effect Model. H_0 rejected and H_1 accepted.

C. Lagrange Multiplier (LM) Test

H_0: If the value of the Breusch Pagan (Both) probability > α, then the right estimation model used is the Common Effects Model.

H_1: If the value of the Breusch Pagan (Both) probability < α, then the right estimation model used is the Random Effects Model.

If the value of *Breusch Pagan (Both)* probability is bigger than α (0.05) then the right estimation model used is the Common Effect Model. H_0 accepted and H_1 rejected. If the value of *Breusch Pagan (Both)* probability is smaller from α (0.05) then the right estimation model used is the Random Effect Model. H_0 rejected and H_1 accepted.

If you have found the right model, next conducted testing a hypothesis consisting of from:

A. Significant Test Simultaneous F

Testing on the Significance Test Simultaneous (F) with comparing F Count with F Table with a hypothesis, with criteria as follows:

H_0: Accepted if F Count < F table.

H_1: Rejected if F Count > F table.

B. Coefficient Determination (R^2)

A small R^2 value explains that the ability of the independent variable in explaining the variation of the dependent variable is limited. A value close to one means that the independent variables provide more information needed to predict the variation of the dependent variable (Ghozali,2016).

C. Hypothesis Test (t-Test)

Testing on the Hypothesis Test (t-test) with comparing the value of "t count" with "t table" with a hypothesis as follows:

H_0: Accepted if "t count" < "t table" or probability > 0.05

H_1: Rejected if "t count" > "t table" or probability < 0.05

VI. RESULT AND DISCUSSION

A. Result

1). Panel Data Regression Model Selection

Dependen Variable	Independen Variable	Chow Test Result	Hausman Test Result	LM Test Result
Financial Distress	CR DER ROE Sales Growth	Prob > α 0.05 H_0 Accepted Common Effect Model	Prob < α 0.05 H_0 Rejected Fixed Effect Model	Prob > α 0.05 H_0 Accepted Common Effect Model

Source: E-views 11 (compiled by the researcher)

Based on testing in pairs to the three-panel data regression models, can conclude that the Common Effect Model is the most appropriate model estimation in panel data regression and will use more carry on in studying this. Following common effect model table:

Dependent Variable: Y
Method: Panel Least Squares
Date: 06/19/21 Time: 16:52
Sample: 2015 2019
Periods included: 5
Cross-sections included: 16
Total panel (balanced) observations: 80

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	-13.38297	4.013515	-3.334477	0.0013
X1	3.028883	1.000515	3.027324	0.0034
X2	3.099237	1.496265	2.071315	0.0418
X3	-0.019813	0.115989	-0.170818	0.8648
X4	0.617316	0.124110	4.973958	0.0000

Root MSE	20.21362	R-squared	0.410769
Mean dependent var	-1.844375	Adjusted R-squared	0.379343
S.D. dependent var	26.49920	S.E. of regression	20.87654
Akaike info criterion	8.975590	Sum squared resid	32687.24
Schwarz criterion	9.124467	Log likelihood	-354.0236
Hannan-Quinn criter.	9.035279	F-statistic	13.07113
Durbin-Watson stat	1.205082	Prob(F-statistic)	0.000000

Source: E-views 11 (compiled by the researcher)

Equality panel data regression are:

$$Y = -13.3829 + 3.0288X1 + 3.0992X2 + -0.0198X3 + 0.6173X4$$

Equality panel data regression above could conclude:

1) Coefficient value constant of = -13.3829 where it means if the variables CR (X1), DER (X2), ROE (X3), Sales Growth (X4) are zero, then Financial Distress (Y) is -13.3829.
2) Coefficient value regression variable CR (X1) of 3.0288 is worth positive, then it means if existence an increase in the variable CR (X1) by 1 unit so variable Financial Distress (Y) experienced an increase of 3,0288 units.
3) Coefficient value regression DER variable (X2) of 3.0992 is worth positive, then it means if existence an increase in the DER variable (X2) by 1 unit then variable Financial Distress (Y) experienced an increase of 3,0992 units.
4) Coefficient value regression ROE variable (X3) of -0.0198 is worth negative, then it means if existence decrease in ROE variable (X3) by 1 unit so variable Financial Distress (Y) experienced a drop of -0.0198 units.
5) Coefficient value regression variable Sales Growth (X4) of 0.6173 is worth positive, then it means if existence increment in variable Sales Growth (X4) of 1 unit so variable Financial Distress (Y) experienced an increase of 0.6173 units.

2). Significance Test Results Simultaneous (F)

Root MSE	20.21362	R-squared	0.410769
Mean dependent var	-1.844375	Adjusted R-squared	0.379343
S.D. dependent var	26.49920	S.E. of regression	20.87654
Akaike info criterion	8.975590	Sum squared resid	32687.24
Schwarz criterion	9.124467	Log likelihood	-354.0236
Hannan-Quinn criter.	9.035279	F-statistic	13.07113
Durbin-Watson stat	1.205082	Prob (F-statistic)	0.000000

Source: E-views 11 (compiled by the researcher)

Based on results F test calculation above obtained calculated F value > F table is 13.071 > 2.495, then H_0 rejected which means that variable Current Ratio (CR), Debt to Equity Ratio (DER), Return on Equity (ROE), and Sales Growth by together take effect to Financial Distress in retail sub-sector companies in 2015 – 2019.

If using ratio comparison between prob value with level significance α = 0.05, then obtained the prob *value* < 0.05 is 0.000 < 0.05 which states that H_0 rejected. This is in line with results comparison F count with F table that is variable Current Ratio (CR), Debt to Equity Ratio (DER), Return on Equity (ROE) and Sales Growth by together take effect to Financial Distress in retail sub-sector companies in 2015 – 2019.

3). Coefficient Result Determination (R^2 Test)

Root MSE	20.21362	R-squared	0.410769
Mean dependent var	-1.844375	Adjusted R-squared	0.379343
S.D. dependent var	26.49920	S.E. of regression	20.87654
Akaike info criterion	8.975590	Sum squared resid	32687.24
Schwarz criterion	9.124467	Log likelihood	-354.0236
Hannan-Quinn criter.	9.035279	F-statistic	13.07113
Durbin-Watson stat	1.205082	Prob (F-statistic)	0.000000

Source: E-views 11 (compiled by the researcher)

Value Adjusted R- *squared* of 0.3793 or 37.93% which means that by 37.93 % Financial Distress influenced by Current Ra*tio,* Debt to Equity Ratio, Return on Equity and Sales Growth, while the rest that is by 62.07% (1 – 37.93%) is influenced by other variables that are not included in the study.

4). Hypothesis Test Results (t-Test)

The results of the t-test are obtained results as follows:

1) Current Ratio (X1) has a value of t count 3.0273 > value of t table 1.6654 and has probability 0.0034 < 0.05, then H_0 rejected which means that Current Ratio effect positively to Financial Distress.
2) Debt to Equity Ratio (X2) has a value of t count 2.0713 > value of t table 1.6654 and has probability 0.0418 < 0.05, then H_0 rejected which means that Debt to Equity Ratio effect positively to Financial Distress.
3) Return on Equity (X3) has a value of t count -0.1708 < value of t table 1.6654 and has probability 0.8648 > 0.05, then H_0 accepted which means that Return on Equity no effect to Financial Distress.
4) Sales Growth (X4) has a value of t count 4.9379 > value of t table 1.6654 and has probability 0.0000 < 0.05, then H_0 rejected which means that Sales Growth effect positively to Financial Distress.

B. Discussion

1). The Effect of Liquidity on Financial Distress (Altman Z-Score)

The initial hypothesis that was built in this study is that liquidity has a positive effect on financial distress Altman Z-Score, while the test results from this study are liquidity has a positive effect on financial distress Altman Z-Score. This shows that the initial hypothesis is by the hypothesis of the research test results and is also in line with previous researchers (Kazemian et al., 2017) and (Septyanto & Welandasari, 2020) which describe that liquidity with the current ratio indicator has a positive effect on financial distress (Altman Z-Score). If the current ratio unit is high, the Altman Z-Score unit value is also high, which means that financial distress is getting lower or the potential for bankruptcy of the company is low. Conversely, if the current ratio unit is low, the Altman Z-Score unit value will also be below, which means that financial distress is higher or the potential for bankruptcy of the company is high. This shows that the current ratio has a positive effect on financial distress which is calculated based on the Altman Z-score.

2). The Effect of Leverage on Financial Distress (Altman Z-Score)

The initial research hypothesis and theory states that Leverage with the debt-equity ratio (DER) indicator hurts financial distress (Altman Z-Score), which means that if the company has a high DER value, the Z-Score value will be low and the potential for financial distress company is getting higher.

The results of research on retail sub-sector companies in 2015-2019 show a positive relationship between DER and Financial distress (Altman Z-Score), which means that if there is an increase of one unit in the DER value, the Z-Score value will also increase by one unit, the potential for financial distress will be small.

The high value of DER is caused by the value of debt which is greater than the value of capital. However, if the company's management can allocate its debt to the maximum, such as using debt for business expansion by opening new outlets, of course, this can add to the company's profits so that the company still can pay its debt obligations. From these conditions, it can be concluded that DER has a positive effect on financial distress (Altman Z-Score).

The results of the research hypothesis are in line with the results of previous researchers, namely (Lucky & Michael, 2019) and (Fadilla, 2019) which show that DER has a positive influence on financial distress which is calculated based on the Altman Z-Score.

3). The effect of Profitability on Financial Distress (Altman Z-Score)

Return on equity (ROE) does not affect financial distress in retail sub-sector companies listed on Indonesia Stock Exchange in 2015-2019. The results of this study are not the same as the initial hypothesis and theory which states that ROE has a positive effect on financial distress (Altman Z-Score). The higher of ROE value, the better the company's performance because it can generate profits so that the Z-Score value is also high and its effect on the company's financial distress is getting smaller.

The results of research the profits obtained by the company did not come from the use of capital so the comparison value between net income and capital was unable to predict the condition of company bankruptcy or ROE had no effect on financial distress. The results of this study are in line with the results of previous researchers, namely (Maisarah et al., 2018) and (Assaji &Machmuddah, 2019) which show that ROE does not affect financial distress which is calculated based on the Altman Z-Score.

4). The effect of Sales Growth on Financial Distress (Altman Z-Score)

Sales growth has a positive effect on financial distress in retail sub-sector companies listed on Indonesia Stock Exchange in 2015-2019. Based on the theory that sales growth is a measure of the company's performance in a period. The increase in sales growth indicates that the company's growth is healthy and will increase profits and the company will have no difficulty in fulfilling its obligations. Conversely, if sales growth tends to decline, then there are problems with the company's growth, of course, this will affect the decline in profits where the company can potentially experience financial difficulties if there is a prolonged decline in profits.

The results of research show an increase in sales growth will increase the Z-Score value so that the potential for financial distress will be smaller. Sales growth has a positive effect on financial distress. The results of this study are in line with the results of previous researchers, namely (Loman & Malelak, 2015) and (Sopian & Rahayu, 2017) which show that sales growth has a positive effect on financial distress which is calculated based on the Altman Z-Score.

5. CONCLUSION AND RECOMMENDATION

A. Conclusion

Based on the results and discussion in this study, the following conclusions can be drawn:

1) Current Ratio (CR) affects positively financial distress (Altman Z- Score) in retail sub-sector companies listed on the Indonesia Stock Exchange in 2015-2019.
2) Debt to Equity Ratio (DER) affects positively financial distress (Altman Z- Score) in retail sub-sector companies listed on Indonesia Stock Exchange in 2015-2019.
3) Return on Equity (ROE) does not affect financial distress (Altman Z- Score) in retail sub-sector companies listed on Indonesia Stock Exchange in 2015-2019.
4) Growth sales (Sales Growth) effect positively on financial distress (Altman Z- Score) in retail sub-sector companies listed on Indonesia Stock Exchange in 2015-2019.

B. Recommendation

Subsequent research to be able to develop more broadly regarding this research with different objects and research titles. This will certainly be very useful in contributing to the development of Financial Management science.

1) For investors, both those who are about to start investing or who have already entered into an investment, it is recommended to pay attention to the factors Current ratio, Debt to Equity ratio, Sales Growth because these factors have a positive influence on Financial Distress in listed retail sub-sector companies. on the IDX in 2015-2019.
2) For companies, it is suggested that they must do debt management optimally because the results of this study indicate that the Debt-Equity Ratio is the variable that has the most influence on the company's potential Financial Distress.
3) For further research, it is recommended to use other variables that affect Financial Distress such as Cashflow, Corporate Governance, Company Size, and several other external factors such as inflation or pandemic conditions so that more updated and useful conclusions will be obtained.

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