

Operational Flow Control Model, Manufacturing Cost, and Extension Cost Structure Affect Production in Manufacturing Companies

Togar Timoteus Gultom¹, Syaifuddin², Nagian Toni³

^{1,2,3} Postgraduate School, Universitas Prima Indonesia Medan, Indonesia

syaifuddin@unprimdn.ac.id

ABSTRACT

Maintaining company stability in increasing income requires good cooperation and management. Of course, it is necessary to pay attention to several important sectors. Among them may be the internal sectors of the company. Therefore, it is important to research to see whether the Operational Flow Control Model, Manufacturing Cost, and Extension Cost Structure have an effect on Production in Manufacturing Companies. Data collection in the study used quantitative studies and literature. The results of the study showed that operational cash flow has a significant and positive effect on Production Cost Control. Likewise, production costs also have an important role and influence on Production Cost Control. Furthermore, the Extension Cost Structure variable also has a positive and significant effect on production cost control. So it can be said that all variables have an interest and influence in advancing manufacturing companies.

Keywords: Operational Flow Control, Manufacturing Cost, Extension Cost Structure, Production, Manufacturing

INTRODUCTION

With the development of the global economy and science and technology, business competition is increasingly fierce. The survival and growth of every business depend heavily on cost advantage (Yuangang, 2016). Businesses spend money on value chain management, and it can also help companies save money (Binghong, 2017). In performance evaluation, companies should use value chain management to assess the rationality of the company's organizational structure and distribution. Value chain management can help business managers make the right management choices to adapt to changes in the external environment.

Equipment costs and carbon emissions, according to research, are the main components of production costs (Zhenguo, 1998). When compared with conventional manufacturing products, the full life cycle cost of green products is higher. Franchetti, Matthew, and colleagues conducted a study on additive manufacturing (AM) technology. They found that traditional manufacturing methods are used more often than AM methods because the development of AM processes reduces costs and increases process efficiency (Zhang & Din, 2015). This study looked at the cost structure and break-even point of AM and traditional methods. A comparative analysis investigated the costs required for injection molding and AM to produce various batch parts. Maintaining market competitiveness means reducing the time and cost required to develop a product (Haijian, 2016; Santoso et al., 2024). Research shows that design and assembly manufacturing (DFMA) is a framework for reducing production costs (Yongping, 2016).

Manufacturing businesses can meet the requirements of the times and improve cost control effects by using the value chain. Activity costing method and target costing method are used as cost chain cost control tools to analyze the cost control of Beijing Hyundai enterprises (Huanshu, 2009). Wei and Fan combine the activity-based costing method with the cost control method; they suggest combining big data with business objectives, and exploring new cost control models using data tools and technology (Shicheng et al., 2004). Liu conducted an empirical analysis of the passenger vehicle manufacturing industry as an example and discussed methods for optimizing China's manufacturing cost structure. It is believed that increasing investment in R&D can reduce material costs and production costs (Qianwang, 2016; Shiming, 2012). The green factor correlation model for the recycling and reproduction of mechanical products offers guidelines based on optimizing environmental protection for recycling and reproduction (Lizhi & Yanpin, 2017). The concept of cost estimation service is presented at various stages of the product life cycle by Timing Ming, and they also offer a cost estimation service model for mass customization products. This model is very good for product cost control because it can estimate costs in real-time (Binghong, 2017).

Theoretically, cost reduction methods are divided into two categories: traditional management and modern management. Strategic costing method (Chunyan & Cai, 2016), value chain costing method (Liangwei, 2026), liability costing method (Estampe, 2020), and standard costing method belong to traditional management methods. Contemporary management methods include activity-based costing method (Yuan et al., 2019), life cycle costing method (Liu et al., 2019), and quality costing method (Vittorio, 2015). To reduce costs at a certain operating point of a business, there are many ways to control costs, such as using cheaper raw materials or accessories when producing, and management can be optimized to reduce costs. To analyze each aspect of product manufacturing, this paper uses the extension conjugation theory. The purpose of this analysis is to find hidden costs that are often overlooked by people and to provide a way for companies to control costs.

The results of the interim study indicate that the relationship between the budget and the physical and financial realization reports has been revealed in the financial statements in recent years. This can be seen in the cash flow statement, operating costs, and income. There is an observable difference between the profits obtained each year. This study focuses on controlling production costs through the manufacturing industry. The choice of this industry is because there is a lot of decline in the number of companies in this sector in the province of North Sumatra. As a result, the importance of controlling the cost of responsibility as a corporate control tool must be remembered. The agency relationship according to agency theory motivates managers to strive to achieve organizational goals. This relationship is used as a basis for building a relationship that functions as an employer and is responsible for the control and flow of information (Violin, 2019). In the same way, Kaizen theory says that a comprehensive corporate system is needed for continuous improvement to achieve better conditions than today, which allows each company to get a new breath.

LITERATURE REVIEW

Operating Profit

In accounting, profit is the difference between the selling price and the cost of production. In pure economics, profit is defined as the increase in investor wealth as a result of investing capital, minus opportunity costs. How costs are defined distinguishes the two. According to Soemarso (2014), it is certain that business activities focus on profit. Profit is the difference between income and expenses concerning efforts to obtain that income within a certain period. It can be concluded that what is meant by profit is the

extent to which a company obtains income from sales activities as a percentage of the company's total business, including costs incurred for the sales process.

Companies are usually established to achieve certain goals, such as generating the greatest profit with the least cost. To achieve this goal, there needs to be planning and control in every aspect of the business so that the company can finance its operations consistently. According to Baridwan (2014), profit is an increase in capital, or net assets, resulting from side transactions or transactions that rarely occur and all other transactions or events that affect the company during a certain period, except for investments or owner income. However, according to Simamora (2012), profit is a comparison between income and expenses; if income is greater than expenses, the result is called net income.

Based on the description above, it can be concluded that profit comes from all transactions or events that occur in the company and will affect its operations during a certain period. If income is greater than expenses, then the company will make a profit, if otherwise, then the company will lose. Companies can divide their profits into two parts, namely gross profit and net profit. According to experts, gross profit is the profit obtained from total sales to buyers during a certain period. Conversely, net profit is the profit obtained from all income minus celluloid (Swastha, 2002).

Cash Flow

In the economic decision-making process, users must evaluate a company's ability to generate cash and make acquisition decisions based on information about the company's cash flows. During the period of presentation of the financial statements, the company must prepare a cash flow statement and present it as a single component of the financial statements.

Companies must have money to reinvest to generate additional profits. Profits reported in the books are not always in the form of cash, so companies can have more or less cash than reported in the books. Cash flow can be defined as the profit before taxes from a project, plus depreciation expense, and minus the additional net income before taxes generated by the project. Cash flow can also be defined as cash flow from sales or similar activities minus all expenses that include all cash outlays. In the cash flow statement, a company reports the amount of money received and paid, and changes in the amount of money that occurred during a certain period from the company's operating, investing, and financing activities. The cash flow statement can also show how a company reported a net loss while making large capital expenditures or paying dividends, or how the company issued or raised debt, stock, or both during the period. However, the Indonesian Institute of Accountants considers cash flow as both an inflow and an outflow.

Since companies typically report periodically, a cash flow statement based on revenue must distinguish between gross cash receipts and gross cash disbursements from operating, investing, and financing activities. Cash flow is a term used to classify cash flows from operating and financing activities; net cash flow shows the difference between receipts and sources. There are several reasons why a company must have money. These factors determine how much cash a company must have.

Operating Expenses

A Sangay business usually requires expenses that help in making decisions for day-to-day operations. Costs and expenses usually have different meanings. When it comes to defining costs, it is important to remember that it is very difficult to give a precise definition of what costs are. As a result, costs can be categorized into several categories based on the purpose for which they are used.

According to Carter and Usry (2014), "Cost is the exchange value, expenditure, sacrifice to obtain benefits so that in financial accounting, expenditure or sacrifice at the time of acquisition is represented by current or future depreciation in the form of cash or other assets." According to Machfoedz (2001), "cost is the

amount measured in financial terms of cash issued or wealth transferred, shares, or "Cost is the equivalent value of cash sacrificed to obtain goods or services that are expected to provide current or future benefits to the organization or company", said Mowen and Hansen (2001).

Operating Income

Revenue such as fees or services, rent, and commissions are examples of revenue, according to Warren (2015). Revenue is defined as "an increase in owner's equity resulting from the process of selling goods or services to buyers." According to Soemarsono (2014), revenue is an increase in the economic benefits of an entity during a certain accounting period in the form of income additions to assets the formation of liabilities, or a combination of both from delivering goods or producing goods, providing services or carrying out other activities that form the entity's ongoing main or central operations.

Revenue is defined as "Gross inflows of economic benefits during the period arising in the course of the ordinary activities of an enterprise when those inflows result in increases in equity, other than contributions from equity participants." Therefore, revenue consists of gross inflows and economic benefits received, not loans or increases in equity. Therefore, amounts receivable on behalf of third parties, such as While an increase in revenue results in an increase in assets or a decrease in liabilities, an increase in revenue does not increase equity.

Extension Cost Structure

The cost structure of expansion is an additional cost for business operational conditions that require operational activities. We are all aware of the process that a product goes through from start to finish: product design and development, procurement of raw materials and components, storage of purchased goods, and then raw materials and components. These materials are used for production and processing and then sold at various points of sale. The product is used by consumers. Consumers experience problems when using it or need to repair it, and the product is gradually removed from the market for recycling.

Traditional production costs include direct material costs, direct labor costs, and production costs. On the other hand, production costs refer to the costs incurred by branches and workshops to organize and manage production, including management salaries, depreciation costs, repairs and maintenance, and other production-related costs, such as office costs, travel, labor insurance, etc., which are incurred during the production process using the method This view is useful for finding cost components that are often overlooked by businesses and facilitating production cost control.

RESEARCH METHOD

Causal research is used in this dissertation to test the hypothesis about the causal relationship between variables (Siregar, 2009). In the simultaneous method, variables Y and X have a relationship with each other. In a situation where there is an independent variable/exogenous variable (X) and a dependent variable/endogenous variable (Y), the independent variable is the variable that influences or causes changes or the emergence of the dependent variable (bound). Manufacturing companies in the Medan Industrial Area are where this research was conducted.

Operational Variables

Table 1. Operational Definition of Variables

Variables	Description	Data Scale
Operating Cash Flow (X1)	Cash flow consists of the pre-tax profit from a project, plus depreciation expense, and minus any additional pre-tax net profit generated from the project.	Ratio
Manufacturing Cost (X2)	According to Carter and Usry (2004), "Cost (Kosta) is the exchange value, expenditure, sacrifice to obtain benefits so that in financial accounting, expenditure or sacrifice at the time of acquisition is represented by current or future depreciation in the form of cash or other assets."	
Extension cost structure (X3)	He can analyze the components of the company's production costs using eight conjugated extent theories, which include the materiality of each material and non-material part, the dynamics of latent and apparent parts, the systematicity of soft and hard parts, and the conflict between negative and positive parts. He hopes to provide a complete analysis and control of the company's production costs.	
Production cost control (Y1)	Production cost control regulates and determines the costs used or incurred during the production process.	

Data Collection and Retrieval Procedures

Data Collection

Primary and secondary data used to compile scientific papers are collected, compiled, recorded, and analyzed to ensure that the data obtained is correct.

Data Collection

The main objective, according to Sugiyono (2009), of the most strategic research approach is data collection. Data collection can be done to obtain the information needed for the research framework and achieve new research objectives. Researchers need to collect data for deeper research if they want to prove a hypothesis empirically. Hypothesis variables determine this data collection process. In this study, data were collected through documentary studies with a literature approach. Literature reviews are conducted to expand knowledge about the various concepts used in the research process (Martono, 2011). In this study, data were collected through documentary research, which involves collecting and processing data from previous information related to the problem being investigated.

Data Analysis

Data analysis is a step or research process in which collected data is processed to answer the problem formulation (Moleong, 2004). Data analysis includes organizing and grouping data into patterns, categories, and basic explanatory units, as well as finding themes and locations to create working hypotheses put forward by the data. This study uses quantitative methods such as simultaneity and SUR. The analysis model used in this study is the SUR (Simultaneously Unrelated Regression) Model.

Assumption Test

Data Stationarity Test (Unit Root Test)

The stationarity test is a classic assumption test that was first used in VAR model analysis. A set of data is considered stationary if the mean and variance do not change systematically over time or the variance is constant (Nachrowi et al., 2006). The results of a non-stationary time series will produce a dubious regression analysis. A curious condition is when the regression coefficient and determination number are high, but there is no correlation in the variable model. Therefore, a stationary test must be carried out. The unit root test is one of them, and because it is very simple, the Dickey-Fuller test is the most commonly used. If the augmentation probability value of the Dickey-Fuller statistical test is less than 0.05 and the t-statistic value is greater, the data is not stationary based on the McKinnon value at the 1% confidence level. If the test that tests stationary data does not show stationary data at the first level, then the test can be continued to a different second level if the data remains non-stationary at this level as well.

Granger Causality Test

The Granger Causality Test is intended to see how the relationship pattern is between variables.

Johansen Cointegration Test

Although there are many types of cointegration tests, the Johansen test is the most common for testing several vectors. After the data is stationary, a cointegration test is carried out to determine whether there is a long-term equilibrium relationship between the variables studied. If the maximum eigenvalue and trace statistic are greater than the critical value and the prob value is less than 0.05, the data from several variables studied are considered cointegrated.

RESULT AND DISCUSSION

The Effect of Operating Cash Flow on Production

Part of the economic resources is the operating costs to maintain and generate income. Costs that are affected by business actions Therefore, operating costs increase along with the level of company activation (Feng, 2017). This is because operating costs are costs that the company is directly involved in. Therefore, determining operating costs cannot be done separately from all company activities.

A cash flow statement is a report that can provide more complete information about the amount of cash available to the company (Xingmei, 2008). Cash flow information can help identify the financial condition of the company. Cash flow from operating activities can also be used to determine whether the cash flow generated is sufficient to pay off loans, maintain operating capabilities, and make investments without relying on external funds. The cash flow statement should be presented by detailing the components of cash flow from operating, investing, and financing activities.

In this case, the main objective of the company is to achieve results that are by the company's objectives, namely obtaining income that will generate profit (Harlalka et al., 2016). This occurs if the amount of costs incurred is greater than the amount of income received. Therefore, profitability must be used to show the company's income.

Companies that produce military and commercial products know that they depend on customers if their products and services meet customer expectations. By looking at the financial statements, we know that every company spends a lot of money to fulfill all kinds of company tasks, or operating costs, before achieving their goals (Liu, 2018). In this case, the ultimate goal of the company should be following the company's goals, which is to earn income. If the amount of income received is greater than the costs incurred, then the company will make a profit.

The Influence of Production Costs on Production Cost Control

Standard production costs consist of standard raw material costs, standard direct labor costs, and standard factory overhead costs (Violin, 2019). Production cost budget planning is a structured process that involves many important steps. Production cost budget planning begins by setting the fiscal year from January to December, and during this period, the budget is prepared according to the fiscal year. The first step in this process is to determine the amount of production expected during the year. With the help of other sections in the main office, the plant and technology sections prepare the expected production amounts and create production estimation guidelines. The form guidelines and cost budgets are sent to the plantation. Here, the plantation calculates its production costs. Here, the plantation creates a production cost budget, which is then reviewed and checked in the main office with the administrator to ensure that the budget is correct (Santoso et al., 2014).

The variance method, or comparison of actual processing costs with the budget that has been prepared, is also used to control processing costs. While overall production cost control includes evaluating the overall production cost deviation, some deviations indicate that there is waste in the use of processing costs. Overall, the results of the analysis show a favorable variation. This shows that the business can manage production costs efficiently and effectively.

Since the company prepares a larger budget than the production costs incurred, it can be seen as the cause of the unfavorable variance or difference between the budget and production costs. This will cause the company to generate higher net income, which means that the production budget costs can be maximized and used more efficiently. According to research conducted by Ginting & Sagala (2019) and Sasongke (2013), a comparison between the realization of production costs over the past few years shows the effectiveness of using the budget as a tool to control production costs. Unfavorable differences in business can be caused by many things that affect production costs that are not by the budget. Some common factors that cause negative variances include differences between the company's actual and estimated conditions. In general, in this study, the factors responsible for the unfavorable differences between budget and actual production costs consist of several internal and external elements. External factors, on the other hand, include market demand and competition in the market, which contribute to the failure to achieve budget targets and actual production costs. Therefore, to avoid unfavorable costs in the future, companies should consider these two elements more carefully when making production cost budgets.

The Influence of Extension Cost Structure on Production Cost Control

A farmer's ability to determine, direct, and expectedly coordinate production factors is called farm management (Luntungan, 2012). The concepts of cost and production are closely related, so the cost structure in cassava agribusiness management in the Bengawan Solo Wonogiri Watershed must be

thoroughly studied to determine the appropriate allocation of use to increase cassava yields (Rahayu et al., 2020). How much the company can receive funds that will be used to operate and develop is one aspect that must be considered when managing financial functions. Capital is the right or portion owned by the owner of the company in the capital, stock, additional profit items, or assets that are greater than the company's debts.

The term "capital structure" is closely related to determining how much debt and equity a company uses as a source of funds. The difference between debt and equity that a company uses to pay for operating costs and purchase fixed assets is known as capital structure (Atmaja, 2003). Because financing structure is very important for a business, managers must pay attention to the components of determining capital structure. For this study, there are components of asset structure, growth, profitability, and liquidity of the organization. According to Joni and Lina (2010), asset structure factors affect capital structure. A company can consider its asset structure when providing loans because creditors believe that large businesses have a low risk of bankruptcy.

The ability of an organization to generate material and non-material benefits under its objectives is known as its growth rate. Companies with high growth opportunities tend to have a small debt ratio to finance their investments, which allows them to generate the most profits and increase their value (Brigham and Houston, 2011). Conversely, companies with low growth opportunities tend to have a high debt ratio to finance their investments, which allows them to increase their value.

CONCLUSION

Based on the results of the study above, it is concluded that operational cash flow has a significant and beneficial effect on production cost control. In addition, production costs also play an important role and affect production cost control. In addition, the Extension Cost Structure variable also significantly affects production cost control. Thus, it can be said that each variable has value and affects the progress of manufacturing companies.

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