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The Role of Current Ratio, Operating Cash Flow and Inflation Rate in Predicting Financial Distress: Indonesia Stock Exchange

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Abstract

We believe company financial statements can be used as a tool to analyze and also as an indicator to know the financial performance. The financial statements contain information for various financial ratios, which are an important tool for assessing the company's financial performance in the future. The purpose of this research is to know the role of the current ratio, operating cash flow, and the inflation rate in predicting financial distress of consumer goods industry sector listed in the Indonesia Stock Exchange period 2011–2015. Financial distress prediction models need to be developed to assist managers in overseeing company performance and help identify important trends. To analyze the current ratio, operating cash flow, and the inflation rate has a probability of occurring financial distress for the company, used logistic regression. From this study resulted in the finding that the probability of a company exposed by financial distress is caused by operating cash flow, while the current ratio and the inflation rate have a smaller probability of the company of consumer goods to be exposed by financial distress.

Peranan *Current Ratio, Operating Cash Flow* dan Tingkat Inflasi dalam Memprediksi *Financial Distress*: Bursa Efek Indonesia

Abstrak

Kami percaya bahwa laporan keuangan perusahaan dapat digunakan sebagai alat untuk menganalisis dan juga sebagai indikator untuk mengukur kinerja keuangan perusahaan. Laporan keuangan berisi berbagai macam informasi mengenai rasio-rasio keuangan yang berguna untuk membaca kinerja perusahaan di masa depan. Tujuan penelitian ini untuk mengetahui peranan current ratio, operating cash flow, dan tingkat inflasi dalam memprediksi financial distress sektor industri barang konsumsi yang terdaftar di Bursa Efek Indonesia periode 2011-2015. Model untuk memprediksi financial distress perlu dikembangkan untuk membantu manajer mengelola kinerja perusahaan dan membantu untuk menganalisis tren yang berguna bagi perusahaan. Untuk menganalisis current ratio, operating cash flow, dan tingkat inflasi memiliki probabilitas terjadinya financial distress bagi perusahaan, digunakan persamaan regresi logistik. Penelitian ini menghasilkan temuan bahwa probabilitas perusahaan mengalami financial distress tidak disebabkan oleh operating cash flow, lebih lanjut current ratio dan tingkat inflasi memiliki probabilitas lebih kecil bagi perusahaan sektor barang konsumsi untuk mengalami financial distress.

JEL Classification: D22, G33, G40

INTRODUCTION

Changing economic conditions can affect the activities and performance of the company, and can cause a high risk, especially in terms of funding difficulties, resulting in companies experiencing financial difficulties, ranging from mild to severe difficulty even to bankruptcy or experienced bankruptcy commonly known as financial distress (Frydman et al., 1985; Habib et al., 2013; Riantani & Nurzamzam, 2015; Uzhegova, 2015).

Financial distress prediction models need to be developed to assist managers in overseeing company performance and help identify important trends (Geng et al., 2015; Zhang et al., 2016). The company suffers from financial distress due to three reasons, (1) high expenditure to pay interest from debt; (2) low operational performance relative to other companies in industry; (3) industry which is decreasing (Pan, 2012). Financial leverage is the use of funds with a fixed expense in the hope that the use of these funds will increase the income per share (Riantani & Nurzamzam, 2015).

The companies that lose money to become bankrupt, greatly affect the stakeholders (shareholders, suppliers, creditors, customers, employees and management). For large companies where the number of employees is large, with the incidence of corporate failure, significantly affect the employee economy and the economy in the region where the company is located. While the last group of interested parties, they will be repaid after the company is liquidated, i.e. shareholders and investors who suffer huge economic losses (Malinic, 2013; Setyawati, 2016).

The companies that able to disclose correct and enough information about financial health, will be detected early and may not be a collapse/ failure of the company. To improve their performance and generate higher returns for their clients, institutional investors and fund managers must manage the investment portfolio and can differentiate the weaker companies from healthy companies (Ahmed, 2009; Yap et al., 2012).

The company's financial statements can be made to be analyzed and used as an indicator to know the financial performance. The company's financial statements contain information for various financial ratios, which are an important tool for assessing the company's financial performance in the future. Analysts, investors, and researchers use financial ratios to project future stock price trends. Thus, the financial ratios are widely used for various assessments of the company's financial performance (Dutta et al., 2012; Listyaningsih & Krishnamurthi, 2015; Nisasmara & Musdholifah, 2016).

The present study contributes to the priors researches that study about the financial distress within a firm. Research on financial distress by using financial ratios is very much done. Many studies use liquidity ratios, profitability, financial leverage, operating cash flow. From several studies, it is known that financial ratios have a significant effect on financial distress. However, it is also found that financial ratios have no significant effect on financial distress (Hui, 2014; Vinh, 2015; Yasser & Mamun, 2015).

Hypothesis Development

In this research, variable used are current ratio and cash flows from operating activities are a liquidity ratio. Short-term liquidity problems can put the company at risk of getting into crisis for a longer period of times. To achieve a synchronous and perfect amount of liquid funds is difficult. Therefore, in terms of managing the company's liquidity, it is important to consider the moment and level of cash flow mismatch at the right time, because by paying attention to cash flow, it will expand the available alternative scope to overcome the cash deficit. Predictions about moments and the level of cash flow mismatch are key to the success of cash management (Kam & Muradoglu, 2010; Malinic, 2013).

The seriousness of the problem is getting worse because the cause is a matter of liquidity. External stakeholders will feel a considerable impact, as liquidity issues can lead the company

into bankruptcy, liquidation, asset transfer to another industry, reorganization of liabilities, or acceptance of government subsidies and/or assistance (Hui, 2014; Nisasmara & Musdholifah, 2016; Syamsudin et al., 2017). With good liquidity, cash flow, it will ensure cash for the payment of certain liability obligations when necessary, enabling optimal liquidity and smooth operation of the company without liquidity reserves.

H1: Current ratio has a large probability of the company's financial distress.

H2: Operating cash flow has a large probability of the company's financial distress.

Inflation rate variables also affect financial distress. Increased prices of goods and services can reduce purchasing power, thus affecting the real value of costs and income (Setyawati et al., 2017). The decrease of profitability will increase the probability of getting financial distress.

Inflation is related to financial distress. Anticipated inflation means companies can anticipate rising costs, consequently generating revenue that rises faster than costs, with a positive impact on profitability. Whereas unanticipated inflation, the company is slow in adjusting the increase in costs, resulting in an increase in costs that are faster than the company's income, the impact is a decrease in profitability. A decrease in profitability will increase the probability of getting financial distress (Simlai, 2014; Riantani & Nurzamzam, 2015; Setyawati, 2016).

H3: Inflation rate has a large probability of the company's financial distress.

The contribution of this study is all users of financial statements, which in a situation of financial difficulties will pay more attention to the future prospect of the company. Whether to continue investing or not depends on the decision of investors, creditors and bankers to provide ongoing financial support to companies that are experiencing financial difficulties, thereby reducing further losses.

METHOD

The data used in the form of quantitative data in the form of data panel. The data source is secondary data derived from the financial statements of the consumer goods industry sector listed on the Indonesia Stock Exchange period 2011-2015. Table 1 is the sum of samples that used in this reseach based on several criterias below.

The population in this study amounted to 37 companies. Selection of sample in this rese-

Table 1. List of Company Samples

No.	Code	Company name	No.	Code	Company name
1.	GGRM	Gudang Garam Tbk	10.	SQBB	Taisho Pharmaceutical Indonesia Tbk
2.	HMSP	Handjaya Mandala Sampoerna Tbk	11.	TSPC	Tempo Scan Pasific Tbk
3.	RMBA	Bentoel Internasional Investama Tbk	12.	ADES	PT Akasha Wira International Tbk,
4.	DVLA	Darya Varia Laboratoria Tbk	13.	MBTO	Martina Berto Tbk
5.	INAF	Indofarma (Persero) Tbk	14.	MRAT	Mustika Ratu Tbk
6.	KAEF	Kimia Farma (Persero) Tbk	15.	TCID	Mandom Indonesia Tbk
7.	MERK	Merck Indonesia Tbk	16.	KICI	PT Kedaung Indah Can Tbk
8.	PYFA	Pyridam Farma Tbk	17.	LMPI	PT Langgeng Makmur Industry Tbk
9.	SCPI	Merck Sharp Dohme Pharma Tbk			

Table 2. Variables Definitions

Variable	Variable Definitions	Hypothesis
Dependent Variable		
Financial distress	The phase of the company's net income decline before bankruptcy, measured by: Value 0 (zero) if the company is experiencing financial distress that has a negative net income for two years or more consecutively. The value of 1 (one) for companies that do not experience financial distress that has a positive net income for two years or more consecutively	NA
Independent Variable		
Internal determinants		
Current Ratio (CR)	Short-term liabilities that the company can meet	-
Changes in net cash flows from operating activities (OCF)	Cash that can be fulfilled by the company to pay off the loan from the company's operations	+
External determinants		
Inflation rate (INF)	Rate of overall price increase of goods	+/-

arch using purposive sampling technique, that is a sample selection method based on certain consideration or with certain criterion to the sample to be studied. The criteria used as the basis of sample selection are: Consumer goods industry sector listed on the Indonesia Stock Exchange during 2011-2015 period; The Company submits the financial statements of 31 December on a regular basis in accordance with the period of study; Not a food and beverage sub-sector; During the study period, the company did not conduct mergers and acquisitions.

Table 2 shows the variables affecting financial distress in the consumer goods industry sector in Indonesia.

To analyze the current ratio, operating cash flows, and the inflation rate has a probability of occurring financial distress for the company, used logistic regression. In this model, the financial distress variable uses a nominal scale, using an index of 0 (zero), if the firm is experiencing financial distress, seen from the company having negative net income for two or more consecutive years. The value of 1 (one) for companies that do not experience financial distress, i.e. companies that have positive net income for two years or more consecutively.

Splitting of estimation model is done through ordinary least squares (OLS), multicollinearity test, heteroscedasticity, autocorrelation and normality are required. Data is processed using Stata software version 13, by using logistic regression analysis.

Financial distress is the dependent variable is a dummy variable, so the logistic regression model that is most appropriate for the purposes of this study. Logistic regression model was used in previous research (Jovanović, 2017). The general model logistic regression as follows (Hox et al., 2017):

$$L_i = In\left[\frac{P_i}{1 - P_i}\right] = Z_i = \beta_1 + \beta_2 X_i$$

Model estimation to analyze data from research variables as follows:

$$Ln = \frac{p}{1-p} = \beta_0 + \beta_1 X_{1it} + \beta_2 X_{2it} + \cdots + \beta_n X_{nit}$$

Where in:

$\frac{p}{1-p}$ = The probability of a company experiencing financial distress

β_0 = Constant

β_n = Regression coefficients of independent variables

X_n = Independent variable

i = Entity to -i

t = Period to -t

Thus, the model used as follows (equation 1):

$$Ln = \frac{p}{1-p} = \beta_0 + \beta_1 CR_{it} + \beta_2 OCF_{it} + INF_{it} + \in_{it}$$

Where in:

$Ln \frac{p}{1-p}$ = The probability of a company experiencing financial distress

β_0 = Constant

CR = Current Ratio

OCF = Changes in net cash flows from operating activities

INF = Inflation rate

i = Entity to -i

t = Period to -t

RESULT AND DISCUSSION

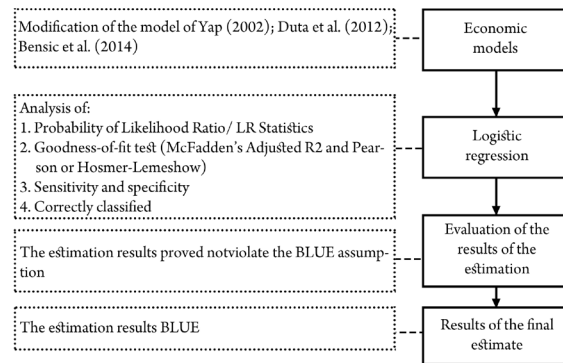Logistic regression model as shown in equation (1), through the stages as shown in Figure 1.

Figure 1. Summary results of the estimation

Table 3 shows the result of goodness of fit test seen from McFadden's Adjusted R2. The global test result (the probability of Likelihood Ratio/LR statistics) is 0.000 or reject H0, which means together all the independent variable have a significant impact on dependent variable. However, while the current ratio and changes in net cash flows from operating activities have a significant effect on the probability of not having financial distress, the inflation rate does not significantly affect the probability of having financial distress. The goodness-of-fit test used

Table 3. Goodness of Fit Test seen from McFadden's Adjusted R2

Logistic regression				Number of obs		= 85
				LR chi2(3)		= 23.36
				Prob > chi2		= .0000
Log likelihood		= -19.10860		Pseudo R2		= .6630

Fd	Odds Ratio	Std. Err.	z	P>|z|	[95% Conf.	Interval]
Cr	1.009321	.0045237	2.07	.038	1.000493	1.018226
Ocf	1.401535	.1302282	3.63	.000	1.168186	1.681497
Inf	1.191486	.4950416	.42	.673	.527752	2.689975
_cons	.1463826	.3914066	-.72	.472	.0007753	27.63653

in this research is McFadden's Adjusted R2 and Pearson or Hosmer–Lemeshow goodness-of-fit test. McFadden's Adjusted R2 as 0.663 means the model regression can explained 63.3% variation of dependent variables.

Hosmer-Lemeshow Goodness of Fit has H0 that is do not reject model. The result is prob > chi2 is 0.3155 or do not reject H0 or the model cannot be rejected. Table 4 shows the result of Hosmer-Lemeshow Goodness of Fit.

Specificity tells negative number in sample that correctly classified as negative is 40%. On the other hand, sensitivity tells positive number in sample that correctly classified as positive is

97.33%. For overall the model can accurate by 90.59% for predicting the result. Table 5 shows the accuracy of the model in predicting the results.

To know the partial change of one variable, used marginal effect, as shown in Table 6. The summary of statistical results using Stata version 13, is presented in Table 7.

Reviewing the results of statistical data on the results of the study, it was stated that all variables have positive relationship with probability not being financial distress, shown by positive value of coefficient logit. For each additional increase on current ratio, the odds of

Table 4. Goodness of Fit Test seen from Hosmer-Lemeshow

Logistic model for fd, goodness-of-fit test		
Number of observations	=	85.0000
Number of covariate patterns	=	85.0000
Pearson chi2(81)	=	86.5700
Prob > chi2	=	.3155

Table 5. The Accuracy of The Model in Predicting the Results

Logistic model for fd			
		True	
Classified	D	~D	Total
+	73	6	79
-	2	4	6
Total	75	10	85

Classified + if predicted Pr(D) >= .5		
True D defined as fd != 0		
Sensitivity	Pr(+| D)	97.33%
Specificity	Pr(-|~D)	40.00%
Positive predictive value	Pr(D| +)	92.41%
Negative predictive value	Pr(~D| -)	66.67%
False + rate for true ~D	Pr(+|~D)	60.00%
False - rate for true D	Pr(-| D)	2.67%
False + rate for classified +	Pr(~D| +)	7.59%
False - rate for classified -	Pr(D| -)	33.33%
Correctly classified		90.59%

Table 6. Marginal Effect

Marginal effects after logit							
y = Pr(fd) (predict)							
= .97078281							
Variable	dy/dx	Std. Err.	Z	P>|z|	[95% C.I.]		X
Cf	.0002631	.00015	1.75	.080	-.000032	.000558	154.240000
Ocf	.0095746	.00532	1.80	.072	-.000845	.019994	8.752590
Inf	.0049693	.01156	.43	.667	-.017689	.027628	5.932000

Table 7. The Summary of Statistical Results

Variables	Coef	P>|z|	Odds Ratio	dy/dx	X
Current Ratio	.0090	.038	1.009	.00026	154.24
Ln OCF	.3380	.000	1.402	.00957	8.75
Inflation Rate	.1750	.673	1.191	.00497	5.93
Constant	-1.9220	.472	.146		
N	85.0000				
Prob > LR	.0000				
McFadden's Adj R2	.6630				
Pearson chi2(81)	86.5700				
Prob > chi2	.3155				
Sensitivity	97.33%				
Specificity	40.00%				
Correctly classified	90.59%				

not being financial distress increase by a factor of 1.009, holding all other variables constant. For a unit change in LN operational cash flow, the odds are expected to change by a factor of exp (0.338) or 1.402, holding all other variables constant. If inflation increase by 1%, the odds of not being financial distress increase by 1.19 times greater.

Average of current ratio, LN operational cash flow, and inflation rate respectively for all sample is 154.24, 8.75 and 5.93. With this condition, probability the company do not experience financial distress is 0.9707. This probability relatively close to 1 and can be concluded that if a company has mean value, it does not have financial distress problem. Marginal effect tells us partial change of one variable. On average, which is a company has 154.24 for current ratio, 8.75 for LN operational cash flow and inflation rate 5.932, increase in current ratio by 1 unit will increase the probability of not experiencing financial distress by 0.00026 or 0.026%. In addition, increase in LN operational cash flow by 1 unit will increase probability of not experiencing financial distress by 0.9% or 0.0096 point. This is the biggest effect.

On the other hand, although inflation rate is not significantly affecting dependent variables, this value is bigger than current ratio, namely 0.0049 or 0.46%.
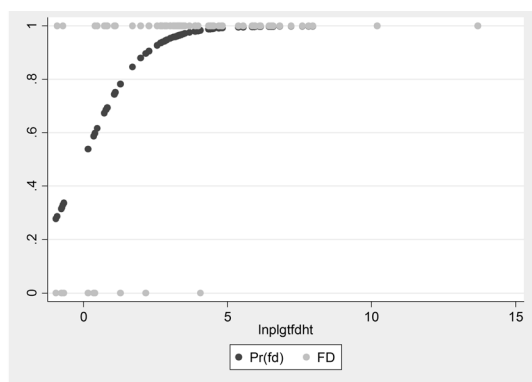
Figure 2. Predicted Financial Distress and True Value of Financial Distress

For predicted financial distress and true value of financial distress, presented in Figure 2. The graph consists of predicted financial distress (black line) and true value of financial distress (gre y line). The predicted value of logit of financial distress is around 0 up to 1, they do not exceed 1 or less than 0.

A lot of research that found operating cash flow to be one cause of financial distress (Vinh, 2015; Zhang et al., 2016; Jovanović et al., 2017; Lakshmanan et al., 2017). In this research, both current ratio and operational cash flow have a significant effect on financial distress for the company's consumer goods industry sector listed on the Indonesia Stock Exchange. Liquidity is very important for the company. Meet liquidity requirements, means the company have the ability to settle unconditional obligations, determined by the strength in handling goods and services sold to generate cash, determined by the quantity of goods and services sold, the level of liquidity (convertibility into cash), and the duration of asset rotation in the company, as well as the level and urgency of payment obligations. If, the company has a liquidity disability, it will not be able to meet its obligations. Liquidity problems can take place in a short time, lead the company towards bankruptcy.

While the rate of inflation has a smaller probability for companies to be exposed to financial distress (Tinoco & Wilson, 2013). Good macroeconomic condition has the effect on the probability of the company obtaining high profits. Under these conditions, the price of goods and services is low, demand is high, and business is strong, the company has less financial distress.

CONCLUSION AND RECOMMENDATION

This study obtained a model for the prediction of financial distress on company of consumer goods industry sector listed on the Indonesia Stock Exchange, with a small number of variables, current ratio, operating cash flow and the inflation rate. The probability of a company exposed by financial distress is caused by operating cash flow, while the current ratio and the inflation rate have a small probability for the company to be exposed by financial distress.

From this study, it contributes only to two type of liquidity ratios and one type of macroeconomic variable. Based on result model is not enough to make predictions of the company's possibilities to exposed by financial distress. Leverage, profitability, activity ratio, market value ratio, firm size, firm age or macroeconomic variables such as economic growth, exchange rate, stock exchange index, have not been used as variables to predict financial distress. These variables can be used for further research.

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