

Transfer Pricing

1. Overview

An essential feature of decentralized firms is responsibility centers (e.g., cost-, profit-, revenue-, or investment-centers). The performance of these responsibility centers is evaluated on the basis of various accounting numbers, such as standard cost, divisional profit, or return on investment (as well as on the basis of other non-accounting measures, like market share). One function of the management accounting system therefore is to attach a dollar figure to transactions between different responsibility centers. The *transfer price* is the price that one division of a company charges another division of the same company for a product transferred between the two divisions.

The basic purpose of transfer pricing is to induce optimal decision making in a decentralized organization (i.e., in most cases, to maximize the profit of the organization as a whole).

Profit Center: Any sub-unit of an organization that is assigned both revenues and expenses. In a profit center, a manager is treated as an entrepreneur. Typically, a profit center manager is given decision-making power and is held responsible for the profits generated by her center.

2. Advantages and Disadvantages of Decentralization

2.1 Advantages

- Decisions are better and more timely because of the manager's proximity to local conditions.
- Top managers are not distracted by routine, local decision problems.
- Managers' motivation increases because they have more control over results.

Based on a note by Nahum Melumad.

- Increased decision making provides better training for managers for higher level positions in the future.

2.2 Disadvantages

- Lack of goal congruence among managers in different parts of the organization.
- Insufficient information available to top management; increased costs of obtaining detailed information.
- Lack of coordination among managers in different parts of the organization.

3. Purposes of Transfer Pricing

There are two main reasons for instituting a transfer pricing scheme:

- Generate separate profit figures for each division and thereby *evaluate the performance* of each division separately.
- Help *coordinate* production, sales and pricing decisions of the different divisions (via an appropriate choice of transfer prices). Transfer prices make managers aware of the value that goods and services have for other segments of the firm.
- Transfer pricing allows the company to generate profit (or cost) figures for each division separately.
- The transfer price will affect not only the reported profit of each center, but will also affect the allocation of an organization's resources.

4. Mechanics of Transfer Pricing

- No money need change hands between the two divisions. The transfer price might only be used for internal record keeping.
- (Transfer Price \times quantity of goods exchanged) is an expense for the purchasing center and a revenue for the selling center.

5. Accounting for Transfer Pricing

If intra-company transactions are accounted for at prices in excess of cost, appropriate elimination entries should be made for external reporting purposes. Examples of items to be eliminated for consolidated financial statements include:

- Intracompany receivables and payables.
- Intracompany sales and costs of goods sold.
- Intracompany profits in inventories.

6. Alternative Methods of Transfer Pricing

A transfer pricing policy defines *rules for calculating the transfer price*. In addition, a transfer price policy has to specify *sourcing rules* (i.e., either mandate internal transactions or allow divisions discretion in choosing whether to buy/sell externally). The most common transfer pricing methods are described below.

6.1 Market-based Transfer Pricing

When the outside market for the good is well-defined, competitive, and stable, firms often use the market price as an upper bound for the transfer price.

Concerns with market-based Transfer Pricing

When the outside market is neither competitive nor stable, internal decision making may be distorted by reliance on market-based transfer prices if competitors are selling at distress prices or are engaged in any of a variety of “special” pricing strategies (e.g., price discrimination, product tie-ins, or entry deterrence). Also, reliance on market prices makes it difficult to protect “infant” segments.

6.2 Negotiated Transfer Pricing

Here, the firm does not specify rules for the determination of transfer prices. Divisional managers are encouraged to negotiate a mutually agreeable transfer price. Negotiated transfer pricing is typically combined with *free sourcing*. In some companies, though, headquarters reserves the right to mediate the negotiation process and impose an “arbitrated” solution.

6.3 Cost-based Transfer Pricing

In the absence of an established market price many companies base the transfer price on the production cost of the supplying division. The most common methods are:

- Full Cost
- Cost-plus
- Variable Cost plus Lump Sum charge
- Variable Cost plus Opportunity cost
- Dual Transfer Prices

Each of these methods is outlined below.

6.3.1 Full Cost

A popular transfer price because of its clarity and convenience and because it is often viewed as a satisfactory approximation of outside market prices.

- (i) Full *actual* costs can include inefficiencies; thus its usage for transfer pricing often fails to provide an incentive to control such inefficiencies.
- (ii) Use of full *standard* costs may minimize the inefficiencies mentioned above.

6.3.2 Cost-plus

When transfers are made at full cost, the buying division takes all the gains from trade while the supplying division receives none. To overcome this problem the supplying division is frequently allowed to add a mark-up in order to make a “reasonable” profit. The transfer price may then be viewed as an approximate market price.

6.3.3 Variable Cost plus a Lump Sum Charge

In order to motivate the buying division to make appropriate purchasing decisions, the transfer price could be set equal to (standard) variable cost plus a lump-sum periodical charge covering the supplying division’s related fixed costs.

6.3.4 Variable Cost plus Opportunity Cost

Also known as the *Minimum Transfer Price*:

Minimum Transfer Price = Incremental Cost + Opportunity Cost.

For internal decision making purposes, a transfer price should be at least as large as the sum of:

- cash outflows that are directly associated with the production of the transferred goods; and,
- the contribution margin foregone by the firm as a whole if the goods are transferred internally.

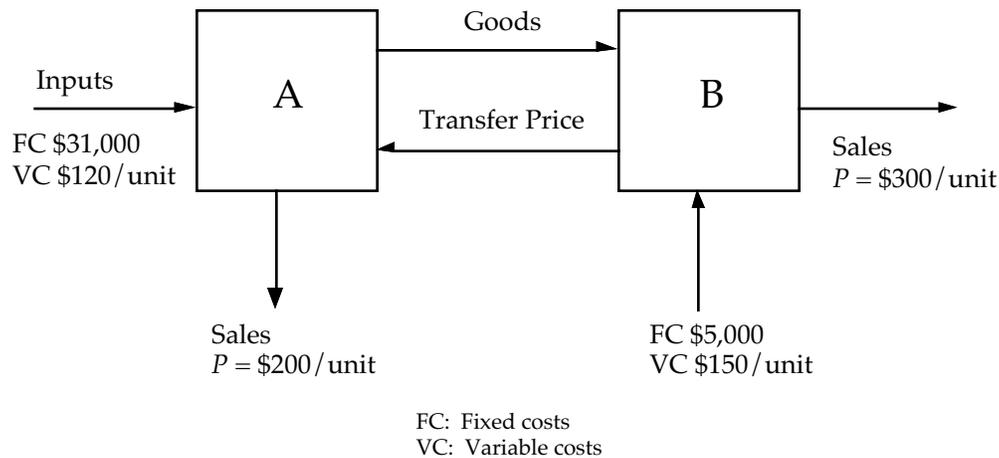
Sub-optimal decisions can result from the natural inclination of the manager of an autonomous buying division to view a mix of variable and fixed costs of a selling division plus, possibly, a mark-up as variable costs of his buying division. Dual transfer pricing can address this problem, although it introduces the complexity of using different prices for different managers.

6.3.5 Dual Transfer Prices

To avoid some of the problems associated with the above schemes, some companies adopt a *dual* transfer pricing system. For example:

- Charge the buyer for the variable cost. The objective is to motivate the manager of the buying division to make optimal (short-term) decisions.
- Credit the seller at a price that allows for a normal profit margin. This facilitates a “fair” evaluation of the selling division’s performance.

7. Example of Conflicting Incentives and Transfer Pricing



Suppose all markets are perfectly competitive and that managers are motivated to maximize short-run profit. The production capacity (as well as standard) of department A is 1,000 units. Denote the quantity transferred by x . Consider two alternative scenarios:

Centralized decision maker who maximizes overall firm's profits:

$$\begin{aligned} \text{Maximize } & (P_A - V_A)(1,000 - x) + (P_B - V_B - V_A)x \\ & = (200 - 120)(1,000 - x) + (300 - 150 - 120)x \\ & = 80,000 - 50x \end{aligned}$$

Two decentralized decision makers, each maximizing her division's profits:

$$\begin{aligned} \text{Profit A} & = (200 - 120)(1,000 - x) + (TP - 120)x \\ & = 80,000 + (TP - 200)x \\ \text{Profit B} & = (300 - 150 - TP)x \\ & = (150 - TP)x \end{aligned}$$

- (1) What price would induce *both* managers to choose $x = 0$?

Answer:

$$150 \leq TP \leq 200$$

- (2) What is the minimum transfer price according to the course text?

Answer:

$$\begin{aligned} & \text{Variable cost} + \text{Opportunity cost} \\ & = 120 + 80 \\ & = 200 \end{aligned}$$

- (3) What is the transfer price according to the variable cost and full cost methods?

Answer:

$$\begin{aligned} \text{Variable cost:} & \quad 120 \\ \text{Full cost:} & \quad 120 + 31,000/1,000 = 151 \end{aligned}$$

- (4) When is the variable cost-based transfer price appropriate?

Answer: When the opportunity cost is zero and Division A is evaluated as a cost center.

- (5) Suppose, in the example above, that we do not have a perfect market. Division A can sell up to 800 units at \$200 but no more. What would happen under each of the transfer price schemes discussed above?

Answer: With the Division A manager free to sell his product to the highest paying buyer and a transfer price of $120 \leq TP \leq 150$, the first 800 units will be sold to the outsider and the remainder will be sold to Division B.

8. Taxes, Profit Repatriation, and Transfer Prices

The next two examples describe additional “exogenous” factors affecting the choice of a transfer pricing scheme.

8.1 Example: Tax implication of transfers across countries

A and *B* are divisions of the ABC company. The *A* division is located in Silicon where the marginal tax rate is 50%. The *B* division is located in Sand where the marginal tax rate is 30%. The *A* division produces an intermediate product at a cost of \$100 per unit and then transfers this product to the *B* division where it is finished at an additional cost of \$100 and sold for \$500. Assume 1,000 units are transferred annually and that the minimum transfer price allowed by the Siliconi IRS is the variable cost.

- (1) What transfer price should be charged in order to minimize taxes?

Answer: \$100.

8.2 Example: Transferring funds out of a foreign country

Continue the previous example. The Sandi government does not allow corporations investing there to transfer earnings out of the country. Suppose the parent company wants to use some of its consolidated earnings (including the earnings of the *B* division) to either pay dividends or invest in a new project outside of Sand. One option for removing capital from Sand is through the use of a high transfer price. In this case the *B* division would actually pay the *A* division the amount of the transfer price, which would result in earnings of the consolidated entity appearing as the income of the *A* division rather than the *B* division. This may be desirable since the parent company controls earnings of the *A* division but not of the *B* division. The Sandi IRS restricts the transfer price to being no less than the variable cost.

- (2) What transfer price should division *A* charge to exercise control over all profits?

Answer: \$400.

- (3) What is the cost associated with this transfer pricing scheme choice?

Answer: There is an adverse tax effect. Relative to the example above, the ABC Company loses

$$(400 - 100)(50\% - 30\%) \times 1,000 = \$60,000$$

The essence of *decentralization* lies in the freedom of middle and lower managers to make decisions. The decentralization of an organization is a matter of degree.

9. Observations

In most organizations:

- Obtaining specialized (or local) information is costly.
- Communication of information is costly.
- There exist interdependencies between the decisions of different managers in terms of the outcome to the firm as a whole.
- The amount of information to be managed is extremely large.

Transfer pricing is often complicated by imperfect, ill-structured, or nonexistent intermediate markets. *Imperfect competition* occurs when a single buyer or seller can influence the market price. If imperfect competition exists in the intermediate market, additional volume can be obtained if selling prices are lowered, thus causing transfer-price analyses to be exceedingly complex. In such a case, an “optimal” transfer pricing scheme may be volume dependent.

An economic analysis might dictate that variable cost be used as the transfer price, but this would seldom be appropriate for dealing with other aspects of the managerial problems that present themselves simultaneously: achieving goal congruence, motivating managerial effort, and making good use of local information in a decentralized organization. Therefore, different kinds of transfer prices (for example, market prices and cost-based transfer prices) may be assigned.

A primary reason for decentralizing the decision making in an organization is the existence of information asymmetry. Textbook examples often imply that there is some individual in the organization with all of the necessary information (incremental costs, opportunity costs, revenues, etc.) for all of the organization’s divisions. Yet, if this were the case we would not have needed a decentralized organization in the first place.

If a perfectly competitive market existed for the intermediate good transferred between two divisions, then from an economic perspective, nothing would be lost by severing the firm at that point.