“Government subsidy, strategic profitability and its impact on financial performance: empirical evidence from Indonesia”

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GOVERNMENT SUBSIDY, STRATEGIC PROFITABILITY AND ITS IMPACT ON FINANCIAL PERFORMANCE: EMPIRICAL EVIDENCE FROM INDONESIA

Abstract

This paper examines the moderating impact of capital structure on the relationship between government subsidy, strategic profitability and financial strength of state-owned enterprises in Indonesia. A purposive sampling is used and data were collected from seven state-owned enterprises over the period of 2005 to 2016. The empirical evidence provided by this paper indicates that government subsidy has a significant negative impact on the financial strength, which means that the state-owned enterprises are difficult to manage the company independently if the government continues to provide subsidies or additional capital. This study also found that strategic profitability has a significant positive impact on the financial strength, which means there are opportunities for management to perform profitability practice of earnings management as strategic to enhance the level of financial strength of the company. However, capital structure is strengthening the relations of 'government subsidy' and 'real earnings management' with the financial strength. So far, it is still little known how 'capital structure' affects the relationship between government subsidy and financial strength, specifically in the case of state-owned enterprises.

Keywords financial strength, strategic profitability, financial indicators, capital structure, government subsidy

JEL Classification G, G3, G320

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INTRODUCTION

Government subsidy policies are commonly used around the world. However, these subsidy programs are used to target particular demographics or industrial sectors (e.g., subsidies for low-income housing, state owned enterprises, farmers, academic students or small-scale business). Indonesia had subsidy policy for state-owned enterprises in response to the global economic crisis. This policy stands out as unique, because it was applied on very large scale across a broad cross-section of economic sectors. Indonesian government subsidy scheme has unique attributes and has attracted controversy from both local analysts and policy-makers. Government subsidy in 2016 amounted to IDR Rp 201 billion to help state-owned enterprises. Thus, further assuring that the state company depends entirely on government funding, and even threatened with bankruptcy if they do not get help from government funding because negative profitability gap is quite wide. On the other hand, the researchers argued that the subsidies were necessary to stop the sharp decline in drivers of aggregate demand, i.e., gross exports and domestic investment (Tran, H. N., 2008; Tran, X. G., 2008; Cao, 2009). In addition, some researchers argued

that economic contraction was due to economic policies that created excess investment through cheap credit terms and conditions. In these circumstances, a large-scale subsidy policy would generate high inflation and increase the trade deficits (Vu, 2008; Vu, Nguyen et al., 2009; Dinh, 2009). Until now, only a few studies have investigated the government subsidy and its impact on the financial strength of state-owned enterprises. Previously, the authors primarily harnessed descriptive methods to investigate the impact of the government subsidy program. To date, there is no robust quantitative evidence on the true impact of government subsidy on business activity and overall economic performance of state-owned enterprises.

The principal issues are raised in this study such as: (a) How does the government subsidy affect the financial strength of the state-owned enterprises? (b) How does the strategic profitability affect the financial strength of state-owned enterprises? (c) How does the capital structure affect the financial strength state-owned enterprises of Indonesia (d) Does capital structure strengthen the relationship between the government subsidy and financial strength of the state-owned enterprises? Moreover, (e) Does capital structure strengthen the relationship between the strategic profitability and the financial strength of state-owned enterprises? The outcome of this study provides an overview what the factors affecting the financial strength of state-owned enterprises are, so it is helpful for management and shareholders in decisions regarding government subsidy, strategic profitability, and capital structure.

The paper is organized as follows. Next section presents the brief literature review of the study and the design of hypotheses used in this study. Section 2 describes the research methods and research models used to investigate these phenomena. Section 3 presents the results and discussion of findings. Section 4 presents the limitation and future research. Final section offers some concluding remarks and policy implications.

1. LITERATURE REVIEW AND RESEARCH HYPOTHESES DEVELOPMENT

This research aims to investigate and analyze the phenomena that occur in state-owned enterprises still expecting assistance from government funding in the form of subsidies or in the form of equity participation. At a large scale, state-owned enterprises should operate efficiently and have a significant market share to meet their needs by managing to fund for operation and investment. The company has a cost structure which is only efficient if firms are managed optimally and resources are used on a rational basis such as human resources in sufficient quantity and quality, if firms have the technology to produce the product or service as expected by consumers, are able to set prices on the economic level and get their return on investment and to develop business on a larger scale and at the global level. However, the state-owned enterprises are facing a threat due to the low level of financial strength, even threatened with bankruptcy if not assisted by government funding. This study examined the important factors affecting the financial strength of state-owned companies, as well as analyzing and informing about the role of these factors. Hence, it can serve as the basis for making decisions to improve the financial strength ratings of the company. One of the factors that hinder the financial performance of state-owned enterprises was negative profitability gap. Moreover, two proxy variables, "real earnings management activities" and "accruals earnings management", are used. Another important factor, 'capital structure', is analyzed using the debt to equity ratio, but it functions as a moderating variable (Hassan & Marimuthu, 2016c). It was measured whether the capital structure strengthens or weakens the relationship between the dependent and independent variables. Haron et al. (2009) and Hadlock and Sonti (2010) used Altman (1983, 1984) with the consideration of five financial ratios and three criteria for the assessment underlying that can describe the level of financial strength of the company. Based on this consideration, we employed Altman approach in 1984 to determine the financial strength of state-owned enterprises, while the sensitivity analysis was used

to reflect consistency and compare the calculation results for conformity with empirical facts.

1.1. Agency theory

According to Jensen and Meckling (1976), agency theory stated that there is agency relationship between the principal owner of the firm and manager as an agent to perform operations. The principal of the company allows the agent of the company to take the best decision to enhance the firm performance. This study investigated management efforts to improve the financial strength of the company and to analyze the factors that influence the strategic steps to obtain optimal results, to meet the targets set by the principal, state-owned enterprises state-owned enterprises or the government as stockholder. On the other hand, management actions that decrease the level of financial strength of the company lead to agency problem.

1.2. Financial strength

Financial strength as the dependent variable was measured with Altman approach, as Haron et al. (2009) argued that the five financial ratios can declare the financial strength such as strong category or not bankrupt, medium or gray area, and weak or insolvent. The financial statement presented by the company periodically describes a written information that quantifies the financial strength of the company. Hence, we can know the condition and level of the company in the category of strong, medium and weak. In order to analyze the factors that influence financial strength, this study used several independent variables associated with financial statement items that affect financial strength. Empirical evidence showed that the number of state-owned debt increases significantly from time to time, which exceeds the ability of the company's liquidity to pay off the mortgage debt and the interest on the loan to be paid so that short-term solutions do include a search for a new loan to pay off maturing debt (Hassan et al., 2015b). Inability to pay off the debt repayment and interest shows that the use of loan funds does not help to generate returns for return on investment, and this means that the investment made by the company is less feasible. This is what motivates to conduct this research, and choose capital structure as a moderating variable whether it is strengthening the influence of the independent variable and strategic profitability and government subsidy on the financial strength of state-owned enterprises.

1.3. Government subsidy

According to Dinar and Yaron (1992) and Schreiner (1997), subsidies are meant to support an impact on the development of the company through research and development that help to create innovation and enhance company sales. The subsidies by the government will encourage economic growth through state-owned enterprises as drivers of growth in the industry, business and other sectors. They provide the social and economic benefit within a society such as education, health, and welfare of the community as a whole. The subsidy has an impact on economic growth, as electricity prices are lower, fuel prices are much cheaper, rail freight rates are affordable. Prices treated by state-owned enterprises are lower than the cost of goods sold and cause losses, so the government should set up some funds in the form of subsidies or additional capital. In addition, González (2005) suggested that the negative profitability gap is fundamental to give subsidies, and if the subsidy is given to the company, it will encourage the development of innovation and progress. However, if it is not given, then the company will bear the loss because of costs greater than the reception. Based on the discussion, the following hypothesis was developed:

H1: *Government subsidy has a significant positive impact on the financial strength of state-owned enterprises.*

1.4. Strategic profitability

According to Glueck and Jauch (1999) and Aulia and Ikhwana (2012), current strategic management decisions and actions that lead to the effective development help in achieving company's goals. Companies need to determine alternative targets that enhance and attain maximum profitability. As a result, managers should focus on enterprise resource utilization to optimize the achievement of these goals. Earnings management is often used for income smoothing, an initial public offering, the interests of management and

employee bonuses. It complies with the covenants bank lending, the face of the election of new management, etc. The strategies to achieve the profitability targets use the real approach of earnings management activities' and 'accruals earnings management'. In accordance wiht Scott (2012) and Taco and Ilat (2016) studies, earnings management practice is to select the appropriate policies and existing accounting standards to maximize the market value of the company. However, Roychowdhury (2006) points out that real activities earnings management practice is done through increased sales, reduced discretionary cost and increased production, but the practice of earnings management is only true in the short term and can be detected through the financial statements, i.e., increased amount of inventory, increased receivables ratio, and minimum operating cash flow. Moreover, Dechow, Sloan, Sweeney (1995) stated that accruals earnings management is done through non-discretionary accruals and discretionary accruals or NDA and DA. Based on the discussion, the following hypotheses were developed:

H2: *Strategic profitability with real proxy earnings management activities has a significant positive impact on the financial strength of state-owned enterprises.*

H3: *Strategic profitability with accruals earnings management proxy has a significant positive impact on the financial strength of state-owned enterprises.*

1.5. Capital structure

Research by Abor (2005) suggested that the capital structure can be measured by total debt to capital ratio and that there is a significant negative effect on the profitability of the companies listed in Ghana. This shows that use of debt decreases the level of profitability (Hassan et al., 2015c; Hassan et al., 2016d; Hassan et al., 2017e). Hence, the choice of funding is through equity capital or selling shares in the stock market. The capital structure had an influence on the profitability of state-owned enterprises and predicted a positive impact on financial strength. It was found that the cost of capital is lower than the debt using the cost of equity (Hassan & Marimuthu, 2016c). This is mainly due to a more favorable investment return rate that exceeds the interest rate on the debt. Subsequently, the use of debt will increase the dividend that exceeds acquisition cost of debt capital which further increases the level of financial strength of the company (Hassan et al., 2017e). Based on the discussion, the following hypothesis was developed:

H4: *Capital structure has a significant positive impact on the financial strength of state-owned enterprises.*

1.6. Moderating variable (interaction variable)

According to Baron and Kenny (1986), there are some moderating variables that affect the relationship between the dependent and independent variables. The moderator variables are selected on the basis of theoretical considerations. In moderation analysis, interaction variable strengthens or weakens the relationship between the dependent and independent variables (Hassan & Marimuthu, 2016c). Based on the discussion, the following hypotheses were developed:

H5a: *Capital structure moderates the relationship between government subsidy and financial strength of state-owned enterprises.*

H5b: *Capital structure moderates the relationship between strategic profitability with real proxy earnings management activities and financial strength of state-owned enterprises.*

H5c: *Capital structure moderates the relationship between strategic profitability with accruals earnings management proxy and financial strength of state-owned enterprises.*

2. METHODS

2.1. Sample and data

This study used purposive sampling to select a sample. The data are collected from seven state-owned enterprises that have a large-scale business and reach out broadly to the economic aspects of community social life, even affect national economic growth, and are capable of representing the

other state-owned enterprises in the assessment of financial strength. To investigate this empirical study, the data were collected from the annual company reports over the period of 2005 to 2016 (12 years), but the data processed in the regression analysis were only 11 years old because of the variables measured based on those changes in between time.

2.2. Variables and measurement

The operationalization of dependent, independent, moderating and control variables is stated as follows. The various constructs were operationalized in the context of government subsidy and financial strength. This was a parametric study and used a ratio scale. All of the variables and their measurements are shown in Table 1.

Table 1. Operationalization of variables

Variable	Acronym	Measurement	Reference
Dependent variable			
1. Financial strength	FiStg	$Zi = 0.717 \cdot X1 + 0.847 \cdot X2 + 3.107 \cdot X3 + +0.420 \cdot X4 + 0.998 \cdot X5,$ where $X1$ (asset-current – current liabilities) / total assets, $X2$ – retained earnings / total assets, $X3$ – earnings before interest and taxes / total assets, $X4$ – market value of common stock and preferred shares / book value of total debt, $X5$ – sales / total assets, and Zi – Z-score	Altman Z-score model (1984)
Independent variables			
2. Government subsidy	GvSub	$GvSub = \frac{Budget\ Revenue - Expenditure\ Value}{Budget\ Revenue}$ *Subsidy dependence index $SDI = \frac{Subsidy}{Revenue}$ *Subsidy equation: $S = r.E + D \cdot (m - c) + K - AP,$ where S – subsidy received, r – opportunity cost, E – average equity, D – average soft debt, m – the opportunity cost of soft debt for the market, c – rate paid for soft EBT, K – the sum of revenue and discounts, AP – accounting profit. * $NPG = Revenue - Cost$	Doug Koplow (2009) in Assagaf (2016), Dinar and Yaron (1992), Schreiner (1997), González (2005)
3. Strategic profitability [real earnings management]	PsREM	$AREAL = ACFO + APROD + ADEXP,$ where AREA – abnormal sum of operating cash flow, production costs and expenses discretionary expense; ACFO – residuals of the regression equation or function of the operating cash flow or CFO; APROD – residuals of the regression equation or function or PROD production costs; ADEXP – residuals of the regression equation or function of load discretionary expense (DEXP). $\frac{CFO_t}{A_{t-1}} = \alpha_0 + \alpha_1 \cdot \left(\frac{1}{A_{t-1}}\right) + \beta_1 \cdot \left(\frac{S_t}{A_{t-1}}\right) + \beta_2 \cdot \left(\frac{\Delta S_t}{A_{t-1}}\right) + e_t;$ $\frac{CFO_t}{A_{t-1}} = \alpha_0 + \alpha_1 \cdot \left(\frac{1}{A_{t-1}}\right) + \beta_1 \cdot \left(\frac{S_t}{A_{t-1}}\right) + \beta_2 \cdot \left(\frac{\Delta S_t}{A_{t-1}}\right) + e_t;$ $\frac{PROD_t}{A_{t-1}} = \alpha_0 + \alpha_1 \cdot \left(\frac{1}{A_{t-1}}\right) + \beta_1 \cdot \left(\frac{S_t}{A_{t-1}}\right) + \beta_2 \cdot \left(\frac{\Delta S_t}{A_{t-1}}\right) + \beta_3 \cdot \left(\frac{\Delta S_{t-1}}{A_{t-1}}\right) + e_t,$ $\frac{DEXP_t}{A_{t-1}} = \alpha_0 + \alpha_1 \cdot \left(\frac{1}{A_{t-1}}\right) + \beta \cdot \left(\frac{S_{t-1}}{A_{t-1}}\right) + e_t,$ where A – total assets; S – total sales; e – error	Roychowdhury, S. (2006) in Assagaf (2015, 2016)

4. Strategic profitability [accruals earnings management]	PsAEM	$\frac{ACC_{it}}{TA_{t-1}} = \alpha_0 + \alpha_1 \cdot \frac{\Delta REV_t - \Delta REC_{it}}{TA_{t-1}} + \alpha_2 \cdot \frac{PPE_{it}}{TA_{t-1}} + \alpha_3 \cdot \frac{CFO_{it}}{TA_{t-1}} + e_{it}$, where ACC – total accruals or accruals, TA – total assets, REV – total revenue, REC – total receivable, PPE – property, plant, and equipment, e – error	Dechow model (1995) adopted as in Assagaf (2015, 2016)
Moderator			
5. Capital structure or leverage	LEV	$Leverage = \frac{Total\ Debt}{Total\ Equity}$	Pratheepkanth (2011), Hassan et al. (2015a), Hassan et al. (2015b), Hassan et al. (2015c), Hassan et al. (2016d), Hassan et al. (2017e)
Control variables			
6. Firm Size	SIZE	The logarithm of the total assets recorded in the financial statement of the company. $SIZE = Log(Total\ Assets)$	Capon, Farley, Hoenig (1990) in Assagaf (2014, 2015, 2016), Khan et al. (2017)
7. Capital Expenditure	CAPEX	To measure the capital expenditure by fixed assets made the difference between the observation period with fixed assets of the previous period, divided by fixed asset prior period. $Capital\ Expenditure = \frac{Fixed\ Asset\ (t) - Fixed\ Assets\ (t-1)}{Fixed\ Assets\ (t-1)}$	Asquith, Gertner, Scharfstein (2002) in Assagaf (2014, 2015, 2016)
8. Profitability Growth	PrGwt	Profitability growth is calculated based on the difference between the net income of the observation period minus prior period net income, divided by net income of the previous period. $Profitability\ Growth = \frac{Net\ Income\ (t) - Net\ Income\ (t-1)}{Net\ Income\ (t-1)}$	Bercovitz, Mitchell (2007) in Assagaf (2014, 2015, 2016), Hassan and Marimuthu (2014a), Hassan and Marimuthu (2015b), Hassan and Marimuthu (2016c)

2.3. Research models

Below are the modeling equations to testify these phenomena.

2.3.1. Model for H1, H2, H3 and H4

Model 1:

$$FiStg_{it} = \beta_0 + \beta_1 \cdot GvSub_{it} + \beta_2 \cdot PsREM_{it} + \\ + \beta_3 \cdot PsAEM_{it} + \beta_4 \cdot LEV_{it} + \beta_5 \cdot SIZE_{cvit} + \\ + \beta_6 \cdot CAPEX_{cvit} + \beta_7 \cdot PrGwt_{cvit} + e_{it}. \quad (1)$$

2.3.2. Model for H5a, H5b and H5c

Model 2:

$$FiStg_{it} = \beta_0 + \beta_1 \cdot GvSub_{it} + \beta_2 \cdot PsREM_{it} + \\ + \beta_3 \cdot PsAEM_{it} + \beta_4 \cdot LEV_{it} + \beta_5 \cdot SIZE_{cvit} + \\ + \beta_6 \cdot CAPEX_{cvit} + \beta_7 \cdot PrGwt_{cvit} + \\ + \beta_8 \cdot GvSub_{it} \cdot LEV_{it} + \beta_9 \cdot PsREM_{it} \cdot LEV_{it} + \\ + \beta_{10} \cdot PsAEM_{it} \cdot LEV_{it} + e_{it}. \quad (2)$$

2.3.3. Sensitivity analysis model for H1, H2, H3 and H4

Model 3:

$$FiStg_Sens_{it} = \beta_0 + \beta_1 \cdot GvSub_{it} + \\ + \beta_2 \cdot PsREM_{it} + \beta_3 \cdot PsAEM_{it} + \beta_4 \cdot LEV_{it} + \\ + \beta_5 \cdot SIZE_{cvit} + \beta_6 \cdot CAPEX_{cvit} + \beta_7 \cdot PrGwt_{cvit} + \\ + e_{it}. \quad (3)$$

2.3.4. Sensitivity analysis model for H5a, H5b and H5c

Model 4:

$$FiStg_Sens_{it} = \beta_0 + \beta_1 \cdot GvSub_{it} + \\ + \beta_2 \cdot PsREM_{it} + \beta_3 \cdot PsAEM_{it} + \\ + \beta_4 \cdot LEV_{it} + \beta_5 \cdot SIZE_{cvit} + \\ + \beta_6 \cdot CAPEX_{cvit} + \beta_7 \cdot PrGwt_{cvit} + \\ + \beta_8 \cdot (GvSub_{it} \cdot LEV_{it}) + \beta_9 \cdot (PsREM_{it} \cdot LEV_{it}) + \\ + \beta_{10} \cdot (PsAEM_{it} \cdot LEV_{it}) + e_{it}, \quad (4)$$

where $FiStg_{it}$ – financial strength (Altman, 1984), $FiStg_Sens_{it}$ – financial strength (Altman, 1983) for sensitivity analysis, $GvSub_{it}$ – government subsidy, $PsREM_{it}$ – strategic profitability with proxy as real activities earning management, $PsAEM_{it}$ – strategic profitability with proxy as accruals earning management, LEV_{it} – leverage or debt to equity capital structure, $SIZE_{it}$ – company size, $Capex_{it}$ – capital expenditure, $PrGwt_{it}$ – growth of profitability, $GvSub_{it} \cdot LEV_{it}$ – interaction between $GvSub_{it}$ and LEV_{it}, $PsREM_{it} \cdot LEV_{it}$ – interaction between $PsREM_{it}$ and LEV_{it}, $PsAEM_{it} \cdot LEV_{it}$ – interaction between $PsAEM_{it}$ and LEV_{it}, β_0 – constant, $\beta_1 ... \beta_{10}$ – coefficients, e_{it} – error.

3. EMPIRICAL RESULTS

3.1. Descriptive statistics

Table 2 reports the descriptive statistics which includes statistics such as minimum and maximum percentage, the mean and standard deviation. The results offer some important insights that parametric data of dependent and independent variables indicate the following: the dependent variable of financial strength (FiStg) has a range between a minimum of 0.399 with a maximum value of 2.764 and the mean is 1.527, and the standard deviation is 0.722. The independent variable government subsidy (GvSub) shows 0.158 standard deviation from the mean value of 0.108, which means this variable data variation is quite high against the range between 0.000 to 0.509.

3.2. Correlation matrix

Pearson's correlation analyses were performed and reported in Table 3. The correlation matrix shows that there was a statistically significant correlation between the variables. The dependent variable 'financial strength' (FiStg) was negatively correlated (–0.829) with 'government subsidy' (GvSub) at a significance level 0.01, which means both variables have a degree of strong and significant relationship. However, strategic profitability 'accruals earnings management' proxy (PsAEM) was also positively correlated (0.469) with financial strength at a significance level 0.05. The variables with values closer to 1 are strongly correlated.

Table 2. Descriptive statistics

Variable name	Abbreviation	Min	Max	Mean	S.D
Financial strength	FiStg	0.399	2.764	1.527	0.722
Government subsidy	GvSub	0.000	0.509	0.108	0.158
Strategic profitability [real earning management]	PsREM	–0.186	0.519	0.000	0.172
Strategic profitability [accruals earning management]	PsAEM	–0.689	0.108	–0.117	0.175
Leverage	LEV	0.403	41.258	2.648	7.599
Company size	SIZE	3.532	6.089	4.445	0.656
Capital expenditure	CAPEX	–0.878	1.528	0.293	0.414
Profitability growth	PrGwt	–5.011	32.214	0.909	6.263

Note: N = 328, n = 28, T = 12.

Table 3. Correlations matrix (Pearson)

Variable	FiStg	GvSub	PsREM	PsAEM	LEV	SIZE	CAPEX	PrGwt
FiStg	1							
GvSub	–0.829**	1						
PsREM	0.294	0.417*	1					
PsAEM	0.469*	–0.440*	–0.653**	1				
LEV	0.157*	–0.073	–0.075	0.123	1			
SIZE	–0.792**	0.0798**	0.360	–0.306	–0.027	1		
CAPEX	0.073	–0.201	–0.284	–0.220	–0.036	0.114	1	
PrGwt	–0.031	–0.215	–0.022	–0.047	–0.001	–0.076	–0.40	1

Note: Correlation is significant at (* $p < 0.05$. ** $p < 0.01$).

3.3. Regression analysis

The research attempted to explain the moderating impact of capital structure on the relationship between government subsidy and financial strength of state-owned enterprises in Indonesia. In this context, we developed four (4) different models to analyze this issue. Table 4 presents the results of the linear regression analyses for state-owned enterprises. **Model 1** tested the impact of the independent variables on the dependent variable (FiStg). Firstly, we looked at **(H1)** the impact of government subsidy (GvSub) on financial strength (FiStgi) $(\beta = -2.444,\ p < 0.05)$ was negatively significant. It means of increasing one-unit Beta (β) government subsidy will decrease the level of financial strength 2.444 units. Thus, **(H1)** was not supported. Secondly, **(H2)** the impact of strategic profitability with the proxy as real earning management activities (PsREMit) on financial strength (FiStgi) $(\beta = 1.062,\ p < 0.10)$ was positively significant. It means increasing one-unit Beta (β) 'profitability strategic with the proxy as real earning management activities' will increase the level of financial strength of 1.062 units. Thus, **(H2)** was supported. Thirdly, **(H3)** the impact of strategic profitability with accruals earnings management proxy (PsAEM) on financial strength (FiStgi) $(\beta = 1.054,\ p < 0.10)$ was positively significant. It means increasing one-unit Beta (β) 'strategic profitability with accruals earnings management proxy' will increase the level of financial strength of 1.054 units. Thus, **(H3)** was supported. Fourthly, **(H4)** the impact of capital structure or leverage (LEV) on financial strength (FiStgi) $(\beta = 0.009,\ p > 0.10)$ was insignificant. It means increasing one-unit Beta (β) 'capital structure or leverage' will not affect the level of financial strength. Thus, **(H4)** was not supported. Next, we looked at **Model 2** (moderation effect analysis); when capital structure or leverage (LEV) moderated among all constructs, **($H5_a$)** government subsidy (GvSub) is moderated by capital structure or leverage (LEV) to financial strength $(\beta = 2.108,\ p < 0.10)$ and was positively significant. It means a capital structure as a moderating variable strengthens the relationship between government subsidy and the financial strength of state-owned enterprises. Thus, **($H5_a$)** was supported. Strategic profitability with real earnings management activities (PsREM) **($H5_b$)** is moderated by capital structure or leverage (LEV) to financial strength $(\beta = -2.781,\ p < 0.05)$ and was negatively significant. It means a capital structure as a moderating variable strengthens the relationship between strategic profitability with real earnings management activities to the financial strength of state-owned enterprises. Thus, **($H5_b$)** was supported. Lastly, **($H5_c$)** strategic profitability as accruals earnings management proxy (PsAEM) **($H5_c$)** is moderated by capital structure or leverage (LEV) to financial strength $(\beta = -4.478,\ p > 0.10)$ was insignificant. It means a capital structure as a moderating variable does not strengthen the relationship between strategic profitability as accruals earnings management proxy and the financial strength of state-owned enterprises. Thus, **($H5_c$)** was not supported.

However, the control variable (Firm Size) has a negative significant impact on financial strength $(\beta = -0.431,\ p < 0.05)$. Thus, it could be concluded that the firm size had a negative relationship with financial strength. In the model, the results showed that the coefficient of determination (R-square) value of the model was 75.7 per cent. This indicated that 75.7 percent change in the level of financial strength is explained by government subsidy and strategic profitability variables.

3.4. Sensitivity analysis

To test the consistency of the regression results, this study employed two dependent variables: financial strength (FiStg) with Altman approach (1984) for mathematical model 1 and model 2 and the sensitivity of financial strength with Altman approach (1983) (FiStg_Sens) for model 3 and model 4. Table 4 shows that there is consistency of results among all target constructs in model 1 and model 3. In addition, it can be observed that there is perfect consistency in results of model 2 and model 4. Hence, we can conclude from a sensitivity analysis that there are relevance and consistency between the approaches used by Altman in 1983 and 1984.

Model 1:

$$FiStg_{it} = \beta_0 + \beta_1 \cdot GvSub_{it} + \beta_2 \cdot PsREM_{it} + \\ + \beta_3 \cdot PsAEM_{it} + \beta_4 \cdot LEV_{cvit} + \beta_5 \cdot SIZE_{it} + \\ + \beta_6 \cdot CAPEX_{cvit} + \beta_7 \cdot PrGwt_{cvit} + e_{it}.$$

Model 2:

$$FiStg_{it} = \beta_0 + \beta_1 \cdot GvSub_{it} + \beta_2 \cdot PsREM_{it} + \\ + \beta_3 \cdot PsAEM_{it} + \beta_4 \cdot LEV_{it} + \beta_5 \cdot SIZE_{cvit} + \\ + \beta_6 \cdot CAPEX_{cvit} + \beta_7 \cdot PrGwt_{cvit} + \\ + \beta_8 \cdot (GvSub_{it} \cdot LEV_{it}) + \\ + \beta_9 \cdot (PsREM_{it} \cdot LEV_{it}) + \\ + \beta_{10}(PsAEM_{it} \cdot LEV_{it}) + e_{it}.$$

Model 3:

$$FiStg_Sens_{it} = \beta_0 + \beta_1 \cdot GvSub_{it} + \beta_2 \cdot PsREM_{it} + \\ + \beta_3 \cdot PsAEM_{it} + \beta_4 \cdot LEV_{it} + \beta_5 \cdot SIZE_{cvit} + \\ + \beta_6 \cdot CAPEX_{cvit} + \beta_7 \cdot PrGwt_{cvit} + e_{it}.$$

Model 4:

$$FiStg_Sens_{it} = \beta_0 + \beta_1 \cdot GvSub_{it} + \beta_2 \cdot PsREM_{it} + \\ + \beta_3 \cdot PsAEM_{it} + \beta_4 \cdot LEV_{it} + \beta_5 \cdot SIZE_{cvit} + \\ + \beta_6 \cdot CAPEX_{cvit} + \beta_7 \cdot PrGwt_{cvit} + \\ + \beta_8 \cdot (GvSub_{it} \cdot LEV_{it}) + \beta_9 \cdot (PsREM_{it} \cdot LEV_{it}) + \\ + \beta_{10} \cdot (PsAEM_{it} \cdot LEV_{it}) + e_{it}.$$

Table 4. Results of regression analysis (hypotheses testing)

Variable	Predict	Model 1: $FiStg_{it}$		Model 2: $FiStg_{it}$		Model 3: $FiStg_{it}_Sens_{it}$		Model 4: $FiStg_{it}_Sens_{it}$	
		Coeff.	Sig.	Coeff.	Sig.	Coeff.	Sig.	Coeff.	Sig.
Constant		3.809	0.000***	3.017	0.003***	4.828	0.000***	3.702	0.002***
GvSub	–	–2.444	0.015**	–6.948	0.020**	–2.340	0.045**	–8.563	0.012**
PsREM	+	1.062	0.072*	5.096	0.017**	1.123	0.108	6.746	0.006***
PsAEM	+	1.054	0.068*	1.613	0.046**	1.434	0.040**	2.417	0.011**
LEV	+	0.009	0.333	–0.285	0.049**	0.017	0.144	–0.380	0.023**
SIZE	+	–0.431	0.051**	–0.148	0.535	–0.575	0.031**	–0.178	0.510
CAPEX	+	0.039	0.851	0.219	0.381	0.043	0.860	0.326	0.253
PrGwt	+	–0.019	0.114	–0.003	0.796	–0.029	0.052**	–0.007	0.628
GvSub_LEV				2.108	0.055*			2.703	0.032**
PsREM_LEV				–2.781	0.043**			–3.755	0.018**
PsAEM_LEV				–4.478	0.420			–7.948	0.212
Adj-R2		0.757		0.783		0.751		0.801	
F-Statistic		13.010		10.672		12.638		11.879	
Prob F-Statistic		0.000		0.000		0.000		0.000	
Durbin-Watson		0.849		1.050		0.916		1.314	
Total Observ		28		28		28		28	

Notes: *significant at the 0.10 level ($p < 0.10$); **significant at the 0.05 level ($p < 0.05$); ***significant at the 0.01 level ($p < 0.01$).

Here $FiStg_{it}$ – financial strength (Althman, 1984), $FiStg_{it}_Sens_{it}$ – financial strength (Althman, 1983) for sensitivity analysis, $GvSub_{it}$ – government subsidy, $PsREM_{it}$ – strategic profitability with proxy real earning management, $PsAEM_{it}$ – strategic profitability with proxy accruals earning management, LEV_{it} – leverage or debt to equity capital structure, $SIZE_{it}$ – company size, $CAPEX$ – capital expenditure, $PrGwt_{it}$ – profitability growth, $(GvSub_{it} \cdot LEV_{it})$ – interaction between $GvSub_{it}$ and LEV_{it}, $(PsREM_{it} \cdot LEV_{it})$ – interaction between $PsREM_{it}$ and LEV_{it}, $(PsAEM_{it} \cdot LEV_{it})$ – interaction between $PsAEM_{it}$ and LEV_{it}.

3.5. Summary of results

Table 5 summarizes the results of the hypotheses testing. Overall, the results support the proposed research model. The results based on regression indicated that two variables, namely (PsREM) and (PsAEM), were associated with the financial strength. Both variables were the most significant variables that impact the financial strength of state-owned enterprises. In addition, government subsidy (GvSub) and (PsREM) are moderated by capital structure.

3.6. Discussion of findings

Drawing on the agency theory and its implication for company financial strength, the results suggest that government subsidy is strongly correlated with financial strength. However, government subsidy has a strong negative influence on the financial strength. More precisely, more changes in government subsidy level will have a significant impact on the level of financial strength with a negative direction. Hence, an increase of government subsidy will significantly reduce the level of financial strength. In terms of strategic profitability practices, both accruals and earnings management activities have a significant positive impact on the financial strength of state-owned enterprises. Here we can argue that if top management practice real earnings management activities, it can increase the level of financial strength of state-owned enterprises. In addition, this study illustrates that practice accruals earnings management has also increased the level of financial strength.

As shown in Table 4, capital structure has no significant influence on financial strength. The findings of this study provide information that the use of debt to meet funding needs has no significant effect on the financial strength, which means leverage cannot afford to increase the level of financial strength. It means that variations in the composition of various combinations of funding with loans or equity capital turn out to be the same. The decision of state-owned enterprises to meet the financing needs of investment financed by borrowing or by additional government capital

Table 5. Summary results of the hypotheses testing

	Hypotheses	Pred. Sign	Status
H1	Government subsidy has a significant positive impact on the financial strength of state-owned enterprises	–	Not supported (negative significant)
H2	Strategic profitability with real earnings management activities has a significant positive impact on the financial strength of state-owned enterprises	+	Supported (positive significant)
H3	Strategic profitability with accruals earnings management proxy has a significant positive impact on the financial strength of state-owned enterprises	+	Supported (positive significant)
H4	Capital structure has a significant positive impact on the financial strength of state-owned enterprises	+	Not supported
H5a	Capital structure moderates the relationship between government subsidy and financial strength of state-owned enterprises	–	Supported (positive significant)
H5b	Capital structure moderates the relationship between strategic profitability with real proxy earnings management activities and financial strength of state-owned enterprises	–	Supported (negative significant)
H5c	Capital structure moderates the relationship between strategic profitability with accruals earnings management proxy and financial strength of state-owned enterprises	–	Not supported

had no impact on the financial strength, because the funds are used for investments that only see the economic feasibility or not financial feasibility. Consideration of economic feasibility externality-oriented aspects of social benefit that is greater than the social cost, and tend to ignore the financial feasibility, so it does not affect the financial strength. When using the capital structure as moderated with other independent variables as presented in model 2. When the capital structure interaction with government subsidy has a significant positive impact on financial strength. It means the higher the composition of debt carried for the company's financing and investment operations, the more the use of government subsidy funding reinforces the level of financial strength of state-owned enterprises. When the interaction between capital structure and strategic profitability with earnings management proxy activities (PsREM x LEV) has a significant negative impact on the financial strength, it means capital structure strengthens the relationship between strategic profitability as real earnings management activities and financial strength. However, the interaction between the capital structure and the strategic profitability as accruals earnings management (PsAEM x LEV) has no significant impact, but has a negative relationship with financial strength. Hence, capital structure has not moderated the relationship between strategic profitability as accruals earnings management and financial strength. In addition, a sensitivity analysis was performed, and findings showed that results of model 1 and model 3 are consistent when we employed the dependent variable with two different measurements.

4. LIMITATIONS AND FUTURE RESEARCH DIRECTIONS

Some limitations of this study are addressed here. Firstly, data availability, especially for the use of secondary data published and reports for state-owned enterprises. This study only used the data from seven state enterprises of Indonesia. The variables used in this study were verbalized by different measures as given in the literature and thus might result in inconsistent interpretations. For example, firm size can be measured by total asset, total sales, total market capitalization, etc. The future research could include more variables and use primary data to strengthen the analysis of secondary data. Research using secondary data though has its limitations, but it has been indicated that management or decision-makers have to pay attention to these identified variables, especially the significant effect on the financial strength of state-owned enterprises. In addition, another possible extension could be the investigation of Government subsidy between small-scale and large-scale or high and low-profit firms. In terms of methodology, econometric techniques like GMM, 2SLS, OLS, and GLS, etc. may be adopted to explore this remarkable phenomenon.

CONCLUSION

This study presents the following conclusions: (a) Government subsidy has a significant negative effect on financial strength of the state-owned enterprises of Indonesia. Hence, subsidy policy is a burden for government spending by reducing the cost of other sectors in the local economy. Meanwhile, the government subsidy is not a sound option for the development of state-owned enterprises. Because it builds the management behavior which tends to be less concerned about the level of financial strength, and more relies on the government subsidy to meet the needs of the operational expenditure and investment companies. (b) Strategic profitability with real proxy earnings management activities showed a significant positive effect on the financial strength. Strategic profitability based on real earnings management activities addressed by the company's management increases the level of financial strength. (c) Strategic profitability with accruals earnings management proxy has a significant positive impact on the financial strength. Hence, ensuring the practice of strategic profitability with accruals earnings from the company's management can increase the level of financial strength of the company. (d) Capital structure has no significant positive effect on the financial strength. This happens because the state-owned enterprises use debt to investment based on economic viability or social benefit (social cost) or pay less attention to the financial feasibility or net present value (NPV) ≥ 0. Hence, capital structure has no significant

effect on the financial strength of state-owned enterprises. (e) Interaction between capital structure and the independent variables showed that capital structure strengthens the relationship between the government subsidy and the financial strength, because debt financing further strengthens the company's cash flow position at the level of operations and for investment. (f) A sensitivity analysis by using two measurements of dependent variable with Altman approach in 1994 and 1993. We found that there was consistency in the positive direction or a negative relationship and the level of significance among the independent variable, moderating variables, control variables, variable interactions toward financial strength. This study contributes to helping to alleviate the financial burden of the state government for setting up funding to state-owned enterprises and provide the snapshot financial variables that could help to strengthen the financial performance. The implication of this research is that government policy should restrict subsidies to state-owned enterprises, and companies should enhance the firm strength by introducing innovations and practices.

REFERENCES

1. Abor, J. (2005). The effect of capital structure on profitability: an empirical analysis of listed firms in Ghana. *The Journal of Risk Finance, 6*(5), 438-445. https://doi.org/10.1108/15265940510633505
2. Altman, E. I. (2000). Predicting financial distress of companies: revisiting the Z-score and ZETA models. Stern School of Business, New York University, 9-12. Retrieved from http://lemeunier.gilbert.free.fr/Investissement/DOCS/PDF/Zscores.pdf
3. Assagaf, A. (2014). Influence Policy and Fitness State Electricity Company (PLN) Investment Business Generation. *International Journal of Empirical Finance, 3*(5), 234-242. Retrieved from http://repository.unitomo.ac.id/285/1/Paper%202.pdf
4. Assagaf, A. (2015). Analysis of Relevance Concept of Measurement CAPM Return and Risk of Shares. *International Journal of Business and Management, 10*(10), 194. http://dx.doi.org/10.5539/ijbm.v10n10p194
5. Assagaf, A., Lestari, S. Y., & Hamzah, M. Z. (2016). The Effects of the Implementation of Earning Management and Subsidy Policy: A Case Study of Government Company. *OIDA International Journal of Sustainable Development, 9*(10), 23-34. Retrieved from https://ssrn.com/abstract=2896520
6. Aulia, D., Ikhwana, D. (2012). Business Development Strategy Planning Woven Silk with Balanced Scorecard Approach Method (Case Study in Three Men's Silk Factory). *Journal Sttgarut, 10*(1), 1-12.
7. Baron, R. M., & Kenny, D. A. (1986). The moderator–mediator variable distinction in social psychological research: Conceptual, strategic, and statistical considerations. *Journal of personality and social psychology, 51*(6), 1173.
8. Bercovitz, J., & Mitchell, W. (2007). When is more better? The impact of business scale and scope on long-term business survival, while controlling for profitability. *Strategic Management Journal, 28*(1), 61-79. https://doi.org/10.1002/smj.568
9. Capon, N., Farley, J. U., & Hoenig, S. (1990). Determinants of financial performance: a meta-analysis. *Management science, 36*(10), 1143-1159. https://doi.org/10.1287/mnsc.36.10.1143
10. Dechow, P. M., Sloan, R. G., & Sweeney, A. P. (1995). Detecting earnings management. *Accounting review,* 193-225. Retrieved from http://www.jstor.org/stable/248303
11. Dinar, A., & Yaron, D. (1992). Adoption and abandonment of irrigation technologies. *Agricultural Economics, 6*(4), 315-332. https://doi.org/10.1016/0169-5150(92)90008-M
12. González, X., Jaumandreu, J., & Pazó, C. (2005). Barriers to innovation and subsidy effectiveness. *RAND Journal of Economics,* 930-950. Retrieved from http://www.jstor.org/stable/4135264
13. Jensen, M. C., & Meckling, W. H. (1976). Theory of the firm: Managerial behavior, agency costs and ownership structure. *Journal of financial economics, 3*(4), 305-360. https://doi.org/10.1016/0304-405X(76)90026-X
14. Hadlock, C. J., & Sonti, R. (2012). Financial strength and product market competition: Evidence from asbestos litigation. *Journal of Financial and Quantitative Analysis, 47*(1), 179-211. https://doi.org/10.1017/S0022109011000639
15. Haron, H., Hartadi, B., Ansari, M., & Ismail, I. (2009). Factors influencing auditor's going concern opinion. *Asian Academy of Management Journal, 14*(1), 1-19. Retrieved from http://web.usm.my/aamj/14.1.2009/AAMJ%2014-1-1.pdf
16. Hassan, R., Marimuthu, M., & Johl, S. K. (2015a). Ethnic Diversity on Boards and Market Performance: An Empirical Investigation in Malaysia. *Advanced Science Letters, 21*(5), 1099-1103. https://doi.org/10.1166/asl.2015.6036

17. Hassan, R., Marimuthu, M., & Johl, S. K. (2015b, August). Demographic diversity and firm value: A review on large companies using panel data approach. In *Technology Management and Emerging Technologies (ISTMET), 2015 International Symposium* (pp. 197-201). IEEE. https://doi.org/10.1109/ISTMET.2015.7359028

18. Hassan, R., Marimuthu, M., & Johl, S. K. (2015c). Diversity, corporate governance and implication on firm financial performance. *Global Business and Management Research, 7*(2), 28.

19. Hassan, R., Marimuthu, M., & Johl, S. K. (2016d). Women on boards and market performance: An exploratory study on the listed companies. *International Business Management, 10*(2), 84-91.

20. Hassan, R., Marimuthu, M., & Johl, S. K. (2017e). Bridging and Bonding: How Gender Diversity Influence Organizational Performance. *Global Business and Management Research, 9*(1), 117. Retrieved from http://gbmr.ioksp.com/pdf/vol.%209%20no.%201s/V9N1s.pdf

21. Hassan, R., & Marimuthu, M. (2014a). Gender Diversity on Boards and Market Performance: An Empirical Investigation on Malaysian Listed Companies. *PLATFORM-A Journal of Engineering, Science and Society, 10,* 17-25.

22. Hassan, R., & Marimuthu, M. (2015b). Corporate Governance Effect on Ownership and Control in Firms: An Empirical Evidence from Pakistan. *International Journal of Business and Management, 10*(8), 212. https://doi.org/10.5539/ijbm.v10n8p212

23. Hassan, R., & Marimuthu, M. (2016c). Corporate Governance, Board Diversity, and Firm Value: Examining Large Companies Using Panel Data Approach. *Economics Bulletin, 36*(3), 1737-1750. Retrieved from http://www.accessecon.com/Pubs/EB/2016/Volume36/EB-16-V36-I3-P170.pdf

24. Khan, H., Hassan, R., & Marimuthu, M. (2017). Diversity on Corporate Boards and Firm Performance: An Empirical Evidence from Malaysia. *Humanities, 2*(1), 1-8. Retrieved from http://www.onlinescience-publishing.com/assets/journal/JOU0022/ART00173/1495711915_AJSSH-2017-2(1)-1-8.pdf

25. Simpson, R. J. S., & Pearson, K. (1904). Report on certain enteric fever inoculation statistics. *The British Medical Journal,* 1243-1246. Retrieved from http://www.jstor.org/stable/20282622

26. Pratheepkanth, P., (2011). Capital Structure and Financial Performance: Evidence from Selected Business Companies in Colombo Stock Exchange Sri Lanka. *Journal of Arts, Science & Commerce, 1*(2), 171-183. Retrieved from http://repository.kln.ac.lk/bitstream/handle/123456789/10553/90-103.pdf?sequence=3&isAllowed=y

27. Roychowdhury, S. (2006). Earnings management through real activities manipulation. *Journal of accounting and economics, 42*(3), 335-370. https://doi.org/10.1016/j.jacceco.2006.01.002

28. Schreiner, M. J. (1997). A framework for the analysis of the performance and sustainability of subsidized microfinance organizations with application to Bancosol of Bolivia and Grameen Bank of Bangladesh (Doctoral dissertation, The Ohio State University).

29. Schreiner, M. (1997). How to measure the subsidy received by a development finance institution. Rural Finance Program, Department of Agricultural Economics, Ohio State University. Retrieved from http://agecon-search.tind.io/record/28323/files/eso2361.pdf

30. Schreiner, M., & Yaron, J. (1999). The Subsidy Dependence Index and Recent Attempts to Adjust It/Une Revue De L'indice De Dépendance Aux Subventions Et des Récents Essais De L'ajuster. *Savings and Development,* 375-405. Retrieved from http://www.jstor.org/stable/25830703

31. Taco, C., & Ilat, V. (2016). Effect of Earning Power, Independent Commissioner, Board of Directors, Audit Committee and Company Size of Profit Management in Manufacturing Companies Listed on the Indonesia Stock Exchange. *EMBA Journal, 4*(4), 873-884.