

ESTIMATES MODEL OF FACTORS AFFECTING FINANCIAL DISTRESS: EVIDENCE FROM INDONESIAN STATE-OWNED ENTERPRISES

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Abstract

This study as a model estimation of factors that influence the financial distress of State-Owned Enterprises. This study contributes to the gap in an earlier study using a logistic model which classifies companies with indicators one for companies experiencing financial distress and a zero for the company is not experiencing financial distress, so it is not possible to do research specifically on one group of firms, for example, companies that experience financial distress. This study uses a marginal approach in measuring financial distress that is proxy with a marginal score with a more realistic and proven mathematics and accounting calculations. For the company's management with state, companies can use these results as a reference in evaluating the achievements of past operating performance, or to formulate strategies and policies in the future of corporate planning in order to achieve the level of marginally better scores or financial distress. This study needs to be continued by using secondary data corresponding realization of audited financial statements, so the result is more realistic and relevant because it uses the data of financial statements that meet the accounting standards.

Keywords: Government Subsidy, Cash Flow, and Financial Distress

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INTRODUCTION

This research was motivated by the phenomenon of a number of State-Owned Enterprises (SOEs), which is still ongoing financial burden on the state and have not been able to conduct business independently in meeting funding requirements.

The phenomenon of financial difficulties that threaten the company's operations if it does not obtain government funding, so it becomes very important to investigate, especially because it absorbs budget funding in relatively large amounts and cause the government's development programs in other sectors which required people to be hampered because of the funding allocated to the funding of SOEs.

In connection with this phenomenon, it should be pointed out that in the timeframe since 2004 as specified in Appendix 6, the number of SOEs to change from time to time. In the last period in 2017 recorded the number of SOEs as much as 115 consists of: 14 Perum (public company), 84 and 17 Persero Persero Tbk. Perum and Persero business orientation is closely related to financial phenomena encountered SOEs. This is reflected in the establishment of state-owned enterprises intents and purposes set forth the laws number 19 of 2003 namely namely PERSERO and PERUM. PERSERO, was established to provide goods or services of high quality and strong competitiveness; and the pursuit of profit in order to enhance shareholder value. while PERUM established to organize efforts for public benefit in the form of provision of goods or services of high quality at an affordable price by the public based on sound principles of corporate management.

The phenomenon is characterized by the financial difficulties SOE three conditions, namely: (a) state-owned companies receive government subsidies, (b) state-owned companies receive additional state capital participation (PMN), and (c) state-owned companies suffered losses.

The subsidy provided by the government through the state is to help overcome the financial difficulties faced by SOEs as happened in 2017 amounted to Rp 205 trillion higher than in 2016 amounting to Rp 201.3 trillion.

Additional capital is mainly given to SOEs country that has a special assignment from the government on the basis that the state-owned enterprises have a program that a lot of influence on society. Additional capital in SOEs countries in 2016 decreased to Rp 39.4 trillion in 2017 of Rp 6.4 trillion in 2018 to Rp 3.6 trillion.

SOE Ministry informs that until the first half of 2017, the number of recorded assets of approximately USD 6.560 trillion spread over 118 SOEs. The amount is increased by around Rp 235 trillion in 2016 to Rp 6325 trillion. Companies that have the extensive business scale and large enough assets tend to have an opportunity to increase efficiency and better able to manage their finances independently with a better level of profitability than companies with the scale that is relatively smaller. But the gap phenomenon shows that the number of SOEs should be beneficial, but it still suffered losses as reported by the ministry of state enterprises which in 2016 recorded 26 state-owned companies suffered losses of Rp 6.700 billion,

In line with the phenomenon of SOE financial difficulties mentioned above, Ferdinand (2014) suggests that the phenomenon of gaps that depart from business phenomenon that is led to problems in the form of deviation between the plan was supposed to happen (*das sollen*)with fact or reality achieved (*das sein*), The phenomenon of financial distress experienced by SOE as main problems the research gaps that need to be answered in this study.

This research is motivated to be to analyze these problems, reviewing the literature and the results of previous research, identify related variables, propose

hypotheses, and analyze the role of each variable, testing hypotheses, formulate measurements score financial distress that proxy with a score of marginal, mapping about performance score financial distress each state enterprises, and recommend alternative financial distress score improvement through a comprehensive corporate planning to variable significant influence on financial distress.

Previous research related to the financial distress of SOEs by Institutions Management Faculty of Economics and Business, University of Indonesia (2015) argued that the ability of state-owned companies in asset management (productivity) and make a profit is still low. Further stated that the problems that hinder the performance of SOEs are government intervention against the company's management policy, thus affecting the operational performance of SOEs. In contrast to the practice of SOEs in other countries such as Singapore Airlines does not require the approval of Temasek Holdings and the government and parliament, so it does not affect the company's operations. Government control is only carried out during the selection and placement of the leadership positions (CEO) at Temasek Group.

Research SOE specific sectors of electricity by Assagaf (2015), suggests that in order to optimize the management of electric company (PLN) and overcome the financial difficulties of the present and the future, there should be a series of policies supported by the government through an integrated policy on four main pillars, namely: (a) fuel management from upstream to downstream independently with economies of scale thoroughly in a gradual process, (b) restructuring of a contract to purchase electricity from private power companies, especially in rescuing opportunity income or cost savings for PLN, (c) restructuring of tariffs on the economic level through tariff-based mechanisms marginal cost pricing, and (d) optimizing the management of subsidiary companies through the restructuring of the authority for the management of the company independently.

Based on the experience of empirical SOE during and pay attention to related research or literature concerned, this study used a group of variables relevant to financial distress and theories that form the basis of this study such as (a) the agency theory, (b) signaling theory, and (c) financial distress.

Copeland and Weston (1997), argued that financial distress, is as a failure that occurs in the company can be distinguished as follows: (1) failure of the economy (economic distressed) means that the income of the company no longer able to cover its costs, which means that the rate of profit is smaller than the cost of capital. Definitions related is that the present value of the company's cash flow is less than its liabilities. (2) The financial failure (financially distressed) or insolvency has two forms namely technical default occurs when a company fails to meet one or more conditions within the provisions of its debt, as the ratio of current assets to current liabilities defined,

Novelty of this study, which enhance the study of financial distress before that had a weakness: (a) a previous study using the model of logistic regression

analysis and dummy variable 1 for companies experiencing financial distress and 0 for a healthy company, so it is not possible to do an analysis of a healthy company only, or that A financial distress. (b) the definition of companies experiencing financial distress is not uniform among researchers, making it difficult to determine the category of financial distress (1) or healthy (0). (c) the data used did not correspond to current developments, while the score of financial distress from the study was widely used in subsequent studies.

Based on measurements of the weakness of financial distress, this research proposes new measurements that are more realistic to overcome the weaknesses of previous research. Measurement of financial distress that used this research is a marginal score (SMg) with less measurement as set forth in the following discussion.

This research is important to contribute to the decision of the management of SOEs so that the research become a reference in terms of: (a) evaluate the achievement of the financial performance of each SOE. (b) become a reference in preparing corporate planning to achieve a certain score marginal, then the medium or long-term targets are getting a better term in the future. (c) take each of the variables that affect the financial distress of SOEs, with priorities based on the significance and magnitude of the effect of each of these variables on the financial distress of SOEs. (d) as an evaluation of shareholders for marginal performance evaluation scores between the SOEs, as well as prepare the mapping and strategic measures to improve the financial performance of SOEs in the future.

Under the conditions of SOE empires financial difficulties, the principal issue in this study are:

- a. How does the growth of investment or capital expenditure ($X3\Delta CAPEX$) direct and indirect impact of the financial distress ($YFINDIS$) state that receives budget funding or financial difficulty?
- b. How working capital ($X4WC$) direct and indirect impact of the financial distress ($YFINDIS$) state that receives budget funding or financial difficulty?
- c. How to retained earnings ($X5RE$) direct and indirect impact of the financial distress ($YFINDIS$) state that receives budget funding or financial difficulty?
- d. How earnings before interest and tax ($X6EBIT$) direct and indirect impact of the financial distress ($YFINDIS$) state that receives budget funding or financial difficulty?
- e. How does the growth of the contribution margin ($X7\Delta CM$) direct and indirect impact of the financial distress ($YFINDIS$) state that receives budget funding or financial difficulty?
- f. How does the growth of equity or equity ($X8\Delta EQ$) direct and indirect impact of financial distress ($YFINDIS$) state that receives budget funding or financial difficulty?

- g. What is the level of efficiency or productivity of the operation (X9EFSO) direct and indirect impact of the financial distress (YFINDIS) state that receives budget funding or financial difficulty?
- h. How real growth of earnings management activities (X10RAEM) direct and indirect impact of the financial distress (YFINDIS) state that receives budget funding or financial difficulty?
- i. How accruals growth in earnings management (X101ACEM) direct and indirect impact of the financial distress (YFINDIS) state that receives budget funding or financial difficulty?
- j. Has the growth of cash flow from operating (X2ΔCFO) significantly affects the financial distress (YFINDIS)) state that receives budget funding or financial difficulty?
- k. Is the government subsidy and equity (X1GSAE) significantly affects the financial distress (YFINDIS)) state that receives budget funding or financial difficulty?
- l. Does the interaction between the variables moderating government subsidy and equity with intervening variables from the operating cash flow growth (X1GSAE x X2ΔCFO) strengthening the relationship between growth in cash flow from operating (X2ΔCFO) with financial distress of SOEs (YFINDIS) which receive budget funding or financial difficulties.

LITERATURE AND HYPOTHESIS DEVELOPMENT

1. Agency Theory

The theoretical foundation used in this study is the agency theory developed by Jensen and Meckling (1976), arguing that this theory explains the two parties have different interests, namely the shareholders or principals who want to maximize the receipt of dividends per share or earnings per share, while managers companies that want to maximize the receipt of compensation. Managers can manage the company to achieve the desired goals of shareholders and managers will be paid a decent amount of compensation to be motivated in carrying out its duties and responsibilities.

The management of the company by a manager is very important because it is closely related to the variables that affect the financial distress that will affect the value of the company that ultimately serve the interests of the company.

The research objective of financial distress cannot be separated from the interests of management and shareholders, who are the main stakeholders of SOEs so that the variables used in this study are relevant to the Agency Theory. In theory emphasizes that the principal or the agent expects that the owner or manager of its duty to support the interests of shareholders (Jensen and Meckling, 1976). For the principal delegate certain authority to the agent. In order for the task accomplished as expected principal agent, it must be compensated accompanied by supervision

through various means such as financial audit, restrictions on the decisions taken by the agent, and an agreement or binding.

2. Signaling Theory

Melewar and Tucker(2005) suggest that the signaling theory shows that the company will give a signal through action and communication. The company adopted these signals in revealing the hidden attributes to stakeholders (stakeholder). The company seeks to inform the financial statements, give a signal about the various factors that affect the company's financial condition, and communicate the strategy and policy measures to improve financial performance.

This study uses signaling theory as a basis for analyzing financial distress, mainly due to management actions in setting corporate strategy and policy, closely associated with the variables that affect the level of financial distress marginal scores that occurred in SOEs.

Cue or signal according to Brigham and Daves (2007) is an action taken by the management companies that provide guidance to investors about how management consider the company's prospects. Signals from company management actions have a very important influence on the variables that affect the financial distress of SOEs. Therefore, the research of financial distress of state-owned enterprises that reveal the conditions of financial difficulties and the variables that influence them is an integral part of the signaling theory.

3. Balance marginal

The marginal concept is the application of differential calculus on the behavior of consumers and producers, as well as market pricing optimum quantity (Kastan and Restiati, 2013). Implementation approach is marginal as attachment-2 is used also for (a) determining the minimum cost per unit on condition that the marginal cost is equal to average cost ($MC = AC$), (b) the level of profits maximum or minimum losses with the marginal revenue condition equals to the marginal cost ($MR = MC$), and (c) the maximum income requirement is equal to zero marginal revenue ($MR = 0$).

The marginal theory was first developed by Hendrick Gossen (1810-1858)in explaining the satisfaction (utility) from consumption of similar goods. According to him, the satisfaction of marginal (Marginal Utility) from the consumption of a wide good will fall if the same goods are consumed more (Law Gossen I). In the second Gossen law, explaining that the resources and funds available are always limited in relative terms in meeting various needs are relatively limited. At the time of this theory received less attention from economists, but some 40 years later, a group of economists who are members of the School of Austria, such as Jevons, Menger, Böhm-Bawerk and Von Wieser, give recognition and appreciation for the work of Gossen. Since then the concept of marginal recognized as a major contribution in the Austrian school.

In its development, this theory has been used for the findings of a new theory, especially since the period neoclassical such as: (a) the Austrian school with the main characters Karl Menger who developed the theory of marginal utility in his *Grusatzte der Volks Wirtschaftslehre* (1817), (b) schools Cambridge pioneered by Alfred Marshal with his main work, among others the pure theory of foreign trade (1829), and (c) the school of Lausanne, led by Leon Walras, with his work *elements of pure economics* (1878).

In this study, the marginal concept was developed by adding the formula as a novelty in the measurement of financial distress. The development process of measurement of financial distress formula, based on a marginal approach used in the derivative function of demand and supply function analysis, marketing analysis, cost theory, the theory of production, utility theory, company management decisions on a variety of market structure, and others. The concept of marginal use of a mathematical approach and the approach chart analysis (Debertin, 2012). The best conditions the company when the price level and the quantity of production or sale occurs at the balance of marginal revenue (MR) with the marginal cost (MC), which simplifies to $MR = MC$ or $MR - MC = 0$.

MR is the change in total revenue (ΔTR) divided by change in sales quantity (ΔQ), while the MC is the change in total cost (ΔTC) divided by change in sales quantity (ΔQ), who formulated the following.

$$MR = \frac{\Delta TR}{\Delta Q} \text{ dan } MC = \frac{\Delta TC}{\Delta Q}$$

So that optimal conditions the company achieved when $MR = MC$ formulated below.

$$\frac{\Delta TR}{\Delta Q} = \frac{\Delta TC}{\Delta Q}$$

Or the firm's optimal conditions are achieved when the difference between the MR with MC equal to zero.

$$\frac{\Delta TR}{\Delta Q} - \frac{\Delta TC}{\Delta Q} = 0$$

The marginal approach with graphical analysis illustrates the relationship of the curves of TC, TR, MR, AVC and AC as shown in Figure 1, which shows that the optimal operational management of the company is achieved by the intersection of the MR curve with the MC curve as much as Q1 at point A, while sales quantity Q1 with the price of P3 is in serious financial difficulties, so it is better to stop the company's operations so as not to cause greater losses, because the price of P3 in sales quantity Q1 is unable to cover variable costs or P3 is smaller than AVC.

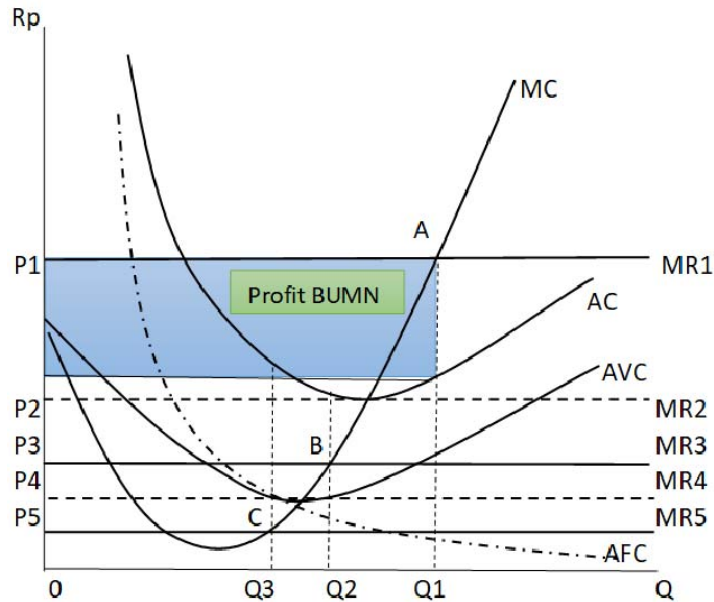


Figure 1: Balance Margina revenue and marginal cost (MR = MC)

Where: *MR* = marginal revenue, *MC* = marginal cost, *AC* = average cost, *AFC* = average fixed cost, *P* = price, *Q* = quantity of sales.

This study uses the marginal balance approach as a basis for developing measurement formulas that financial distress in the proxy with a score of marginal (SMG). The Company declared free from financial distress when approaching equilibrium marginal revenue with marginal cost. Conversely, potentially experiencing financial difficulties when getting away from the marginal balance.

Company management must pay attention comprehensively to variables that form marginal revenue and marginal costs. Management strategies and policies are judged to be successful through the achievement of marginal equilibrium, which means that management can be assessed for its performance in managing the company if it is successful in achieving this level of balance, or in a sustainable manner closer to that marginal balance.

This research contributes as a novelty to the measurement of financial distress while filling the weaknesses of the previous financial distress measurement model. The measurement model of this research is supported by the marginal theory that is more accurate, can be proven mathematically, can be calculated accounting, and the results can be generalized to compare between SOEs. Marginal score research in measuring the level of financial distress can be done specifically for companies that experience financial distress or separate from companies that are declared healthy or generate profits. Unlike the previous research, financial distress research must use two groups of companies because it uses a logistics approach and the measurement is weighted 1 for companies that experience financial distress and 0 for healthy companies. The weakness of this measurement does not differentiate the level of financial distress but gives the same weight to the group of companies even

though the achievements of financial distress differ from one company to another, as well as companies that are classified as healthy companies.

Companies that are healthy for generating profits, not necessarily achieve a balance marginal ($MR = MC$) or comparison of $\frac{MR}{MC} = 1$, so it needs to be measured the level of marginal score. In the measurement of marginal scores can be carried out specifically against a group of companies experiencing financial distress, or specifically for companies that are declared as due to profit.

4. Research Accomplished

This study uses previous research relevant to answering the problems and develop the research hypothesis. The previous study which became a reference, consisting of (1) the study of financial distress, (2) study the marginal approach, and (3) state-owned research relevant to this study.

1) Research Financial Distress

Research previous financial distress that referenced this study, presented briefly below.

- a. Weston and Copeland (1997) found that bankruptcy is as a failure that occurs in a company that can be distinguished on the economic failures (economic distressed), and financial failure (financially distressed).
- b. Hidayat, MA et al. (2014) found that financial distress is significantly affected by the factors of financial performance based on indicators of financial ratios.
- c. Mas'ud, I. et al. (2012) found that the financial distress of manufacturing companies in Indonesia Stock Exchange, influenced by the financial performance based on indicators of financial ratios.
- d. Altman (2000), in his research on "Predicting Financial Distress of Companies: Revisiting The Z-Score And Zeta Models", put forward that financial distress influenced by the performance of financial-based on indicators of financial ratios.
- e. Tzong and Lin (2009), in his research on "A Cross Model Study Of Corporate Financial Distress Prediction In Taiwan: Multiple Discriminant Analysis, Logit, Ptohit, And Neural Networks Models", suggests that financial distress influenced by the performance of financial-based on indicators of financial ratios.
- f. Brockett, et al. (2006) in his research on "A comparison Of Neural Networks, Statistical Methods, And Variable Choice For Life Insurers' Financial Distress Prediction", suggests that financial distress influenced by the performance of financial-based on indicators of financial ratios.
- g. Salehi and Abedini (2009), in his research on "Financial Distress Prediction in Emerging Market: Empirical Evidences from Iran", suggests that financial distress influenced by the performance of financial based on indicators of financial ratios.
- h. Loui and Smith (2006) in his study on "Financial Distress And Corporate Turnaround: A Review of the Literature and Agenda for Research", suggests that financial distress influenced by financial and nonfinancial performance.

- i. Gilson danVetsuypens (2005), in his research on "CEO Compensation In Financial Distressed Firms: An Analysis Empirical" suggests that financial distress influenced by financial and nonfinancial performance.
- j. Pranowo, Achسانی, and Manurutng (2010) in his research on "Determinant Of Corporate Financial Distress In An Emerging Market Economy: Empirical Evidence From The Indonesian Stock Exchange from 2004 to 2008" suggests that financial distress influenced by financial and nonfinancial performance.
- k. Janes (2003) in his research on "Accruals, Financial Distress, And Debt Covenants" suggests that financial distress influenced by the performance of financial based on indicators of financial ratios.
- l. Kordestani, Biglari and Bakhtiari (2011) in his research on "Ability of Combinations of Cash Flow Components to Predict Financial Distress" suggests that financial distress influenced by the performance of financial-based on indicators of financial ratios.
- m. Elkamhi, Ericsson, and Parsons (2009), in his research on "The cost of financial distress and the timing of default" suggests that financial distress influenced by financial and nonfinancial performance.
- n. Zhang, et al. (2001) in his research on "Corporate Financial Distress Diagnosis in China" suggests that financial distress influenced by the performance of financial-based on indicators of financial ratios.

2) *Marginal Approach Research*

Implementation marginal approach has been used in some previous studies below.

- a. Yustiana, et al. (2015) suggested that Marginal Cost Pricing has several advantages, among others that this mechanism is considered the most efficient and avoid underpriced (ratings below the price).
- b. Sutjati et al (2015) suggested that in transfer pricing starting from the optimization of profit, ie when the marginal revenue (MR) of the marketing division is equal to marginal cost (MC) resulting equilibrium point to be projected into the demand curve to obtain the transfer price and the amount of product to be manufactured.
- c. Coase (1972) describes the curve of demand balance, 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.
- d. Damayanti, et al. (2014) suggested that profit is the difference between total revenue (TR) and total cost (TC). And to obtain the maximum profit, then the price and sales volume was set at $MR - MC = 0$ or the value of $MR = MC$.
- e. Hall (1988) in the implementation of marginal cost pricing, argued that competitive firms equate marginal cost at market prices its products in order to achieve maximum benefit.

- f. Some other studies based on the concept of marginal balance ($MR = MC$) presented by: Indrayani and Hellyward (2015) using a marginal approach ($MR = MC$) in setting Product Optimization and Profit Maximization on dairy farms; Misanam (2007) using a marginal approach ($MR = MC$) in a set quantity that generate maximum profit; Septiantoro and Utomo (2015) using a marginal approach ($MR = MC$) to set the selling price of housing; Widiantara and Goddess (2016) using a marginal approach ($MR = MC$) in determining the amount of sales and the selling price of the estate.

3) *Research SOE*

- a. Research conducted by the state-owned enterprises Institutions Management Faculty of Economics and Business, University of Indonesia (2015), reported that the problems that hinder the performance of SOEs is dualism faced "top executive" relevant SOE SOE status as a separated state assets of the State Property Act, however, also related to the Anti-Corruption Act. Many cases of criminalized business policies, thus making many directors of state of fear and finally decided not to do "corporate actions" significant.
- b. Research SOE electricity sector by Assagaf (2015) find that in order to optimize the management of PLN needs a series of policies in an integrated manner on four main pillars that affect the success of the company, namely: (a) management of fuel independently, (b) restructuring of a contract to purchase electricity from the mains especially in rescuing private income or cost-saving opportunity for PLN, (c) restructuring of tariffs on the economic level through tariff-based mechanisms marginal cost pricing, and (d) optimizing the management of subsidiary companies through the restructuring of the company management authority independently.
- c. Handoko and Patriadi (2005) in his study of the subsidy policy, put forward the positive effects and the negative effects of subsidies.
- d. Munawar and Main (2013) in his study of subsidies, argued that the government's subsidy policy has always posed opinion of the pros and cons.
- e. Additional research about government participation by Mandana and Artini (2012), reported that the structure of assets, the rate of sales growth, profitability, and growth of the company has a significant effect on the capital structure.

CONCEPTUAL FRAMEWORK

Conceptual framework consists of several groups of variables, namely: the intervening variables, moderating variable, the dependent variable which is equipped with a sensitivity analysis using the alternative measurement for comparison, the independent variables and control variables.

a. *Intervening variables*

intervening variable growth in cash flow from operating ($X2\Delta CFO$) directly influence financial distress ($YFINDIS$) moderated by the Government subsidy and

equity variable (X1GSAE), as picture-5. reasons to use *cash flow from operating*(X2ΔCFO) as an intervening variable, due to financial distress dependent variable determined by the management of operating cash flow. While the intervening variables from the operating cash flow were influenced directly by the independent variables and control variables.

This intervening variable test can be done through path analysis was first developed by Sewal Wright in 1934 (Sarwono, 2011).

b. Moderating Variable

Variable government subsidy and equity (X1GSAE) as moderating variables in this study, which serves to strengthen or weaken the effect of intervening variable cash flow from operating against the dependent variable of financial distress. The rationale for government subsidy and equity variable(X1GSAE), because the government funding policy is decisive in strengthening or weakening effect *cash flow from operating* (X2ΔCFO) the dependent variable *financial distress* (YFINDIS).

Test moderator variables in this study conducted by testing the interaction of variables or multiplication of intervening variables with a moderating variable. If the p-value <0.05 then the government subsidy and equity variables may moderate the influence of independent variables on the dependent variable, and vice versa. (Arieska, 2011).

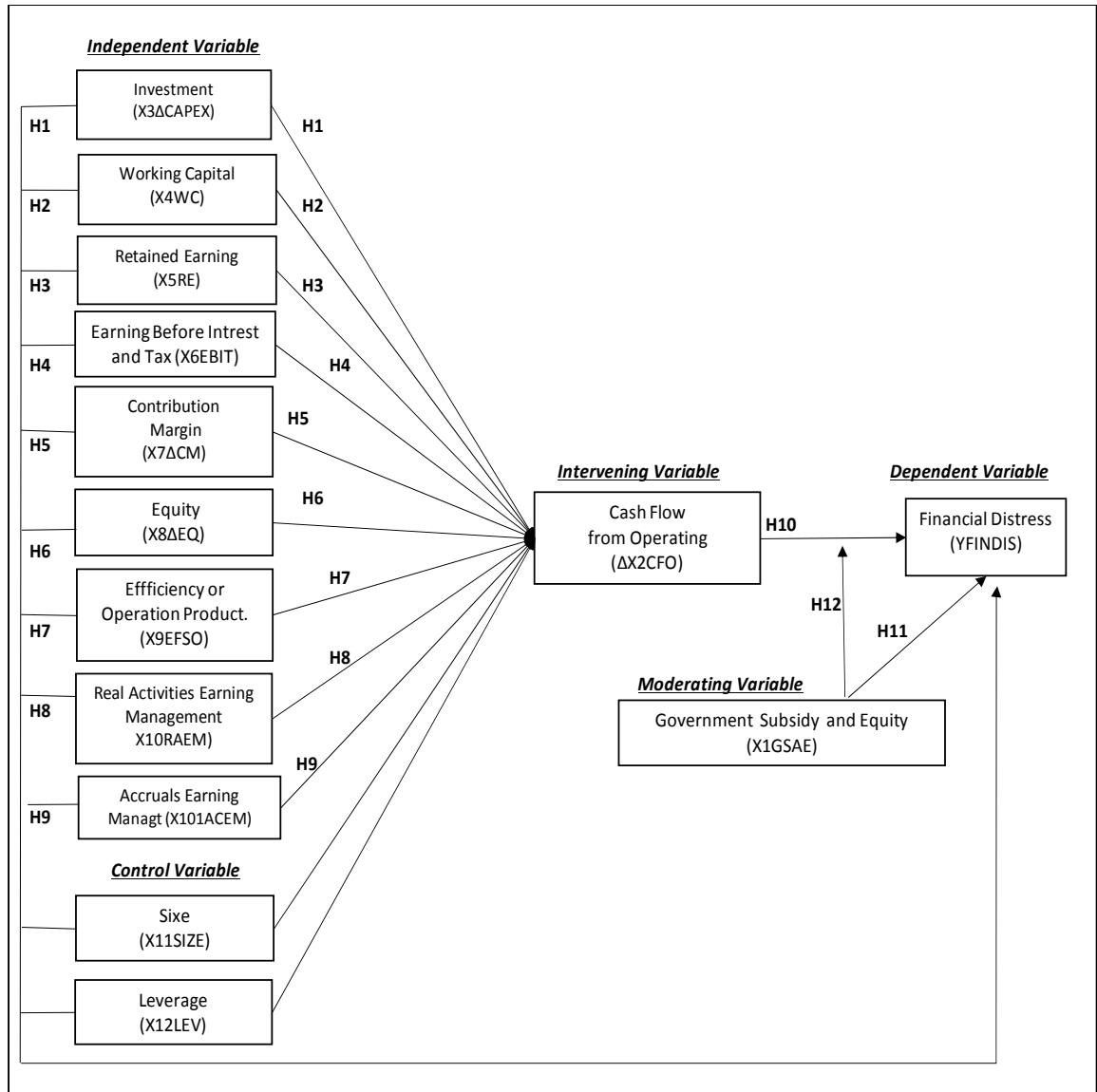


Figure 2: Conceptual Framework

c. Dependent variable

the dependent variable *financial distress* (YFINDIS) in this study is to show the level of difficulty faced by state-owned enterprises still depend primarily funded from government subsidies, receive assistance state capital participation (PMN) and suffered losses. Financial distress shows the financial performance generated by the management in running the corporation, it is marked by achievement level score is marginal (SMG).

The value of the maximum SMG means optimal financial performance in the management of resources because these conditions cause the company to achieve maximum profit or minimum loss assuming the condition of existing production capacity, Conversely when the SMG value less than one, then the financial performance can be improved through action strategies and management policy of the factors that affect the SMG.

The results of the research can be used to assess the marginal score each SOE as attachment-5. The result can be assessed from three aspects and compare the financial performance reflects the level of difficulty of each, namely: (a) the success of state-owned enterprises over time. (b) can be used to compile the rankings financial difficulties SOE performance, so it can be compared with each other. (c) determine future performance targets SOEs. (d) provide solutions SMG achievement of the objectives to be achieved by considering the variables that affect financial distress.

d. Independent variable

The independent variable as a variable that directly and indirectly (through variables intervening) the dependent variable, so the change in the independent variable will cause the effect to the change in the dependent variable.

Reasons for the selection of independent variables based on theoretical constraints, results of previous studies, and empirical conditions indicating that the independent variables affecting the financial distress of SOEs, as in figure 2 the framework of this research.

e. Control variable

Researchers do not have to enter all of the predictor variables in our model, however, against the predictor variables that allegedly very influential but are beyond the scope of the topic of study, the researchers did control in order to give explanation better research results. Control variables used in this study, consisting of the size of the company (X11SIZE) and variable levels of leverage (X12LEV). Both control variables affect directly and indirectly through intervening variables to financial distress (YFINDIS).

Test the control variables using hierarchical regression procedure, which is the development of moderated regression equation proposed by Cohen & Cohen, Schmitt & Klimoski, 1991 (Harsono, 2002). Hierarchical regression is the regression analysis performed many times with different variable composition, may be increased, or reduced, with the aim to see the difference in the degree of influence on each level (step) testing.

DEVELOPMENT HYPOTHESIS

Based on the theory and the results of previous research, the development of hypotheses answering these research problems stated below.

a. Capital Expenditure (Hypothesis H1)

Selection of independent variables *capital expenditure* (X3ΔCAPEX) closely related to the agency theory and signaling theory. Management actions to meet the interests of shareholders and give a signal to the stakeholders, impact on the variable *capital expenditure* (X3ΔCAPEX) which can affect the company's financial distress.

Impact on *cash flow from operation* occurs because of the necessity to meet the operational needs of the company. The imbalance that occurs in the management of capital expenditure (X3ΔCAPEX) causing a deficit cash flow from operating and

financial distress affecting SOE. Therefore, management of capital expenditure (X3ΔCAPEX) SOE important role in order not to complicate the operational cash flow from operating.

Several previous studies found that capital expenditure (X3ΔCAPEX) affect the success or financial difficulties. And based on the importance of variable capital expenditure (X3ΔCAPEX) mentioned, then This study proposes the following hypothesis H1.

H1: Growth in investment or capital expenditure (X3ΔCAPEX) direct and indirect impact of financial distress (YFINDIS) state that receives budget funding or financial difficulties.

b. ***Working capital (hypothesis H2)***

Selection of independent variables *Working capital (X4WC)* closely related to the agency theory and signaling theory. Management actions to meet the interests of shareholders and give a signal to the stakeholders, impact on the variable *Working capital (X4WC)* which can affect the company's financial distress.

Impact on *cash flow from operating* occurs because of the necessity to meet the operational needs of the company. The imbalance that occurs in Working capital management (X4WC) causing a deficit cash flow from operating and financial distress affecting SOE. Therefore, management Working capital (X4WC) SOE important role in order not to complicate the operational cash flow from operating.

Several previous studies have found that Working capital (X4WC) affect the success or financial difficulties. And based on the importance of variables Working capital (X4WC) mentioned, then This study proposes the following hypothesis H2.

H2: *Working capital (X4WC)* direct and indirect impact of financial distress (YFINDIS) state that receives budget funding or financial difficulties.

c. ***retained Earnings (Hypothesis H3)***

Selection of independent variables *retained earnings (X5RE)* closely related to the agency theory and signaling theory. Management actions to meet the interests of shareholders and give a signal to the stakeholders, impact on the variable *retained earnings (X5RE)* which can affect the company's financial distress.

Impact on *cash flow from operating* occurs because of the necessity to meet the operational needs of the company. The imbalance that occurs in the management of retained earnings (X5RE) causing a deficit cash flow from operating and financial distress affecting SOE. Therefore the management of retained earnings (X5RE) important role in order not to complicate the operational state enterprises from operating cash flow.

Several previous studies have found that the retained earnings (X5RE) affect the success or financial difficulties. And based on the importance of the variables retained earnings (X5RE), then This study proposes the following hypothesis H3.

H3: *retained earnings (X5RE)* direct and indirect impact of financial distress (YFINDIS) state that receives budget funding or financial difficulties.

d. ***Earning Before interest And Taxes (Hypothesis H4)***

Selection of independent variables *earnings before interest and tax* (X6EBIT) closely related to the agency theory and signaling theory. Management actions to meet the interests of shareholders and give a signal to the stakeholders, impact on the variable *earnings before interest and tax* (X6EBIT) which can affect the company's financial distress.

Impact on *cash flow from operation* occurs because of the necessity to meet the operational needs of the company. The imbalance that occurs in the management of earnings before interest and tax (X6EBIT) causing a deficit cash flow from operating and financial distress affecting SOE. Therefore, management earnings before interest and tax (X6EBIT) important role in order not to complicate the operational state enterprises from operating cash flow.

Several previous studies have found that earnings before interest and tax (X6EBIT) affect the success or financial difficulties. And based on the importance of variable earnings before interest and tax (X6EBIT), then This study proposes the following hypothesis H4.

H4: *Earning before interest and tax* (X6EBIT) direct and indirect impact of the financial distress (YFINDIS) state that receives budget funding or financial difficulties.

e. ***Growth Contribution Margin (Hypothesis H5)***

Selection of independent variables *contribution margin growth* (X7ΔCM) closely related to the agency theory and signaling theory. Management actions to meet the interests of shareholders and give a signal to the stakeholders, impact on the variable *contribution margin growth* (X7ΔCM) which can affect the company's financial distress.

Impact on *cash flow from operation* occurs because of the necessity to meet the operational needs of the company. An imbalance that occurs in the management of the contribution margin growth (X7ΔCM) causing a deficit cash flow from operating and financial distress affecting SOE. Therefore, management of growth in contribution margin (X7ΔCM) important role in order not to complicate the operational state enterprises from operating cash flow.

Several previous studies have found that the growth in contribution margin (X7ΔCM) affect the success or financial difficulties. And based on the importance of growth variable contribution margin (X7ΔCM), then This study proposes the following hypothesis H5.

H5: *Contribution margin growth* (X7ΔCM) direct and indirect impact of financial distress (YFINDIS) state that receives budget funding or financial difficulties.

f. ***Growth Equity (Hypothesis H6)***

Selection of independent variables *equity growth* (X8ΔEQ) closely related to the agency theory and signaling theory. Management actions to meet the interests of

shareholders and give a signal to the stakeholders, impact on the variable *equity growth* (X8ΔEQ) which can affect the company's financial distress.

Impact on *cash flow from operation* occurs because of the necessity to meet the operational needs of the company. The imbalance that occurs in the management of equity (X8ΔEQ) causing a deficit cash flow from operating and financial distress affecting SOE. Therefore, management of growth equity (X8ΔEQ) important role in order not to complicate the operational state enterprises from operating cash flow.

Several previous studies have found that the growth of equity (X8ΔEQ) affect the success or financial difficulties. And based on the importance of growth variable contribution margin (X7ΔCM), then This study proposes the following hypothesis H6.

H6: Growth in equity or equity (X8ΔEQ) direct and indirect impact of financial distress (YFINDIS) state that receives budget funding or financial difficulties.

g. ***The level of efficiency or productivity of Operations (Hypothesis H7)***

Selection of independent variables level of efficiency or productivity of the operation (X9EFSO) closely related to the agency theory and signaling theory. Management actions to meet the interests of shareholders and give a signal to the stakeholders, impact on the variable level of efficiency or productivity of the operation (X9EFSO) which can affect the company's financial distress.

Impact on *cash flow from operation* occurs because of the necessity to meet the operational needs of the company. The imbalance that occurs at the level of efficiency or productivity management operations (X9EFSO) causing a deficit cash flow from operating and financial distress affecting SOE. Therefore, the management level of efficiency or productivity of the operation (X9EFSO) important role in order not to complicate the operational state enterprises from operating cash flow.

Several previous studies have found that the level of efficiency or productivity of the operation (X9EFSO) affect the success or financial difficulties. And based on the importance of variable levels of efficiency or productivity of the operation (X9EFSO), then This study proposes the following hypothesis H7.

H7: The level of efficiency or productivity of the operation (X9EFSO) direct and indirect impact of the financial distress (YFINDIS) state that receives budget funding or financial difficulties.

h. ***Earning Management (Hypothesis H8 and H9)***

Selection of independent variables earnings management closely related to the agency theory and signaling theory. Management actions to meet the interests of shareholders and give a signal to the stakeholders, impact on the variable earnings management which can affect the company's financial distress.

Impact on *cash flow from operation* occurs because of the necessity to meet the operational needs of the company. The imbalance that occurs in the management of earnings management causing a deficit cash flow from operating and financial

distress affecting SOE. Therefore the important role of management earnings management in order not to complicate the operational state enterprises from operating cash flow.

Several previous studies have found that earnings management affect success or financial difficulties. And based on the importance of earnings management variables, then This study proposes the following hypothesis H8 and H9.

H8: Real growth of earnings management activities (X10RAEM) direct and indirect impact of the financial distress (YFINDIS) state that receives budget funding or financial difficulties.

H9: Growth accruals earnings management (X101ACEM) direct and indirect impact of financial distress (YFINDIS) state that receives budget funding or financial difficulties.

i. ***Cash Flow from Operating (Hypothesis H10)***

variable election *cash flow from operating* (X2ΔCFO) closely related to the agency theory and signaling theory. Management actions to meet the interests of shareholders and give a signal to the stakeholders, impact on the variable *cash flow from operating* (X2ΔCFO) which can affect the company's financial distress.

Impact on *cash flow from operation* occurs because of the necessity to meet the operational needs of the company. An imbalance that occurs in the management of cash flow from operating (X2ΔCFO) affect SOE's financial distress. Therefore, the management of cash flow from operating (X2ΔCFO) important role in order not to complicate the operational SOE corporate finance.

Several previous studies have found that the cash flow from operating (X2ΔCFO) affect the success or financial difficulties. And based on the importance of intervening variable cash flow from operating (X2ΔCFO), then This study proposes the following hypothesis H10.

H10: Growth in cash flow from operating (X2ΔCFO) a positive and significant impact on the financial distress of SOEs (YFINDIS) that receives additional funding subsidies and government participation or PMP.

j. ***Government Subsidies and Equity (hypotheses H11 and H12)***

Selection of moderating variables government subsidy and equity closely related to the agency theory and signaling theory. Management actions to meet the interests of shareholders and give a signal to the stakeholders, impact on the variable *government subsidy and equity* which can affect the company's financial distress.

Impact on *cash flow from operation* occurs because of the necessity to meet the operational needs of the company. The imbalance that occurs in management of *government subsidy and equity* SOE affect financial distress. Therefore, management *government subsidy and equity* important role in order not to complicate the operational SOE corporate finance.

Several previous studies have found that *government subsidy and equity* affect the success or financial difficulties. And based on the importance of the

variable *government subsidy and equity* mentioned, then This study proposes the following hypothesis H11 and H12.

H11: *Government subsidy and equity* (X1GSAE) significantly affects the financial distress (YFINDIS)) state that receives budget funding or financial difficulties.

H12: The interaction between the variables moderating government subsidy and equity with intervening variables from the operating cash flow growth (X1GSAE x X2ΔCFO) strengthening the relationship between growth in cash flow from operating (X2ΔCFO) with financial distress of SOEs (YFINDIS) which receive budget funding or financial difficulties.

RESEARCH METHODOLOGY

Sample and population

For the implementation of this analysis models, it uses the method of sampling with purposive sampling technique, namely the determination of sample by choosing some particular samples were assessed in accordance with the purpose of research problems that the data obtained is more representative. As noted above phenomenon, the samples can be selected from the 118 SOEs with criteria: (a) state-owned companies receive subsidies (b) state that receives additional capital, and (c) state that suffered losses. To prevent data SOEs still relevant to current conditions and future projections, the observation is limited by using time series data of the last 5 years ie 2014 - 2018.

Measurement variable

a. The dependent variable of financial distress (YFINDIS)

Measurement of financial distress in this study adopted a marginal approach as a novelty on the dependent variable financial distress with marginal scores proxy (SMG) with the following formulation.

$$SMg = \frac{MR}{MC} \quad \text{atau} \quad SMg = \frac{\left(\frac{\Delta TR}{\Delta Q}\right)}{\left(\frac{\Delta TC}{\Delta Q}\right)}$$

Where: SMG = score is marginal, MR = marginal revenue, MC = marginal cost, ΔTR = change in total revenue, ΔTC = change in total cost, ΔQ = change in quantity sold.

b. Moderating variables government subsidy and equity (X1GSAE)

This variable is measured using price-gap formula as used by Doug Koplou (2009), that is :

$$X1GSAE = \frac{\text{Cost of sales} - \text{Total revenue}}{\text{cost of sales}}$$

c. The intervening variables from the operating cash flow growth (X2ΔCFO)

The measurements of these variables are based on calculations that are reported through the financial statements at the end of the year as used in research Chen et al. (2010), With the calculation:

$$X2\Delta CFO = \frac{CFO(t) - CFO(t-1)}{CFO(t-1)}$$

Where: $X2CFO_t = (\text{Beginning balance of cash}) + (\text{Total receipts of cash derived from operating activities, including the amount of receivables-current}) - (\text{end balance of cash at the end during the period})$, or $X2CFO_t = \text{Total expenditures for the operations of the company including debt payments in current due date}$.

d. The independent variable investment growth ($X3\Delta CAPEX$)

This variable was measured by using a formula as in research Chen et al. (2010), that is :

$$X3\Delta CAPEX = \frac{\text{Fixed assets}(t) - \text{Fixed assets}(t-1)}{\text{Fixed assets}(t-1)}$$

e. Independent Variable Working Capital ($X4WC$)

Measurement of this variable is based on the calculations used in research Brigham and Daves (2007), that is :

$$X4WC = \frac{\text{Working capital}(t) - \text{Working capital}(t-1)}{\text{Working capital}(t-1)}$$

f. The independent variable Retained Earnings ($X5RE$)

Variable measurement is performed using the formula as in research Brigham and Daves (2007), that is :

$$X5RE = \frac{\text{Retained earning}(t) - \text{Retained earning}(t-1)}{\text{Retained earning}(t-1)}$$

g. The independent variable interest and Earnings Before Tax ($X6EBIT$)

Variable measurement is performed using the formula as in research Brigham and Daves (2007), that is :

$$X6EBIT = \frac{EBIT(t) - EBIT(t-1)}{EBIT(t-1)}$$

h. The independent variable contribution margin growth rate ($X7\Delta CM$)

This variable was measured by using a formula as in research Ramadan (2015), that is :

$$X7\Delta CM = \frac{CM(t) - CM(t-1)}{CM(t-1)}$$

Where: Contribution margin is calculated based on the difference between the price or the average tariff per unit minus the variable cost per unit.

i. The independent variable equity growth ($X8\Delta EQ$)

Variable measurement is done by using the formula as in Brigham and Daves (2007), that is :

$$X8\Delta EQ = \frac{\text{Equity}(t) - \text{Equity}(t-1)}{\text{Total Debt}(t)}$$

- j. The independent variable levels of efficiency or productivity of the operation (X9EFSO)

This variable was measured by using a formula as used in research Warrad and Omari (2015), that is :

$$X9EFSO = \frac{\text{Operation income (output)}}{\text{Assets Operation (input)}}$$

- k. The independent variable of real earnings management activities (X10RAEM)

This variable was measured by using abnormal operating cash flow, the cost of abnormal product and abnormal discretionary expenses. The independent variable of real earnings management activities are actions taken by management to influence the financial statements through policies related to the corporate activity such as production, sales, accounts receivable, inventory and more.

Measurement activities of a real variable in this study, using the equation as in Roychowdhury (2006) the following.

- (1) *Cash flow operasi (CFO)*:

$$CFO_t/A_{t-1} = \alpha_0 + \alpha_1 (1/A_{t-1}) + \beta_1 (S_t/A_{t-1}) + \beta_2 (\Delta S_t/A_{t-1}) + e_t$$

- (2) *Cost of good sold (COGS)*:

$$COGS_t/A_{t-1} = \alpha_0 + \alpha_1 (1/A_{t-1}) + \beta (S_t/A_{t-1}) + e_t$$

- (3) *Change in inventory (ΔINV)*:

$$\Delta INV_t/A_{t-1} = \alpha_0 + \alpha_1 (1/A_{t-1}) + \beta_1 (\Delta S_t/A_{t-1}) + \beta_2 (\Delta S_{t-1}/A_{t-1}) + e_t$$

- (4) *Production (PROD)*:

$$PROD_t/A_{t-1} = \alpha_0 + \alpha_1 (1/A_{t-1}) + \beta_1 (S_t/A_{t-1}) + \beta_2 (\Delta S_t/A_{t-1}) + B_3 (\Delta S_{t-1}/A_{t-1}) + e_t$$

- (5) *Discretionary expense (DISEXP)*:

$$DEXP_t/A_{t-1} = \alpha_0 + \alpha_1 (1/A_{t-1}) + \beta (S_{t-1}/A_{t-1}) + e_t$$

This variable measurement procedure begins by using equation (1) to equation (5) and then calculated the residual or abnormal from the fifth equation (ACFO, ACOGS, A ΔINV , APROD, and ADEXP) as well as on research Cohen et al. (2008) in Roychowdhury (2006) below.

$$X10RAEM = AREAL_t = ACFO_t + ACOGS_t + A\Delta INV_t + APROD_t + ADEXP_t$$

Where: *AREA* or *X10RAEM* = abnormal or residuals of the estate activities; *ACFO* = abnormal or residual operating cash flow; *ACOGS* = abnormal or residual cost of goods sold; *A ΔINV* = Abnormal or residual changes in inventory value; *APROD* = abnormal or residual costs of production; *ADEXP* = abnormal or residual discretionary expense; *A_t* = total assets, end of year *t*; *S_t*: sales period.

- l. Accruals independent variable earnings management (X101ACEM)

Measurement of accruals earnings management variables based on the difference between the earnings before interest and tax cash flow from operations. Several previous studies using the following formula.

$$ACCR = NI - CFO$$

This study used the formula:

$$X_{101}ACEM = NI - CFO$$

Where: *ACCR* = total accruals; *NI* = net income before extraordinary items; *CFO* = cash flow from operating activities.

m. Control variables firm size (X11SIZE)

This variable was measured by using a formula as used in research Ramadan (2015), that is :

$$X11SIZE(t - 1) = LOG (Total\ assets\ (t - 1))$$

Some previous studies that used a variable size of the company or firm size for research related to the degree of success or financial difficulties.

n. Control variable level of leverage (X12LEV)

ini variables measured by using a formula as used in research Chen et al. (2010), that is :

$$X12LEV(t) = \frac{Total\ Debt\ (t)}{Total\ Asset\ (t)}$$

Some previous studies that used a variable structure of debt or leverage for research related to the degree of success or financial difficulties.

Model Analysis

To answer the research, the variables used in the analysis of independent variables, control variables, and variables are moderating interactions against financial distress. While the indirect effect used the equation regression demonstrates the influence of independent variables and variable control of the intervening variable operating cash flow, followed by the effect of operating cash flow to financial distress.

To answer the research, the analysis of the models with the direct influence of independent variables, control variables, variables and moderating variables reacts to financial distress. While the indirect effect used the equation regression demonstrates the influence of independent variables and variable control of the intervening variable operating cash flow, followed by the effect of operating cash flow to financial distress.

The results can be compared and tested the significance of the effect of direct and indirect influence on financial distress through operating cash flow. To test the hypothesis above, then used regression models 1, 2 and 3 below.

Model 1: *The direct effect of the independent variables, control, intervening, moderating and variable interactions toward financial distress*

$$\begin{aligned} YFINDIS_t = & \beta_0 + \beta_1 X_1GSAE_t + \beta_2 X_2\Delta CFO_t + \beta_3 X_3\Delta CAPEX_t + \beta_4 X_4WC_t + \\ & \beta_5 X_5 RE_t + \beta_6 X_6 EBIT_t + \beta_7 X_7 \Delta CM_t + \beta_8 X_8 \Delta EQ_t + \beta_9 X_9 EFSO_t \\ & + \\ & \beta_{10} X_{10} RAEM_t + \beta_{11} X_{101} ACEM_t + \beta_{12} X_{11} SIZE_t + \beta_{13} X_{12} LEV_t + \\ & \beta_{14} (X_1 GSAE_t \times X_2 \Delta CFO_t) + e_t \end{aligned}$$

Model 2: Influence of independent variables and control variables, to intervening variables, and indirect influence on the dependent variable

$$X_2\Delta CFO_t = \beta_0 + \beta_3 X_3 \Delta CAPEX_t + \beta_4 X_4 WC_t + \beta_5 X_5 RE_t + \beta_6 X_6 EBIT_t + \\ \beta_7 X_7 \Delta CM_t + \beta_8 X_8 \Delta EQ_t + \beta_9 X_9 EFSO_t + \beta_{10} X_{10} RAEM_t + \\ \beta_{11} X_{101} ACEM_t + \beta_{12} X_{11} SIZE_t + \beta_{13} X_{12} LEV_t + e_t$$

Model 3: CFO influence of the financial distress

$$YFINDIS_t = \beta_0 + \beta_1 X_2 \Delta CFO_t + e_t$$

Where:

YFINDIS_t = financial distress based on the regression coefficient β score of marginal period t

X1GSAE_t = government subsidy and equity period t

X2 Δ CFO_t = growth in cash flow from operating period t

X1GSAE_t x X2 Δ CFO_t = interaction variable X2 Δ CFO_t X1GSAE_t with variable period t

X3 Δ CAPEX_t = capital expenditure growth period t

X4WC_t = working capital period t

X5 RE_t = retained earnings period t

X6EBIT_t = earnings before interest and tax period t

X7 Δ CM_t = contribution margin growth period t

X8 Δ EQ_t = growth equity in period t

X9EFSO_t = level of efficiency or productivity of the operation period t

X10RAEM_t = real earnings management activities period t

X101ACEM_t = accruals earnings management period t

X11SIZE_t = size companies period t

X12LEV_t = degree of leverage period t

β_0 : constants

β_1 ... β_{14} : independent variable regression coefficients

RESULTS AND DISCUSSION

The results of this research will be used to measure the level of financial distress of SOEs with the following steps:

- Calculate an estimate of financial distress by using constant and coefficient corresponding regression equation model above.
- Realization data corresponding audited financial statements are used to estimate the financial distress, by way of multiplying the number of each of these variables with regression coefficient point an above.
- Summation constants and multiplication coefficient above item will result in the level of financial distress of SOEs in the estimation period.
- The results of estimations point c above, as a basis for assessing the level of financial distress SOE
- Results item d above was used to evaluate a by comparison to the previous period or to the realization of the target set earlier.
- The result of point d can also be used for comparison with other state-owned enterprises so that the position of the state-owned enterprise can be mapped.

- g. The calculation result d grains can be used as a reference in formulating strategies and policies to improve performance management SOE even marginally better score, taking into account significant factors influence toward SOE financial distress.

The results of this research have contributed very importantly or exhibited significantly to the measurement of financial distress companies in particular against state-owned enterprises in Indonesia. Some disadvantages of previous financial distress research have been perfected in this study, namely:

- a. Previous research using the logistic model with indicators 1 for companies experiencing financial distress and 0 for companies that are otherwise healthy or not experiencing financial distress.
- b. The disadvantage in point A above lies in the indicator 1 or 0, while the level of financial distress varies between each other, as well as to healthy companies. This study measured a group of companies with varying levels according to the level of marginal scores each SOE.
- c. Another weakness in point an above is that research must use both groups so that variations in statistical measurements of 1 or 0. occur. This study can measure financial distress specifically for companies that experience financial distress or specific healthy companies. Companies do not necessarily achieve optimal marginal scores, so the results of the study generally apply to state-owned enterprises that experience financial distress or those that are otherwise healthy to earn profits every year.
- d. Definition of grouping companies experiencing financial distress is different from one another so that the financial distress of the measurement results can not be generalized.
- e. The previous study using data that is not relevant to the current state, so that the coefficient is used as a formula to measure financial distress scores unrealistic if it is used to assess the financial condition of the company today.
- f. Many studies using the score past research results, so the results are not realistic because previous studies have weaknesses as point a to above.

This study uses a marginal approach based on financial distress that is able to overcome the weaknesses of previous research as mentioned above. The measurement of financial distress in the study is referred to as a marginal score (SMG) which can make a significant contribution in evaluating the financial condition of SOEs, as well as providing indicators of factors that have a significant effect on financial distress, to become a reference in preparing strategies and management policies to increase marginal level scores Better state-owned enterprises.

CONCLUSION

- a. Model estimates of financial distress this study could contribute to overcoming the weaknesses of previous studies so that the measurement becomes more realistic financial distress.

- b. Measurement of financial distress in the study using the marginal approach proved mathematics and evidenced by accounting calculations.
- c. Measurement of financial distress in the proxy with a score of marginal, with a maximum indicator for companies that achieve the best conditions in the management of its operations.
- d. Healthy companies may not necessarily gain a marginal score, as well as companies experiencing financial distress can be categorized according to the achievements of the marginal score.
- e. The results of the study with a marginal score were more relaxed and relevant than using the score as the results of previous studies.

LIMITATION

This research is still limited to the financial distress model so that the implementation needs to be continued with this research by using the data from the audited financial statements, so the results are more realistic because the data used meets accounting reporting standards.

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