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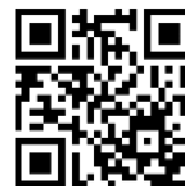
The Cost-Based Transfer Pricing: Research in Feed Mills in the Red River Delta Region



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ABSTRACT: The authors study cost-based transfer pricing at feed mills in the Red River Delta. Survey data was taken in April 2023 through interviews and questionnaires. Survey subjects are mainly business administrators and accountants. The survey results show that: (1) decisions on the price of internally transferred products are made by the senior management of the enterprises, (2) the enterprises do not promote the autonomy of their member units, and (3) firms use cost-based transfer pricing with base costs are direct material costs, direct labor costs, and manufacturing overheads. Based on the obtained results, the authors offer solutions for cost-based transfer pricing at feed mills in the Red River Delta.

KEYWORDS: cost-based transfer pricing, feed mills, Red River Delta

1. INTRODUCTION

Research recently published by Vietnam Report shows that feed mills rely heavily on imported raw materials, so they are greatly affected by recent fluctuations in the international market. However, businesses are still confident about the positive growth prospects of this industry in 2023 and in the next 5 years. 40% of businesses and experts surveyed by Vietnam Report said that the prospect of the animal feed industry in 2023 is positive growth and a high growth rate in the next 5 years.

According to the forecast of the Vietnam Poultry Association, Vietnam's animal feed demand will reach about 28-30 million tons per year in the next 5 years, worth 12-13 billion USD with an average growth rate of 11-12% per year, with more than half of feed production (14.5-15 million tons) going to the poultry industry. The main factor driving the growth of the market is the increasing consumption of poultry and livestock meat in Vietnam. This comes from the increasing average income, which increases the purchasing power of people. In addition, the recovery and development of the tourism and hotel industries will continue to drive the growth of the Vietnamese animal feed market in the coming period. In addition, the percentage of livestock households converting from small-scale livestock production to organized farming according to farm size is increasing, whichs is expected to continue to drive growth opportunities in the animal feed market in the coming years. Thus, the potential for the development of the industrial feed industry is huge.

According to the Department of Livestock Production (2021), the production of animal feed is unevenly distributed among geographical regions and concentrated mainly in the delta provinces. According to livestock magazine (2021), the total production of animal feed in the period from 2015 to 2020 will reach more than 113 million tons. Specifically, the Red River Delta produces more than 46 million tons, accounting for nearly 41% of the total animal feed production in the country. This is also the area with the most feed mills. However, Vietnamese feed mills in general and Red River Delta feed mills in particular are facing many difficulties and challenges in their development. Therefore, enterprises must not only determine a suitable external selling price but also a reasonable internal transfer price. Transfer pricing is not only an accounting tool but also a tool to help managers make the right decisions, contributing to unifying operational goals between the corporation and its member units.

Study overview

Hirshleifer (1956) was the first to formulate the transfer pricing problem in economics, arguing that the market price is the correct transfer pricing only if the transferred good is produced in a perfectly competitive market. If the market is not perfectly competitive, or if there is no transfer of goods, the standard transfer pricing may be the marginal cost with simplified conditions.

Tang (1992) provides empirical evidence on transfer pricing methods used in US firms. The study found that out of 143 companies that responded to the survey, 46.2% used cost-based transfer pricing. Among these companies, 7.7% use variable manufacturing costs, 53.8% use full manufacturing costs, and 38.5% use full manufacturing costs plus profit.

Vaysman Igor (1996) studies transfer pricing methods in UK firms. The study concludes that when the optimal profit margin is calculated, the cost-based transfer pricing method will be most commonly used. The transfer pricing is calculated based on the cost reports of the production department. The research results also show that when establishing the assumption that divisional managers cannot share information about their divisions with senior managers because of the complexity of the business environment. In this case, a compensation management system that uses cost-based transfer pricing allows companies to achieve higher expected profits if all decisions are made by senior management.

Nick W. McGaughey (1997) studied transfer pricing in two selected industries, electronics and chemicals, in US companies with operations in the US and abroad. This study has shown that previous studies are still lacking due to the lack of participation of small firms and the lack of comparability across industries. This study overcame those shortcomings. Transfer pricing methods are classified into two groups: cost-oriented methods and non-cost-oriented methods. Answer sheets were obtained from 133 chemical companies and 74 electronics companies. The most common transfer pricing methods used in chemical companies are market-based transfer pricing and cost-based pricing methods. The most commonly used transfer pricing method in electronics companies is the market price, the market price minus selling costs, and the price on a full cost of production basis. 56% of chemical companies use the cost-oriented method, while about 46% of electronics companies use this method of pricing.

Coenenberg et al. (2007) analyze the main advantage of the full-cost transfer pricing method by assuming the situation where the buyer has to pay for the production of the item itself. The seller will not incur a loss as in the variable cost calculation. Coenenberg et al. (2007) point out that variable costs are applied to calculate transfer pricing if the following conditions are met: (i) the product is unsold or only a small amount is sold in the external market; (ii) the division has no difficulty in supplying and distributing.

According to Weber and Schaefer (2008), the application of variable costs creates a substantive decision-making basis for the buyer, however, this causes losses to the seller at a fixed cost. The buyer receives a profit that is not entirely due to the production capacity. In the case of limited internal product supply capacity, units can use many different calculation methods. The scarcity price is used as the transfer pricing. The scarcity price of a product is equal to the sum of its variable and opportunity costs. The idea of full cost based transfer pricing comes from the interests of the seller, and as a general rule, the transfer pricing should at least cover production costs.

1. Theoretical foundations of cost-based transfer pricing in manufacturing enterprises

In Eccles, R.G. (1985), transfer pricing is the price imposed on goods, services and assets transferred within companies, as they move from an organizational entity (a division, unit) to another entity in the business. Thus, while the role of the selling price is to efficiently allocate resources in the market, the role of the transfer price is to efficiently allocate resources within the firm.

According to Vaysam Igor (1996), in decentralized organizations, goods and services are transferred between departments. When products manufactured by one division of a company are transferred to another, these transactions are usually recorded in the accounting books of the relevant divisions. Manufacturing divisions typically record internal revenue, and the purchasing department recognizes an internal cost. The transfer pricing referred to is the amount of the internal transaction. The internal transaction price is called the transfer pricing. Therefore, when managers are evaluated on the basis of the accounting income of their units, transfer pricing influences their management decisions.

According to Horngren and Foster (2012), the price charged for a product or service provided from one department to another within the same organization is called transfer pricing. The pricing of goods or services by divisions within the same organization and within the same country is known as domestic transfer pricing.

Thus, in their opinion, the authors believe that the transferable product price is actually the price charged for the product produced by one department and transferred to another department in the same organization. Transfer pricing affects the sales department's revenue and the purchasing department's costs.

Transfer pricing methods

Garrison et al. (2010) have studied transfer pricing in detail. The authors mention three methods of determining transfer pricing: negotiated-based transfer pricing; cost based transfer pricing and maket-based transfer pricing. Drury, C. (2004) states that there is no single transfer pricing system capable of perfectly serving all objectives. But in any case, transfer pricing is always based on a basic principle: the transfer pricing must also equal the marginal cost of the product or service plus the opportunity cost of the transfer.

Variable cost based transfer pricing

According to this method, the transfer pricing is calculated based on the variable costs including production transformation, production and sales, and business management.

Transfer pricing = Variable cost

Source: compiled by the author

Full cost based transfer pricing

Under the full cost method, the transfer pricing can include production costs: direct material costs, direct labor costs, manufacturing overhead, or all costs. Full cost-based transfer pricing is in fact quite widely used. The appeal of this approach is that managers can treat product-related decisions as long-term decisions.

Transfer pricing = Full cost

Source: compiled by the author

For the method of determining the transfer price based on the cost and the added profit, the additional profit is determined by taking the sum of the desired return and the selling and administrative expenses divided by the output of goods and services.

When the full cost is used as the cost basis, the add-on is intended to provide a marginal profit to the supplying member. Sometimes, variable costs are used as the base cost and the add-on is used to cover both fixed costs and the contribution margin.

Transfer Pricing = Full Cost + Extra Rate * Full Cost

Transfer Pricing = Variable Cost + Bonus Rate * Variable Cost

Source: compiled by the author

2. RESEARCH METHODS

Field observations: collect information on the production technology process, production activities, production costs to form the product cost. From there determine the transfer pricing.

Case study: at Dabaco animal feed processing factory, a member of Dabaco Group Company, C.P Vietnam livestock joint stock Company in Hai Duong to collect detailed information in transfer pricing…

Interview: The author's team conducted interviews with two groups of subjects. The first interviewee is a group of managers including Deputy General Director, Deputy Director, and Chief Accountant. The second interviewee is a group of accountants. These are groups of subjects that are directly related to the research topic of the author's group.

Survey form: The survey form is designed for online survey and printed on paper. The online survey form is sent via a link to an email. Paper-based vouchers are sent by post. The authors study and collect information on transfer pricing are raised by management levels at feed mills in the Red River Delta

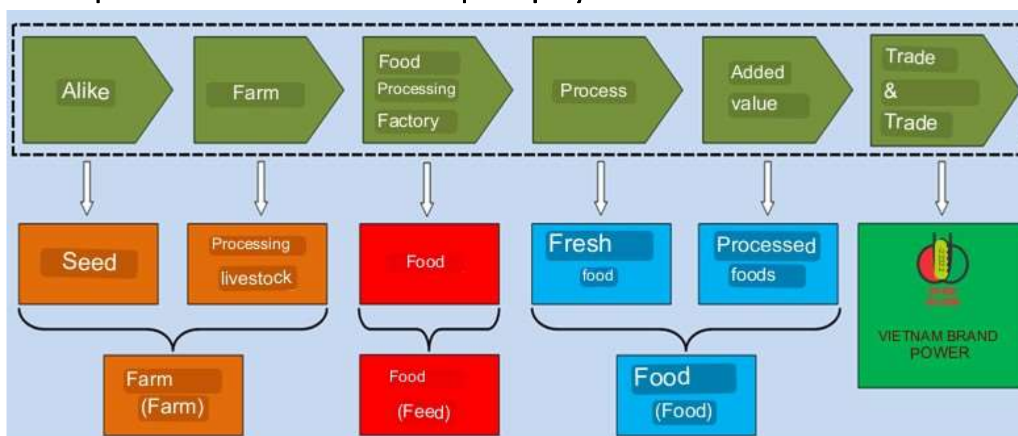
2. Actual situation of the cost-based transfer pricing at feed mills in the Red River Delta.

4.1 General information about transfer pricing at feed mills in the Red River Delta

Animal feed (pork bran, chicken bran, etc.) is produced in factories. Then part of the animal feed is sold to the external market, and another part is used within the enterprise. When used within the enterprise, animal feed will be determined at transfer pricing to be transferred to the livestock division as input materials for the livestock division. Therefore, the transfer pricing will be the revenue of the feed production division and the input cost of the livestock division.

A survey of feed mills in the Red River Delta region shows that only six companies use transfer pricing. Because the companies that responded using transfer pricing are all large-scale companies in the animal feed processing industry and the closed production process from farm to table is 3F: Farm – Factory – Food.

Table 1: Integrated food production chain of Dabaco Group Company



According to the survey results, there are 5/6 businesses that have internal product selling price policies in animal feed processing companies that are determined by managers at the corporation, no discussion from department managers for 83%; and only 1/6 businesses of the total had discussions with the division manager, for 17%. No business allows divisional managers to determine their transfer pricing policy. Thus, in feed mills, decisions about transfer pricing are made by senior managers (Table 2). At Dabaco, the transfer pricing is set by the Deputy General Director in charge of finance and accounting. At C.P. the transfer pricing is decided by the General Director.

Table 2. Transfer pricing department

	Number of companies	**Percentage**
The company's senior manager	5	83%
Senior managers and division managers discuss with each other	1	17%
Total	6	100%

The survey results show that 100% of the member units in the feed mills in the Red River Delta are organized into profit centers. All units determine the revenue and expenses of their division. However, the performance of each division is not used by senior management to evaluate divisional managers.

According to the survey results on transfer pricing targets, the goal of maximizing profit after tax for the corporation was identified as the most important goal. This target selected by the survey companies is 100%. Other goals such as increasing divisional autonomy or evaluating departmental and divisional performance were not mentioned.

The survey results also show that 5/6 businesses are not allowed to buy resources from outside that they can produce. Meanwhile, 1/6 businesses are allowed to buy resources from outside but must get permission from senior management. That shows that most companies with transfer pricing activities can produce and sell outside and ensure internal supply inside the business.

Table 3. Firms buy resources from outside

	Number of companies	**Percentage**
Yes, but with permission from senior management	1	17%
Not allowed to buy	5	83%
Total	6	100%

The survey questionnaire mentions disagreements over transfer pricing policy. Businesses were asked to indicate how to resolve disagreements over their company's transfer pricing policy. The survey results showed that 100% of companies answered that there was no conflict on transfer pricing between divisions. They are all satisfied with their company's transfer pricing system.

4.2 The cost-based transfer pricing

Transfer pricing methods are classified into two groups: cost-based pricing methods and non-cost-based pricing methods including market-based pricing methods. And pricing method on the basis of a negotiated price.

The survey results show that 100% of companies with transfer pricing activities use the cost-based transfer pricing method with the base costs being direct material costs, direct labor costs, and general production costs. Other cost-based pricing methods are not used by companies. The transfer pricing method on the basis of market price and negotiated price is not used.

The survey results show that under normal business conditions, the price of the transferred product will fully cover all production costs including direct material costs, direct labor costs, and direct labor costs. General production costs. 100% of companies do not determine the plus profit. Therefore, the price of the internally transferred product is the full production cost of the production department. Because as C.P's CFO said, "*It doesn't matter whether or not a part of the profit of the production division is added to the transfer price because it is ultimately the profit of the whole company*."

It is because companies do not evaluate divisional managers based on the business performance of each division. Therefore, determining whether or not to add profit for the product division does not play an important role in transfer pricing in these companies. Even the transfer pricing may be lower than the production cost of the product as commented by the deputy director of production at Dabaco feed factory "*depending on the business goals of the whole company profit or market share at which the company can determine the price of the product to be transferred at a price less than the cost of production*". The production department is then willing to take a loss to achieve the overall goal of the company.

3. CONCLUSION AND RECOMMENDATIONS

The survey results show that internal transfer pricing decisions are mostly made by the company's senior managers with little or no communication with divisional managers. Senior managers in feed mills do not allow divisional managers to decide on their division's transfer pricing policy. Therefore, according to the authors' proposal, if the source of information exchanged between senior managers and divisional managers is effective, senior managers can easily obtain information about departments, and transfer pricing decisions can be made by senior management. If the source of information exchange between senior management and division managers is difficult, due to the complexity of the working environment, senior managers have little information about departments or division managers are not willing to share information with senior managers. Transfer pricing decisions should be made by senior management and divisional managers.

When transfer pricing decisions are made by top management without allowing divisional managers to make decisions. This will reduce the autonomy of the parts. Division managers are not allowed to decide on their own the price of products transferred in their division. The division manager at the selling unit is not allowed to decide the selling price of the transferred product. The division manager at the purchasing unit cannot decide on the input costs of his unit. At that time, the goal of the internal transfer price to enhance the role, the autonomy of the divisions will not be achieved. In feed mills, the results of production and business activities are not evaluated under the responsibility of the unit managers. Divisional managers are not responsible for internal sales or internal purchases because the internal sales or internal purchase prices are not set by them. Therefore, do not push the department to strengthen management, save costs to improve quality and reduce product costs. Therefore, as suggested by the authors, division managers should be given more decision-making power regarding transfer pricing decisions. Departments should be given more autonomy. Evaluate departmental managers' compensation and benefits with their department's performance in order to promote departments to strengthen management and control costs to improve quality and reduce product costs.

In order to overcome the limitations when feed mills in the Red River Delta region only use the transfer pricing method on the basis of actual full production costs, According to the authors, transfer pricing is still determined on the basis of production costs. However, transfer pricing in enterprises should reflect their nature and function. Transfer pricing is a tool to effectively allocate resources in a business. Transfer pricing measures the effectiveness, evaluation, and reward of each department as well as divisional managers. If the determination of the transfer pricing is incorrect, it will lead to incorrect decisions related to resource allocation, leading to wrong decisions by the managers.

(1) If the sales department is not operating at full capacity or cannot be sold to the external market, Internal transfers do not generate opportunity costs due to the cancellation of external sales, or even no opportunity costs for intermediate products with no external market. Then the price of the product transferred to the selling department is acceptable:

Transfer pricing > Variable production cost

(2) If the sales department is already operating at full production capacity. When there is an internal transfer of products, the sales department must sacrifice a source of income corresponding to the opportunity cost of the contribution interest resulting from canceling the sale of all these products to outsider. Therefore, the price of the transferred product in this case must be at least equal to the variable costs and loss of contribution due to the cancellation of the contract to sell out on a monthly basis. The transfer price is built as follows:

Transfer pricing = Production cost + Profit plus

Profit plus = Production cost * Desired rate of profit

Transfer pricing under this method will reflect the business performance of each division. On that basis, it is possible to accurately evaluate each department and the division manager based on the performance of that department. From there, senior managers will have appropriate salary and bonus policies for departmental managers. On the other hand, this transfer pricing should be referenced to the adjusted market price. Animal feed products are mass-produced and highly standardized. Therefore, there is always a market price for these feed products. Feed mills can easily get the market price for reference. However, enterprises should change the market price regulation when determining transfer pricing by deducting sales, transportation, etc. expenses for internal customers. Thus, the adjusted market price will be determined by the following formula:

Adjusted market price = Market price – Cost of selling, shipping…

Transfer pricing and plus, but with the reference of an adjusted market price, will push all departments in the business to strengthen control of administrative costs to improve quality and reduce product costs. When transfer pricing is referenced to the adjusted market price, all departments offer the possibility of a return on investment. At the same time, it helps departments be aware of their reasonable fees compared to product consumption needs. This is also a basis for evaluating the results of managers in each department to consolidate and perfect the responsibility accounting method.

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