

An Analysis of the Accuracy of Manufacturing Overhead Cost Allocation in Establishing Competitive Selling Prices: A Case Study of UD. Cipta Mandiri

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ABSTRACT

This study aims to analyze the accuracy of factory overhead cost allocation in determining competitive selling prices at UD. Cipta Mandiri. The research employed a qualitative approach using a case study method, with data collected through interviews, observations, and documentation. The analysis was conducted by calculating the cost of production using the full costing method and determining the selling price through the cost-plus pricing approach. The results indicate that factory overhead costs have not been allocated accurately, resulting in selling prices that are not competitive. Based on the full costing method, a price difference ranging from 22% to 27.8% was identified compared to the traditional costing method, indicating a tendency toward overcosting. The application of the full costing method provides a more accurate calculation of production costs and enables the company to establish more rational and competitive selling prices. Therefore, the accuracy of factory overhead cost allocation plays an important role in enhancing business competitiveness.

INTRODUCTION

Competition in the manufacturing sector has become increasingly intense, particularly for small and medium-sized enterprises (SMEs) engaged in the production of building materials. One of the key factors influencing a company's competitiveness in the market is the determination of product selling prices. Selling prices that are set too high may reduce consumers' purchasing power, while prices that are too low can lead to financial losses for the company. Therefore, selling prices should be determined based on accurate production cost calculations, especially factory overhead costs, which are often difficult to identify and allocate accurately (Mulyadi, 2018).

In relation to selling price determination, the researcher conducted a preliminary interview with the owner of UD. Cipta Mandiri on February 8, 2026. The interview revealed that the business owner still relies on estimates and prior experience when setting selling prices, without performing detailed production cost calculations, particularly regarding

factory overhead costs. Furthermore, the selling prices of products offered by UD. Cipta Mandiri tend to be higher than those of other building material suppliers in the surrounding area. The following table illustrates a comparison of the selling prices of several products between UD. Cipta Mandiri and other suppliers.

Table 1. Comparison of Selling Prices of Selected Products Between UD. Cipta Mandiri and Other Building Material Suppliers

| Product Name | UD. Cipta Mandiri Price (IDR) | Average Price of Other Suppliers (IDR) |
|------------------|-------------------------------|--|
| Window Frame | Rp. 800.000 | Rp. 600.000 |
| Wooden Door | Rp. 1.750.000 | Rp. 1.550.000 |
| Wall Paint (5Kg) | Rp. 185.000 | Rp. 150.000 |
| Cement (50Kg) | Rp. 78.000 | Rp. 60.000 |
| Wooden Board | Rp. 95.000 | Rp. 80.000 |

Source: Blibli,2026

As shown in the table above, all products sold by UD. Cipta Mandiri are priced higher than those offered by other building material suppliers. This price difference may be attributed to factors such as material quality or service quality; however, based on the interview findings, the primary factor is the absence of detailed production cost calculations, particularly in the allocation of factory overhead costs. This condition has the potential to make selling prices less competitive and may reduce consumer purchasing interest if customers place greater emphasis on price than on other factors.

In cost accounting, the calculation of production costs that includes all elements of factory overhead serves as an important basis for determining selling prices. Commonly used methods include full costing and cost-plus pricing (Auliya Dewi Oktari, 2022). Full costing is employed to calculate all production costs comprehensively, including direct materials, direct labor, and both fixed and variable overhead costs, thereby providing a more accurate cost of production and minimizing errors in determining the pricing base (Sukma et al., 2022). Inaccurate overhead allocation may result in production costs being overstated or understated, ultimately affecting product competitiveness.

Meanwhile, a company can calculate its desired profit margin in a systematic manner after calculating the total cost using the full costing method by adding a predetermined profit margin to the cost of production. This is how the cost-plus pricing method is used to determine the selling price. This method helps ensure that the selling price covers all production costs while generating the targeted profit, making pricing decisions more rational and controlled. Both methods are highly relevant to the present study because the accuracy of factory overhead allocation directly influences the accuracy of production cost calculations. Full costing ensures that all production costs are included, while cost-plus pricing establishes the selling price based on the correct total cost plus a reasonable profit margin. If overhead

costs are allocated inaccurately, the resulting production cost calculations become biased, leading to less competitive selling prices.

At UD. Cipta Mandiri, the problem arises from the inaccurate allocation of factory overhead costs, causing the cost of production to inadequately reflect actual production expenses. Selling prices are often determined by simply increasing the profit margin without being supported by comprehensive cost calculations, resulting in relatively high prices and reduced competitiveness. This finding is consistent with the study conducted by Rahmadia et al. (2024), which concluded that inaccurate overhead allocation can affect the accuracy of selling price determination. Accurate allocation of factory overhead costs is crucial because such costs cannot be directly traced to specific products and therefore require an appropriate allocation base. If overhead costs are assigned without a clear and systematic basis, the resulting cost of production may become inaccurate and lead to uncompetitive selling prices. Therefore, an analysis of overhead allocation is necessary to enable the company to establish appropriate selling prices while maintaining reasonable profitability.

Based on interviews and observations, UD. Cipta Mandiri has not yet implemented an appropriate factory overhead allocation method, resulting in difficulties in determining competitive selling prices. Consequently, a comprehensive analysis of the accuracy of overhead allocation and its impact on selling price determination is required. According to cost accounting theory, the accuracy of overhead allocation influences the precision of production cost calculations. The full costing concept proposed by Hansen and Mowen emphasizes that all production costs including direct materials, direct labor, and both fixed and variable overhead costs must be incorporated into production cost calculations to generate realistic and reliable figures.

The final cost of manufacturing will be more precise if this approach is used with a definite allocation base, like machine hours or production volume. By adding a fair profit margin, the cost-plus pricing strategy can then be used to calculate the selling price, making pricing decisions more competitive, logical, and able to produce steady profits (Nurain Radjak et al., 2025). Cost accounting literature also explains that errors in overhead allocation may create cost distortions, causing products to appear either more expensive or less expensive than their actual costs. If UD. Cipta Mandiri is able to allocate overhead costs accurately, the risk of such distortions can be minimized. As a result, selling prices can become more competitive, aligned with market conditions, and capable of maintaining the company's profitability.

The study conducted by Rahmadia et al. (2024) concluded that the application of the full costing method has a significant effect on the accuracy of selling price determination. However, the study focused solely on recalculating production costs without analyzing its impact on competitiveness and consumer purchasing interest.

Similarly, the study by Siregar and Nasution (2023) examined the application of the cost-plus pricing method in determining selling prices within manufacturing businesses. The

results demonstrated that the method was capable of increasing profitability. Nevertheless, the study was limited because it did not provide a detailed analysis of the factory overhead allocation bases employed. Furthermore, Sukma et al. (2022) compared the traditional costing method with the full costing method in determining production costs. Their findings revealed significant differences between the two calculations. However, the study merely compared the numerical results and did not analyze their implications for competitive pricing strategies.

Based on the previous studies, a research gap can be identified in the lack of comprehensive studies that simultaneously analyze the accuracy of factory overhead cost allocation, the implementation of full costing and cost-plus pricing methods, and their impact on determining competitive selling prices within an integrated framework. This study offers a more comprehensive contribution because it not only recalculates production costs but also examines the accuracy of factory overhead allocation bases and directly relates them to price competitiveness and consumer interest. Therefore, this research provides broader insights than previous studies by integrating cost accounting concepts with competitive business strategies.

RESEARCH METHODS

This study applies a qualitative approach with a case study method, using UD. Cipta Mandiri as the object of research. The purpose of this study is to obtain a deeper understanding of factory overhead cost allocation practices and their influence on selling price determination. The data used in this study consist of primary and secondary data. Primary data were collected through direct interviews with the business owner as the main respondent and observations of the production activities. Meanwhile, secondary data were obtained from company documents, including production cost records and sales reports for 2025, as well as relevant literature. Data collection was conducted through interviews, observation, and documentation in order to gather comprehensive information related to the costing system applied by the company.

The data analysis technique used in this study is descriptive analysis with a quantitative approach. The analysis was carried out by recalculating the cost of production using the full costing method, which involves identifying and allocating all production costs, including direct material costs, direct labor costs, and factory overhead costs, in a proper manner. After the cost of production was determined accurately, the selling price was then calculated using the cost-plus pricing method by adding a certain profit margin to the total production cost. The results of these calculations were subsequently compared with the selling prices currently applied by the company and the prevailing market prices to evaluate the competitiveness of the selling prices obtained.

RESULTS AND DISCUSSION

Inaccuracy in Factory Overhead Cost Allocation at UD. Cipta Mandiri

UD. Cipta Mandiri is a business engaged in the sale of building materials (a building supply store) that provides various products such as wooden doors, window frames, wooden

boards, cement, and wall paint. The business serves the construction needs of the surrounding community and competes with other building material suppliers in terms of pricing. Based on interview findings, it was revealed that the determination of selling prices is still carried out using a traditional method, namely based on estimates and experience without detailed production cost calculations.

Factory overhead costs such as electricity, transportation, and other operational expenses have not been systematically recorded and allocated, resulting in selling prices being determined by subjectively increasing profit margins. This condition is in line with Rahmadia et al. (2024), who state that many SMEs still use traditional approaches, which may lead to non-competitive pricing. To examine the impact of this method, a comparison was made between traditional selling prices and those calculated using the full costing and cost-plus pricing methods. The results show a significant difference in prices, as presented in the following table.

Table 2. Comparison of Selling Prices Based on the Traditional Method and the Cost-Plus Pricing Method

| Product | Traditional COGM (IDR) | Traditional Price (IDR) | Full Costing COGM (IDR) | 5% Margin (IDR) | Cost-Plus Price (IDR) | Difference (IDR) | Difference (%) |
|-------------------|------------------------|-------------------------|-------------------------|-----------------|-----------------------|------------------|----------------|
| Window Frame | 700.000 | 800.000 | 550.000 | 27.500 | 577.500 | 222.500 | 27,8% |
| Wooden Door | 1.600.000 | 1.750.000 | 1.300.000 | 65.000 | 1.365.000 | 385.000 | 22,0% |
| Wall Paint (5 kg) | 165.000 | 185.000 | 130.000 | 6.500 | 136.500 | 48.500 | 26,2% |
| Cement (50 kg) | 100.000 | 78.000 | 55.000 | 2.750 | 57.750 | 20.250 | 26,0% |
| Wooden Board | 115.000 | 95.000 | 70.000 | 3.500 | 73.500 | 21.500 | 22,6% |
| Total | 2.680.000 | | 2.105.000 | | | | |

Based on the table above, it can be observed that the selling prices determined using the cost-plus pricing method with a 5% profit margin are significantly lower than those calculated using the traditional method. The cost-plus pricing results range from IDR 57,750 to IDR 1,365,000, whereas the traditional pricing method yields considerably higher price levels. The resulting price differences are quite significant, ranging from 22.0% to 27.8%. The largest difference is found in the window frame product at 27.8%, while the smallest difference is found in the wooden door product at 22.0%. This indicates that the traditional method produces prices that are far above what they should be when calculated based on actual production costs.

The significant differences are caused by the lack of detailed cost calculations in the traditional method, particularly in the factory overhead cost component. Inaccuracy in

overhead allocation is evident from the absence of systematic cost recording and the failure to use an appropriate cost driver as a basis for allocation. As a result, costs such as electricity, transportation, and other operational expenses are not allocated based on the level of resource consumption for each product, but are instead estimated as a whole. This leads to a situation where the business owner does not have accurate information regarding the amount of overhead costs that should be assigned to each product. Consequently, selling prices are determined by adding profit margins subjectively to anticipate cost uncertainty.

To further clarify how the inaccuracy of factory overhead cost allocation affects the cost of production, a breakdown of the cost structure into its main components namely direct materials, direct labor, and factory overhead costs was conducted. This breakdown aims to provide an overview of the proportion of each cost component and to illustrate how cost allocation is applied to each product. By examining the cost structure, it becomes possible to determine the extent to which overhead costs contribute to the total production cost.

Table 3. Cost Allocation Under the Traditional Method and Full Costing Method

| Cost Component | Traditional (IDR) | Full Costing (IDR) |
|------------------------------------|-------------------|--------------------|
| Total Direct Material Costs (60%) | 1.608.000 | 1.263.000 |
| Total Direct Labor Costs (25%) | 670.000 | 526.250 |
| Total Factory Overhead Costs (15%) | 402.000 | 315.750 |
| Total | 2.680.000 | 2.105.000 |

Based on the interview results, cost allocation is not distributed evenly but is adjusted according to the actual proportion of resource usage, where direct material costs represent the largest component, followed by direct labor costs and factory overhead costs. The calculation results show that factory overhead costs under the traditional method amount to IDR 402,000, while under the full costing method they amount to IDR 315,750. This indicates that the traditional method is unable to allocate overhead costs accurately due to the absence of a clear allocation base.

On the other hand, the lack of classification between fixed and variable costs further worsens the inaccuracy of cost calculations. All costs are treated equally without considering their respective proportions, resulting in less precise cost allocation. This issue shows that the main problem does not lie in the amount of overhead costs itself, but rather in the allocation method, which is not yet structured and not based on production activities. As a result, cost distortion occurs in the form of overcosting, a condition in which the cost of production is higher than it should be (Sukma et al., 2022).

Conversely, through the application of the full costing method, all production cost components, including overhead costs, can be calculated and allocated more systematically,

resulting in a more accurate cost of production. When this cost is added to a 5% profit margin, the resulting selling price becomes more rational and closer to market conditions. Therefore, the significant price differences shown in the table indicate that inaccuracies in factory overhead cost allocation under the traditional method are the main factor contributing to the high selling prices of UD. Cipta Mandiri and reducing its competitiveness in the market.

Calculation of Cost of Production Based on the Full Costing Method

The calculation of cost of goods manufactured using the full costing method covers all production costs charged to the product, including direct material costs, direct labor costs, and factory overhead costs, both fixed and variable (Nila Dera Prisna & Hendra Hermain, 2023). Full costing is a costing method that allocates all production-related costs to the products produced, regardless of whether the costs are fixed or variable in nature (Nila Dera Prisna & Hendra Hermain, 2023). Therefore, the cost of goods manufactured formula under the full costing method reflects the total actual production costs incurred during the production process. This differs from the traditional costing approach, which often only accounts for the main cost elements or uses estimated costs without detailed cost recording, making it less able to present production costs comprehensively (Mulyadi, 2018; Horngren et al., 2018).

Based on Table 2 above, it can be observed that there is a significant difference between prices determined using the traditional method and those based on cost of goods manufactured calculated using the full costing method. The full costing method includes fixed costs because these costs are already incorporated into finished goods and work-in-process inventories that have not yet been sold. Fixed overhead costs are used as the basis for calculating cost of goods sold when the product is eventually sold (Gustina Rizky & Marliyah, 2023).

Under the traditional method, product prices are determined without detailed cost calculations, resulting in generally higher prices. For example, the window frame product is priced at IDR 800,000 under the traditional method, whereas its cost of goods manufactured based on full costing is only IDR 550,000. After adding a 5% profit margin, the appropriate selling price should be IDR 577,500. This indicates a difference of IDR 222,500 or 27.8%. A similar difference is also found in other products. The wooden door, priced at IDR 1,750,000 under the traditional method, actually has a cost of goods manufactured of IDR 1,300,000. With a 5% margin, the appropriate selling price is IDR 1,365,000, resulting in a difference of IDR 385,000 or 22.0%.

Likewise, wall paint (5 kg), cement (50 kg), and wooden board products all show that traditional prices are higher than full costing-based prices, with differences ranging from 22% to 27%. This difference occurs because the traditional method does not accurately allocate factory overhead costs and in some cases relies merely on estimates. As a result, costs are assigned inaccurately and tend to overstate the cost of production. In contrast, the full costing method systematically calculates all cost components, including direct materials, direct labor, and factory overhead costs, resulting in a more accurate and realistic cost of production.

This difference indicates that the traditional method has the potential to cause undercosting, which leads to suboptimal selling price determination and may reduce company profitability. Meanwhile, the full costing method provides a more accurate representation of production costs because all cost components are calculated in detail (Mulyani Sri, 2023). Therefore, although the resulting cost of production may appear higher, it actually reflects the real condition of the company and can serve as a more reliable basis for managerial decision-making, particularly in determining competitive selling prices.

The main objective of applying the full costing method is to produce complete and accurate cost information so that the company can set fair selling prices, avoid hidden losses, and improve efficiency and cost control. By understanding all cost components, the company can identify waste, control overhead costs, and improve overall profitability. Thus, the full costing method is considered more appropriate than the traditional method in determining the cost of production because it is able to reflect total production costs comprehensively. The term “more appropriate” in this context means that the resulting cost information is more accurate, unbiased, and reliable as a basis for managerial decision-making, particularly in establishing competitive and sustainable selling prices (Ilham Nurizki Fadli, 2020).

Determination of Competitive Selling Price Based on Cost-Plus Pricing

After determining a more accurate cost of goods manufactured using the full costing method, the next stage is to establish a competitive selling price through the cost-plus pricing method. This method is applied because it connects the total production cost directly with the desired profit margin. In this study, the cost of goods manufactured of UD. Cipta Mandiri, amounting to IDR 1,600,000, represents all production cost components in a comprehensive manner. Therefore, this value can serve as a reliable basis for setting the product’s selling price.

The selling price is determined by adding a profit margin of 5% to the production cost. This margin was chosen to assess the extent to which the company can achieve higher profitability without neglecting price competitiveness in the market. Based on the calculation, a 5% margin of IDR 1,600,000 equals IDR 80,000, resulting in a selling price of IDR 1,680,000.

Table 4. Price Comparison with Other Building Material Suppliers (5% Margin)

| Description | Traditional (IDR) | Cost-Plus Pricing (IDR) | Panglong A (IDR) | Panglong B (IDR) |
|-----------------------------------|-------------------|-------------------------|------------------|------------------|
| Cost of Goods Manufactured (COGM) | 1.600.000 | 1.300.000 | 1.300.000 | 1.250.000 |
| 5% Margin | 80.000 | 65.000 | 65.000 | 62.500 |
| Total | 1.680.000 | 1.365.000 | 1.365.000 | 1.312.500 |

Based on the table, it can be observed that there are differences in the results of the

traditional method and the cost-plus pricing method in determining selling prices. Under the traditional method, the total selling price is IDR 1,680,000, with a cost of goods manufactured (COGM) of IDR 1,600,000 and a 5% profit margin of IDR 80,000. When compared to market prices, particularly Panglong A at IDR 1,365,000 and Panglong B at IDR 1,312,500, the selling price under the traditional method appears significantly higher. This condition indicates that the price set is less competitive because it is above competitors' prices, potentially making the product difficult to compete in the market. This difference occurs because, under the traditional method, factory overhead cost allocation has not been carried out in detail and tends not to use an appropriate cost driver, resulting in a higher-than-actual cost of goods manufactured. Consequently, production costs are overestimated, which leads to higher selling prices.

In contrast, after applying the cost-plus pricing method, the cost of goods manufactured becomes more accurate, namely IDR 1,300,000. With a 5% margin of IDR 65,000, the resulting selling price is IDR 1,365,000. This price is the same as Panglong A and closer to market conditions. This finding is consistent with the study by Hermain et al. (2023), which states that the application of the full costing method in determining selling prices can produce more accurate and competitive prices because all cost components are fully taken into account, thereby indicating that the product becomes more competitive and able to compete in the market.

CONCLUSIONS

The analysis of factory overhead cost calculation at UD. Cipta Mandiri has so far been conducted using a simple method, which has not produced results that accurately reflect the total factory overhead costs incurred. Based on the full costing method calculation, there is a difference in overhead costs amounting to IDR 200,000 per product. This discrepancy leads to non-competitive selling prices. However, with the determination of factory overhead costs using the full costing method, UD. Cipta Mandiri is able to set more competitive prices compared to similar businesses

Accuracy in allocating factory overhead costs has proven to be a key factor in producing reliable cost of goods manufactured. By using a clear and systematic allocation base, all costs can be distributed proportionally to each product, thereby minimizing cost distortion. As a result, selling prices determined through the cost-plus pricing method become more rational, neither too high nor too low, and better aligned with market conditions. Therefore, the application of the full costing method not only improves the accuracy of cost calculations but also plays an important role in creating competitive selling prices and supporting the sustainability of UD. Cipta Mandiri in a competitive market environment.

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