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The Analysis of Fundamental Variables and Macro Economic Variables in Predicting Financial Distress

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Abstract

Financial distress is a condition where the company is experiencing financial difficulties prior to bankruptcy. This study aims to identify and explain the influence of the fundamental variables and macroeconomic variables in predicting the probability of financial distress. Based on the eight variables used, current ratio, debt to assets ratio, return on equity and total asset turnover ratio is a fundamental variable. While the sensitivity of inflation, exchange rate sensitivity and interest rate sensitivity included in macroeconomic variables. The population in this study are all porperti and real estate company listed on the Stock Exchange in 2014-2018. The sample selection using purposive sampling technique, acquired 23 companies in the sample with the five companies in the category of financial distress and 18 companies in the category of non financial distress. The analytical method used is logistic regression and sensitivity analysis. The results showed that the variable current ratio, debt to assets ratio, total asset turnover ratio, inflation sesnitivity, exchange rate sensitivity and interest rate sensitivity did not significantly affect the probability of financial distress. While return on equity significantly negative influence on the company's financial distress.

INTRODUCTION

The financial crisis in 1997 had a significant impact on all aspects of life, whether social, political, and also the economy of a nation. This depreciation led to foreign debt payments and principal payments to be paid increasing so rapidly. So companies are listed on the Exchange at the time many of them have conditions insolvent or bankrupt. In this monetary crisis, the property and real estate sector experienced a severe enough impact, resulting in a wave of massive layoffs resulting in increased unemployment diangka 20 million inhabitants (BPS, 1998). Another phenomenon is the significant impact membeikan submarine mortage crisis in 2008. The crisis is not only an impact on the financial sector but also the domestic real sector in Indonesia. This phenomenon tell us that the company must anticipate and maintain its financial performance so that it remains in a normal condition or does not experience financial difficulties.

This study aimed to determine the effect of the Vendor fundamental variables such as current ratio, debt to assets ratio, return on equity, total assets ratio turnove. And the influence of macroeconomic variables such as inflation sensitivity, the sensitivity of exchange rates and interest rate sensitivity in predicting financial distress property companies and real estate 2014-2018 period. The property and real estate sector is the sector most sensitive to economic changes, where this sector signals the rise and fall of a country's economy.

Financial distress is a condition in which a company experiences a deterioration in finan-

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cial condition before it goes bankrupt. Beaver et aI (2011) states financial distress as the inability of companies to pay financial obligations that are past due. Plat and Platt (2006) the company is said to experience financial distress when experiencing conditions such as: terminating work or not paying dividends, interest coverage ratio, cash flow lower than the company's long-term liabilities, negative operating net income, changing equity prices, terminated operations by government and required restructuring, have technical violations in debt and have negative EPS.

Financial distress is caused by two factors: internal form of corporate fundamentals and ekstenal form of macro-economic conditions (Damodaran, 2001). From the fundamental side company is said to have financial difficulties if it has a negative profit and can not fulfill its obligations. There are several financial ratios that are often used in predicting financial distress. Mostly, the financial ratios used are the liquidity ratios, leverage ratios, profitability ratios, solvency ratios and activity (Riesta et al, 2014). Macro-economic activity also affects the company's state of financial distress. Tirapat and Nittayagasetwat (1999) in Afriyeti and Jumyetti (2017) states that the higher sensitivity to macroeconomic companies the possibility of financial distress companies higher.

Hypothesis Development

Current ratio is the ratio used to meet short-term liabilities with current assets of the company (Brigham and Houston 2014). Any company that can afford to pay current debts well, the less likely the company will experience financial distress (Rismawanti et al, 2017). High liquidity levels reflect the company's ability to repay its debt is also high, indicating that the company was in good health (Restiyanti and Agustina, 2018). Previous research conducted by Dance and Made (2019), Curry and Banjarhanor (2018), Widati and Pratt (2015), Kartika and Hasanuddin (2019) and Pure (2018) states that the curent ratio negatively affect financial distress.

H1: Current Ratio give negative effect on financial distress

The company's assets are used to meet the obligations must be greater than the debt itself if the company wants to be in a healthy condition or tehindar of financial distress. The ratio is used to measure the ratio between the totaldebt and total assets to assess the magnitude of the company's assets funded by debt is the debt to assets ratio (Kashmir, 2017). The higher the risk the possibility utanng enterprise companies experiencing financial distress is also higher (Fitriyah and Hariyati, 2013). The larger the company's assets are financed by debt, the greater the likelihood of ditress financial condition, due to the greater the company's obligation to pay the debt (Marota et al, 2018). Previous research on the effect of DAR in predicting financial distress conducted by Rohmadini et al (2018), Rochman et al (2018), Jaafar et al. (2018), and Safitri (2018) states that the debt to assets ratio (DAR) significantly influence financial distress.

H2: Debt To Assets Ratio (DAR) Current Ratio give significant effect on financial distress

Return on Equity (ROE) is the ratio of the net against equity to measure the return on investment of ordinary shareholders (Brigham and Houston, 2014). Its ROE company showed a positive number the greater, the less the possibility of companies experiencing financial distress (Assaji and Machmuddah, 2017). The higher level of ROE indicates that the possibility of financial distrsess companies getting smaller. Conversely the lower the value of ROE, then it is likely the company experienced higher financial distress. Previous research conducted by Restianti and Agustina (2018), Al-Khatib and Al Haroni (2016), Sirait (2016), Nilna and Ronny (2018), and Niswanda (2016) stated that the Return on Equity (ROE) negative effect against financial distress.

H3: Return on Equity (ROE) give negative effect on financial distress

High asset turnover indicates more efficient use of the entire company in assets in generating sales. So that corporate profits will increase and avoid financial distress. The ratio used to assess the turnover of all assets owned by a company and also to assess how many sales were obtained from each rupiah produced called total asset turnover ratio (Kasmir, 2017). If the asset turnover slowed the company will result in a buildup of products and reduced income, so the probability of financial distress companies higher. Research on the effects of total assets turnover ratio in predicting financial distress conducted by Kartika and Hasanuddin (2019), Amirulloh and Isbanah (2017), Setiawan and Amboningtyas (2018).

H4: Total Assets Turnover Ratio (TATO) give negative effect on financial distress

Boediono (2014) defines inflation as a tendency to increase the price level in general and continuously. Inflation will bedampak on the price of goods and indirectly used effects the ability of consumers to buy goods and would also lower the company's sales turnover. Sales declines will result in declining corporate earnings as well, so that it will allow companies experiencing financial distress. Research in line with Nurhidayah and Rizqiyah (2017), Afriyeni and Jumyetti (2017), Kumalasari et al (2014), and Anggraini (2017) states that the inflation effect on the financial distress.

H5: Inflation give significant effect on Financial Distress.

Exchange rate shows the balance of demand and supply on the currency in domestic or foreign currency $ US. Nopirin (2014) defined as the exchange rate between two different currencies, in which the exchange will be giving out the comparison of the price / value between the two currencies. The depreciation of the rupiah would lead to increased production costs, so the impact on the profitability of the company (Darminto, 2010). Ethics companies are having problems in their income, the company may face financial difficulties (veronica, 2006) in Budilaksono (2013). Budilaksono Research (2013) and Sabrina and Cacik (2019) states that the exchange rate or the exchange rate significantly influence financial distress.

H6: Exchange rate give significant effect on financial distress

Higher interest rates would increase interest expense as well as companies that have an impact on the deficit of income resulting additional costs and interest. So it will have an impact on the company's financial condition. The interest rate is the price of the use of investment funds or Loanable funds (Boediono, 2014). The higher the interest rate would cause interest expenses to be borne by the company the greater, thus the higher the interest rate will lead to greater possibilities for companies experiencing financial distress (Sulaksana, 2016). Previous research on the effect of interest rate in predicting financial distress conducted by Sari (2017), Fariyeti and Jumyetti (2017) and Faizatullail (2019) states that the interest rate significantly influence financial distress.

H7: Interest Rates give significant effect on the financial distress

Based on the explanation of the relationship of independent variables on financial diatress above, the following framework to analyze the fundamental variables think corporate and macroeconomic variables in predicting financial distress in the company's property and real estate.

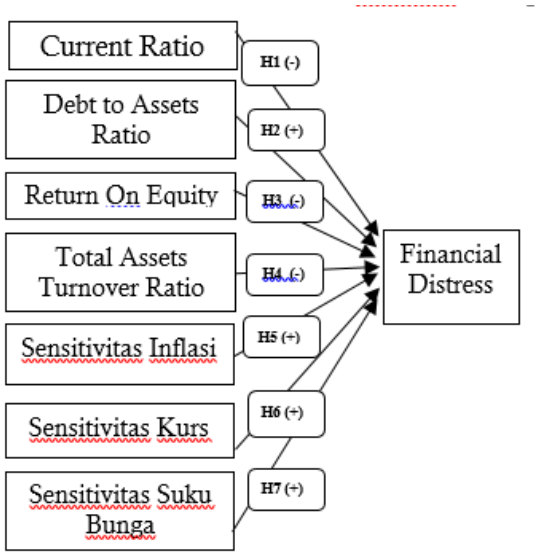

Figure 1. Research Model

METHOD

This research ia an exsplantory research and used quantitative method. Exsplain correlation financial distress as dependent variable and the independent variables such as current ratio, debt to assets ratio, return on equity, total assets turnover ratio, the sensitivity of inflation, exchange rate sensitivity and interest rate sensitivity. The data used in this research is pooled data that combining time series and cross section data. The data came from annual report property and real estate companies listed in BEI on 2014 until 2018. The macro economic data like inflation, exchange rates and interest rate are from Bank Indonesia (www.bi.go.id). The population in this study were company property and real estate listing on the Stock Exchange in 2014-2018. Selected 23 companies (Table 1) as the sample using purposive sampling with criteria for property and real estate company listed on the Stock Exchange in 2014-2018 and report financial performance as required in this research. Five companies categorized as financial distress and 18 companies were not experiencing financial distress. The Company classified financial distress if it has a negative EPS in two years or more while the company's non-financial distress if it does not have a negative EPS for 2 years.

Table 1. List of Sample Company's

No	Code	Company's Name	No	Kode	Company's Name
1.	APLN	Agung Podomoro Land Tbk	13.	JPRT	Jaya Real Properti Tbk
2.	ASRI	Alam Sutra Realty Tbk	14.	MKPI	Metropolitan Kentjana Tbk
3.	BEST	Bekasi Fajar Industrial Estate Tbk	15.	MTLA	Metropolitan Land Tbk
4.	BIPP	Bhuwanatala Indah Pemai Tbk	16.	MTSM	Metr Realty Tbk
5.	BKSL	Sentul City Tbk	17.	NIRO	City Retail Development Tbk
6.	BSDE	Bumi Serpong Damai Sentul City Tbk	18.	PLIN	Plaza Indonesia Realty Tbk
7.	COWL	Cowell Development Tbk	19.	PWON	Pakuwon Jati Tbk
8.	CTRA	Ciputra Development Tbk	20.	RBMS	Ristia Bintang Mahkotasejati Tbk
9.	DILD	Intiland Development Tbk	21.	RDTX	Roda Vivatex Tbk
10.	DUTI	Duta Pertiwi Tbk	22.	RODA	Pikko Land Development Tbk
11.	EMDE	Megapolitan Development Tbk	23.	SMDM	Suryamas Dutamakmur Tbk
12.	GMTD	Gowa Makassar Tourism			

Table 2. Measurement and Variables

Variables	Proxy	Measurement
Dependent Variables		
Financial Distress (Y)	Earning Per Share (EPS)	Using dummy variables. A value of 1 for companies that have a negative EPS for two years or more (financial distress). A value of 0 for companies that do not have a negative EPS for two years (non fianncial distress).
Variabel Independen		
Current Ratio	CR	
Debt To Assets Ratio	DAR	
Return On Equity	ROE	
Total Assets Turnover Ratio	TATO	
Sensitivitas Inflasi	S_Inflasi	$Y = a + b_1 X_1 + e$ (Riesta dkk, 2014) Y = Stock return of each month a = Constant b1 = Sensitivity company against inflation X1 = Inflation e = variable outside the model bullies
Sensitivitas Kurs	S_Kurs	$Y = a + b_1 X_1 + e$ (Riesta dkk, 2014) Y = Stock return of each month a = Constant b1 = Sensitivity company against inflation X1 = Inflation e = variable outside the model bullies
Sensitivitas Suku Bunga	S_Suku Bunga	$Y = a + b_1 X_1 + e$ (Riesta dkk, 2014) Y = Stock return of each month a = Constant b1 = Sensitivity company against inflation X1 = Inflation e = variable outside the model bullies

Table 2 shows the dependent variable (financial distress) and the variables that affect financial distress (independent variable) and measurements.

Data analysis method used is logistic regression. The dependent variable used in this study a nominal scale (dichotomous) or variable*dummy* (Non-metric) with indices 1 to companies experiencing financial distress and 0 for a healthy company. The Company classified financial distress if it has a negative EPS for two years or more. Agusti (2013), Vitrianjani (2015), Tukan (2018), as well as Saleh and Sudiyatno (2013) also uses EPS as a proxy in the category of financial distress. While the independent variable in the form of a ratio scale which does not require the assumption of normality. Logistic regression analysis using the following formula:

Information :

= Logarithm of the probability of financial distress

Ln = probability of financial distress

p1-p = logarithm of the probability of financial distress

ß0 = constant

ß1 = coefficient of current ratio

X_1 = Current ratio

ß2 = coefficient of debt to assets ratio

X_2 = Debt to asset ratio

ß3 = coefficient of return on equity

X_3 = Return on equity

ß4 = coefficient of total asset turnover ratio X_4 = Total asset turnover ratio

ß5 = coefficient of sensitivity of inflation

X_5 = Sensitivity of inflation

ß6 = coefficient sensitivitaskurs

X_6 = Sensitivity rate

ß7 = coefficient of interest rate sensitivity

X_7 = Interest rate sensiti

RESULT AND DISCUSSION

Table 3 shows the results of the research descriptive statistics. Data were processed on the current ratio of 115 variables with missing data as much as 0. The average current ratio of 8.79 with a standard deviation of 29.23. The range of the maximum value of the data populsi amounted to 155.6 and the minimum value of 0.00. Data debt to assets ratio which is processed by N 115 missing as much as 0. The average debt to assets ratio of 0.38 with a standard deviation of 0.17. The range of the maximum value of the data populsi at 0.79 and the minimum value of 0.30. Descriptive results vriabel return on equity, data is processed as many as 115 to N missing as much as 0. The average return on equity 8.30 with a standard deviation of 9.67. The range of the maximum value of the data populsi at 32.29 and the minimum value of -24.20. Data were processed in total assets turnover ratio variable 115 with missing data as much as 0. The average total asset turnover ratio of 0.24 with a standard deviation of 0.28. The range of the maximum value of the data populsi minimum value of 3.15 and 0.007. Vriabel descriptive results of the sensitivity of inflation, the data is processed as many as 115 to N missing as much as 0. The average sensitivity of inflation with a standard deviation 2848.10 -262.76. The range of the maximum value of the data populsi at 136.00 and the minimum value -30,539.00. Data were processed at a variable rate sensitivity of 115 with missing data as much as 0. The average exchange rate sensitivity of -0.054 with a standard deviation of 0.204. The range of the maximum value of the data populsi of 0.98 and the minimum value of -0.76. Interest rate sensitivity of the data processed by the N 115 missing as much as 0. The average interest rate sensitivity of -0.009 with a standard deviation of 0.36. The range of the maximum value of the data populsi of 1.58 and the minimum value of -1.92.

Table 4 shows the test results of Hosmer and Lemeshow's goodness of fit test, chi-square value of 28.992 and significance value of 0.154. Significant value figures show more than 0.05 so that H0 or hypothesized model fit to the data.

Table 3. Descriptive Statistic

	N	Minimum	Maximum	Mean	Std. Deviation
CR	115	.000	155.600	8.79113	29.239625
DAR	115	.030	.790	.38809	.173867
ROE	115	-24.200	32.290	8.30461	9.678527
TATO	115	.007	3.158	.24576	.382452
S_INFLATION	115	-30539.000	136.000	-262.76596	2848.103453
S_EXCHANGE RATE	115	-.766	.980	-.05432	.204766
S_INTEREST	115	-1.920	1.586	-.00950	.360392

Table 4. Result of Hosmer and Lemeshow Test

Step	Chi-square	Df	Sig.
1	28.992	8	.154

Likelihood -2 Log Results in Table 5 show that the addition of independent variables in the regression model is better than the dependent variable only. Evidenced by the number konstata block 0 at 117.86 decreased to a constant 1 (with the addition of independent variables) to 51.813. So that the model (the independent variable) is fit or suitable. R2 Negelkerke Results showed that the ability of independent variables in explaining the dependent variable by 68%, while 32% is influenced by other factors.

Table 5. Comparison Result of -2Log Likelihood

-2 Log Likelihood		Negelkerke R^2
Constanta (Block 0)	Constanta (Block 1)	
117.866	51.813[a]	.680

In Table 6, the variable current ratio has a regression coefficient of -0.037 (B) with 0,339 siginfikasi level (greater than 0.05) so that the first hypothesis is rejected, which means that the current ratio does not affect the financial distress. current ratio because there is no effect on the company's data used in this study. There are some companies that have a low current ratio, but in the category of companies experiencing financial distress not. Meanwhile, there are also companies that mmiliki higher the current ratio, but fall into the category of financial distress because of EPS for 2 years. The research result is in line with Sidabalok et al (2019), Rohmadini et al (2018), Restiyanti and Agustina (2018), Hapsari (2012) and Sagala (2018) which states that the current ratio does not affect the financial distress. Thus concluded that the current ratio is not appropriate to predict the company's financial distress.

Variabel debt to assets ratio has a regression coefficient of -4.504 (B) with 0,066 siginfikasi level (greater than 0.05), so the first hypothesis is rejected, which means debt to assets ratio did not affect the financial distress. In the sample data of property companies and real estate capital and many have higher incomes than on debt, so that little amount of debt the company is not having an effect on the financial distress. The results are consistent with Tukan (2018), Primary (2016), Widarjo and Setiawan (2009), and Kusanti (2015) which showed that the debt to assets ratio has no influence on financial distress.

The regression results *return on equity* in Table 7 shows the regression coefficient of -0.343 (B) with 0.00 siginfikasi levels (less than 0.05), so the first hypothesis is accepted, which means return on equity negatively affect financial distress. Companies that have a high ROE indicates that the company is very effective ddan efficient in the use of the equity of the company. The higher the ROE the more well corporate profits and the possibility of companies experiencing financial distress is very small. So high ROE impact on the low likelihood of companies experiencing financial distress, this means that ROE negative effect on the financial distress. The results are consistent with Pure (2018), Niswanda (2016), Tya and Linda (2018), Hazem and Alaa (2016),

Total assets turnover ratio (TATO) has a regression coefficient of 0.740 (B) with a 0.428 siginfikasi level (greater than 0.05), so the first hypothesis is rejected, which means total asset turnover ratio does not affect the financial distress. The research data shows that companies that have a low or high value can TATO financial distress. So that the intensity of the TATO at property companies and real estate does not affect the company's fi-

Table 6. Result of Logistic Regression

		B	S.E.	Wald	df	Sig.	Exp(B)
Step 1[a]	CR	-.037	.039	.915	1	.339	.964
	DAR	-4.504	2.449	3.382	1	.066	.011
	ROE	-.343	.086	15.980	1	.000	.710
	TATO	.740	.934	.628	1	.428	2.096
	S_INFLASI	.000	.001	.026	1	.871	1.000
	S_KURS	-1.008	1.774	.323	1	.570	.365
	S_SUKU BUNGA	1.535	1.159	1.755	1	.185	4.641
	Constant	1.387	.943	2.165	1	.141	4.002

nancial distress. This research is in line with Restianti andAgustina (2018), Arifin (2017), Wigati (2017), Ayesha et al (2017) which states that the total asset turnover ratio (TATO) did not affect the financial distress.

Variable sensitivityinflation has a regression coefficient of 0.000 (B) with a 0.871 siginfikasi level (greater than 0.05), so the first hypothesis is rejected, which means the sensitivity of inflation does not affect the financial distress. Inflation does not affect the fianncial distress due in 2014-2018 still stands at 2.79% to 8.22% where the figure included in the mild inflation as less than 10%. The lightness of the inflation rate should not concern the national economy, so that the Indonesian economy still taste pasa stable position which does not have a significant impact on the company's financial distress. This study is in line with Rohiman and Drmayanti (2019), Darmawan (2017) and Indriani (2016) states that inflation does not affect the financial distress.

Sensitivity rate hasregression coefficient of -1.008 (B) with a 0.570 siginfikasi level (greater than 0.05), so the first hypothesis is rejected, which means the sensitivity of exchange rate does not affect the financial distress. Sensitivity rate has no effect because in 2014-2018, when the rupiah exchange rate against the US dollar weakens, then foreign investors will increase its investment in the property and real estste in Indonesia. The increase in the exchange rate is a good time for people to invest in the form of Dollar (Nuryasaman and Yessica, 2017). Foreign investors or local communities will disburse funds in rupiah and getting results with more value, then the funds are used to invest in real estate and real estate. Property and real estate prices in the country will be more affordable if converted into Dollars. On the other hand, property companies and real estate investment levels of the relatively more secure and promising, because property prices tend to rise from year to year. The additional investment will certainly maintain the continuity of the company in the midst of turmoil weakening rupiah. So the existence of the company remain intact and still be able to increase the growth of the company's property and real estate. This study is in line with Rohiman and Darmayanti (2019), Kurniasanti and Musdholifah (2018), Kumalasari et al (2014) and Sulaksana (2016), which indicates that the exchange rate does not affect the financial distress. property companies and real estate investment levels of the relatively more secure and promising, because property prices tend to rise from year to year. The additional investment will certainly maintain the continuity of the company in the midst of turmoil weakening rupiah. So the existence of the company remain intact and still be able to increase the growth of the company's property and real estate. This study is in line with Rohiman and Darmayanti (2019), Kurniasanti and Musdholifah (2018), Kumalasari et al (2014) and Sulaksana (2016), which indicates that the exchange rate does not affect the financial distress. property companies and real estate investment levels of the relatively more secure and promising, because property prices tend to rise from year to year. The additional investment will certainly maintain the continuity of the company in the midst of turmoil weakening rupiah. So the existence of the company remain intact and still be able to increase the growth of the company's property and real estate. This study is in line with Rohiman and Darmayanti (2019), Kurniasanti and Musdholifah (2018), Kumalasari et al (2014) and Sulaksana (2016), which indicates that the exchange rate does not affect the financial distress. So the existence of the company remain intact and still be able to increase the growth of the company's property and real estate. This study is in line with Rohiman and Darmayanti (2019), Kurniasanti and Musdholifah (2018), Kumalasari et al (2014) and Sulaksana (2016), which indicates that the exchange rate does not affect the financial distress. So the existence of the company remain intact and still be able to increase the growth of the company's property and real estate. This study is in line with Rohiman and Darmayanti (2019), Kurniasanti and Musdholifah (2018), Kumalasari et al (2014) and Sulaksana (2016), which indicates that the exchange rate does not affect the financial distress.

Interest rate sensitivity hasregression coefficient of 1.535 (B) with a 0.185 siginfikasi level (greater than 0.05), so the first hypothesis is rejected, which means the sensitivity of the interest rate did not affect the financial distress.Kenaikan interest rates in 2014-2018 are still in a low level, which ranged from 4.75 to 7.75. So with lower interest rates is not really influence the company's financial distress. Low interest rates boost consumer desire for credit or buy a home, because of the burden on the consumer loans is also low. The number of consumers will increase revenues and receivables of the company will be smooth, so that the company's business activities remain safe and had difficulty finances.

CONCLUSION AND RECOMMENDATION

This study memproleh financial distress prediction model for property and real estate company of seven variables, current ratio, debt to

assets ratio, return on equity, total assets turnover ratio, the sensitivity of inflation, exchange rate sensitivity and interest rate sensitivity. The results showed that the only variables that influence return on equity (negative) impact of financial distress. While the variable current ratio, debt to assets ratio, total asset turnover ratio, the sensitivity of inflation, exchange rate sensitivity and interest rate sensitivity has no effect in predicting the company's financial distress.

Suggestions for further research by adding variables outside of the seven variables that have been used so predictions *financial distress* through independent variables can be more clear and complete, such as earnings after tax, firm size, the price of gold and oil prices.

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