Analysis of Financial Distress in Indonesian Stock Exchange

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ABSTRACT

This paper focuses on verifying the effect of fundamental factor that consist of financial ratio and management capability to financial distress. This paper is expected to contribute in extending theory exist by adding upper echelon theory as the new one. The method of analysis uses logit regression. The findings show that model as a whole results goodness and fit. And the sign of each independents variables show consistently to existing and new theory

Keywords : Fundamental factor, management capability, upper echelon theory, logit regression.

1. Research & Theoretical Background

The use of financial ratios for companies belonging to distinguish healthy and unhealthy companies has been ongoing since the 1930s. A set of research group by Winakor & Smith (1935), Ramser and Foster (1931), Merwin (1942), Hickman (1958) and Beaver (1966) as cited in Aksoy & Ugurlu (2006) concluded that the companies that went bankrupt have financial ratios that differ significantly compared with existing companies operate. A set of study conducted by Altman (1968), Altman et al.(1977), Ohlson (1980), Zmijewski (1984) have proposed to use predictive analysis techniques are more sophisticated financial distress. The focus in this research verifies the variables that affect the financial distress. The first thing is fundamental factor that composed of sub-variables of financial ratios, financial ratio which is a parameter to measure a company's financial performance; second thing is to verify any new theories that are used in this study the upper echelon theory. This theory states that the company's overall performance is a reflection of management capability that is owned by a company.

The first issue is to verify the company's fundamentals that consists of financial ratios. Forecasting financial distress is currently widely used for various purposes. As

quoted in Ohlson (1980), Shumway (2001), Altman (2001) and Duffie-Singleton (2003) that the purpose of doing forecasting financial distress include financial solvency monitoring, assessment of security loan, an evaluation by the auditor's going concern status, risk measurement portfolio and the assessment of defaultable bonds. According to Ward (2007), financial ratio analysis presents the relationship between the financial statement on a specific time period. According to Aksoy & Ugurlu (2006), financial ratios indicate a company's financial performance so if the ratio of a company's performance is above the industry average performance of a company then either (outperformed) and vice versa (underperformed). Of the two statements above contained the sense that the actual financial ratios illustrate the direct relationship between the accounts that exist on the financial statements. The second issue is to test the management capabilities in financial distress model. According to D'Aveni (1990) the management capability of the company's has influence in bringing the crisis. Manager who has a good capability will have a good financial planning strategy. Upper echelon theory advanced by Hambrick & Mason (1984) states that characteristics possessed by top management (top management team) has a direct impact on overall company performance. Characteristics of a good reputation is owned by top management.

Top management capability is further described by Hambrick & Mason (1984) is social capital that is owned by top management in the form of certified expertise in a particular field, background or experience of a manager's activities in a particular organization (board membership). According to Andrade and Kaplan (1997), Asquith et al. (1994) state that the condition of financial distress due to appear not only because of the declining fundamentals of the company and inefficient operating structure, but also due to the incompetence of managers in managing the company. The same thing was stated by Whitaker (1999) which states that the incompetence of managers to manage the company had a similar role with the company's fundamentals in terms of reduction led to financial distress condition.

Research conducted by D'Aveni in line with research conducted by Kor (2003) which states that a positive influence on the management capabilities of the company's financial performance.

The study is expected to contribute to the theoretical and empirical, as well as contributing to the practical. **The first contribution** of this research is expected to provide for the extension of the framework theory of financial distress associated with the application of upper echelon theory. Thus, the model will be generated is expected to strengthen the financial distress prediction models that already exist. **The second contribution** is a practical contribution to the investment policy for creditors and investors. The results of this study is expected to be used as a reference for creditors

when making credit scoring and for investors when a stock is a fundamental valuation. In addition to what has been stated above, the research-research related to financial distress as described above still shows mixed results of the variables studied. This suggests a gap between theory and empirical research results.

1.1 Fundamental Factor

According to White & Sondhy (2003) is an indicator of corporate performance as reflected in the amount of the company's financial ratios. Pindado et al. (2006) examined the financial relationship between the ratio of long-term debt and short term. Almeida & Philipon (2007) also examined the relationship between the ratio of debt to financial distress. Opler and Titman (1994) in his study found a strong correlation between companies that use the highest leverage in the industrial sector with financial distress. Cai & Zhang (2011) found a positive relationship between leverage ratio increased with the increase in financial distress. Casey and Bartczak (1985) using multiple cash flow ratio in predicting financial distress. Aggarwal & Tafler (2007) option pricing model approach and model of the accounting return on assets and return on risk weighted assets in predicting financial distress. Agryou (2006) in a study using six financial distress variables are financial ratios of total debt / total assets, shareholder equity / total assets, current assets / current liabilities, total debt / net turnover, the net result / total assets, net result / shareholder equity and macroeconomic variables include: terms of trade, GDP, monthly interest rate, total household disposable income and the cost of living price index. Abid and Zouari (2002) examined the financial distress in Tunisia, research results indicate that the variable ratio of short debt, capital structure, sales growth and liquidity is the best predictor. Aziz and Lawson (1989) using a cash flow statement in financial distress prediction model. Campbell et al. (2010) examined financial distress using accounting-based variables and market-based variables. Baek et al. (2004) in his research found that financial distress also influenced by regional interest rates, changes in exchange rates and conditional stock return volatility.

1.2. Management Capability

Management or agent may be interpreted as the head of a company or the agency theory perspective is seen as a representative of the shareholders or owners. Management capability has the meaning of ability or skill possessed by a manager in managing a company owned by shareholders. Management capability is one of the proxy or corporate reputation management. Hambrick & Mason (1984) put forward the upper echelon theory. Upper echelon theory holds that managers act as a major strategic decision makers in companies. As a result, the strategic decisions made by management will impact directly on overall company performance and corporate value in the future. According to Hambrick and Mason (1984) management capability

is an ability possessed by the company are responsible for providing overall direction for the company. In addition, managers also coordinate all the major management functions so that the vision and mission can be acchieved. Managers also responsible for setting strategic direction and success of companies in the future. According to Hambrick and Mason (1984), corporate performance is a reflection of the performance achieved by the management. According to D'Aveni (1990), a very important indicator of the capabilities, skills and competencies of a manager is reputable. While Certo (2003) states that the effect of management factors in the assessment conducted by the investor company. Reputation management is viewed by many management experts is an important asset to the company as suggested by Batchelor (1999), Bromley (1993), Brouillard (1983), Caminiti (1992). However, in the opinion of management expert such as Caminiti (1992) that the current market players also looked at non-financial factors that affect a company's stock price in the market. Reputation management as proposed by Bromley (1993) is an accumulation or reservoir of the various parties ranging from corporate stakeholders, communities and the general public. Reputation management is also an important factor for success in investing as set forth by Buffett & Clark (2002). Buffett & Clark (2002) states that an effective way of investing is: "to look for cheap stocks (undervalued) the company is led by a reputable manager to then hold the stock in the long term". By the way, then Buffet obtains a very high return on investment that has been done because expertise in selecting stocks that the manager and the company has a good reputation.Carter (2006) in his study put forward a theory other than the upper echelon that associated with the management of impression management theory. Basdeo et al. (2006) illustrates that based on signaling theory in gaining a good reputation, the manager or company affected by the actions taken by the company itself and the actions taken by competitors. Basdeo et.al (2006) examine the role of the reputation of market value relative to multinational companies. Their findings showed that based on the theory of the internalization of market valuation will be higher when management or the company's reputation high. Other studies on the topic of management and corporate reputation is also investigated by Becchetti et al. (2007) and Barnett et al. (2006). Becchetti et al. (2007) there are very few studies that examine the field of reputation management in relation to capital markets. Barnett et al. (2006) indicates that the concept of management or the company's reputation is important in recent years. Research conducted Barnett et al.(2006) review, analyze and identify the definition of reputation. Barnett et al. (2006) distinguish between the image and reputation capital (capital). Anderson & Smith (2006) tested the performance of stocks that are members of Fortune's Most Admired list. Damodaran (2003) argued based on the conventional wisdom, investors should buy shares of a reputable company and product aspects of the management aspects that will obtain high yields. This message is then repeated again by Buffett (2007) to investors. Brookman & Thistle (2009) argues that the capability and competence of management that is characterized by work experience, skills and values will be able to increase yields on corporate stock. Bhagat and Bolton (2007) investigated the relationship between corporate governance with firm performance.Studies have been conducted found that corporate governance is diproksi with managerial capabilities positively related to firm performance. Results of research conducted by Bhagat & Bolton is reinforced Bebchuk and Cohen (2005). Berrone et al. (2007) investigated the relationship between reputation management and corporate financial performance. Berrone et.al (2007) examined the link between the company's reputation with the sustainability of financial performance. Research results show that companies with good reputations will have the sustainability of superior financial performance. This condition created by a good corporate reputation is a source of value creation but also has intangible character that is hard to duplicate by competitors. Bretton & Taffler (2001) examined the relevance of the value of corporate reputation management. The results have shown that the reputation of good management will lower capital costs, increase market value and the level of ongoing corporate return all the time. Caliskan et al. (2011) examined the link between corporate reputation and financial performance of companies listed on stock exchanges in Turkey. Bhagat & Black (2002) examined the link between the ability of managers to manage the risks to corporate governance proxied by reputation management. Chou et al. (2010) examined the relationship between a company's reputation with the quality of corporate financial statements. Hui and Jing (2008) analyzed the link between corporate governance which is a proxy of reputation management by the probability of the onset of financial distress.

- 2. Hypotheses Development
- H1: Fundamental factor affect financial distress
- H2: Management capability affect financial distress
- 3. Data and Method of Analysis
- 3.1 Data
- The sample selection criteria as follows:
- Included in manufacture sector
- It has been listing on the Stock Exchange prior to 2005
- Having a larger amount of total assets of Rp 100 billion
- Have a complete financial report of year 2005-2010

3.2 Method of Analysis

This study uses a discrete dependent variable models with binary type variable or a dummy variable. This type of dependent variable has a value of one or zero. In the logit, the likelihood of an event expressed as:

$$P_i = E(Y_i = 1 \setminus X_i) = \frac{1}{1 + e^{-(\beta_1 + \beta_2 X_i)}}$$

The equation can also be written as follows:

$$P_i = \frac{1}{1 + e^{-Z_i}} = \frac{e^Z}{1 + e^Z}$$

Where,

$$Zi = \beta i + \beta i Xi$$

Let P_i is the probability of an event. And $(1 - P_i)$ is probability of not an event. Now consider the following model of $(1 - P_i)$:

$$1 - P_i = \frac{1}{1 + e^{Z_i}}$$

So that,

$$\frac{\text{Pi}}{1-\text{Pi}} = \frac{1+e^{Z_i}}{1+e^{-Z_i}} = e^{Z_i}$$

The natural log (Li) of this ratio is called the logit, and therefore the model (6) is called the logit model. Now consider the following model:

$$Li = ln \left(\frac{P_i}{1 - P_i}\right) = Z_i = \beta_1 + \beta_2 X_i$$

The logit model tells us that the log of the odds ratio is a linear function of explanatory variables. In this model the slope coefficient β_2 , gives the change in the log of the odds ratio per unit change in the Xi. The logit model does not give the probabilities directly.

We illustrate the logit model with our illustrative sample. Let Pi is the probability of distress and (1 - Pi) is probability of not distress. Pi / (1 – Pi) known as the odds ratio, is simply the odds in favor of distress. Now consider the following model to know the relationship between independent variables with dependent variables :

$$Li = ln\left(\frac{P_i}{1 - P_i}\right)$$

$$Li = \beta + \beta CATO + \beta CR + \beta DAR + \beta DER + \beta EDU + \beta EXP01 + \beta ROA + \beta ROE + \beta TATO + \beta WCTA + ui$$

Where:

Li	: Log Natural
CATO	: Current assets to total assets
CR	: Current ratio
DAR	: Debt to total assets
DER	: Debt total equity
EDU	: Educational background ratio
EXP	: Related experience ratio
ROA	: Return on assets
ROE	: Return on equity
TATO	: Total asset turn over
WCTA	: Working capital to total assets

4. Result and Discussion

Table 1.Descriptive Statistics

	CATO	CR	DAR	DER	EDU	EXP01	ROA	ROE	TATO	WCTA
Mean	2.689940	2.132762	0.616882	3.359465	0.450051	0.563173	0.025975	0.040646	1.245020	0.12388
Median	2.380297	1.499164	0.552579	1.061228	0.461538	0.571429	0.025671	0.059100	1.020338	0.13512
Maximum	33.04780	15.15446	4.586948	308.4745	1.000000	1.000000	0.371650	6.424767	12.54832	4.33187
Minimum	0.257247	0.050440	0.108423	-17.51559	0.000000	0.000000	-0.662052	-2.254833	0.134806	2.281061
Std. Dev.	2.683623	2.141253	0.485239	23.92382	0.244097	0.227821	0.102394	0.638673	1.164951	0.50620
Skewness	8.728083	3.095471	4.630521	12.25790	-0.061151	-0.374704	-1.900808	5.245076	5.788581	2.07371
Kurtosis	97.41042	15.35685	32.77577	156.5828	2.377658	2.792839	16.14916	62.28737	53.66801	33.6488
Jarque-Bera	65678.57	1361.014	6928.090	172344.4	2.866158	4.307269	1334.888	25828.38	19246.60	6815.42
Probability	0.000000	0.000000	0.000000	0.000000	0.238573	0.116062	0.000000	0.000000	0.000000	0.00000
Sum	459.9798	364.7022	105.4868	574.4685	76.95866	96.30262	4.441665	6.950533	212.8984	21.1847
Sum Sq. Dev.	1224.311	779.4440	40.02761	97299.37	10.12916	8.823386	1.782374	69.34344	230.7087	43.5213
Observations	171	171	171	171	171	171	171	171	171	171

Table 1 shows the numbers of observations in this study as many as 171 observations.

The mean of CATO is 2.689940 , the median 2.380297 and standard deviation is 2.683623. The mean of CR is 2.132762 with a median 1.499164 and a standard deviation is 2.141253. The mean of DAR is 0.616882, the median is 0.552579, with a standard deviation is 0.485239. The mean of DER 3.359465 the median is 1.061228 and standard deviation is 23.92382 . The mean of EDU ratio is 0.450051 with a median is 0.461538 and a standard deviation is 0.244097. The mean of EXP01 ratio is 0.563173 with a median is 0.571429 and a standard deviation is 0.227821. The mean of ROA ratio is 0.025975 with a median is 0.025671and a standard deviation is 0.102394 .The mean of ROE ratio is 0.040646 with a median is 0.059100and a standard deviation is 0.638673 .The mean of TATO ratio is 1.245020 with a median is 1.020338 and a standard deviation is 1.164951. The mean of WCTA ratio is 0.12388 with a median is 0.13512 and a standard deviation is 0.50620.

Dependent Variable: Y						
Method: ML - Binary Logit (Newton-Raphson)						
Convergence achieved after 7 iterations						
Covariance matrix computed using second derivatives						
Variable	Coefficient	Std. Error	z-Statistic	Prob.		
С	0.972169	1.127206	0.862459	0.3884		
CATO	-0.169230	0.287556	-0.588511	0.5562		
CR	-0.255788	0.189411	-1.350438	0.1769		
DAR	0.482037	0.803696	0.599776	0.5487		
DER	0.077217	0.032839	2.351360	0.0187		
EDU	-0.131393	0.046099	-3.995858	0.0193		
EXP01	-1.356836	1.282763	-1.057745	0.2902		
ROA	-64.49147	14.38935	-4.481888	0.0000		
ROE	-3.217990	1.511812	-2.128564	0.0333		
ΤΑΤΟ	-0.354301	0.498267	-0.711065	0.4770		
WCTA	-0.174848	1.277712	-0.136845	0.8912		

Table 2. Logit Regression Result

McFadden R-squared	0.489527	Mean dependent var	0.278146
S.D. dependent var	0.449577	S.E. of regression	0.298829
Akaike info criterion	0.749272	Sum squared resid	12.50185
Schwarz criterion	0.969074	Log likelihood	-45.57006
Hannan-Quinn criter.	0.838567	Deviance	91.14012
Restr. Deviance	178.5404	Restr. log likelihood	-89.27021
LR statistic	87.40030	Avg. log likelihood	-0.301788
Prob(LR statistic)	0.000000		

Table 2 shows that all variables support theoretical background. Fundamental factors that consist of CATO, CR, DER, DAR, ROA, ROE TATO and WCTA show sign consistently with theoretical framework. Ratio of CAR,CR, ROA, ROE, TATO and WCTA result negative sign to financial distress. It support findings of Abid and Zouari (2002), Almeida & Philipon (2007) Ratio of DAR and DER show positive sign. This findings support of Aggarwal & Tafler (2007), Chen et al. (2010) and Agryou (2006).

The similar result also found of management capability. The sign of EDU and EXP have negative to financial distress. This finding support the upper echelon theory that states management capability will minimize financial distress probability.

There are several possibilities for future research. First, the research topic could extend to wider area not only accounting ratio and market ratio but also cover capital structure analysis, bond ratings and loan classification. Second, in order to strength upper echelon theory as new framework theory in financial distress, it would be better to search another proxies of management capability.

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