

The Financial Equilibrium Based on a Marginal Approach to Improve the Financial Performance of the State Electricity Company (PLN)

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This study aims to analyse the factors that influence the State Electricity Company (PLN) financial equilibrium. The position of the equilibrium of marginal revenue, with marginal cost, shows the best conditions achieved by the company. Thus, in the event the position is further from the equilibrium, the company's financial performance tends to decline. The study uses secondary data based on the PLN's financial statements from 2007 to 2018. During that period, the PLN made a large-scale investment. The PLN built a power plant installation with a large capacity. This study aims to analyse the specific period, as well as a source of information that can provide input for the main stakeholders of the PLN. The results of the statistical tests show that the key variables have a significant effect on the PLN's financial equilibrium. This study also found a unique condition because it contradicts the prediction before the research, namely the variables X6AG, X7IG, and X8ROE, were found to have a negative effect or the opposite of the original prediction, which is a positive effect on the company's financial equilibrium. This result is the originality of this research, so it is very useful for corporate management, and research in the future.

Keywords: *Financial management, Equilibrium, Marginal approach, Marginal revenue, Marginal cost.*

Introduction

This study aims to analyse the financial phenomena of the State Electricity Company (also known as Perusahaan Listrik Negara [PLN]), which until now, continues to burden the State finances through the help of subsidies from year to year. The PLN is a state-owned enterprise engaged in the electricity sector in Indonesia. This phenomenon shows that there is a gap between the financial performance, and the purpose of the company, which was established as mandated in Article 12 (b) of Law Number 19 of 2003, to pursue profits to increase the value of the company. Based on this gap, the PLN experiences difficulty in developing investment, and meeting the electricity demand of consumers because operational funding alone remains difficult to fulfil independently, thus that the dependence upon government subsidies reaches a very significant value, as mentioned above.

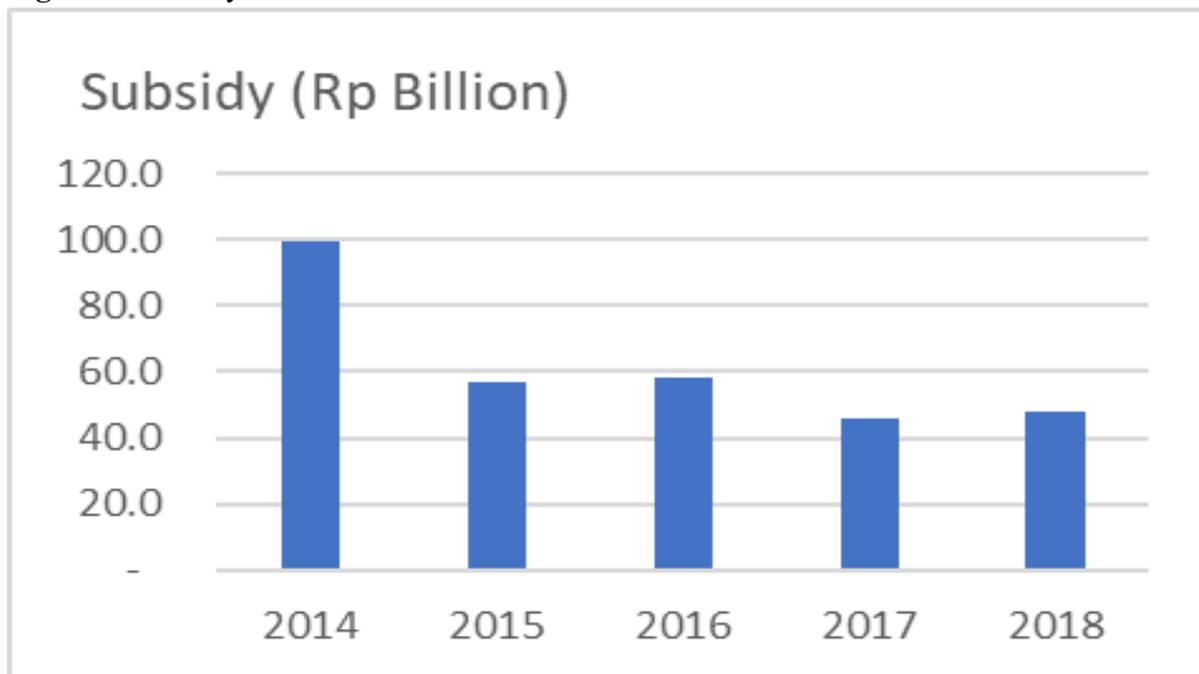
The marginal equilibrium approach is an important concept that can be used by management in achieving the company's optimal conditions, namely a maximum profit or minimum loss. The key factors that affect the financial equilibrium must be considered in the processes of preparing management strategies, and policies, especially in terms of: (a) preparing annual plans or annual budgets; (b) medium-term five-year plans, also known as the company's long-term plans or RJPPs; (c) becoming the KPI's target for management; and (d) as a tool to evaluate the company's performance achievements.

The value of the company will attract the attention of investors on the Stock Exchange because stock returns will increase, as noted by Ady et al. (2019), and Assagaf, et al. (2017). The investors in the Stock Exchange generally make rational decisions based on the financial balance performance that reflects the value of the company (Assagaf, 2017; Ady et al., 2018). The impact of financial conditions that have reached the condition of financial balance tends to maintain the achievement of financial performance, and meets the financial obligations on time, including compliance with the obligation to pay taxes (Sayidah et al., 2019). Management can use a marginal approach to pricing policy, determining the quantity of production or sales, and achieving maximum profits. While this study specifically examines the key factors that affect the marginal-based financial equilibrium, the magnitude of the factor coefficient is used to indicate the role of each of these factors, so that the company policy on the components related to these factors will have an impact on the company's financial equilibrium. Based on the phenomenon of the gap between the company's founding goals, and the realisation of PLN's financial performance, the research plays an important role, especially in providing input to PLN's main stakeholders, such as management and shareholders. In this case, the Ministry of State-Owned Enterprises.

Thus, this research is expected to contribute to alleviating the financial burden of the State, and the funding of these subsidies can be used by the Government to finance other sectors.

The subsidies received from the Government are as per the financial statements of 2017, and 2018. Namely, in 2017 at the amount of IDR 45.7 trillion, and in 2018 increased to the amount of IDR 48.1 trillion. However, compared to 2014, the number of subsidies has decreased, mainly due to the adjustment in the basic electricity tariff, as illustrated below.

Figure 1. Subsidy of PLN 2014–2018



Source: Annual Report of PLN 2014–2018

This research is expected to also contribute to the PLN in terms of increasing the ability to manage its financing independently; not only to finance operational funding, but also to fulfil investment funding. In the long run, the PLN will be able to fulfil financial obligations with a significant accumulated value. The PLN's financial obligations reported in the 2018 statistics and financial statements were around IDR 507 trillion, consisting of IDR 350 trillion long-term liabilities, and IDR 157 trillion short-term liabilities.

This research has empirically identified several key factors that are considered to have an important role in influencing the financial equilibrium, so the main issues of this study are: do operating cost, cash flow from operating, asset growth, investment growth, return on equity, and government subsidy affect the financial equilibrium?

Theoretical Background

Marginal Theory

The neo-classical economists used the marginal theory to explain marginal utility. This marginal concept was first developed by Heindrich Gossen and was based on the application of differential calculus to the behaviour of consumers and producers, as well as determining market prices and optimal quantities (Niehans J, 1990). The marginal approach is used to analyse the company's equilibrium by comparing the marginal cost (MC) with the marginal revenue (MR). The price policy (P) determines the quantity of product (Q) that produces the maximum profit by using the marginality analysis method through the equation: $MC = MR$. The maximum benefit is achieved if $MR - MC = 0$ or $MR = MC$ (Romero, 2014). The MR is the change in total revenue (TR) for the changes in one unit sold. Whereas, the TR is the price multiplication with the quantity or $P \times Q$. The MR is a derivative of the total income equation (TR) to the number of units sold, therefore we can calculate: $MR = \Delta TR / \Delta Q$. The marginal approach is used in strategies and policies related to the structure of costs and revenues, thus it can decide the price level and volume of the production or sales that produce maximum profits (Arsyad, 2011; Gaspersz, Vincent, 2000; Salvatore, 2001). Assagaf et al. (2019) use a marginal approach to predict financial distress.

Previous Research

The previous researchers have implemented a marginal approach to their studies. Yustiana et al. (2015) argues that marginal cost pricing has several advantages, including that this mechanism is considered the most efficient and can avoid the occurrence of under-priced valuation. This view proves that the equilibrium of marginal revenue and marginal cost results in a maximum profit or minimum loss. The price adjustment follows the marginal equilibrium or $MR = MC$, and in the monopoly market structure the MR curve is equal to price and forms a horizontal curve. Thus, the price adjustment goes up or down following the quantity of demand on the equilibrium; $MR = MC$.

Sutjati et al. (2015) argued that transfer pricing starts from profit optimisation, i.e. when marginal revenue (MR) from the marketing division equals marginal cost (MC) to produce an equilibrium point that will be projected onto the demand curve to obtain the transfer price, and produce the number of products. The marginal approach is also used to obtain the maximum benefits in transfer pricing through the equilibrium of $MR = MC$.

Coase (1972) describes the demand, MR, and MC equilibrium curves and suggests that price and quantity on the demand curve, which are formed at the intersection of the $MR = MC$ curve, produce the maximum profit.

Damayanti et al. (2014) argues that profit is the difference between the total revenue (TR) and total cost (TC). Furthermore, to obtain maximum profit, the price and quantity of sales are determined at the value of $MR - MC = 0$ or the value of $MR = MC$.

Hall (1988), in implementing marginal cost pricing, argues that competitive companies equate marginal cost with the market price of their products to achieve a maximum profit. This condition happens because the equality of marginal cost with price is the best efficiency condition in the allocation of resources.

Several other studies based on the concept of marginal equilibrium ($MR = MC$) are suggested by Indrayani and Hellyward (2015) using a marginal approach ($MR = MC$) in determining the product optimisation and profit maximisation in cattle farms; Misanam (2007) uses a marginal approach ($MR = MC$) in determining the quantity that produces the maximum profit; Septiantoro and Utomo (2015) used a marginal approach ($MR = MC$) to set housing prices; and Widyantara and Dewi (2016) used a marginal approach ($MR = MC$) in determining the number of sales and selling prices of plantation products.

Based on the marginal theory-based research referred to above, the financial management strategies and policies take into account the equilibrium of the cost and income structure, as well as the investment policies that affect the equilibrium in the future. This equilibrium is intended to obtain a position of marginal equilibrium and marginal cost to achieve optimal results or the best level of efficiency in the use of resources. Based on the theoretical approach and previous research, the hypotheses proposed in this study consist of the following hypotheses:

- H1:** The operation cost has a negative and significant effect on the financial equilibrium.
- H2:** The cash flow from operating has a positive and significant effect on the financial equilibrium.
- H3:** The assets growth has a negative and significant effect on the financial equilibrium.
- H4:** The investment growth has a negative and significant effect on the financial equilibrium.
- H5:** The return on equity is negative and significantly influences the financial equilibrium.
- H6:** The Government subsidy has a significant and positive effect on the financial equilibrium.

Research Method

Samples

We obtained the study samples with a purposive sampling technique. This is method is supported by several researchers who have also used a purposive sampling method to select their samples (Sayidah et al., 2019; Sayidah & Assagaf, 2019; Sayidah et al., 2019; Sayidah et al., 2020; Assagaf et. al., 2017; Assagaf & Yunus, 2016; Assagaf, 2017b). This study uses financial statement data from 2007 to 2018 because during this period there was a large-scale electricity development by constructing a power plant with a large capacity in the first phase of 10,000 megawatts (MW) or about 305 of the company's total power capacity. Subsequently, it is programmed in the next stage to build a power station in a greater number and with a capacity of 35,000 MW. These two stages of development are the largest since the development of electricity in Indonesia, which began in 1945 by the Government of Indonesia.

Variable Definition and Measurement

The dependent variable is the financial equilibrium (YFD). The YFD shows the optimal conditions achieved by the company when a condition of equilibrium revenue (MR) and marginal cost (MC) is achieved, with the measurements from Assagaf (2019):

$$YFD = \frac{MR}{MC}$$

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

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

$$\Delta TR = \frac{TR_t - TR_{(t-1)}}{TR_{(t-1)}}$$

$$\Delta TC = \frac{TC_t - TC_{(t-1)}}{TC_{(t-1)}}$$

$$\Delta Q = \frac{Q_t - Q_{(t-1)}}{Q_{(t-1)}}$$

Where: YFD: financial equilibrium; MR: marginal revenue; MC: marginal cost; ΔTR : change in total revenue between periods; ΔTC : change in total cost between periods; and ΔQ : change in the number of sales between periods.

The independent variable includes:

- Operating Cost (X4OPC)

$$X4OPC_t = \frac{OPC(t) - OPC(t-1)}{OPC(t-1)}$$

The efficiency of operating costs is measured by comparing the operating costs of the period t and the operating costs for the period (t-1). If positive, there will be a growth in the operating costs for period t, and vice versa, if the results are negative, this indicates a decrease in the operating costs. The variables, independent cash flow from operating (X5CFO), and growth of cash flow from operating (ZΔCFO), illustrate the amount of cash flow originating from the company's operational activities within a certain period. The measurement of this variable is based on the results of the calculation of cash flow from operating presented in the year-end financial statements, as used in the research of Chen et al. (2010):

$$X5CFO = \frac{CFO(t) - CFO(t-1)}{CFO(t-1)}$$

Where CFO_t = (cash initial equilibrium) + (Amount of cash receipts from operating activities including the number of current receivables) - (final cash equilibrium at the end of the period), or CFO_t = Total expenses for company operational activities including payment of long-term debt that is due date.

- Assets Growth

Assets growth (X6AG) is an independent variable that shows the magnitude of the change in the total assets in the period t compared to the total assets period (t-1). This variable was measured using the formula from the study of Chen et al. (2010):

$$X6AG = \frac{\text{Total Asset}(t) - \text{Total Asset}(t-1)}{\text{Total Asset}(t-1)}$$

- Investment Growth

Investment growth (X7IG) is independent variable that indicates the amount of investment expenditure in a certain period or is also known as the capital expenditure period t. This variable was measured using a formula found in the study of Chen et al. (2010):

$$X7IG = \frac{\text{Fixed Asset}(t) - \text{Fixed Asset}(t-1)}{\text{Fixed Asset}(t-1)}$$

- Return on Equity

Return on equity (X8ROE) is independent variable that shows change of return on the equity between one period and the previous period. The measurement of this variable is done using a formula from the study of Brigham and Daves (2007):

$$X8ROE = \frac{ROE(t) - ROE(t-1)}{ROE(t-1)}$$

- Government subsidy

Government subsidy (X9SUB) is independent variable that shows subsidy funding provided by the Government to the PLN is determined through the State budget. This variable is measured using the Price-Gap formula, as used by Doug Koplow (2009):

$$G9SAE = \frac{\text{Cost of Good Sold} - \text{Sales}}{\text{Cost of Good Sold}}$$

Analysis Model

The analytical models used in this study — namely Model 1, and Model 2 — are for the purpose that there is a multicollinearity between the variables of growth assets (X6AG) with investment growth (X7IG). Therefore, to test the hypotheses H3, and H4, different models are used. Meanwhile, hypotheses H1, H2, H5, and H6 are only used to test the consistency of trends or the direction of influence of the two models.

Model 1: the testing of hypotheses H1, H2, H3, H5, and H6 (without hypothesis H4) with the following equation model:

$$YFD = \beta_0 + \beta_1 X4OPC + \beta_2 X5CFO + \beta_3 X6AG + \beta_4 X8ROE + \beta_5 X9SUB + e_t$$

Model 2: the testing of hypotheses H1, H2, H4, H5, and H6 (without hypothesis H3) with the following equation model:

$$YFD = \beta_0 + \beta_1 X4OPC + \beta_2 X5CFO + \beta_3 X7IG + \beta_4 X8ROE + \beta_5 X9SUB + e_t$$

Where YFD: financial equilibrium; X4OPC: operating cost; X5CFO: cash flow from operating; X6AG: assets growth; X7IG: investment growth; X8ROE: return on equity; X9SUB: government subsidy; β_0 : constant, $\beta_1 \dots \beta_5$: regression coefficient; e investment = error.

Results and Discussion

Correlation

The correlation is a statistical analysis tool used to show the degree of the relationship between two variables, and to determine the closeness of the relationship between the two variables. The correlations between the variables used in this study are presented in the following table, showing the correlations between the independent variables, intervening variables, moderator variables, and dependent variables, namely: (a) correlation between the independent operation cost variable (X4OPC) with the financial equilibrium (YFD) of -0.086, which means the degree of the relationship between the two variables is relatively small at around 8.6 per cent or insignificant; (b) the correlation between the independent cash flow from the operating variable (X5CFO) with the financial equilibrium (YFD) of 0.378, which means the degree of the relationship between the two variables is relatively small at around 37.8 per cent or insignificant; (c) the correlation between the independent assets growth variable (X6AG) with the financial equilibrium (YFD) of -0.007, which means the degree of the relationship between the two variables is relatively small at around 0.7 per cent or insignificant; (d) the correlation between the independent investment growth variable (X7IG) with the financial equilibrium (YFD) of 0.039, which means the degree of the relationship between the two variables is relatively small at around 3.9 per cent or insignificant; (e) the correlation between the intervening return on investment (X8ROE) variable with the financial equilibrium (YFD) of -0.063, which means the degree of the relationship between the two variables is relatively small at around 6.3 per cent or insignificant; and (f) the correlation between the moderating government subsidy (X9SUB) variable with the financial equilibrium (YFD) of 0.099, which means the degree of the relationship between the two variables is relatively small at around 9.9 per cent or insignificant.

Table 2: Correlation results

	YFD	X4OPC	X5CFO	X6AG	X7IG	X8ROE	X9SUB
YFD	1						
X4OPC	-0.086	1					
X5CFO	0.378	0.007	1				
X6AG	-0.007	-0.520	-0.109	1			
X7IG	0.039	-0.527	-0.101	.998**	1		
X8ROE	-0.063	-0.068	.670*	-0.305	-0.320	1	
X9SUB	0.099	.960**	0.037	-0.395	-0.393	-0.069	1

** . Correlation is significant at the 0.01 level (2-tailed).

* . Correlation is significant at the 0.05 level (2-tailed).

Source: SPSS Output (2019)

Hypothesis Testing

The researchers use Model 1, and Model 2 to test the hypothesis because there is a significant correlation between X6AG and X7IG, so that when used in one regression equation, it will lead to violations of the classic assumption of multi-correlational assumptions. The Model 1, and Model 2 are also used to identify the consistency of the negative and positive directions of the influence of the variables X4OP, X5CFO, X8ROE, and X9SUB on the financial equilibrium. The results showed consistency between the two models.

The Model 1 shows that the independent variables X4OPC, X5CFO, X6AG, X8ROE, and X9SUB have a significant effect on the PLN's financial equilibrium. Meanwhile, the Model 2 occurs in the direction of influence consistently, and the results show that X4OPC, X5CFO, X7IG, X8ROE, and X9SUB significantly influence the PLN's financial equilibrium.

The magnitude of the influence of each independent variable on the PLN's financial equilibrium is presented in the following table. The trend of that influence can be explained as follows: (a) the X4OPC variable has a significant negative effect of -6,803, and -7,191 on the financial equilibrium because the increase in operational costs will have an impact on the decline of the PLN's financial equilibrium or decreasing the financial performance, which means getting further from the financial equilibrium; (b) the X5CFO variable has a significant positive effect of 0.018, and 0.019 on the financial equilibrium because the increase in cash flow from operating will strengthen the PLN's financial equilibrium position, which means that financial management must pay attention to cash flow planning in both the short term and medium or long term; (c) the X6AG variable has a significant negative effect of -0.020 on the PLN's financial equilibrium, which means that the growth of the company's assets will disturb the PLN's financial equilibrium. This impact occurs because the addition of assets encourages an increase in the connection of electricity flow or the addition of customers. Thus, the amount of subsidy needs increases or the performance of the PLN's financial equilibrium decreases; (d) the variable X7IAG has a significant negative effect of -0.001 on the PLN's financial equilibrium, which means that the company's investment growth or capital expenditure will have a negative impact on the PLN's financial equilibrium. This impact occurs because an increase in investment or capital expenditure encourages an increase in the connection of electricity flow or an increase in the number of customers. Thus, the amount of subsidy needs increases or the financial equilibrium of the PLN decreases, as there is a decrease in the financial performance; (e) the X8ROE variable has a significant negative effect of -0.175, and -0.186 to the PLN's financial equilibrium, which means that an increasing return on equity (ROE) will reduce the performance of the PLN's financial equilibrium. This impact occurs because at the same rate of return, a decrease in equity assistance from the Government will cause a decrease in the performance of the PLN's financial equilibrium. This is happens as a result of limited government funding to increase

capital deposits. Thus, the increase in tariffs, and the reduction in additional equity participation will have a negative impact on the PLN's financial equilibrium; and (f) the X9SUB variable has a significant positive effect of 2.358, and 2.485 on the PLN's financial equilibrium, which means that the greater the amount of subsidy provided by the Government increases, the PLN's financial equilibrium position is improving or getting closer to the equilibrium. This result suggests that government subsidy assistance is needed by the PLN to strengthen its financial equilibrium position.

Table 3: Factors affecting the PLN's financial equilibrium

Variables	Prediction	Model 1: Dependent YFD		Model 2: Dependent YFD	
		Coeff.	p-value	Coeff.	p-value
(Constant)		0.844	0.000 ***	0.832	0.000 ***
X4OPC	-	-6.803	0.000 ***	-7.191	0.000 ***
X5CFO	+	0.018	0.001 ***	0.019	0.000 ***
X6AG	+	-0.020	0.001 ***		
X7IG	+			-0.001	0.001 ***
X8ROE	+	-0.175	0.001 ***	-0.186	0.000 ***
X9SUB	+	2.358	0.000 ***	2.485	0.000 ***
Adj R ²		0.909		0.927	
F-Statistic		23.015		29.000	
Prob (F-Statistic)		0.001***		0.000***	

***Significant at a level of 1 percent; **Significant at a level of 5 percent; a level of 10 percent

Note: X4OPC: Operation cost; X5CFO: Cash flow from operating; X6AG: assets grow
X7IG: investment growth; X8ROE: Return on equity; X9SUB: government subsid.

Source: SPSS Output (2019)

Regression Equation

The regression coefficients of the two models above can be stated in the form of the following regression equation:

Model 1:

$$YFD = 0.844 - 6.803 X4OPC + 0.018 X5CFO - 0.020 X6AG - 0.175 X8ROE + 2.358 X9SUB$$

Model 2:

$$YFD = 0.832 - 7.191 X4OPC + 0.019 X5CFO - 0.001 X7IG - 0.186 X8ROE + 2.485 X9SUB$$

Discussion

The Effect of Operation Cost (OPC) on Financial Equilibrium (YFD)

The negative effect of the operation cost variable on the financial balance of PT with a regression coefficient of -6.803, means that the addition of one unit of operation cost causes a decrease in the company's financial balance of 6.803. It is necessary to explain the operational cost component, which consists of the operational cost, and operating income. The operating cost structure, and operating income structure are very significant in influencing the financial balance. The changes in the operating costs affect the amount of the marginal cost. The changes that occur in the operating revenue component will have an impact on the marginal revenue. The magnitude of the changes that occur in the operating income structure influence the size of the marginal revenue. The implication is that the management of companies want to improve the financial performance through a balance of revenue margins and marginal costs. Therefore, the policy on the cost structure must be studied more comprehensively when preparing the company's budget work plan. In its realisation, management must control it, so that the follow-up of the operating and investment budget decided by the shareholders can be absorbed effectively. Some functions that cannot add value can be analysed through value analysis techniques (Alobaidi, Albdiri, & Albdairi, 2020).

In the event of deviations or deviations due to internal administrative factors, the company management needs to make efforts to improve the standard operating procedure (SOP). The key performance indicators (KPIs) are needed, starting at the top level between shareholders, commissioners, and company directors, and then continued with performance contracts between the company directors and managers, performance contracts between the managers and assistant managers, and finally, the individual performance between the managers and implementing staff. The performance indicators must be measured quantitatively. The management selects the key indicators that are relevant to the corporate objectives. Thus, the company can achieve its goal, and the directors and shareholders can fulfil the performance contract. If there is a failure to achieve it, it can be evaluated in more detail to the lowest organisational level because the performance achievements of each can be proven quantitatively. If the cost component becomes a measure at the level of directors with the shares held, then the component is reflected up to the performance contract at the lowest organisational level. The deviations that occur make it easy to trace by comparing the budget with the realisation between the department or sector data. One way to improve operational

efficiency is to apply leading and lagging indicators. This indicator can help management choose a method that suits the nature of the work (Mezher & Ali, 2020).

In terms of operating income, it has a substantial effect on the company balance because the changes in operating income significantly affect the value of the marginal revenue. The operating income is related to the sales volumes and tariffs set by the policymakers. At certain rates, the management's effort to increase the operating income is through an increase in the sales volume that leads to an increase in the value of the marginal revenue. In terms of tariffs, it is the decision of the Government and the Senator. Thus, the tariff policy is an act outside the authority of the company's directors, but in an effort to make such tariff adjustments, the PLN's management needs to submit a proposed alternative tariff adjustment, arguing that without such tariff adjustments, it will cause a negative cash flow, and the company will experience a financial crisis in the future. The operating cost structure and the operating income structure are empirically and very closely related. Therefore, the changes in operating costs and operating income have a significant effect on the financial balance, as measured by the marginal cost and marginal revenue approaches. Without subsidies, the operating costs exceed the operating income. The management can achieve a company's balance through the efforts to improve the operational efficiency, and radically changing the financial policies supported by the Government and Parliament. The company must be able to manage its finances independently. The management can make radical changes to improve the financial balance towards a peak point through the medium-term or long-term programs. The management can manage fuel independently, utilise opportunity income from electricity purchase contracts with private electricity companies, optimise subsidiary capacity, and improve the tariff structures.

The Effect of Cash Flow From Operating (CFO) on Financial Equilibrium (YFD)

The cash flow from operating (CFO), as cash inflows and cash outflows, has a positive effect on the financial balance. The inflow of cash is not the same as the income from the sale of electricity because a portion of the sale does not become a cash inflow due to the receivables paid in the next period. The cash inflows include receipts from the previous period receivables, receipts of other current receivables, other operating income, short-term loan receipts for working capital, and other operational receipts. Whereas, the cash outflow for operations does not include depreciation costs but only solely expenses in the form of cash for operational activities, such as employee costs, raw material costs, labour costs, payment of short-term debt or trade debt, and other operational expenses. Its influence on the financial balance is partly because the marginal balance is not only compounded by cash flow, but overall revenue and cost. Therefore, if there is an uneven cash flow operating, it will have an impact on the financial balance. The variable cash flow operating (CFO) has a positive effect on the financial balance with coefficients of 0.018, and 0.019, which means that an increase

in cash flow operating by one per cent will affect an increase in the financial balance of around 0.018 per cent to 0.019 per cent. Empirically, it shows that the PLN has not been able to meet the targets mandated by the SOE establishment law in the form of a company, which is to gain profits and increase the company value, especially because cash flow operating is still a deficit, and this also means that the company's financial balance will decline. To overcome the cash-flow deficit, the company tries to improve the operational cost efficiency, and increase the revenue so that it affects the financial balance.

The Effect of Assets Growth (AG) on Financial Equilibrium (YFD)

The development of the total assets has a negative and significant effect on the company's balance with a coefficient of -0.020. The increase in the company assets or asset growth has an impact on increasing the supply capacity that can meet the consumer electricity demand. The demand growth further worsens the financial balance because the marginal revenue is smaller than the marginal cost. The growth of the total assets or asset growth is closely related to the growth of the fixed assets or investment growth, as shown above. Thus, multicollinearity occurs between the independent asset growth variables and investment growth. Therefore, in this study, it utilises the two variables but with different models. Namely, Model 1 uses the variable asset growth, while Model 2 uses the variable investment growth. When used in a regression equation model, the results are invalid because of multicollinearity.

The Effect of Investment Growth (IG) on Financial Equilibrium (YFD)

Investment growth, as measured by the fixed assets, has a negative effect on the company's financial balance with a coefficient value of -0.001, which means that the construction of an increasing electricity power installation will further worsen the PLN's financial balance. In other words, an increase of one per cent in investment will reduce the financial balance by 0.001 per cent, mainly because the development of the marginal revenue is smaller than the development of the marginal cost. Therefore, it is further from the expected balance level. The development of investment and sales growth in 2014–2018, as shown in Figure 4 above, shows a positive direction between the investment growth and sales growth, but it harms the financial balance because the marginal revenue distance is higher than the marginal cost.

The Effect of Return on Equity (ROE) on Financial Equilibrium (YFD)

The return on equity (ROE) has a negative and significant effect on the PLN's financial balance with coefficients of -0.175, and -0.186, which means that the increase in return on equity will harm the financial balance. This impact occurs because government capital assistance is increasingly restricted causing ROE to tend to be constant, as fixed capital and

profits tend to be constant because of the subsidies. Meanwhile, the financial balance is decreasing because the amount of funding is met by foreign loans in the form of bonds or from international financial institutions, to meet investment needs. The increase in electricity sales and lower marginal revenue growth compares to the marginal cost growth or even worse, the financial balance conditions. Since 2015, the Government has limited additional capital investment to the PLN because the burden of subsidies is weighing heavily upon the State budget or APBN.

The Effect of Government Subsidy on Financial Equilibrium (YFD)

Subsidy assistance is the main source of funding to meet the operating income against the operating costs. The Government subsidy variable has a positive and significant effect on the financial balance with coefficients of 2.358, and 2.485. This coefficient means that the addition of subsidy assistance has further enhanced the PLN's financial balance position. Although, this should not happen because the PLN has the potential that can be used to reduce these subsidies. For example, through managing fuel independently from upstream to downstream. In other words, the PLN manages itself starting from fuel sources, such as coal, and from the mining process, transportation on land and at sea, to reach the centre of generation. The efficiency of fuel costs will be highly helpful for company efficiency, and the ability to reduce the burden of subsidies. Moreover, even make it possible to pay debts that are due. However, the PLN's independent fuel management process can only run if it is supported by the Government and the House of Representatives, which authorises the PLN to continue managing fuel at an economic scale, according to the PLN's needs, and its management is carried out in stages starting with a certain operational scale until finally, it is fully managed by the PLN.

The contribution of fuel costs to the total operating costs in the 2014–2018 period was in the range of 42–58 per cent. Thus, the savings in fuel costs will have a significant impact on the PLN's financial balance. The fuel costs are the largest component of operating costs when compared to other operational costs. Therefore, it is only natural that the PLN's management actively convinces the Government and the Parliament to prepare a detailed program, including the PLN's ability to win the management of this fuel independently.

Conclusions

This study aims to examine the factors that affect the balance of financial management at the PLN, a state-owned enterprise engaged in the electricity sector in Indonesia. The researchers use a marginal approach to measure the balance of financial management. Based on the results of the hypothesis testing with a multiple regression analysis, the researchers found that regression analyses of Model 1, and Model 2 show that the variables X4OPC, X5CFO,



X6AG, X7IG, X8ROE, and X9SUB have a significant effect on the position of the company's financial equilibrium. The management strategies and policies need to pay attention to these independent variables to improve the company's financial performance position, which is getting closer to that equilibrium.

The results of the analysis as the regression equation Model 1, and Model 2 can be used as tools in predicting the financial equilibrium encountered by the program which was launched by the company. This financial equilibrium analysis model can be used to determine the targets in projecting the annual plans or long-term plans of the company. This financial equilibrium analysis model can be used to assess the company's performance that has been achieved, in accordance with the realisation of management responsibility. This financial equilibrium analysis model can be used by the company management in determining targets by taking into account the variables and the magnitude of the influence of these variables on the financial equilibrium.

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