

ASSESSING VARIABLES AFFECTING THE FINANCIAL DISTRESS OF STATE-OWNED ENTERPRISES IN INDONESIA (EMPIRICAL STUDY IN NON-FINANCIAL SECTOR)

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Received 20 January 2020; accepted 22 April 2020

Abstract. The financial distress of state-owned enterprises (SOEs) has become the main focus of numerous researchers due to the ongoing financial burden on the state and their inability to secure independent funding. The purpose of this study is to investigate the variables that affect the financial distress of SOEs in Indonesia that have received government subsidies. This research is a quantitative study conducted using secondary data collected from the Indonesian Stock Exchange, from a total of 19 SOEs from 2014 to 2017. The analysis found that investment (X2INV), leverage (X3LEV), cash flow from operating (X4CFO), and firm size (X5SIZE) have a significant negative effect on financial distress in SOEs. It means that increases in these variables will reduce the potential for corporate financial distress. While the independent working capital (X1WC) variable has no significant effect on financial distress, because it is temporary and has a dynamic change, so it is unable to show its influence on financial distress. SOE's management that receives government subsidies can increase the amount of profitable investment to increase marginal revenue, thereby reducing financial distress. Higher leverage can reduce the level of financial distress, indicating that management uses debt to finance projects that generate higher marginal revenue than marginal costs. This condition has an impact on increasing operating cash flow. The higher the operating cash flow will reduce financial distress.

Keywords: financial distress, subsidy, investment, leverage, cash flow from operation.

JEL Classification: M41, G33, G01.

Introduction

The Minister of Finance of the Republic of Indonesia explained that a number of state-owned enterprises (BUMN) showed indications of poor financial performance. The average Altman Z-Score of SOEs in various industries is at level 0, while agricultural SOEs are negative 0.4 (Kurniawan, 2019). This phenomenon shows that the financial condition of State-Owned Enterprises (SOEs) is an essential area of research. Financial difficulties or financial distress faced by SOEs in meeting their operational needs is a problem that needs to be solved. Some SOEs are an ongoing financial burden on the state and have failed to secure independent funding. Subsidies to SOEs in large numbers in the state budget can cause government programs for other sectors to be reduced. Government subsidy expenditure for 2015 – 2019 is still high, respectively 18.6 trillion, 174.2 trillion, 166.4 trillion, 228.2 trillion, and 224.3 trillion (APBN, 2019).

The result of the financial performance research of an SOE (PT. PLN) that received subsidies from the government showed that the liquidity and solvency were good, but had lower profitability compared to other companies (Assagaf, 2013). Since the last few years, government subsidies in this company have increased and have debts that exceed the ability of internal liquidity (Assagaf, 2014a). Government subsidies harm financial health and reduce the independence of state enterprises in managing the company (Assagaf & Ali, 2017). The lack of independence could decrease the quality of good corporate governance (Sayidah & Handayani, 2016) and will continue to affect the company's market capitalization (Assagaf, 2017a). Policymakers should control the operational and financial performance of SOEs to improve their financial health.

Financial distress in SOEs that have dependency on funding from the government causes the burden of the state budget (Assagaf, 2017b). SOEs should have the ability to operate independently. They should have a good

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financial condition as the scale of business is relatively large. The government supports them in terms of control of resources, entry, and dominance of a broad market, higher chances of partnering between SOEs in other states. Government support for the legal aspects that can facilitate business processes, the business flow, and long experience running a business. Therefore, an exact measurement of the financial distress of SOEs, which incorporates a variety of variables that influence it, is crucial.

The purpose of this study is to examine the effect of working capital, investment, leverage, cash flow operations variables on financial distress in state-owned companies in Indonesia for the non-financial sector. The approach of financial distress used is the marginal balanced approach with the formula marginal revenue reduced by marginal cost. The adoption of the marginal approach in this study is part of the expansion of economic theory in the field of finance. The marginal approach has been used in economic analysis, cost of service, marginal cost pricing, maximization profit, loss minimization, minimization of cost and revenue maximization, which results in optimum conditions (Assagaf et al., 2019).

The benefits of research for stakeholders is to give feedback to the company management in the formulation of corporate policy, especially about the factors that affect SOEs' financial distress. Also, it provides information to investors and creditors of the financial distress faced by SOEs, so that it can influence decisions concerning savings and investment. For practitioners, this research can enrich them with information that can be used in analyzing the financial distress of SOEs to recommend a solution that can help SOEs anticipate financial difficulties. The novelty of this study is the use of marginal scores to measure financial distress as adopted from Assagaf et al. (2019). Previous studies that examined financial distress, no one has used this marginal score. Previous researchers measured financial distress with the Altman Z-score (Garškaitė, 2008; Mackevičius & Silvanavičiūtė, 2006), Springate model (Mackevičius & Silvanavičiūtė, 2006; Cinantya & Merkusiwati, 2015) and Taffler & Tisshaw model (Mackevičius & Silvanavičiūtė, 2006)

1. Literature review

1.1. Agency theory and financial distress

Agency theory is a contractual model between two or more people. The party is called the agent, and the other party is called the principal. The principal delegates responsibility for decision making to the agent. The principal gives a mandate to the agent to carry out specific tasks in accordance with the agreed employment contract (Jensen & Meckling, 1976). The underlying assumption in agency theory is that each party seeks to obtain the highest utility (Jensen & Smith, 2000). The result of research shows that agency costs affect the company's financial performance. Companies that have better financial performance will increasingly avoid financial distress (Savitri, 2018).

We use agency theory as a basis for analyzing SOE's management efforts to improve financial capability and avoid financial distress. We analyze financial distress by using factors that affect financial distress, namely working capital, investment, leverage, and cash flow operations. Firm size is used as a control variable.

1.2. Financial distress and subsidies

Financial distress is a condition where a company fails to meet its obligations (Altman et al., 2019). There are three approaches to identify financial distress. First, the event-oriented approach that defines financial distress with the company's inability to pay off current obligations by current monetary assets. Second, process-oriented approach that describes financial distress with financial conditions between solvency and bankruptcy. Third approach, technical definitions that identify financial distress by relating it to specific financial ratios (Gottardo & Moisello, 2019). In Indonesia the financial distress faced by SOEs is one of the problems faced by government. SOEs that have been operating for a while and are relatively large should be able to improve the efficiency of their operational management and be financially independent. However, despite their favoured conditions, SOEs are still experiencing a deficit or an imbalance between needs and financial capabilities. One of the ways to overcome financial distress is to carry out a balance sheet restructuring in terms of both assets or liabilities and equity. This restructuring is called asset restructuring and/or financial restructuring (Altman et al., 2019). Subsidies from government to SOEs is one of asset restructuring. The deficit conditions cause some SOEs to still depend on subsidies and additional government capital participation. These issues need to be resolved.

Subsidies have positive and negative effects. The positive effects of subsidies linked to the goods and services that have positive externalities to increase output and resources allocated to goods and services such as education and high technology. A negative effect of subsidies is an inefficient resource allocation (Patriadi, 2005). Increased government subsidies and loans that exceed the capabilities of internal liquidity could disrupt the financial health of the state (Assagaf, 2013). Higher levels of debt can affect the quality of the management of a company.

The government must optimize SOEs' management needs with a series of integrated policies supported by through the relevant ministries to improve the company's performance (Assagaf, 2014b). The four pillars are: (a) management of fuel from upstream to downstream independently with economies of scale, (b) restructuring of a contract to purchase electricity from private power, especially in rescuing opportunity income or cost savings for PLN, (c) restructuring of tariffs on through tariff-based mechanisms, and (d) optimising the management of subsidiary companies through the restructuring of management.

Government subsidies have an impact on financial health. Research has shown that government subsidies

harm financial health and reduce the independence of state enterprises in managing the company (Assagaf, 2017a). The lack of independence could lower the quality of good corporate governance and will continue to affect the market capitalization of the company. The capitalization market is one tool to measure the performance of the company. Policymakers should control the operational and financial performance of SOEs to improve their financial health and is performance.

1.3. Marginal approach and measurement of financial distress

Measurement of financial distress is based on the research (Assagaf et al., 2019), who first used a marginal approach to distinguish companies that experienced financial distress at various levels ranging from the level of experiencing financial distress to not experiencing financial distress. The previous researcher has used the marginal approach ($MR = MC$) in product optimization and profit maximization of dairy farms (Indrayani, 2015). There are several advantages of marginal cost pricing (Yustiana et al., 2015). This mechanism is considered the most efficient in avoiding underpricing (ratings below the price). This view proved that the balance of revenue and marginal costs generates maximum profit or minimum loss.

The marginal approach is also used to obtain the maximum benefit on balance transfer pricing through $MR = MC$. Coase describes the balance of demand curve, MR , and MC and argues that the price and the quantity of the demand curve that is formed at the intersection of the curve $MR = MC$ generate maximum profits (Coase, 1972). Competitive firms equate marginal cost at market prices its products to achieve maximum benefit. It happens because of the equality of marginal cost with the price of the best conditions of efficiency in resource allocation (Hall, 1986).

1.4. Working capital and financial distress (Hypothesis – H1)

Each company has working capital levels different. A working capital limited company must be able to prioritize the use of current assets to meet current liabilities repayment (Deangelo et al., 2002). The higher a company's working capital showed a high investment in existing assets, and interest financing for short-term debt is low. There are two views on the investment in working capital. On the one hand, a high level of working capital allows the company to increase sales and get greater discounts for advance payment of the purchase so that it can increase the value of the company. On the other hand, A high level of working capital requires high costs, thereby increasing the probability of bankruptcy (Baños-Caballero et al., 2014). The findings showed that the company has a highly liquid asset structure, has the opportunity to improve the performance of its operations (Deangelo et al., 2002).

Companies that manage their working capital properly will be able to increase profitability and gradually achieve sustainable growth. But if the company operates above sustainable growth will encourage financial distress because of large debts (Nastiti et al., 2019).

High levels of borrowing incur higher interest rates (Baños-Caballero et al., 2014). If a company has a low level of working capital, the managers tend to increase investment in working capital through increased sales and additional discounts for advance payment of suppliers. Managers who improve the level of working capital will be able to increase the flexibility of short-term finance and have a greater opportunity to increase the company's investment. The results showed that companies that achieve the optimal level of working capital by raising and lowering prices have been able to improve stock performance and operations (Aktas et al., 2015). The results of research in Indonesian manufacturing companies show that working capital has a significant effect on financial distress (Ardiyanto, 2011).

Financial managers should have a strategy to determine the optimal level of working because a high level of working capital can have a negative impact on value creation due to increased interest and the probability of bankruptcy (Baños-Caballero et al., 2014). Mismanagement of working capital can be a barrier for companies to invest in projects that have a high return rate. This mismanagement has a negative impact on the value of the company triggering bankruptcy (Delavar et al., 2015).

H1: Working capital (X1WC) has a significant effect on the financial distress of SOEs that receive government funding.

1.5. Investment growth and financial distress (Hypothesis – H2)

A company can secure financing internally and externally. The availability of internal funds affects the investment decisions of a company because the cost of capital is lower than external funding (Ogawa, 2003). Nevertheless, companies need to have the financial flexibility to be able to take investment opportunities to improve their performance (Aktas et al., 2015). The company can access funds from third parties for investment if the funds are not available or are insufficient. The need for investment funds will affect the financial condition due to the obligation to repay the money and interest on the loan. The financial difficulties affect different investments according to the investment opportunities available to the company (López-Gutiérrez & Sanfilippo-Azofra, 2014).

The researchers examined the impact of financial flexibility and the performance of East Asian firms during the 1994–2009 period (Florackis & Ozkan, 2012). The results show that financial flexibility becomes an important factor in influencing investment and performance, especially during the 1997–1998 Asian financial crisis. In the years before the crisis, financially flexible companies were better able to capitalize on investment opportunities and

performed better than less flexible companies. On the contrary, companies experiencing financial distress will pay a higher risk premium in obtaining external resources.

A research showed that companies that have high volatility in its operations and hold large amounts of cash have a sensitivity of investment to cash flow and experience financial limitations (Bassetto & Kalatzis, 2011). Cash flow can be a proxy for the profitability of the company in the future, and high investment growth may affect the company's performance. Companies that increase the amount of investment in projects with high rates of return will have better financial performance and avoid financial difficulties (López-Gutiérrez & Sanfilippo-Azofra, 2014). Investment growth can be used to analyze a company's financial condition.

H2: Growth investment (X2ΔINV) significantly affects the financial distress (YFD) in the SOEs that receive government funding.

1.6. Leverage and financial distress (Hypothesis – H3)

Based on agency theory, the financial structure influences the behavior of the owner-managers to boost the company's value (Jensen & Meckling, 1976). Owner-managers tend to maximize the value of the company as part of the financing of the company comes from the owner's capital. No big enterprise's financial structure consists of debt because there are no creditors who are willing to bear the entire cost of bankruptcy if the company experiences financial distress. The combination of internal and external financial structures can be measured through the leverage ratio.

Research showed that leverage has a positive and significant influence in predicting financial distress in various industry companies listed on the Indonesia Stock Exchange (Andre, 2013). Other research found a positive effect of leverage variable and is not significant to financial distress with a p-value of 0.136. It indicates that leverage is not a leading cause of financial difficulty in manufacturing companies listed on the Indonesia Stock Exchange from 2009–2012 (Putri & Merkusiwati, 2014). These results are consistent with the results Hapsari (2012), which found that current liabilities to total assets did not significantly affect financial distress. Widhiari and Merkusiwati (2015) also found that leverage did not affect manufacturing companies listed on the Indonesian Stock Exchange from 2010–2013. Vithessonthi and Tongurai (2014) examined the influence of company size on leverage relationships and performance in public companies in Thailand from 2007–2009. The results showed that in the full sample, leverage has a positive effect on performance. For large enterprises, leverage had a negative effect on performance.

The research result showed that leverage has a negative influence on financial distress (Lee et al., 2011). Companies that have large debts will pay interest in high amounts. Interest payments weigh on the company's financial condition. Companies that have higher debt will

have a more unhealthy financial condition (John, 1993). Debt ratios affect financial performance (Ferrouhi, 2014).

The efficiency-risk hypothesis and franchise-value hypothesis can explain the linkage between the composition of debt or leverage, and financial distress. Based on the efficiency-risk hypothesis, a more efficient company chooses a higher debt to equity ratio because the higher efficiency can reduce the cost of bankruptcy and financial difficulties. On the other hand, based on the franchise-value hypothesis, a more efficient company chooses a lower debt to equity ratio to avoid the possibility of liquidation (Margaritis & Psillaki, 2008). Companies can reduce the level of financial distress with Event risk covenants. Event risk covenants, provide an opportunity for investors to resell bonds to companies, usually at par value, protecting investors from the decline in value of bonds due to the restructuring of corporate activities (Tewari, 2018)

Based on these descriptions, this research proposes the following hypothesis:

H3: Growth investment (X2LEV) significantly affects the financial distress (YFD) in SOEs that receive government funding.

1.7. Cash flow from operating and financial distress (Hypothesis – H4)

The operating cash flow retained strong ties with agency theory relating to the interests of shareholders as principal and the agent's management responsibilities in a company. Management responsibilities, among others, overcome financial difficulty, especially when there is an imbalance that causes cash outflow to be greater than cash inflow. A deficit in operating cash flow deficits leads to the need for additional sources of funds. Therefore, the management of operating cash flow is one of the important factors that must be adequately managed by management. For determining the role of these variables on the condition of corporate financial difficulties, the impact of operating cash flow on a company's financial condition was examined (Altman, 2000; Salehi et al. 2017).

Further, other researchers found that the variable of cash flow from operating had a positive effect and was not significantly related to financial distress with a p-value of 0.516. It indicates that operating cash flow is not a leading cause of financial distress in the automotive sector (Widarjo & Setiawan, 2009). In contrast, Namvar et al. (2013) found that cash flows help predict financial distress. It indicates that cash flow is a determining factor in predicting the occurrence of financial difficulties for the 80 sampled companies listed in the Tehran Stock Exchange during the period from 2005 to 2011. There are differences in the level of financial difficulty between companies with different levels of cash flow (Kordestani et al., 2011). Accordingly, this study hypothesises:

H4: Growth in cash flow from operating (X4ΔCFO) significantly affects the financial distress of SOEs (YFINDIS) that receive government funding.

1.8. Company size and financial distress (Hypothesis – H5)

One factor of financial distress is lack of funds and company size. Company size is a significant factor in analyzing the company's negative equity in the future. The percentage of large companies that have negative equity is greater than smaller companies shows that the possibility of financial failure is also greater. The failure of large companies causes large losses in society because of the risk of funds and the number of stakeholders more than small companies (Urionabarrenetxea et al., 2016). Putri and Merkusiwati (2014) found that firm size (SIZE) -0.964 had a significant negative effect on financial distress with a p-value of 0.003. This research indicates that the size of the company (SIZE) is a key factor in the condition of the company's financial difficulties in the manufacturing companies listed on the Indonesia Stock Exchange for the 2009–2012 period. The larger the size of the company, the less likely the occurrence of financial distress, especially for companies with a larger scale.

The larger the scale of the business, the greater the opportunities to improve the efficiency of operations, and the more they are trusted by banks, which helps secure funding for investments and operations. More importantly, the company's growing and large-scale enterprises are likely to obtain cheaper funding sources due to a larger customer base and higher sales. This condition suggests that a large company will have good financial performance.

H5: *The size of the company (X4Size) significantly affects the financial distress of SOEs (YFD) that receive government funding.*

2. Research method

2.1. Sample and data

In a study, the purpose of sample is to understand the nature and characteristics of the population and make generalizations (Sekaran, 2006). The researcher can choose samples with certain criteria that are appropriate to the purpose or problem of the study (Indriantoro & Supomo, 2002). The purposive sampling can be used to obtain samples that match the purpose of the study (Etikan, 2017). Some researchers have used a purposive method to select samples (Sayidah et al., 2019; Sayidah & Assagaf, 2019; Sayidah et al., 2019; Sayidah et al., 2020; Assagaf et al., 2017; Assagaf & Yunus, 2016; Assagaf, 2017b).

In this study, we use purposive sampling with criteria: (i) SOE receive funding from the government and (ii) publish financial statements consisting of a balance sheet, income statement, and statement of cash flows from 2014–2017. The sample selection for 2014–2017 is based on consideration of availability of annually data in one business cycle. We use time series and cross sectional data. Based on these criteria, 18 SOE were selected with 54 units of analysis. Documentation was collected for each company from their website.

2.2. Definitions and measurement variables dependent variables

Financial Distress (YFD) indicates the level of the financial difficulties faced by the company. Measurements were made with a marginal approach using the formula Marginal Revenue reduced Marginal Cost. The Independent Variables are:

- Working Capital (X1WC), which is the difference between current assets to current liabilities, which describes the networking capital of the company divided by total assets.
- Investment growth (X2ΔINV) shows the amount of growth in investment spending for a given period.
- Leverage (X3LEV) is the ratio between total debts to total assets owned by the company.
- Cash flow from operating growth (X4ΔCFO) describes the amount of cash flow from the operations of the company.
- The size of the company (X5SIZE) is the value of property or assets owned by the company.

2.3. Model specification

Several researchers in Indonesia have examined the factors that influence financial distress with different models. Putri and Merkusiwati (2014) used model with corporate governance, liquidity, leverage and company size as independent variables. Other researchers use independent variables consisting of corporate governance, liquidity, leverage and profitability (Hanifah, 2013), liquidity, profitability, leverage and sales growth (Widarjo & Seiawan, 2009). In this study we use different model with working capital, leverage, investment, cash flow operation and firm size as independent variables. A regression model as follows:

$$YFD = \beta_0 + \beta_1 X1WC + \beta_2 X3LEV + \beta_3 X2INV + \beta_4 X4CFO + \beta_5 X5SIZE + \varepsilon,$$

where: *YFD* = Financial distress, *X1WC* = working capital, *X2INV* = investment, *X3LEV* = leverage, *X4CFO* = cash flow from operating, *X5SIZE* = firm size, β_0 = constant, $\beta_1 \dots \beta_5$ coefficients of the independent variables, ε = error.

3. Result and discussion

3.1. Descriptive statistics

The data shows that the independent variable or financial distress (*YFD*) varies from the minimum numbers 0.000 through 3.759 with a maximum number average value of 0.306 and a standard deviation of 0.698. It means that the variable is concentrated in minimum figures. Working capital (*X1WC*) starts -0.201 minimum number up to a maximum of 9.337, with an average of 0.809, and a standard deviation of 1.808. It means that the data distribution is concentrated close to the minimum. Investment (*X2INV*) ranges from a minimum number 0.022 to a maximum of 7.551, with an average of 0.899, and a

standard deviation of 1.441. It means that the data distribution is concentrated close to the minimum.

Leverage (X3LEV) ranges from a minimum number 0.186 to a maximum of 2.298, with an average of 0.567, and a standard deviation of 0.322. It means that the data distribution is concentrated close to the minimum. Cash flow from operating (X4CFO) ranges from a minimum number to a maximum of 5.969 – 1.905, with an average of 1.054, and a standard deviation of 1.425. It means that the data distribution is concentrated close to the minimum. The size of the company (X5SIZE) ranges from a minimum number of 1.996 to a maximum of 9.094, with an average of 5.209, and a standard deviation of 2.148. It means that the data distribution is concentrated at the midpoint between the minimum and maximum. Cash flow from operating (X4CFO) starts with the minimum number to a maximum of 5.969 – 1.905, with an average of 1.054, and a standard deviation of 1.425. It means that the data distribution is concentrated close to the minimum.

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Table 1. Descriptive Statistics (N = 44) (source: SPSS Output (2019))

	Minimum	Maximum	Mean	Std. deviation
YFD	0.000	3.759	0.306	0.698
X1WC	-0.201	9.337	0.809	1.808
X2INV	0.022	7.551	0.899	1.441
X3LEV	0.186	2.298	0.567	0.322
X4CFO	-1.905	5.969	1.054	1.425
X5SIZE	1.996	9.094	5.209	2.148

3.2. Testing of classical assumptions

The classical assumption tests linear regression. It showed that there was no multicollinearity with the result that each independent variable has a value of tolerance between 0.824 up to 0.884 or greater than 0.10. The number of VIF each independent variable has a value of between 1.016 to 1.213 or less than 10. The Durbin Watson Test does not have autocorrelation with the result that the Durbin Watson statistics table 2.757 compared with the value of Durbin Watson dL = 1.2769 and dU = 1.7777, which

means that the regression analysis model does not occur autocorrelation. Heteroscedasticity testing showed that the independent variables did not have a significant effect on the residual alpha at 0.05 or 5%.

3.3. Correlation matrix

The correlation table (Table 2) shows a negative correlation between financial distress variables with independent variables. It means that the increase of independent variables will reduce the rate of decline in the company's financial distress. Regarding the magnitude, the variables are correlated at approximately 0.2 between firm size, leverage, and cash flow from operating. Other independent variables have a coefficient of correlation of 0.1. The correlation between independent variables with other independent variables is relatively small. It means that the regression analysis model used does not have multicollinearity as required under the assumption of linear regression. Correlation between independent variable occurs in a range between 0.004 up to 0.292.

Table 2. Result of correlation among variables (source: SPSS Output (2019))

	YFD	X1WC	X2INV	X3LEV	X4CFO	X5SIZE
YFD	1.000					
X1WC	-0.117	1.000				
X2INV	-0.140	0.026	1.000			
X3LEV	-0.195	0.004	-0.036	1.000		
X4CFO	-0.193	0.192	-0.034	-0.059	1.000	
X5SIZE	-0.213	-0.239	-0.292	-0.073	-0.199	1.000

3.4. Hypothesis testing

The regression equation generated in this study is:

$$YFD = 1.594 - 0.059X1WC - 0.132X2INV - 0.541X3LEV - 0.131X4CFO - 0.130X5SIZE + \epsilon.$$

Working capital (X1WC) has no effect on financial distress (YFD) with regression of coefficient -0.059 and p-value of 0.304 or greater than 0.10. Investment (X2INV) has a negative effect on financial distress (YFD) with a regression coefficient of -0.132. It means that each increase in one unit of investment will reduce financial distress by 0.132. Investment (X2INV) has a significant effect on financial distress with a p-value of 0.076 or smaller than 0.10.

Leverage (X3LEV) has a negative effect on financial distress (YFD) with a regression coefficient of -0.541. It means that each increase in one unit of leverage will reduce financial distress by 0.541. Leverage (X3LEV) has a significant effect on financial distress with a p-value 0.088 or smaller than 0.10. Cash flow from operating (X4CFO) has a negative effect on financial distress (YFD) with a regression coefficient of -0.131. It means that each increase in one unit of the CFO will reduce financial distress by 0.131. The cash flow from operating (X4CFO) has

a significant effect on financial distress with a p-value of 0.077 or smaller than 0.10. Firm size (X5SIZE) has a negative effect on financial distress (YFD) with a regression coefficient of -0.130 . It means that each increase of one unit of X5SIZE will reduce financial distress by 0.130. Firm size (X5SIZE) has a significant effect on financial distress with a p-value of 0.014 or smaller than 0.05.

Table 3. The result of hypotheses testing (source: SPSS Output (2019))

	Predict.	Coefficient	p-value
(Constant)		1.594	0.000
X1WC	-	-0.059	0.304
X2INV	-	-0.132	0.076
X3LEV	-	-0.541	0.088
X4CFO	-	-0.131	0.077
X5SIZE	-	-0.130	0.014

The adjusted R2 coefficient of determination has a value of 0.141. It means that the regression model used in this study can explain the change in the dependent variable by 14.1% caused by changes in the independent variables. The remaining 85.9% is explained by other variables that were not used in this study. The F test shows a significance level of 0.054 or 5.4%. It means that the overall independent variables used in this study simultaneously have a significant effect on financial distress. According to the statistical t-test, working capital (X1WC) has no significant effect with a significance level of 0.304 or 30.4%.

4. Discussions

Based on data analysis, the correlation between independent variables with other independent variables is 0.004 up to 0.292. It means that the regression analysis model used does not have multicollinearity as required under the assumption of linear regression. The results obtained from Table 3 shows that working capital don't affect financial distress with level of probability 0.304. While, investment, leverage, cash flow from operating, and firm size affect financial distress are Investment (X2INV) have level of probability 0.076, leverage variable (X3LEV) with level of probability 0.088, cash flow from operating with level of probability 0.077, and firm size (X5SIZE) with probability 0.014. These variables need special attention by management, especially in terms of financial strategy and policy. Failure to calculate the impact of four independent variables on financial difficulties will exacerbate these difficulties. Conversely, if management takes into account policies that affect all four variables, then financial pressures can be gradually overcome.

The finding that working capital (X1WC) does not affect financial distress (YFD). This result indicate that in state-owned enterprises that receive government subsidies, the amount of current assets and current liabilities do not

affect financial distress. Subsidies can be used to strengthen working capital. A high level of working capital in a state-owned enterprise will not reduce financial performance or increase the level of financial distress. SOEs that receive government subsidies can maintain their financial performance from the state budget so they can avoid financial distress. This finding is consistent with Widarjo and Setiawan (2009) and Delavar et al. (2015), Widarjo and Setiawan (2009) found that the working capital variable did not significantly affect financial distress. working capital management does not affect the company's financial performance (Delavar et al., 2015). Controversely, the research of Gill et al. (2010) find that working capital have relationship to profitability.

Furthermore, the negative effect of investment on financial distress shows that increasing the amount of investment will reduce the level of financial distress. This finding shows that the government funds many investments in the state-owned enterprises that receive subsidies. The company does not bear high-interest expenses. A high level of investment will increase profitability, thereby reducing the level of financial distress. This result contradicts the finding of Bassetto et al. (2011) and Fajaria (2015). Bassetto et al. (2011) showed that capital-intensive companies tend to have lower profitability because they bear higher fixed costs compared to companies with less intensive capital. Companies that have a lower level of profitability have a higher probability of financial difficulties. Fajaria (2015) found that investment decisions did not affect company value. Company value has no relationship with the financial health, suggesting that investment decisions do not affect financial distress.

Next, the results of this study indicate that leverage (X3LEV) has a negative effect on financial distress (YFD). This finding shows that the increase in debt and interest is smaller than the increase in profitability. Management uses debt to finance investments with a high rate of returns so a high degree of leverage reduces the level of financial distress. This result differs from Zeli (2014) and (Gottardo & Moisello, 2019), who showed that companies with high leverage ratios have a high probability of financial failure. Zeli's findings are consistent with Margaritis and Psillaki (2010), who found that companies chose a lower debt to equity ratio to avoid the possibility of liquidation. In contrast, Putri and Markusiwati (2014), Hapsari (2012), and Widhiari and Merkusiwati (2015) found no significant effect between leverage and financial distress.

Cash flow from operating (X4CFO) has a negative effect on financial distress (YFD). The higher the cash flow from operating, the lower the possibility of financial distress. The company can finance its operational activities so that the targeted financial performance can be achieved. Good financial performance will reduce the level of financial distress. This finding is consistent with Namvar et al. (2013) and differs from Widarjo and Setiawan (2009). Namvar et al. found that the cash flow pattern significantly influenced the prediction of financial distress. Conversely,

Widarjo and Setiawan found that cash flow from operating did not have a significant negative effect on financial distress.

Consistent with Putri and Markusiwati (2014), this study also found that company size (X5SIZE) has a negative effect on financial distress (YFD). They showed that company size (SIZE) -0.964 influenced financial distress with a p-value of 0.003. It means that company size (SIZE) is a determining factor in the conditions of financial difficulties of manufacturing companies listed on the Indonesia Stock Exchange for the 2009–2012 period.

Conclusions

The purpose of this paper is to provide empirical evidence about the effect of working capital, investment, leverage, cash flow operations and firm size on financial distress. The originality of this study measures financial distress by using the marginal concept approach used to determine the price and quantity of sales that produce maximum profit. This research is used to measure the optimal level of profitability based on marginal score or comparison of marginal revenue and marginal cost. Declared experiencing financial distress when the marginal score is close to zero, conversely not experiencing financial distress or near optimal conditions if the marginal score is close to one.

The results of data analysis indicate that investment, leverage, and operating cash flow affect financial distress. The investment activities (X2INV) have a negative effect on financial distress. It means that investment development can reduce the potential for financial distress. Management of SOE's that receive government subsidies can increase investment to increase marginal revenue so that can reduce financial distress. Next, our finding indicate that leverage affect financial distress negatively. This finding shows that the management of state-owned enterprises that receive government subsidies takes debt to finance projects that have high rates of return. These projects will be able to generate greater marginal revenue than the marginal cost, thereby reducing the level of financial distress. This condition has an impact on increasing operating cash flow.

Operating cash flow have negative effect on financial distress. The higher the operating cash flow will reduce financial distress. Management of operating cash flows must be carried out carefully so that operational activities run well. The company be able to improve financial performance and decrease financial distress levels. Finally, the size of the company has a vital role in financial distress. Larger companies tend to have the ability to improve operational efficiency to reduce financial distress. The results of this study have limited generalizability, given that it is based on secondary data. We, this recommended researchers in this field supplement our findings with primary data linked to a company's internal management policies and add other relevant variables not included in this study.

Acknowledgements

We thank the Directorate of Research and Community Service, the Directorate General of Research and Development Strengthening, the Indonesian Ministry of Research, Technology and Higher Education, for the financial support we received through the 2019 research grant. The contract number are 113/SP2H/LT/DRPM/2019, dated March 11, 2019.

Funding

This work was supported by the Directorate of Research and Community Service, the Directorate General of Research and Development Strengthening, the Indonesian Ministry of Research, Technology and Higher Education under Grant [The contract number are 113/SP2H/LT/DRPM/2019, dated March 11, 2019 between the Directorate of Research and Community Service with Region VII of Higher Education Service Institutions, and Mono Year Research Contracts for Fiscal Year 2019 between Region VII of Higher Education Service Institutions with Higher Education Leaders Number 005 / SP2H / LT / MONO / L7 / 2019 dated March 26, 2019 and Higher Education Contract with Researcher, number Lemlit. 150 / B.1.03 / III / 2019.

References

- Aktas, N., Croci, E., & Petmezas, D. (2015). Is working capital management value-enhancing? Evidence from firm performance and investments. *Journal of Corporate Finance*, 30, 98–113. <https://doi.org/10.1016/j.jcorpfin.2014.12.008>
- Altman, E. I. (2000). Predicting financial distress of companies: revisiting The Z-Score And Zeta Models. *Journal of Banking & Finance*, 1, 1–54.
- Altman, E. I., Hotchkiss, E., & Wang, W. (2019). *Corporate financial distress, restructuring, and bankruptcy* (4rth). John Wiley & Sons, Inc. <https://doi.org/10.1002/9781119541929>
- Andre, O. (2013). *Pengaruh Profitabilitas, Likuiditas Dan Leverage Dalam Memprediksi Financial Distress (Studi Empiris Pada Perusahaan Aneka Industri yang Terdaftar di BEI)* (Thesis). State University of Padang.
- APBN, T. (2019). *Informasi APBN 2019*. Jakarta.
- Ardiyanto, F. (2011). *Prediksi Rasio Keuangan Terhadap Kondisi Financial Distress Perusahaan Manufaktur Yang Terdaftar Di BEI Periode 2005–2009* (Thesis). University of Diponegoro.
- Assagaf, A. (2013). Financial performance analysis of PT PLN Java-Bali Power 2 (PJB2) In order execution go public. *IOSR Journal of Business and Management (IOSR-JBM)*, 13(5), 1–12. <https://doi.org/10.9790/487X-1350112>
- Assagaf, A. (2014a). Influence policy and fitness state electricity company (PLN) investment business generation. *International Journal of Empirical Finance*, 3(5), 234–242.
- Assagaf, A. (2014b). The financial management PLN – today and the future. *International Journal of Business and Management Invention*, 3(7), 16–22.
- Assagaf, A. (2017a). Subsidy government tax effect and management of financial distress state owned enterprises – case study sector of energy, mines and transportation. *International Journal of Economic Research*, 14(7), 331–346.

- Assagaf, A. (2017b). Subsidy government tax effect and management of financial distress state owned enterprises – case study sector of energy, mines and transportation. *International Journal of Economics Research*, 14(7), 331–346.
- Assagaf, A., & Ali, H. (2017). Determinants of financial performance of state-owned enterprises with government subsidy as moderator. *International Journal of Economics and Financial*, 7(4), 330–342.
- Assagaf, A., Murwaningsari, E., Gunawan, J., & Mayangsari, S. (2019). Estimates model of factors affecting financial distress: evidence from Indonesian state-owned enterprises. *Asian Journal of Economics, Business and Accounting*, 11(3), 1–19. <https://doi.org/10.9734/ajeba/2019/v11i330131>
- Assagaf, A., & Yunus, E. (2016). Effect of Investment Opportunity Set (Ios), level of leverage and return to return stock market company in Indonesia Stock Exchange. *International Journal of Applied Business and Economic Research*, 14(3), 1625–1644.
- Assagaf, A., Yusoff, Y. M., & Hassan, R. (2017). Government subsidy, strategic profitability and its impact on financial performance: Empirical evidence from Indonesia. *Investment Management and Financial Innovations*, (October). [https://doi.org/10.21511/imfi.14\(3\).2017.13](https://doi.org/10.21511/imfi.14(3).2017.13)
- Baños-Caballero, S., García-Teruel, P. J., & Martínez-Solano, P. (2014). Working capital management, corporate performance, and financial constraints. *Journal of Business Research*, 67(3), 332–338. <https://doi.org/10.1016/j.jbusres.2013.01.016>
- Bassetto, C. F., & Kalatzis, A. E. G. (2011). Financial distress, financial constraint and investment decision: Evidence from Brazil. *Economic Modelling*, 28(1–2), 264–271. <https://doi.org/10.1016/j.econmod.2010.09.003>
- Cinantya, G., & Merkusiwati, K. (2015). Pengaruh corporate governance, financial indicators, Dan Ukuran Perusahaan Pada Financial Distress. *E-Journal Akuntansi Universitas Udayana*, 3, 897–915.
- Coase, R. H. (1972). Durability and monopoly. *Journal of Law and Economics*, 15(1), 143–149. <https://doi.org/10.1086/466731>
- Deangelo, H., Deangelo, L., & Wruck, K. H. (2002). Asset liquidity, debt covenants, and managerial discretion in financial distress: the collapse of L. A. Gear \$. *Journal of Financial Economics*, 64, 3–34. [https://doi.org/10.1016/S0304-405X\(02\)00069-7](https://doi.org/10.1016/S0304-405X(02)00069-7)
- Delavar, A., Kangarluei, S. J., & Motavassel, M. (2015). Working capital, firms performance and financial distress in firms listed In Tehran Stock Exchange (TSE). *Indian Journal of Fundamental and Applied Life Sciences*, 5, 2086–2093.
- Etikan, I. (2017). Comparison of convenience sampling and purposive sampling comparison of convenience sampling and purposive sampling. *American Journal of Theoretical and Applied Statistics*, 5(1), 1–4. <https://doi.org/10.11648/j.ajtas.20160501.11>
- Fajaria, A. (2015). *Pengaruh Keputusan Investasi, Keputusan Pendanaan Dan Kebijakan Dividen Terhadap Nilai Perusahaan. Skripsi*. Sekolah Tinggi Ilmu Ekonomi Perbanas Surabaya.
- Ferrouhi, E. M. (2014). Bank liquidity and financial performance: evidence from Moroccan banking industry. *Business: Theory and Practice*, 15(4), 351–361. <https://doi.org/10.3846/btp.2014.443>
- Florackis, C., & Ozkan, A. (2012). *Financial flexibility, corporate investment and performance: evidence from financial crises. Review of Quantitative Finance and Accounting*, 42, 211–250. <https://doi.org/10.1007/s11156-012-0340-x>
- Garškaitė, K. (2008). Application of models for forecasting of enterprise bankruptcy. *Business: Theory and Practice*, 9(4), 281–294. <https://doi.org/10.3846/1648-0627.2008.9.281-294>
- Gill, A., Biger, N., & Mathur, N. (2010). The relationship between working capital management and profitability: evidence from The United States. *Business and Economics Journal*, 2010, 1–10.
- Gottardo, P., & Moisello, M. A. (2019). *Capital structure, earnings management, and risk of financial distress*. Springer. <https://doi.org/10.1007/978-3-030-00344-9>
- Hall, R. E. (1986). The relation between price and marginal cost in U.S. industry. *Nber Working Paper Series*, (1785). <https://doi.org/10.3386/w1785>
- Hanifah, O. (2013). *Pengaruh Struktur Corporate Governance Dan Financial Indicators Terhadap Kondisi Financial Distress*. University of Diponegoro Indonesia.
- Hapsari, E. (2012). *Jurnal Dinamika Manajemen*, 3(2), 101–109.
- Indrayani, Jh. (2015). Optimalisasi Produksi dan Maksimalisasi Keuntungan Usaha Ternak Sapi Potong dengan Sistem Integrasi Sapi-Sawit di Kabupaten Dharmasraya. *Jurnal Peternakan Indonesia*, 17(3), 187–194. <https://doi.org/10.25077/jpi.17.3.187-194.2015>
- Indriantoro, N., & Supomo, B. (2002). *Metodologi Penelitian Bisnis Untuk Akuntansi & Manajemen*. BPFE. Yogyakarta.
- Jensen, C., & Meckling, H. (1976). Theory of the firm: managerial behavior, agency costs and ownership structure. *Journal of Financial Economics*, 3, 305–360. [https://doi.org/10.1016/0304-405X\(76\)90026-X](https://doi.org/10.1016/0304-405X(76)90026-X)
- Jensen, M. C., & Smith, C. W. (2000). Stockholder, manager, and creditor interests: applications of agency theory stockholder, manager, and creditor interests: applications of agency theory. In *A Theory of the Firm: Governance, Residual Claims and Organizational Forms (Harvard)*. https://www.researchgate.net/profile/Clifford_Smith3/publication/228138310_Stockholder_Manager_and_Creditor_Interests_Applications_of_Agency_Theory/links/5b507c66a6fdcc8dae2cf9e9/Stockholder-Manager-and-Creditor-Interests-Applications-of-Agency-Theory.pdf
- John, T. A. (1993). Accounting measures of corporate liquidity, leverage, and costs of financial distress. *Financial Management*, 22(3), 91–100. <https://doi.org/10.2307/3665930>
- Kordestani, G., Biglari, V., & Bakhtiari, M. (2011). Ability of combinations of cash flow components to predict financial distress. *Business: Theory and Practice*, 12(3), 277–285. <https://doi.org/10.3846/btp.2011.28>
- Kurniawan, S. (2019). Ini dia daftar BUMN yang rentan bangkrut. *Kontan* (pp. 1–7). <https://nasional.kontan.co.id/news/ini-dia-daftar-bumn-yang-rentan-bangkrut?page=all>
- Lee, S., Koh, Y., & Kang, K. H. (2011). Moderating effect of capital intensity on the relationship between leverage and financial distress in the U. S. restaurant industry. *International Journal of Hospitality Management*, 30(2), 429–438. <https://doi.org/10.1016/j.ijhm.2010.11.002>
- López-Gutiérrez, C., & Sanfilippo-Azofra, S. (2014). Investment decisions of companies in financial distress. *BRQ Business Research Quarterly*, 18(3), 174–187. <https://doi.org/10.1016/j.brq.2014.09.001>
- Mackevičius, J., & Silvanavičiūtė, S. (2006). Evaluation of suitability of bankruptcy prediction models. *Business: Theory and Practice*, VII(4), 193–202. <https://doi.org/10.3846/btp.2006.24>
- Margaritis, D., & Psillaki, M. (2010). Capital structure, equity ownership and firm performance Capital structure, equity ownership and firm performance. *Journal of Banking & Finance*, 34(3), 621–632. <https://doi.org/10.1016/j.jbankfin.2009.08.023>

- Namvar, F., Makrani, K. F., & Karami, A. (2013). A study on effect of cash flow pattern and auditor's opinions in predicting financial distress. *Management Science Letters*, 3, 1863–1868. <https://doi.org/10.5267/j.msl.2013.06.046>
- Nastiti, P., Atahau, A., & Supramono, S. (2019). Working capital management and its influence on profitability and sustainable growth. *Business: Theory and Practice*, 20, 61–68. <https://doi.org/10.3846/btp.2019.06>
- Ogawa, K. (2003). Financial distress and corporate investment: The Japanese case in the 90s. *ISER Discussion Paper*, No. 584. <https://doi.org/10.2139/ssrn.414980>
- Patriadi, H. R. dan. (2005). Evaluasi Kebijakan Subsidi Non-BBM. *Kajian Ekonomi Dan Keuangan*, 9(4), 42–64.
- Putri, W., & Merkusiwati, L. (2014). Pengaruh Mekanisme Corporate Governance, Likuiditas, Leverage, Dan Ukuran Perusahaan Pada Financial Distress. *E-Jurnal Akuntansi Universitas Udayana*, 7(1), 93–106.
- Salehi, M., Lotfi, A., & Farhangdoust, S. (2017). The effect of financial distress costs on ownership structure and debt policy: An application of simultaneous equation in Iran. *Journal Management Development*, 36(10), 1216–1229. <https://doi.org/10.1108/JMD-01-2017-0029>
- Savitri, E. (2018). Relationship between family ownership, agency costs towards financial performance and business strategy as mediation. *Business: Theory and Practice*, (1999), 49–58. <https://doi.org/10.3846/btp.2018.06>
- Sayidah, N., Ady, S. U., Mulyaningtyas, A., Winedar, M., Supriyati, J., Sutarmin, S., & Assagaf, A. (2019). Quality and university governance in Indonesia. *International Journal of Higher Education*, 8(4), 10–17. <https://doi.org/10.5430/ijhe.v8n4p10>
- Sayidah, N., & Assagaf, A. (2019). Tax amnesty from the perspective of tax official. *Cogent Business & Management*, 6(1), 1–12. <https://doi.org/10.1080/23311975.2019.1659909>
- Sayidah, N., Assagaf, A., & Possumah, B. T. (2019). Determinant of state-owned enterprises financial health: Indonesia empirical evidence. *Cogent Business & Management*, 6(1), 1–15. <https://doi.org/10.1080/23311975.2019.1600207>
- Sayidah, N., & Handayani, A. E. (2016). Corporate governance. *Jurnal Akuntansi Multiparadigma*, (84), 491–503. <https://doi.org/10.18202/jamal.2016.12.7034>
- Sayidah, N., Hartati, S. J., & Muhajir, M. (2020). Academic cheating and characteristics of accounting students. *International Journal of Financial Research*, 11(1). <https://doi.org/10.5430/ijfr.v11n1p189>
- Sekaran, Uma. (2006). *Metodologi Penelitian Bisnis*, Buku 2, Salemba Empat, Jakarta.
- Tewari, M. (2018). Event risk covenants, design parameters and agency issues: a comparative study of high yield versus investment. *Business: Theory and Practice*, (1991), 331–341. <https://doi.org/10.3846/btp.2018.33>
- Urionabarrenetxea, S., San-Jose, L., & Retolaza, J. (2016). Negative equity companies in Europe: theory and evidence. *Business: Theory and Practice*, 17(4), 307–316. <https://doi.org/10.3846/btp.17.11125>
- Vithessonthi, C., & Tongurai, J. (2014). The effect of firm size on the leverage-performance relationship during the financial crisis of 2007–2009. *Journal of Multinational Financial Management*, 29, 1–29. <https://doi.org/10.1016/j.mulfin.2014.11.001>
- Widarjo, W., & Setiawan, D. (2009). Pengaruh Rasio Keuangan Terhadap Kondisi Financial Distress Perusahaan Otomotif. *Jurnal Bisnis Dan Akuntansi*, 11(2), 107–119.
- Widhiari, N. L., & Merkusiwati, L. (2015). Pengaruh Rasio Likuiditas, Leverage, Operating Capacity, Dan Sales Growth Terhadap Financial. *E-Jurnal Akuntansi Universitas Udayana 1*, 11(2), 456–469.
- Yustiana, Y., Hernawan, E., & Ramdan, H. (2015). *Penentuan model tarif sumber daya air sebagai kompensasi jasa ekosistem kawasan hutan*. Prosiding Seminar Nasional, 1(i), 1735–1740. <https://doi.org/10.13057/psnmbi/m010737>
- Zeli, A. (2014). The financial distress indicators trend in Italy: an analysis of medium-size enterprises. *Eurasian Economic Review*, 4(2), 199–221. <https://doi.org/10.1007/s40822-014-0010-5>