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## Article

# Determinant of state-owned enterprises financial health: Indonesia empirical evidence

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## BANKING & FINANCE | RESEARCH ARTICLE

# Determinant of state-owned enterprises financial health: Indonesia empirical evidence

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**Abstract:** This research is motivated to study the phenomenon of the financial health of state-owned enterprises (SOEs) who are healthy but still dependent on government subsidies. Based on these phenomena, the aim of this study is to determine the factors that affect the company's financial health. In order to achieve this aim, the present research will employ the purposive sampling method of seven SOEs with observations during the last 11 years. The data analysis employed involves the use of linear regression model and its management through software SPSS-Amos 23. As a result, the study found that subsidy is significant and negatively affects financial health, which means that the financial health of the SOEs is getting down when funding is still maintaining subsidy every year. Instead, financial health would be enhanced if the government limits the subsidies gradually and gives broad authority to decide on the pricing structure and control of resources to support the cost of efficiency. The study also found that firm size strengthens the link between subsidies to financial health with a positive coefficient and is exhibited significantly, which means that the larger the firm size, the stronger the effect of subsidies on the financial health SOEs. This means that the SOEs that have a good asset capability tend to have a better financial health, especially because efficient opportunities are supported by the control of resources and a more economical business scale.



Nur Sayidah

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### PUBLIC INTEREST STATEMENT

The phenomenon of state-owned enterprises which are still obtaining funding assistance from the government in the form of subsidies or additional capital sounds rationale, since the firm with such a large-scale state-owned enterprise needs to operate efficiently and is able to obtain greater market share. This research provides a methodology which enables to investigate the influence of the independent variable profitability, earnings management and subsidy practices to the financial health of state-owned enterprises. The methodology also analyzed the moderating variable of firm size in strengthening the influence of the independent variables on financial health of state-owned enterprises.

**Subjects: Business, Management and Accounting; Strategic Management; Critical Management Studies**

**Keywords: financial health; earnings management; subsidy**

## 1. Introduction

This research is motivated to learn from the analysis of the phenomenon of state-owned enterprises (SOEs) that are still obtaining funding assistance from the government in the form of subsidies or additional capital. Rationally, it should be that, firm with such a large-scale SOEs can operate efficiently and is able to obtain greater market share, so as to meet the funding needs independently. When the cost structure of the firm is managed optimally, the firm will be more efficient. That is because the firm will have qualified human resources and technological capability to produce a product or service that is more in line with consumer expectations. The firm can also apply rate or price at a reasonable level for return on investment, and even capable of doing the business development on a larger scale efficiently. The practices such as performance management and strategic planning have conquered the public sector in many countries (Goeminne and George 2018). Contrarily, due to a poor financial health, the SOEs can even be liquidated if it is not supported by government funding. In view of this, the current study examines some of the major factors that affect the financial health of SOEs and provide information about the role of these factors so that it can become a reference in the decision to improve the financial health of the company.

The factors that may affect the financial health of SOEs occur due to negative profitability gap (NPG) that is smaller than the income of the burden of operational costs incurred by the company. Funding assistance from the government in the form of subsidies or additional capital is also another factor. This is why the present research categorized it as a subsidy which is positioned as an independent variable that affects the financial health and its effect is reinforced by the moderator variables of firm size. Other independent variables that are practical and rational are financial health which affects the achievement levels of profitability and earnings management practices. While the variables are selected as a moderator variable for rational reasons, firm size is capable of delivering the influence of independent variables on financial health.

Therefore, this research is motivated to give an overview of the factors affecting the financial health of SOEs, so as to be useful and provide input to management and shareholders in the decision-making process related to the determination of the tariff structure and efficiency which may affect profitability. In this study, the practice of earnings management-based accruals, to the transaction costs and income, subsidy wisdom and firm size are selected as a moderator variable. Previous researches carried out by the financial health scholars, such as Haron, Hartadi., Ansari, and Ismail (2009), and another conducted by Hadlock and Sonti (2010), use current measurement methods of Althman (1984) with the consideration that the use of five financial ratios that produced three assessment criteria are able to describe the financial health of the company. Based on these reasons, this study also used financial measurement of Althman health approach in 1984, and Althman 1983 for a sensitivity analysis, in order to test the consistency of the calculation and assess the level of its relevancy to the empirical fact of the SOEs.

The result of the forgoing is that this research would provide inspiration as an alternative in the management decision-making process, so that the SOEs would be able to minimize the dependency on funding from the subsidy. Through improving the financial health in the management of finance, it is expected to provide a balance between the financial interests, environmental interests and the interests of society, so that the company is able to obtain the support of government and society in a viable tariff adjustment.

Again, previous researches into the phenomenon of SOE have focused on the financial health with the fundamental problems which are as follows: (a) How is the profitability of the financial

health of SOEs? (b) How is the practice of earnings management to the financial health of SOEs? (c) How is the subsidy to the financial health of SOEs? (d) What is the effect of firm size on the financial health of SOEs? (e) Does the firm size strengthen the link between the profitability with the financial health of SOEs? (e) Does firm size relationship between earnings management strengthen the financial health of SOEs? (f) Is the strengthening relationship between firm size subsidies to the financial health of SOEs?

As a result, this research aims to study the influence of the independent variable profitability, earnings management and subsidy practices of the financial health of the SOEs. This study also analyzed the moderating variable of firm size in strengthening the influence of the independent variables on financial health of the SOEs. Therefore, the benefits of this research are expected to contribute to the development of science and provide input to the management of the company, becoming a reference for practitioners, analysts and subsequent research, especially related to the financial health of the SOEs.

### **1.1. Literature review and hypotheses development**

#### **1.1.1. Agency theory**

Agency theory was propounded by Jensen and Meckling (1976), and it suggested that there is a contract in the agency relationship between the principal owner of the company or by the manager who commissioned the agent to do a job in running the company. Principal party gives full authority to the agent to run the company and make decisions according to their expectations. In this experiment, we use the agency theory as the basis of the analysis relating to the management efforts of the SOEs in improving financial health. The analysis of the financial health using several variables affects the financial health integration, assesses its management policy steps in running the company and enhances the company's financial health in accordance with the wishes of the principal. On this basis, the principal party sets specific targets to support the improvement of services at the same time fostering the company's profits.

#### **1.1.2. Financial health**

Financial health shows a combination of several financial indicators such as profitability indicators, liquidity indicators, leverage indicators and activity indicators that produce category rankings, namely (a) healthy category, (b) unhealthy category, and (c) unhealthy category, while financial performance only uses profitability indicators, liquidity indicators, leverage indicators and active indicators to assess the success of the company's financial performance. Financial performance weaknesses due to the success of one indicator are not necessarily other indicators that are successful, making it difficult to assess the company's financial performance as a whole, while financial health provides a comprehensive assessment of the combined indicators, then to provide an overview of the company's success from time to time can be compared with other companies.

In this study, financial health is the dependent variable and it is measured using the method of Althman 1984 and 1983 as suggested by Haron et al. (2009). The study suggests that there are five financial ratios for such an approach which might be a strong element that is formed with the categories of financial health, but if the financial condition is healthy or not bankrupt, it means the financial condition or the gray area and the financial condition is not healthy. The annual financial report presented by the company described the condition of financial health of the company, this is done in order to find in the report the company's financial condition category, weather it is strong, medium or weak.

#### **1.1.3. Profitability**

Strategic corporations target certain profitabilitas every year, because there is the need for them to achieve these goals, so that managers can take action that is more focused on supporting these targets through the utilization of company resources under their control or authority. Financial health requires the support of the achievement of profitability, while supporting the achievement

of targets is done by shareholders in order to obtain the optimal dividend and increasing the value of the company. Bercovitz and Mitchell (2007), Assagaf (2014, 2015) and Assagaf, Lestari and Hamzah (2016) suggested that profitability can be measured by a comparison between profitability from year to year, as a basis for assessing the success of the company's management of improving the company's financial health, as well as by total debt to capital ratio (Abor, 2005). Based on the importance of the profitability in improving financial health, this study proposed the following hypothesis (H1):

H1. Profitability positively and significantly has impact on the health of financial position of the SOEs.

#### 1.1.4. *Earnings management*

A research conducted Aulia and Ikhwana (2012) in Assagaf (2017) suggests that earnings management is a management action that leads to the achievement of financial health of the company. Earning management is used for specific purposes, and its implementation is still within the limits of appropriate standards applicable for financial reporting. It is often used in a variety of patterns, such as income smoothing and set up finance report to support an initial public offering, for the benefit of the acquisition of bonus greater for management and employees, to meet targets or requirements of the covenant bank lending, improving image management in the face of the election of new management and others. The strategy used to achieve the target of financial health is if the company uses accruals earnings management approach. Research done by Scott (2012) and the physical defect report (2016) argued that earning management is a corporate strategy undertaken with the aim of maximizing the company's market value. Based on the accrual-based earnings management practices, this study proposed the following hypothesis (H2):

H2. Accrual-based earnings management positively and significantly has impact on the financial health of the SOEs.

#### 1.1.5. *Subsidy*

Results of research conducted by Schreiner and Yaron (1999) in Assagaf (2017) showed that the subsidies are intended to assist the development of the company through research and development that is able to generate new innovations that can support increased revenue or sales. Based on that study, it also showed that the subsidies provided by the government through SOEs are a driving force in the growth of industry, development of business and social sectors and other economic benefits to the society in general, such as the development of education, provision of health services and government efforts to improve the welfare of the society at large. In order to overcome these losses, the government has to set up a fund to help the SOEs in the form of subsidies or additional capital. The research result of González (2005) also suggested that the NPG basis for determining the subsidy is if the subsidy granted to the company will encourage the development innovation and progress. Given the role of subsidies in the financial health of SOEs, this study proposed the following hypothesis (H3):

H3. Subsidy given by government significantly and negatively has effect on the financial health of the SOEs.

#### 1.1.6. *Firm size*

Firm size is the most important variable which affects the financial health of the company, depending on the success of the asset management company to mobilize, so as to be more productive and contribute to the improvement of the financial health of the company. Research conducted by Capon et al. (1990) in Assagaf (2014, 2015, 2016, 2017) uses this variable as a factor affecting the company's financial health, and when viewed in the company's operations, the firm size variables can influence the relationship between independent variables and financial health,

**Figure 1. Framework of SOEs financial health variable**

so that these variables can serve as the independent variable and also as a moderating variable. Given this importance to the firm size variables, this study proposes the following hypothesis (H4):

H4. Firm size is the independent variable and it positively and significantly impacts on the financial health of SOEs.

#### 1.1.7. Moderating variables (interaction)

Research by Baron and Kenny (1986) argued that the moderating variables can be selected according to the role that is based on the reality of rational and theoretical considerations. Moderating variables may affect the relationship between the independent variables, because the dependent variable result is the direction of the relationship strengthening the interaction of variables and positively and significantly weakens the direction coefficient and has significant negative relationship. Based on firm size variable role is a moderating variable. Based on this, the present research proposes the following hypothesis (H5):

H5. Firm size is a variable moderator strengthening the influence of the independent variable profitability, earnings management and financial subsidy of the SOEs.

### 1.2. Conceptual framework predicting SOEs financial health

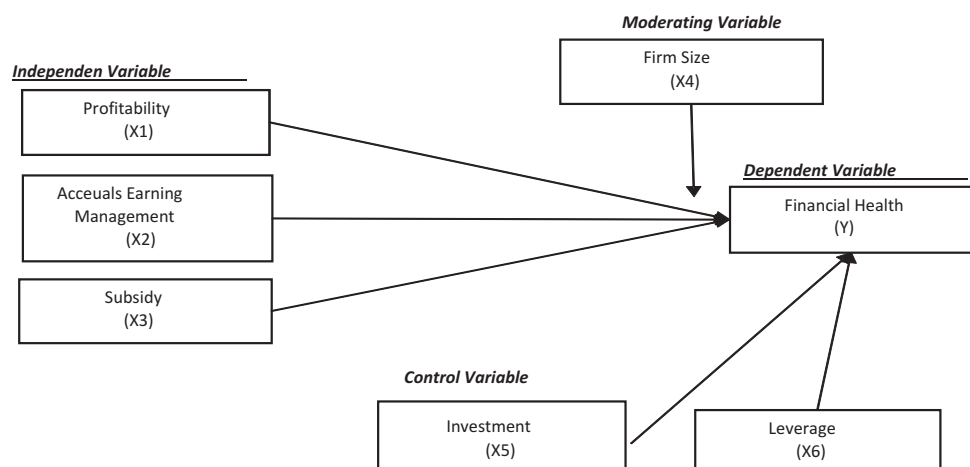
Based on the problems and hypothesis of this study, the below conceptual framework is put forward as Figure1.

This conceptual framework uses several variables, which consist of three independent variables: two control variables and one moderating variable to analyze the changes in the dependent variable.

## 2. Methods

### 2.1. Sample selection

To prove the hypothesis of this study, the data collection used purposive sampling method in determining the sample and it is considered to have in accordance with the objectives and



problem solving methods related to the financial health of the SOEs. The samples were selected and included seven SOEs that have a scale big business and have a wide range in various aspects of social life of the local economy and are able to influence national economic growth and can represent the SOEs more to the study and analysis of financial health. This study was conducted within a period of 12 years (2005–2016), but the data used in this study are only for firms that are of 77 years. However, in terms of the period, it uses some of the data that is measured based on a change between the times, therefore, it is used for 11 years.

## 2.2. Variable and measurement

In order to perform a more precise data analysis, this study used the variable data to measure the financial health in relation to the independent variable, the moderating variable and control variables as stated below:

## 2.3. Financial health

This variable is in a proxy using the Altman Z-score approach of 1984 in the publications of Altman (2000) below:

$$\begin{aligned} Z_i = & 0.717(\text{number of assets smoothly} - \text{the amount of current liabilities}) \\ & + 0.847(\text{The amount of retained earnings/total assets}) \\ & + 3.107(\text{amount of earnings before interest and taxes/total assets}) \\ & + 0.420(\text{market price of ordinary shares and preference shares/amount debt}) \\ & + 0.998(\text{sales/total assets}) \end{aligned} \quad (1)$$

where  $Z_i$  is a Z-score.

## 2.4. Profitability

Profitability variables can affect the health of financial condition in getting better through the company's profitability to improve its operating cash flow and facilitating the acquisition of funding bank loans, bonds and shares in the capital market. Also, measurement variable profitability is based on growth over time that is calculated based on the difference between the net incomes of the period ( $t$ ) by reducing net income in the period ( $t - 1$ ), then divided by net income of the period ( $t - 1$ ). The research conducted by Bercovitz and Mitchell (2007) in Assagaf (2014, 2015, 2017) and Assagaf et al. (2016) has the following formula:

$$\text{Profitability} = \frac{\text{Net Income}(t) - \text{Net Income}(t - 1)}{\text{Net Income}(t - 1)} \quad (2)$$

*Earnings management* variable is used by the accruals earnings management, which is named as one strategy to increase profits through transactions related to the accrual of costs and revenues, but still within the limits of appropriate accounting standards. This variable measurement approach of Dechow Model (1995) has a formula that is used to calculate accrual earnings management of residual or known abnormal accruals obtained from the calculation of the equation or the total accruals or accruals (ACC), using the following equation:

$$\begin{aligned} \text{ACC}_{it}/\text{TA}_{t-1} = & \alpha_0 + \alpha_1(\Delta\text{REV}_t - \Delta\text{REC}_{it})/\text{TA}_{t-1} + \alpha_2\text{PPE}_{it}/\text{TA}_{t-1} \\ & + \alpha_3\text{CFO}_{it}/\text{TA}_{t-1} + e_{it} \end{aligned} \quad (3)$$

where ACC is the total accruals or accruals, TA is the number of assets, REV is the amount of revenue, REC is the amount receivable, PPE is the amount of property, plant and equipment and  $e$  is the error.

### 2.4.1. Subsidy

Variable subsidy is the funding received from the government through the budget revenue and expenditure as a consequence because the revenue amount is lower than the operating costs. It is measured by the number of admissions subsidy funding provided by the government to the



SOEs in the form of subsidies or as an additional category of government investment capital. This study uses a measurement variable subsidy based on Price-Gap as stated by Doug Koplow (2009) in Assagaf et al. (2016, 2017) as stated below:

$$\text{Subsidy} = \frac{\text{Cost of Product} - \text{Sales}}{\text{Cost of Product}} \quad (4)$$

In comparison to previous research, where variable subsidy is used by Dinar and Yaron (1992), Schreiner (1997) in Assagaf (2017), their measurements are based on a standard subsidy dependence index with the following formula:

$$\text{Standar SDI} = \frac{\text{Subsidy}}{\text{Revenue}} \quad (5)$$

Other research measurement subsidy was proposed by González (2005) in Assagaf (2017), and it is based on the NPG having the following formula:

$$\text{NPG} = \text{Revenue} - \text{Cost} \quad (6)$$

Calculation subsidies granted to SOEs are based on the number of NPG plus a certain number or exceed the amount of damages to provide financing opportunities of investment, mortgage payments and long-term debt maturities and provide margin, in order to describe the financial health better.

#### 2.4.2. Firm size

Firm size variable in its function as a moderator variable indicates the capacity or the number of the company's assets in accordance to the year-end financial statements. The measurement of this variable is based on the logarithm of total assets according to research conducted by Capon et al. (1990) in Assagaf et al. (2016, 2017) having the following formula:

$$\text{Firm size} = \text{Log (Total Assets)} \quad (7)$$

#### 2.4.3. Investation

Investment variables as control variables are based on investment expenditure which can be seen in the growth of fixed assets that are reported in a year-end financial statement. Measurement variable on the other hand is based on the asset value fixed period (t) minus the fixed assets period (t – 1), then divided by the number of assets fixed period (t – 1) based on the study of Asquith et al. (1994) as stated by Assagaf (2016, 2017) with the following formula:

$$\text{Investasi} = \frac{\text{Fix Asset (t)} - \text{Fixed Assets (t - 1)}}{\text{Fixed Assets (t - 1)}} \quad (8)$$

#### 2.4.4. Leverage

Variable leverage in its function as a control variable describes the ratio of debt to capital in financing the company's operations. Funding through debt can provide a higher benefit to shareholders, because without increasing the amount of equity, greater profitability can be delivered in order to increase the dividend per share. The measurement of these variables using a formula of total assets to total equity was proposed by Pratheepkanth (2011) as shown below:

$$\text{Leverage} = \frac{\text{Total Debt}}{\text{Equity}} \quad (9)$$

### 2.5. Research models

The model is used to test the hypothesis that is put forward as a model in the following linear regression equation:



### 2.5.1. Model for H1, H2 and H3

The influence of profitability, earnings management and financial subsidy on health:

$$\text{Model 1 : } Y_{it} = \beta_0 + \beta_1 \text{Profitability}_{it} + \beta_2 \text{Accrual Earning Management}_{it} + \beta_3 \text{Subsidy}_{it} + \beta_4 \text{Firm Size}_{it} + \beta_5 \text{Investment}_{it} + \beta_6 \text{Leverage}_{it} + e_{it} \quad (10)$$

### 2.5.2. Model for H4 and H5

The effect of firm size as a moderator variable on the relationship between profitability, earnings management and subsidy with financial health:

$$\begin{aligned} \text{Model 2 : } Y_{it} = & \beta_0 + \beta_1 \text{Profitability}_{it} + \beta_2 \text{Accrual Earning Management}_{it} + \beta_3 \text{Subsidy}_{it} \\ & + \beta_4 \text{Firm Size}_{it} + \beta_5 \text{Investment}_{it} + \beta_6 \text{Leverage}_{it} + \beta_7 (\text{Profitability} \cdot \text{Firm Size}_{it}) \\ & + \beta_8 (\text{Accrual Earning Management}_{it} \cdot \text{Firm Size}_{it}) + \beta_9 (\text{Subsidy} \cdot \text{Firm Size}_{it}) + e_{it} \end{aligned} \quad (11)$$

### 2.5.3. Sensitivity analysis for H4 and H5 models

Sensitivity analysis using the Altman approach in 1983 for the measurement of financial health variables is as follow:

$$\begin{aligned} \text{Model 3: } Y_{it} = & \beta_0 + \beta_1 \text{Profitability}_{it} + \beta_2 \text{Accrual Management}_{it} + \beta_3 \text{Subsidy}_{it} + \beta_4 \text{Firm Size}_{it} \\ & + \beta_5 \text{Investment}_{it} + \beta_6 \text{Leverage}_{it} + \beta_7 (\text{Profitability} \cdot \text{Accrual Earning Management}_{it}) \\ & + \beta_8 (\text{accrual earning management} \cdot \text{Firm Size}_{it}) + \beta_9 (\text{Subsidy} \cdot \text{Firm Size}_{it}) + e_{it} \end{aligned} \quad (12)$$

where  $Y_{it}$  is the financial health (Althman 1984),  $\beta_0$  is the constant,  $\beta_1$  is the coefficient and  $e_{it}$  is the error.

## 3. Result and discussion

### 3.1. Descriptive statistics

According to the research results in the Table 1 below, descriptive statistics indicate that the dependent variable of financial health or Y varies from a minimum of 0.399 to a maximum of 2.764, and a mean value of 1.527 or close to the maximum number, means that the distribution of research data is concentrated on a value closer to the maximum than the minimum and fluctuated in the range of 0.722 from the mean. This happens because the degree of financial health business entities controlled by the government through the supervision or control of pricing is relatively at low level of corporate profitability.

The independent variable profitability with a standard deviation of 6.263 and a mean value of 0.909 indicates a high fluctuation within the limits of a minimum value and a maximum 32.214–5.011. This shows that the profitability of variable data is concentrated on minimum than the maximum number. The independent variable earnings management with a standard deviation of 0.175 and a mean value of –0.177 indicates a relatively low fluctuation in these

**Table 1. Descriptive statistics**

|                         | N  | Minimum | Maximum | Mean   | Std. deviation |
|-------------------------|----|---------|---------|--------|----------------|
| Financial health        | 28 | 0.399   | 2.764   | 1.527  | 0.722          |
| Profitability           | 28 | –5.011  | 32.214  | 0.909  | 6.263          |
| Accrual earn management | 28 | –0.689  | 0.108   | –0.117 | 0.175          |
| Subsidy                 | 28 | 0.000   | 0.509   | 0.108  | 0.158          |
| Firm size               | 28 | 3.532   | 6.089   | 4.445  | 0.656          |
| Investment              | 28 | –0.878  | 1.528   | 0.293  | 0.414          |
| Leverage                | 28 | 0.403   | 41.258  | 2.648  | 7.599          |
| Valid N (listwise)      | 28 |         |         |        |                |

variables within the limits of a minimum value and a maximum  $-0.689$ – $0.108$ . This shows that earnings management variable data are concentrated on maximum than the minimum, while the independent variable subsidy with a standard deviation of  $0.158$  and a mean value of  $0.108$  indicates a relatively low fluctuations in these variables within the limits of a minimum value of  $0.000$  and a maximum of  $0.509$ . This indicates that the subsidy variable data are concentrated on minimum than the maximum number.

Moderating variable firm size has a minimum value of  $3.532$  and a maximum of  $6.089$ , with a mean of  $4.445$  and a standard deviation of  $0.656$ . Variable control investment has a minimum value of  $-0.878$  and a maximum of  $1.528$  with a mean of  $0.293$  and a standard deviation of  $0.414$ , while the control variable leverage has a minimum value and a maximum of  $41.258$ – $0.403$  with a mean of  $2.648$  and a standard deviation of  $7.599$ .

### 3.2. Correlation

Correlation analysis as a statistical analysis technique is known as a Pearson Product Moment (PPM) correlation and was first discovered by Pearson (1904) and states that the correlation reflects the degree of linear relationship between two or more variables. Correlation in Table 2, column is dependent on variable financial health and showed a correlation with the variables of subsidies =  $0.829^{**}$  significant at  $0.01$  level errors, with firm size =  $0.792^{**}$  with errors at the level of  $0.01$ , while the correlation with earnings management =  $0.469^{*}$  at the level of  $0.05$  under financial health variables with other variables relatively small and are not significant.

Profitability column variable indicates that the correlation with other independent variables is relatively small with a correlation coefficient between  $0.001$  and  $0.215$ , which means that there are no multicollinearity symptoms that occur or not a significant relationship between the variables profitability and other independent variables. Variable earnings management column shows that the correlation with other independent variables is relatively small with a correlation coefficient of less than  $0.50$ , which means that there are no multicollinearity symptoms that occur or not a significant relationship between earning management and other independent variables. Variable subsidy column indicates that the correlation with other independent variables is relatively small, but the correlation with the variable firm size is  $0.798$ . Multicollinearity test has been carried out through SPSS based on the value of the variance inflation factor (VIF). If the VIF value is  $<10$ , then there is no indication of multicollinearity, which means that there are no symptoms of multicollinearity in the relationship of subsidy to firm size. The test results, as shown in the following table, show that the regression model does not contain multicollinearity.

Variable firm size column shows that the correlation with other independent variables is relatively small with a correlation coefficient of less than  $0.50$ , which means that there are no

**Table 2. Correlations matrix**

|                  | Fin health    | Profitability | ACC earning | Subsidy  | Firm size | Investment | Leverage |
|------------------|---------------|---------------|-------------|----------|-----------|------------|----------|
| Financial health | 1             |               |             |          |           |            |          |
| Profitability    | $-0.031$      | 1             |             |          |           |            |          |
| Accrual earning  | $0.469^{*}$   | $-0.047$      | 1           |          |           |            |          |
| Subsidy          | $-0.829^{**}$ | $-0.215$      | $-0.440$    | 1        |           |            |          |
| Firm size        | $-0.792^{**}$ | $-0.076$      | $-0.306$    | $0.798$  | 1         |            |          |
| Investment       | $0.073$       | $-0.040$      | $0.220$     | $-0.201$ | $0.114$   | 1          |          |
| Leverage         | $0.157$       | $-0.001$      | $0.123$     | $-0.073$ | $-0.027$  | $-0.036$   | 1        |

\*Correlation is significant at the  $0.05$  level (two-tailed); \*\*correlation is significant at the  $0.01$  level (two-tailed).

multicollinearity symptoms that occur or not a significant relationship between the variables firm size and other independent variables. Variable investment column showed that the correlation with the independent variable is relatively small, with correlation coefficient 0.036, which means that there are no multicollinearity symptoms that occur or not a significant relationship between the variables investment and leverage variables.

### 3.3. The result of H1

Data processing software SPSS-23 was employed with Amos regression calculation results as shown in Table 3, which starts with the variable profitability with a regression coefficient of  $-0.020$  that is positive and sig level 0.123, which means that the variable does not significantly influence the financial health. This means that the level of profitability does not affect the financial health because the achievement of the profitability figures did not affect the financial statements that form the elements of financial health and do not support the hypothesis of this research.

### 3.4. The result of H2

Variable earnings management showed a positive influence with regression coefficient of 0.463 and sig. 0.343, which means that the earnings management practices undertaken by the company was not able to improve the financial health. It does not support the hypothesis proposed in this research, meaning that the management policy of the transaction accruals to affect the financial statements was not able to improve the financial health of the company, because the components that make up the financial health are not only determined by the level of profitability but also by some components of the financial statements.

### 3.5. The result of H3

Variable subsidy shows the negative effects of the regression coefficient  $-2.608$  and sig. 0.013\*\*, meaning that this variable will gain strong influence on the decline of the financial health of the company. It negatively affects the financial health which means that the increase of subsidy to companies will lead to a decrease in financial health, because the company is paying less attention to financial health and considers that the subsidy is quite

**Table 3. Factors affecting the financial health with moderating firm size**

|                       | Predict. | Model—1: Y |          | Model—2: Y |          | Model—3: Ya |          |
|-----------------------|----------|------------|----------|------------|----------|-------------|----------|
|                       |          | Coeff.     | Sig.     | Coeff.     | Sig.     | Coeff.      | Sig.     |
| (Constant)            |          | 3.387      | 0.001*** | 5.309      | 0.000*** | 6.714       | 0.000*** |
| Profitability         | +        | $-0.020$   | 0.123    | $-0.016$   | 0.133    | $-0.024$    | 0.047**  |
| Accrual earning       | +        | 0.463      | 0.343    | 11.289     | 0.240    | 17.152      | 0.111    |
| Subsidy               | –        | $-2.608$   | 0.013*** | $-16.729$  | 0.009*** | $-20.372$   | 0.005*** |
| Firm size             | –        | $-0.340$   | 0.127    | $-0.802$   | 0.002*** | $-1.038$    | 0.001*** |
| Investment            | +        | $-0.061$   | 0.772    | $-0.047$   | 0.821    | $-0.055$    | 0.808    |
| Leverage              | +        | 0.009      | 0.380    | 0.661      | 0.379    | 1.143       | 0.175    |
| Profit firm size      | +        |            |          | $-0.156$   | 0.386    | $-0.269$    | 0.181    |
| Accr Earn × Firm size | +        |            |          | $-2.625$   | 0.229    | $-3.919$    | 0.109    |
| Susidy × Firm size    | +        |            |          | 2.761      | 0.036**  | 3.510       | 0.018**  |
| Adj- $R^2$            |          | 0.727      |          | 0.818      |          | 0.842       |          |
| F-statistic           |          | 12.965     |          | 14.487     |          | 16.937      |          |
| Prob F-statistic      |          | 0.000      |          | 0.000      |          | 0.000       |          |
| Durbin-Watson         |          | 0.812      |          | 1.008      |          | 1.327       |          |
| Total Obs             |          | 28         |          | 28         |          | 28          |          |

\*\*\*Significant of 1%, \*\*significant of 5%, \*significant of 10%.

Note:  $Y_{it}$ : Financial health (Althman, 1983, 1984).

able to finance the operation. The company has only focused on the interests of the service targeted by the government, and the financial interests of health are not a priority. Conversely, when the government will reduce the amount of the subsidy and give full authority to manage independent corporation, the financial health of SOEs can be improved, as the SOEs are listed in the stock market.

$$\text{Model1 : } Y_{it} = \beta_0 + \beta_1 \text{Profitability}_{it} + \beta_2 \text{Accrual Earning}_{it} + \beta_3 \text{Subsidy}_{it} + \beta_4 \text{Firm Size}_{it} \\ + \beta_5 \text{Investment}_{it} + \beta_6 \text{Leverage}_{it} + e_{it}$$

$$\text{Model2 : } Y_{it} = \beta_0 + \beta_1 \text{Profitability}_{it} + \beta_2 \text{Accrual Earning}_{it} + \beta_3 \text{Subsidy}_{it} + \beta_4 \text{Firm Size}_{it} \\ + \beta_5 \text{Investment}_{it} + \beta_6 \text{Leverage}_{it} + \beta_7 (\text{Profitability.Firm Size}_{it}) \\ + \beta_8 (\text{Accrual Earning.Firm Size}_{it}) + \beta_9 (\text{Subsidy.Firm Size}_{it}) + e_{it}$$

$$\text{Model3 : } Y_{it} = \beta_0 + \beta_1 \text{Profitability}_{it} + \beta_2 \text{Accrual Management}_{it} + \beta_3 \text{Subsidy}_{it} + \beta_4 \text{Firm Size}_{it} \\ + \beta_5 \text{Investment}_{it} + \beta_6 \text{Leverage}_{it} + \beta_7 (\text{Profitability.Firm Size}_{it}) \\ + \beta_8 (\text{Accrual Management.Firm Size}_{it}) + \beta_9 (\text{Subsidy.Firm Size}_{it}) + e_{it}$$

### 3.6. The result of H4

Firm size variable as independent variable showed negative influence with regression coefficient of  $-0.340$  and sig.  $0.127$ , meaning that this variable is not significantly influencing the financial health. The tendency of the effect of firm size variable is negative because of the reality that occurs in SOEs. The indication is that the greater fiscal effort and more companies are to assist in community service and are increasingly needed by society the better the construction and development of the company's business is getting noticed of the construction by the government. Although at a disadvantage, and ultimately worsening the company's financial health, firm size variable should have a positive influence, because the scale of business and the greater tend to be more efficient so that the production costs per unit can get cheaper. It also occurs in SOEs, but the pricing is controlled by the government in order to be affordable to the community. The detriment owned enterprises state face difficulty to recover the investment and are not able to make payments in maturing debt.

### 3.7. The result of H5

Firm size variable as moderator variable or interaction with the independent variables showed the strength or weakness of the effect on the relationship between independent variables and financial health. Model 2 as shown in Table 3, namely the interaction between firm size and profitability with a coefficient of  $-0.156$  and sig.  $0.386$  means the firm size weakens the relationship between profitability and financial health, especially because of the greater scale of the business. Therefore, the increase in profitability would decrease the financial health, because it requires funding to strengthen the company's liquidity. However, the interaction variable profitability with firm size did not significantly have influence on the financial health. Moderator variables or interactions between firm size and earnings management show coefficient  $-2.625$  and sig.  $0.229$ , meaning the firm size weakens the relationship between earnings management and financial health, especially because of the greater scale of the business and then the weight gain from earnings management or residual accruals. It further reduces the financial health of the company, as earnings management only focuses on achieving profitability, while financial health using some financial indicators represents the overall financial condition, although variable earnings management interaction with firm size is not significantly influencing financial health. Moderator variables or interactions between firm size and subsidy show coefficient  $2.761$  and sig.  $0.036^*$ , which means the firm size is strengthening a significant relationship between subsidy and financial health, especially because of the greater scale of the business. Therefore, the increase in subsidy will raise the level of financial health of the company, because the subsidy will increase the liquidity and the amount received as

government assistance dependent on the size of business scale, or best firm size, and the greater the amount of government aid granted to the company.

#### 4. Discussion

The results of the statistical calculation as expressed of the correlation matrix  $F$ -statistic,  $t$ -statistic, adjusted  $R^2$  and the regression coefficients showed that it had found some important things to be stated in general and specifically in the following way. From the correlation matrix, it shows that the independent variables are strongly correlated to financial health, which is a variable subsidy with a correlation coefficient of  $-0.829^{**}$  and firm size with a correlation coefficient of  $-0.792$ , while having earnings management on the middle level with a correlation coefficient of  $0.469^*$  which means that it needs the third variable to be considered as the main variable that can affect the financial health of SOEs. Simultaneous test of relationships between independent variables was significant in the financial health model 2 with  $F$ -statistic = 14.487 and Prob.  $F$ -statistic = 0.000, while the significance of the partial correlation between independent variables and financial health of the  $t$ -statistic in model 2 is the variable subsidy and firm size, and the variables have significant interaction effect of subsidy and firm size to financial health. Meanwhile, other variables did not significantly affect the financial health of the SOEs. As a result, these findings suggest that management of SOEs should pay attention to variable in accordance with the priority level of significance and direction of the effect of negative and positive effects of each of these variables on financial health. The ability of the model is to explain the phenomenon under study as adjusted  $R^2 = 0.818$ , which indicates that the linear regression model used in this study was able to explain the phenomenon in the range of 81.8% and the remaining 18.2% is explained by other factors outside of the study.

The regression coefficient which signifies the magnitude of the influence of the independent variables, the level of significance of influence and the tendency toward positive or negative effect, namely the variable subsidy and firm size, negatively and significantly impact on the financial health. This means that these two variables need to be addressed specifically by the management and main stakeholders of the company, if it wants an increase in the financial health of SOEs. Variable interaction between the subsidy and firm size showed significant and positive effect, which means that the moderator variable strengthens the relationship between firm size subsidy and firm size, so that the larger the business scale of state-controlled enterprises, the greater the amount of aid to financial subsidy health of the company.

#### 5. Conclusions

This study found several important issues related to the financial health and the variables which influence the conclusions as follows: (a) the variable profitability is negatively affected and has no significance or did not support the hypothesis of this study. This means that the profitability recorded in financing does not reflect the reality that reflects the finances of the actual health. Therefore, any amount of profitability reported no financial impact on health. (b) The practice of accrual-based earnings management showed no significant positive effect on financial health or does not support the hypothesis of this study. (c) Subsidy significantly and negatively has effect on the financial health or supporting the hypothesis proposed in this study. This means that to be more and more subsidizing, the financial health will continue to decrease, whereas if the subsidy gradually abolished and given management independently, then the company can improve its financial health as a state-owned company that has gone public. (d) Firm size negatively affects and has no significant effect on the financial health or not consistent with the hypothesis of this study. This means that the size of the company is rather a factor determining the success of management in improving financial health. Therefore, companies in various business scale are not the determinant of success in achieving optimum financial health. (e) The variable interaction between firm size and independent variables showed that firm size is only strengthening the link between subsidies of financial health, while the independent variable profitability and earnings management is not influencing the relation of financial health. This is mainly due to two independent variables that do not significantly have influence on financial health. (f) In a sensitivity analysis, using the two measures of financial health of dependent

variables, namely measurement-based approach of Althman (1994 and 1993), the result is consistent and relevant that is based on the empirical facts of SOEs.

## 6. Limitation and suggestions

The limitation of this study is only the use of secondary data from the financial statements of SOEs that are published every year. Future research is advised using primary data simultaneously combined with secondary data, thus completing the study. Although this study uses secondary data, it is able to give an indication of the relationship between the variables related to the financial health of the company. It is recommended that the company's management attention to changes is the independent variable as inputs in strategic decision-making and the process of preparation of the business plan of the company.

## 7. Findings, implications and value/originality

### 7.1. Findings

This study found that subsidies significantly and negatively affect financial health, which means that the more subsidy is received from the government, the lower the degree of financial health of the company, because of the lack of challenge faced by the management. This is the reason of the losses suffered by the company, which is not due to the performance management but because of the government interference in pricing. Therefore, it is difficult to obtain a decent level of health. The present study also found a negative and significant impact on the level of firm size variable health of the company, which means that the larger the firm size, the lower the financial health. This happens because large companies tend to run larger service program, resulting in a deficit cash flow and profitability is difficult to obtain in a decent level.

### 7.2. Implications

Based on these findings, the policy implication of shareholders that restricts subsidies against management as well as a strictly set target of management challenges must be fought to achieve an optimal level of corporate health. In relation to firm size, the implementation of the policy is to provide support for the use of resources and greater authority according to the firm size, so that they can operate at optimum efficiency levels and obtain the best financial health.

### 7.3. Value/Originality

Research value gave the contribution to the financial restructuring of SOEs, so as to help ease the burden of government in funding subsidies. The value of this study also happens in terms of giving feedback to the company management to improve the company's financial health. Again, the value obtained in this study also occurs in a solution to promote independence of the company, so as to disengage gradually from dependency on subsidy funding. The originality of this study was primarily to make efforts and improve the financial health of companies and help the government in suppressing the amount of subsidies and improve service to consumers.

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