

Full Costing Method Model and Variable Costing Method Against Cement Price Determination (Case in Indonesia)

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ABSTRACT

This research discusses the effect of calculating the price of production pokok based on the full costing method and the variable costing method on cement price determination (case in Indonesia). The purpose of the study is to get results from the two variables above, which is more influential on the price of cement. In this research method compares certain phenomena so that it is a comparative study. Comparative research is research that compares the presence of one or more variables on two or more different samples, or at different times. The results showed that the results of the hypothesis test regarding the influence of the Full Costing Method and the Variable Costing Method on the price of cement simultaneously, obtained the result that the probability value (Test F) was 0.000666 and the magnitude of the coefficient of determination was 0.727031. This means that the Full Costing Method and the Variable Costing Method simultaneously have a significant effect on the Selling Price of cement with a contribution value of 72.70%, thus the cost of production based on both methods needs to be considered. While the comparison is more likely to the variable costing method than the full costing method.

Keywords: Full costing method model, price determination, variable costing method.

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I. INTRODUCTION

Cost accounting in the calculation of the cost of production plays a role in determining, analyzing and reporting cost posts that support financial statements so that they can show reasonable data. Cost accounting provides cost data for various purposes so that the costs that occur in the company must be classified and recorded in fact, thus allowing the calculation of the cost of production carefully. The company must be able to control production costs given the importance of the cost of production in obtaining the company's profit (Hudaib, 2018). Especially for companies that have competitors engaged in the same field. Errors in the calculation of the cost of production can result in the determination of the selling price in a company becomes too high or too low. Both of these possibilities can lead to unfavorable circumstances for the company, because if the selling price of the product is too low will result in the profit obtained by the company is low and experiencing losses, on the contrary, with a selling price that is too high, it can cause the products offered by the company will be difficult to compete with similar products on the market.

Calculation of the cost of production is something that needs to be considered in determining the selling price of a product. The precise and accurate calculation of the cost of production is what needs to be done by every company, because without the proper and accurate calculation of the cost of production, the manufacturing company concerned will experience problems in determining the selling price of a product (Sartorello *et al.*, 2018). For companies with the

aim of achieving optimum profit, the selling price and realization of production costs have a very large effect on the measure of success of achieving the goals of the company concerned and winning increasingly fierce competition with other similar companies or industries.

One of the most important factors to achieve this is to streamline production costs as low as possible so that it will increase profits. The strategy of production cost efficiency and proper pricing must be balanced with improved production quality, so that it has a highly competitive value with other similar company or industrial products. There are several approaches in determining the cost of production, including *the full costing* method and *the variable costing* method. In *the full costing* method of production costs taken into account in the determination of the cost of production goods are the cost of raw materials, direct labor costs, and *factory overhead* costs both fixed and those that behave variable. In *the variable costing* method, the production costs taken into account in the calculation of the cost of production are consisting only of variable production costs, namely raw material costs, direct labor costs, and variable *factory overhead* costs according to Bozgulova *et al.* (2019).

The cost of production is all costs related to the product or goods obtained, in which there is an element of product costs in the form of raw material costs, direct labor costs and factory overhead costs (Siti, 2017; Basuni and Iskandar, 2021) while according to the cost of production includes all costs and sacrifices that need to be incurred and made to produce the finished product. Avoiding errors in determining

the cost of production requires an appropriate method. The method that should be used is to use (Raineri *et al.*, 2015) *the full costing* method or by using the *variable costing* method (Srikalimah, 2017) .

Full costing is used to improve the accuracy of cost analysis by improving the way costs are traced to the cost object because in this technique factory overhead costs are charged to the finished product or to the cost of goods sold based on the tariff specified on normal activity or actual activity occurs. This *full costing* method calculates fixed costs because it is considered attached to the cost of goods in the process and finished products that have not been sold and is considered as the cost of goods sold if the products sold out so that the company obtains appropriate and accurate costs and can set competitive selling prices.

Every company's operation always wants the company to run effectively and efficiently, company managers need a good management, so that the company has characteristics and goals. Usually, the goal to be achieved by the company is to minimize production costs, maximize profits and maintain the continuity of the business. Careful planning is very influential to achieve a maximum goal, which in general to achieve maximum goals, is an effort carried out to provide a targeted approach in solving problems. An important factor in the company is planning. Therefore, proper management is needed to plan the future of the company so that the company's goals are achieved.

It is necessary to have adequate information in order to be useful for management decision making, information that is important for the company, when the company's management wants to decide whether it will accept or reject orders, also management needs information about the products ordered for production costs in order to determine the actions that should be taken to encourage production efficiency. In producing an item, production costs are inevitable, but can be estimated the visible expenses. On the calculation of the cost of production which reflects the total cost used to produce the unit of product produced.

Based on the product production and sales policy implemented by the company, one of the areas of accounting that provides cost information is cost accounting. One of the tools used by management for the determination of the cost of production, selling prices and decision making is cost accounting. (Kaniški & Vincek, 2018). How does the *full costing* method and *the variable costing* method simultaneously affect the determination of the selling price of cement? This is the formulation of the problem you want to know in this paper.

II. THEORY

Management accounting is a set of accounting actions and processes that aim to measure and evaluate the personal performance involved in an organization using measures of financial performance and non-financial performance. In addition, management accounting is also useful for creating long-term strategies and plans. Cost accounting is the process of measuring, analyzing, calculating, and reporting costs, profitability, and operating performance for the internal benefit of the company (Bozgulova *et al.*, 2019).

Cost akuntansi is the process of recording, classifying, alleviating, and presenting costs, manufacturing and selling products or services, in certain ways, as well as interpretation of them (Molyarenko, 2017). The object of cost accounting activities is cost. Cost accounting produces information to meet a wide variety of purposes, namely for the purpose of determining production costs, controlling costs, specific decision-making purposes, and for the internal interests of the company. Activity Based Costing is a cost that will be incurred by a company at the time of activity or activity of object assessment, so that later the company can determine the value of the object efficiently (Jalalabadi *et al.*, 2018; Molyarenko, 2017; Quesado & Silva, 2021). While the cost is based on hasil increases the final cost of the series of assessments of the object. Usually, this type of cost will be used in the production process or activity. Cost accounting presents cost information that includes past costs and future costs. The information generated by cost accounting becomes the basis for management to compile cost planning. With good cost planning will make it easier for management to control costs.

Special decision making for the future is information that is relevant to specific decision making related to future information. While the akuntansi cost for special decision-making presents future costs (*future costs*) is an information that is not recorded in cost accounting records, but rather the result of a forecasting process. Since custom decisions make up the majority of a company's management activities, cost accounting reports to meet decision-making objectives are part of management accounting. To meet management's needs in decision making, cost accounting develops various cost information concepts for decision making such as: *opportunity cost*, *hypothetical cost*, *incremental cost*, *avoidable cost*, and *forgone revenues* (Johnson *et al.*, 2015). Cost accounting comes as an accounting method that will support the company's operations to provide a reasonable price for the production goods.

The benefits of cost accounting include recording, classifying, and summarizing the cost of making products from processes carried out by manufacturing companies. Cost accounting will provide exact data on production prices and reasonable production for a product even up to the price per unit produced. Prokok Produksi Harga is important to note and known to be further used in further decision making, for example as a basis for determining the selling price of products when circulating in the market. The application of the cost of production is to determine the cost of goods per unit of product to be sold, so that when the product is handed over, the company can find out the profit or loss that the company will receive after deducting other costs. So, the accuracy and accuracy of calculating the cost of production must be considered because if there is an error in the calculation will cause losses for the company. The definition of the cost of production according to (Wiedemann & Wiegmann, 2017) the cost of production is to represent the amount of goods completed by a certain period. The cost of production consists of direct raw materials, direct labor and overhead. According to (Gardarsdottir *et al.*, 2019; Karttunen *et al.*, 2021; Rootzén & Johnsson, 2017) the principal of the cement product process is a method of calculating the cost of goods based on the cost produced in a period divided by

product units masse and identical to the formula of dividing the total cost of making products by the number of units produced.

The *full costing* method is a method of determining the cost of production that takes into account all elements of production costs into the cost of goods produced, which consists of raw material costs, labor costs, and factory overhead costs, both variable and fixed which are charged to the product on the basis of tariffs determined in advance on the normal capacity or basis of actual factory overhead costs. The method of calculating the full cost of goods is also useful for reporting purposes on external parties. The full costing method is commonly referred to as *absorption costing* or *conventional*. Metode *full costing* according to (Fadli & Rizka ramayanti, 2020) *the full costing* method is the determination of the cost of goods that take into account all elements of production costs consisting of raw material costs, direct labor costs, and factory overhead costs that are variable (*variable cost*) and *fixed cost*". In *the full costing* method, factory overhead costs, both fixed and variable, are charged to products produced on the basis of tariffs specified in advance at normal capacity or the basis of actual factory overhead costs. Therefore, factory overhead costs will still be attached to the cost of goods supplied products in the process and inventory of finished products that have not been sold and are only considered as costs (elements of cost of goods sold) if the product has been sold.

Variable costing is a method of determining the cost of production that takes into account the cost of production that behaves variable, into the cost of production, which consists of raw material costs, direct labor costs, and variable factory overhead costs. The variable costing method is usually known as *direct costing*. "*Variable costing* is a method of determining the cost of production that only charges variable production costs into the cost of goods of the product".

The benefits of variabel costing methods include profit planning that can be useful for short-term profit planning. By separating all elements of production costs into variable and fixed costs and contribution limit calculations, management will be able to structure profits through break-even equations or cost-volume-earnings relationships. In the determination of the selling price of the product, bagi management is useful in the framework of determining the selling price of the product in the short term, using the cost-volume-earnings relationship (Hudaib, 2018). And to determine the minimum selling price for special orders (*special orders*) that may be received by the company in the short term, so that the company does not get losses from the special orders. Meanwhile, in the acquisition of bermanusaat decisions for management in presenting relevant data for decision making in the short term. For biaya fixed in the short term the total amount remains constant, while variable cost is a relevant cost, except for some type of avoidable fixed cost element called the relevant cost element.

Next about selling harga is a certain amount of compensation (money or goods) needed to get a number of combinations of goods or services. The company always sets the price of its products in the hope that the product is sold and can get maximum profit. Selling the right product is largely determined by success in determining the cost of the

right product, so that the selling price of the product offered can cover all costs and be able to make a profit. Harga selling is the amount of fees charged by a business unit to buyers or customers for goods or services sold or handed over.

III. METHOD

This research was conducted by conducting an analysis of the company's financial statements during the sampling period. So, when viewed the dimensions of time used, this study is included in the time series group using secondary data on the quarterly financial statements for the period 2011-2018. This research was conducted to determine the influence of independent variables, namely *the full costing* method and *the variable costing* method on dependent variables, namely selling prices. The sampling technique in this study is to use the *purposive sampling* method. According to (Gujarati & Porter, 2009) the purposive sampling method, it is a non-random sampling technique whose information is obtained by certain criteria.

This comparative descriptive research method compares two variables (between *the full costing* method and the *variable costing* method). Using descriptive methods is a method that serves to describe or give an idea of the object under study. This research also includes comparative research is a comparative study is a comparative study. Quantitative approaches are used to test a theory, to present a fact or describe statistics, to show relationships between variables, and some are developing concepts, developing understanding, or describing many things (Gujarati and Porter, 2009).

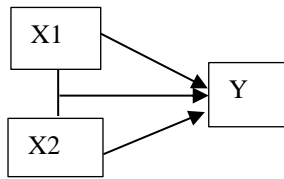
The method of analysis in this study is a quantitative method expressed by numbers. The analytical techniques in this study were carried out using multiple linear regression analysis. Multiple regression analysis aims to see the influence between independent variables and dependent variables. Independent variables consist of full costing methods and variable costing methods while dependent variables are cement pricing. The classical consumption test is performed to find out whether the regression equation model can be used as the basis for unbiased estimation, especially for large amounts of data and it is necessary to use the classical assumption test. This is to further convince the compatibility between the regression equation models. In this study the classic assumptions that are considered important in the study are: Normality test is useful for determining data that has been collected normally distributed or taken from normal populations, multokolinearity test to see that good regression model should not occur correlation among free variables, heteroskedasticity test to know whether or not there is a problem of heteroskedasticity, the basis of decision making is as follows:

1. If the Probability Chi-squared value is smaller than 0.05 then H_0 is accepted and H_a is rejected, meaning there is a problem of heteroskedasticity.
2. If the Probability Chi-squared value is greater than 0.05 then H_0 is rejected and H_a is accepted, meaning there is no problem of heteroskedasticity.

And uji autocorrelation aims to test whether in a linear regression model there is a correlation between residuals in

period t with errors in period t-1. This test was conducted using the help of the Eviews 9 program. The general form of multiple linear regression equations can be drawn in the following frame of mind:

Model:



From the above frame of mind can be made the following model:

$$\ln Y = \alpha + \beta_1 \ln x_1 + \beta_2 \ln x_2 + e$$

$$\ln Y = \alpha + \beta_1 \ln x_1 + e$$

$$\ln Y = \alpha + \beta_2 \ln x_2 + e$$

Explanation:

y = cement price

a = constant

b1, b2 = regression coefficient

x1 = Calculation of full costing method

x2 = Calculation of variable costing method

e = error value

IV. RESULT AND DISCUSSION

From the results of the data, it can be known that the Prob (F-statistic) value of $0.000666 < 0.05$ which means positive and significant. Then it can be concluded that simultaneously the variable Full Costing Method and the Variable Costing Method have a significant influence on the price of cement. While the t test is a partial test of the regression coefficient, it is performed to determine the partial role significance between independent variables to dependent variables by assuming that other independent variables are considered constant. The Full Costing method is partial to the price of cement with a t-statistics value of 3.125704 and a probability value of 0.0040, thus the probability value of > 0.05 it can be stated that partially the Full Costing Method has a significant effect on the price of cement. The Variable Costing method is partial to the selling price with a t-statistics value of 3.6799014 and the probability value of 0.0009, thus the probability value of < 0.05 it can be stated that partially the Variable Costing Method has a significant effect on the price of cement.

The coefficient of determination is a measure to determine the suitability or accuracy between the conjecture value or regression line with the sample data. If the value of the correlation coefficient is known, then to get the coefficient of determination can be obtained by squaring it. Based on the data, the adjusted R-squared value is $0.727031 \times 100\% = 72.70\%$, the figure shows that the contribution of the influence of the Full Costing Method and the Variable Costing Method to the Selling Price is 72.70%. While the remaining 27.30% is the influence of other factors outside the study. Below is the result of the equation as follows:

$$\ln Y = \alpha + \beta_1 \ln x_1 + \beta_2 \ln x_2 + e$$

$$Y = 25.70004 + 0.428016 \ln MFC + 0.003151 \ln MVC$$

$$(3.125704) (3.679014)$$

The results of the study can be explained as follows:

1. The effect of the Full Costing Method and the Variable Costing Method on the price of cement. The results of the hypothesis test regarding the effect of the Full Costing Method and the Variable Costing Method on the price of cement simultaneously, obtained the result that the probability value (Test F) of 0.000666 magnitude of the coefficient of determination is 0.727031. This means that the Full Costing Method and the Variable Costing Method simultaneously have a significant effect on the price of cement with a contribution value of 72.70%, thus the hypothesis is accepted. In accordance with the research (Muksal, 2015; Yulita, 2019). The results of this study also reinforce the results of research conducted by those who say that the variables of (Yana and Wuriyani, 2017) the full costing method to the price of cement simultaneously have a significant effect.
2. Full Costing Method to Cement Price. The results of the table regression show that the value of the Full Costing Method t calculates 3.125704 with a significant value of 0.0040 because the significant value is greater than 5% then the hypothesis is accepted, meaning that the independent variable Full Costing Method is partially related to the dependent variable, namely the price of cement. The results of this study also reinforce the results of research conducted by those who say that (Muksal, 2015; Yulita, 2019) the Full Costing Method has a significant effect on cement prices.

V. CONCLUSION

1. Test result F simultaneously values Prob (F-statistic) of $0.000666 < 0.05$ which means positive and significant then there is a significant influence on the full costing method and the variable costing method simultaneously on the price of cement.
2. The results of the t test are partially with a t-statistics value of 3.125704 and a probability value of 0.0040, thus the probability value of > 0.05 then there is a positive and significant influence of the full costing method partially on the price of cement (Yulita, 2019).
3. The result of the t test is partially with a t-statistics value of 3.679014 and a probability value of 0.0009, thus the probability value of < 0.05 then there is a positive and significant influence of the variable costing method partially on the price of cement (Muksal, 2015).

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