# The Transfer Pricing Dilema: An Evaluation of the Four Basic Transfer Pricing Methods and Some Selected Variants 

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## THE TRANSFER PRICING DILEMMA: <br> AN EVALUATION OF THE FOUR BASIC TRANSFER <br> PRICING METHODS AND SOME SELECTED VARIANTS

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An Independent Study<br>Submitted to the Faculty<br>of the<br>University of North Dakota<br>in partial fulfillment of the requirements<br>for the degree of<br>Master of Science

Grand Forks, North Dakota

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## CHAPTER I

## INTRODUCTION

As Dearden has pointed out, many complex manufacturing and selling entities, such as General Motors in the l930's and General Electric in the $1940^{\prime} \mathrm{s}$, ${ }^{1}$ provided American business with one of its most striking developments in the twentieth century. That development was the decentralization of what were formerly highly centralized operations by the establishment of profit centers.

The profit center concept attempts to simulate as nearly as possible the environment of an enterprise separate and distinct from all others. As such, ". . . the divisional manager is led to consider himself as the chief executive of a small, independent organization which, coincidentally, is related to a larger group, composed of many similar organizations accountable to a central control."2

Whenever internal financial transactions take place between these profit centers, a system of interdivisional pricing is needed. Problems arise, however, in determining the price at which ". . . one organization within the business entity will transfer goods and services to another organization within the same entity. ${ }^{3}$ This transfer price may be calculated through the use of any one of a number of methods, ". . . with varying degrees of subjectivity and carrying behavioral implications of considerable significance..$^{4}$

The objective of this transfer price is to induce each profit center to act in a way that will maximize the profit of the organization as a whole. Other objectives of establishing a transfer price are to ". . . assure optimal allocation of corporate resources, motivate divisional managers to operate their units at a high degree of efficiency, and promote the welfare of the corporate group as a whole." ${ }^{5}$

In addition, this interdivisional pricing mechanism is meant to serve as a monitoring device in evaluating divisional performance. Therefore, transfer pricing becomes a ". . . tool to be applied before and after the fact: before, by constantly inducing wise decisionmaking on the part of autonomous managers, and after, by enabling proper and fair measurement of their performance." ${ }^{6}$ The proper transfer price, therefore, will establish healthy competition among profit centers, help train and develop young executives, and enable the making of quick decisions.

Decentralization leads to profit centers, and profit centers lead to selecting a particular method of transfer pricing. While there are many benefits to be derived from selecting the appropriate transfer price, picking an inappropriate pricing structure can lead to dysfunctional decision making. In other words, where each profit center is competing for a bigger share of the profit, goal congruence may not exist. "Internal politics and manipulation of figures, even sabotage, have been known to occur where the stakes are high enough. " ${ }^{7}$

To summarize, then, the final consideration in establishing a transfer pricing mechanism is one of communications. If the appropriate transfer price is established, then that price will create all the
favorable behavioral implications that are mentioned above. If an inappropriate transfer price structure is set up, then the entity will encounter all the problems set forth above that eventually lead to dysfunctional decision making.

With these comments in mind, the purpose of the paper can now be established as being twofold. First, the paper will give a broad overview of the four basic transfer pricing methods now in existence. These methods are cost, cost-plus, market, and negotiated. That overview will evaluate the advantages and disadvantages of the four methods as they pertain to decision making and financial statement presentation. Also, a survey of current transfer pricing techniques will be presented. This survey will incorporate the findings of two different projects. Those projects were taken on by Raymond L. Larson ${ }^{8}$ and by the National Industrial Conference Board. ${ }^{9}$ Secondly, modifications of each of the four basic methods will be presented. Each of these methods attempts to overcome the inherent weaknesses, as presented in the overview and in the surveys of variants of the four basic transfer pricing methods.

This paper attempts to survey pertinent periodical literature. To limit the scope of this very intricate and diversified subject, the discussion will be limited to the non-tax aspects of financial reporting for domestic corporations.

ENDNOTES
${ }^{1}$ Itzhak Sharav, "Transfer Pricing--Diversity of Goals and Practices," Journal of Accountancy 137 (April 1974):56.

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    2 Irving I. Fantl, "Transfer Pricing--Tread Carefully," CPA
Journal 44 (December 1974):42.
    3 Ibid.
    4
    5}\mathrm{ Sharav, "Transfer Pricing," p. 56.
    6 Ibid.
    7Fantl, "Transfer Pricing," p. 45.
    8 Raymond L. Larson, "Decentralization in Real Life," Management
Accounting (NAA) 55 (March 1974):28.
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Qubis.





EVALUATIONS OF THE FOUR BASIC
METHODS AND SURVEYS OF ACTUAL PRACTICES

As mentioned in the introduction, transfer prices may be determined through the use of any one of a number of methods. Each of these methods creates distinct behavioral implications and affects evaluations of divisional profit measurement, financial statement presentation, and decision-making.

Specifically, since intracompany transfer prices are the revenue of one division and the costs of another, the method of pricing employed directly affects the financial statements of the operating units. These statements may be used as follows:

1. Measuring the performance of the management of the division
2. Making various decisions
a. make or buy decisions
b. pricing policy for the end product
c. output decisions of components and end product
d. capital budgeting decisions and decisions to drop products
3. General financial information
a. determination of income of the corporation
b. determination of the financial position of the corporation ${ }^{1}$

These transfer prices fall into four basic categories--cost, cost-plus, market, and negotiated transfer prices. Each will be evaluated on the criteria outlined in the immediately preceding paragraphs.

## Cost

Transfer prices may take the form of cost of the transferor. In practice, transfer prices are generally based on cost, or cost plus a markup. ${ }^{2}$ Cost with no markup is not as commonly used as previously. ${ }^{3}$

The use of this method is frequently justified on moral grounds: "don't take profit out of the hide of a brother division." ${ }^{4}$ The use of cost as a transfer price is more likely found where decentralization is restricted, and where top management makes many decisions that affect department performance. ${ }^{5}$

Another important factor that guides management to select cost is that it is relatively convenient and simple to use. Cost as a transfer price is thus advantageous to use because ". . . the ready availability of cost data saves time and hence money in the calculation of charges for interdivisional transfers." ${ }^{6}$ Moreover, defense contractors use the method because of governmental endorsement of the method. ${ }^{7}$

The use of cost as a transfer price does not go without criticism, however. There are many disadvantages to cost.

A primary criticism is that if the transferor can charge the transferee at cost of the goods produced, then there is little incentive to produce economically. There is thus no incentive for divisions to reduce costs. As Weiser states, ". . . knowing that inefficiencies will be incorporated as part of costs and transferred to subsequent departments will hardly encourage management to eliminate such faults. ${ }^{8}$

Looking at cost from the transferee's viewpoint, transferring at cost "gives the buying entity no assurance that its purchase costs
will be held within reasonable bounds. ${ }^{9}$ The effect of the cost method, then, is to incorporate into the transferee department a cost that reflects the accumulated deficiencies of the transferor, the cost over which the buyer has no control. In other words, the purchasing division has no control over what its purchase price will be, and thus the profit center is weakened.

Substituting budgeted or standard costs for the actual ones may help retain the incentive for saving. Thus, standard costs are often used to overcome the problem of affecting profits by accumulating inefficiencies in the amount of the transfer price. Also, the use of standard costs lets price quotations be released before completing actual production.

Even the use of standard costs has its drawbacks. The most serious is that the receiving plant gets the full credit for sales and the prime responsibility for establishing a margin ". . . whereas the supplying plant has an incentive not to reduce cost, but to raise the standard (not necessarily the actual) so as to absorb more of its overhead and make the products for which it receives sales credit more profitable."10

But while substitution of budgeted or standard costs for the actual ones may help retain incentives for saving, the concept of decentralization will still be affected adversely, for ". . . performance evaluation will be rendered impossible when transferring divisions are permitted to recoup their costs only without any recognition of profit-the latter having become the sole preserve of the final transferee who
sells to outsiders."11 The lack of provisions for profit is thus the second disadvantage of the cost method.

The most serious criticism of the use of cost as a transfer price is that it may prompt suboptimal decisions from the point of view of the corporate group as a whole. Suboptimization or dysfunctional decision making occurs when division profits are maximized at the expense of the company as a whole. Suboptimization can arise when the total cost at the transfer point is greater than the outside purchase price available to the purchasing division. As a result total profit may be lessened:

If the difference between the full-cost transfer price and the outside purchase price is less than the difference between the incremental cost in the selling division and the full cost transfer price. Stated differently, total firm profit is decreased if the outside purchase price is greater than the variable or incremental cost in the selling division. 12

As an example of suboptimization, ${ }^{13}$ assume the following:
--full cost transfer price of product in Division A $\$ 60$
--outside price for the identical product $\$ 50$
--incremental (variable cost) of product in Division A \$l5
The manager of Division B would purchase the product from outsiders at a $\$ 10$ savings for his division. Total firm profit, however, is reduced $\$ 35$ by purchasing from outsiders instead of from Division A. The $\$ 35$ reduction can be proved in one of two ways:

1. Addition to total firm cost to purchase outside $\$ 50$

Less: Addition to total firm cost if produced by Division A
\$15
Decrease in total firm profit $\quad \$ 35$
2. Savings by purchasing outside \$10

Less: Loss in contribution margin by purchasing outside (\$60-\$15)
\$45
Decrease in total firm profit \$35

Cost-Plus
Cost-plus is the next of the four basic methods that will be evaluated. This method is just a modified version of cost, and as such, possesses most of the advantages and disadvantages of the cost method. Also, standard costs are applicable to cost-plus pricing.

This method determines the transfer price through the use of cost plus a markup ". . . that is meant to provide a return on investment on divisional assets." ${ }^{14}$ The markup, as such, is arbitrarily determined.

Proponents of cost-plus pricing proclaim these conflicting virtues: ${ }^{15}$ (1) the company is assured of an adequate profit on the whole process if transfer prices at each stage force an addition of profit, (2) a company can't make a profit by, in effect, selling products to itself and allowing divisions to exploit one another; therefore, cost plus promotes cooperation and minimizes conflict among divisions, (3) cost plus assures that the economic benefits of integration will be achieved and passed on to the company's customers, and (4) producing and supplying units produce cheaply without being concerned about the commercial problems of pricing.

In spite of the virtues of cost-plus, its detractors say it is still arbitrary and authoritarian. As such, this price provides a poor basis to evaluate divisional performance, beclouds profits, and diverts production to uneconomic channels.

Moreover, like cost, the cost-plus approach provides no incentive for management to improve performance. This is so because a profit
is assured regardless of the efficiency of operations of the transferring division.

A final disadvantage is that the method can work against the goals of the corporation. This is so because:

If one affiliate charges an excessive price to another in the chain of operations, reactions will occur within the organization that could prove detrimental to the whole. Such means could include scrimping on quality or control, instituting policies which provide short range profits but produce long-range destruction of morale among division managers, who cannot show profits because of the distorted situation . . . suboptimization of a profit center's parochial interests replace the legitimate objective of increasing overall profitability through motivation of decentralized management. 16

Market
Whether attempting to measure a division's profitability, or to comply with tax or antitrust regulations, many corporations have resorted to the use of market-based transfer prices. The use of market price has increased through the years. ${ }^{17}$

Market price is used when cost centers are replaced with the profit center approach to decentralization. Such profit centers assume that management of the separate divisions is given the freedom to choose its suppliers. In other words, division managers can turn to outside suppliers for their needs even if another division within the entity can alleviate that need.

As Weiser states, "such profit rather than cost centers presuppose that management of the separate divisions is given the freedom to choose its suppliers. Indeed unless this choice is available, the entire concept of profit centers in a decentralized framework would be a sham."18 This freedom is given in order to motivate divisional
managers. It would be difficult to motivate these managers if they could not control revenues and costs. "It is of paramount importance that factors affecting divisional costs and revenues should be well within the profit center manager's control."19 Transfer prices directly affect these revenues and costs and thus affect motivation.

Assuming the right to turn to outsiders exists, the first advantage of market-based transfer prices will be brought forth. The advantage is that market-based transfer prices focus the attention of management on excessive costs arising from inefficient procedures, obsolete techniques, and the like. In other words, assuming that true profit centers exist, the objectives of divisional management and the organization as a whole will be in harmony, for if a receiving unit in the decentralized organization finds the transferor's prices noncompetitive and turns to the outside, the supplying unit will either find ways to reduce its cost without affecting quality, or else it will cease operations.

A second advantage of this method is explained by Sharav: . . . if perfectly competitive markets are available for the intermediate product, the employment of externally derived prices for internal transfer purposes will yield the best results regarding divisional decisions--the latter being congruent with the interests of the total corporate group. Since these prices represent an opportunity cost, their employment will permit optimal allocation and efficient utilization of the resources of the firm. 20

Even if perfect competition is absent, practical consideration may still dictate the acceptance of market price, Sharav feels. He states that market price, even in this imperfect situation, is ". . . an approximation of the opportunity cost of intrafirm transactions." ${ }^{21}$

He goes on to point out another advantage of market by stating: "No longer assured of an automatic cost recovery, divisions selling internally at market prices are spurred to economize and reduce costs."22

A fourth advantage is that the use of market price has a strong appeal in comparison to the imaginary profits which result when costbased transfer prices are used. Instead of this artificial profit, market price provides ". . . an appraisal of the buying division as it might appear if it were forced to buy on the outside market." ${ }^{23}$ This is in step with the profit center concept, for the name "profit center" itself implies that managers will be evaluated largely on their profit contributions. Thus, given two managers running essentially the same business, measuring profit could be a primary means of judging their performances. The one judged more successful will be the one who makes the larger profit.

Given comparisons by profits then, market-based transfer prices will aid management in arriving at more accurate income figures. Moreover, outsiders "can make meaningful comparisons with other companies in the same line of business when profits are determined by use of market prices." ${ }^{24}$ The value of competitive spirit by divisions within the company is thus fostered.

Market-based transfer prices are not without problems and shortcomings, however. The following paragraphs will point out some of the problems.

First of all, three major problems arise with the use of published market prices: ${ }^{25}$

1. "Conditions may make published statistics an inaccurate statement of the market price for the size, quality, timing and location of the intracompany transaction. ${ }^{26}$ These prices often have systematic time lags which give an inaccurate picture of the market at or near turning points. Quoted prices may also represent a different grade, package, or duration from the intracompany transaction; price spreads may be used to alleviate the problem, but it is unlikely that they can be objectively established without negotiation.
2. "The market price may not offer a real alternative for the intracompany buyer or seller." ${ }^{27}$ The volume traded on the market may be so small compared with intracompany transactions that an attempt to get supplies there would drive up the price; quality standards, design, and appeal may be different. To adopt a transfer pricing structure based on market quotations which would be sharply influenced if the division were to enter the market "creates an unrealistic situation when current prices are used." ${ }^{28}$
3. "It may be difficult to distinguish between nominal price quotations and real ones. . . . There are times when a very few strategically placed transactions can make a big difference in the published price. When these published prices affect the divisional manager's promotion and pay, he cannot be expected to be blind to the opportunities to 'make' the market." ${ }^{29}$ This is hardly in the company's interest.

A second disadvantage is that other, less tangible factors may make the quoted market price an inaccurate gauge for transfer pricing.

One of these factors is that discrepancies occur between posted market prices and actual market conditions. Fantl expands: "Although the posted price might appear stable, effective prices can be influenced by shifts in supply or demand, psychological reactions to current events, and attitudes toward future economic trends." ${ }^{30}$ All this opens the door to distortions in resource allocation, for a narrow reliance on market prices will not necessarily produce optimal solutions.

A third problem arises when the market price for an intermediate product cannot be determined at all. This happens when the transferred item is not traded on the open market. Examples of such products are "partly completed components, specialized items covered by patents or secret formulas, as well as differentiated products. . . ." ${ }^{3 l}$

A fourth area of concern sometimes arises with the assumption that the buying affiliate is free to purchase on the open market if the transferor associate sets the price too high, and vice-versa. This policy will keep the transferring division on its toes, but if purchases are actually made outside the firm, the "total company suffers from under-absorption of overhead." ${ }^{32}$ In practice, then, many companies prohibit divisions from making such outside dealings. This prohibition all but destroys the autonomy of divisional management.

Also related to the chance to make outside transactions is the fifth and final disadvantage. The practice of buying outside the firm will create animosity between divisions and foster a "dog eat dog" atmosphere.

## Negotiation

Many experts believe that "competitive transfer prices negotiated in arm's-length bargaining by profit center managers is an underlying requisite for motivating them."33 They also feel that negotiated prices are the answer to the maxim already set forth in this paper that "intracompany pricing must preserve the profit-making autonomy of the division manager so that his selfish interests will be identical with the interests of the company as a whole."

More specifically, proponents of negotiated prices state that the goals of the immediately preceding paragraph can best be met by these procedures:

1. Prices of all transfers in and out of a profit center should be determined by negotiation between buyers and sellers.
2. Negotiators should have access to full data on alternative sources and markets and to public and private information about market prices.
3. Buyers and sellers should be completely free to deal outside the company. ${ }^{34}$

By following these guidelines, advocates state, a corporation will accrue many benefits. One advantage, and an important one, Joel Dean feels, is that ". . . when transfer prices are economically correct and profit centers are properly established, top management can delegate and still have peace of mind, because the division manager's targets and incentives are identical to those of top management."35

Another theoretical advantage of negotiated prices is that these prices offer a new system on control which features both the profit center concept and the intermeshed idea of competitive transfer prices. Competitive negotiated transfer prices facilitate the establishment of profit centers by making meaningful measures of economic performance
possible. Decision making within the decentralized framework is made easier. Negotiated prices can:
make the division's procurement, processing, pricing, and distribution sensitive to market requirements and responsive to competitive alternatives. They provide sound guidance in making purchasing decisions, indicate the extent to which additional processing will be profitable, and direct the flow of products so as to make the greatest net profit for the company. ${ }^{36}$

There are also practical advantages listed for using negotiated transfer prices. For instance, if no competitive market price exists for the intermediate product, as discussed earlier, a negotiated price can be used.

A second practical advantage is that once the price is established, the production department has the incentive to cut costs. This is so because the less cost incurred, the greater the profit, profit being the difference between the negotiated price and costs.

A third down-to-earth reason for using negotiated prices is that decentralized unit managers cannot feel frustrated, as they helped set the prices. This lack of frustration sets negotiated prices apart from other pricing methods, which are often arbitrarily imposed. Finally, bargaining appears conducive to the healthy spirit of competition. Division will compete with division to establish the highest possible transfer price, and then to cut costs to earn as high a profit as possible.

Negotiated transfer pricing possesses significant shortcomings, however. One of these is that "haggling over prices consumes valuable executive time that could be used more advantageously in other activities." ${ }^{37}$ The facts to be considered are:

1. What if hundreds, if not thousands, of items have to be priced? The bargainers would face a long and difficult task.
2. Will negotiations require constant re-examination and revision of prices? ${ }^{38}$

A second weakness is that, as a result of negotiations, a great deal of hard feeling between executives in the same company may be created. Any competitive advantages to be gained by instituting negotiated prices could be quickly negated by these hard feelings.

The fatal weakness of negotiated prices, however, is that ". . . where transfer prices are established by negotiation between division managers, the advantage goes to the sharp trader rather than the efficient executive." ${ }^{39}$ Thus, negotiation "tends to swing profits toward the division whose manager has the loudest voice rather than to the one whose manager is doing the best job. ${ }^{40}$

## Two Surveys

Now that the four basic transfer pricing methods--cost, costplus, market, and negotiated--have been discussed, it may be useful to turn to surveys taken of types of transfer prices used in actual practice. Reference will be made to two surveys. The first is an informal survey taken by Raymond L. Larson. ${ }^{41}$ The other is a 1967 publication of the National Industrial Conference Board. ${ }^{42}$

Both surveys seem to point to what Fantl has said about selections of transfer pricing techniques:
. . . most companies have reverted to establishing arbitrary prices by high-level executives. These prices might be based on rational cost information, whim, or tax considerations. . . . (The) validity of the profit center concept is eroded when internal transfers are priced arbitrarily. ${ }^{43}$

Larson conducted in-depth interviews in eight firms. The interviews focused on the administration of transfer prices, the degree of decentralization within the firm, and methods of divisional performance evaluation.
"All of the companies represented in the interviews . . . advocated market price as the best method of pricing intracompany transfers." 44 The principal and most common reason given was that it duplicated market. In other words, if decentralization was to work, that which was found in the economy--competition--must be duplicated for each division within a given corporation.

Even though they advocated them, however, none of the companies used market price for intracompany transfers. All of the firms used instead a price that ranged from market-based to cost and were established by top-management action. Probably the chief reason for this type of pricing technique was that each of the divisions and/or firms was supreme in its geographic region; there were just no other close competitors.
"The composite picture of transfer prices within these firms would be an administered pricing system. That is, a special committee . . . is given the responsibility of establishing transfer prices, with the stipulation that these prices must be market based. "45 The cost of this administered system is the loss of control by division managers.

Division managers were also surveyed by Larson. They don't like the present system, but haven't been able to change it yet.

Generally, these managers were given only a vague idea as to how transfer prices were determined. As far as they knew, these prices were approximately equal to what they would pay or receive if they bought or sold outside the company.

Division managers did realize that the prices existing in that market might be very different if they were to actually use the market, due to their division size as compared to market size. "What they did not seem to realize was that they were being locked into the system by the arbitrary pricing system and by the fact that this market could not be used." ${ }^{46}$

In evaluating the pricing systems as a whole, Larson found that "considerable subjectivity is involved in the pricing process, even though the exact degree is not known. This allows for greater personal influence to enter the system than division managers warranted."47 For example, one of the division managers had some personal influence on the president. Although this division manager, since he did have managerial talent and abilities, was respected by others, that respect was diminished by the fact he was given greater control over his operations than were other managers.

Moreover, since there was no comparable market for input or output, Larson felt that managers were never able to objectively prove that transfer prices were incorrectly established. Each company had a committee set up to review these prices as complaints were received. "Yet few, if any of these reviews ever resulted in a significant change in any one year's transfer price . . . the changes . . . were . . .
simply the righting of an obvious error in the price determination process. $1^{48}$

In the April, 1974 issue of Journal of Accountancy, Itzhak Sharav reported on the findings of the 1967 study of the National Industrial Conference Board. 49

It was found by the NICB that:
In most cases of vertical transfers (between units at different stages of the manufacturing and marketing process), where the transferring division is viewed as a cost center, its transfers will be priced at cost. . . . Horizontal transfers (transferor and transferee are situated at the same stage of the production and marketing process) are executed at cost. . . . 50

However, where the profit center concept was employed such that the transferee's performance could be compared to that of a competing business, "the transfer price may include a profit factor thus approximating outside transfer prices."5l In those cases where the transferor deals exclusively with the transferee and vice-versa, the transfer price is often one which includes a profit factor, but not to the exclusion of prices based on cost.

So the use of more than one transfer price, according to the NICB, is common-place. Two-thirds of the companies in the census employ some form of cost-based transfer price, and at the same time more than one-half use market-oriented transfer prices.

Thus, no particular transfer pricing practice is preferred, as can be seen from the presentation of the two surveys. "The practices of actual companies involved in transfer pricing demonstrate a consistent rejection of any dogmatic and singular approach, no matter how theoretically superior it may have been proclaimed."52

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${ }^{16}$ Fantl, "Transfer Pricing," p. 43.
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    43Fantl, "Transfer Pricing," p. 43.
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${ }^{45}$ Ibid., p. 29.
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## VARIANTS OF THE FOUR BASIC METHODS

Chapter 2 evaluated the four basic transfer pricing methods, and then went on to present two surveys of actual transfer pricing practices by various businesses. If anything can be gleaned from that chapter, it is that no transfer pricing technique emerges as singularly superion nor more widely used than any of the other techniques.

Larson has written that: "As long as top management ignores profit in evaluating a division, the method of transfer pricing used is largely irrelevant." ${ }^{1}$ But, if a management is truly devoted to the idea of decentralization, then a successful transfer price must be based on behavioral implications. In other words, the transfer price used "would be that price, given a volume level, that would cause a division manager to make the same decisions that would be made by top management." ${ }^{2}$ Thus, profits are maximized, goals are uniform between division managers, and divisions possess a high degree of autonomy if the right transfer price is used.

However, top management has not had much luck in establishing this perfect price based on behavioral implications. In fact, they often lose sight of the tax or monetary reason for manipulating transfer prices, and judge performance based on distorted figures arising from inadequate transfer prices. These prices could show some division
heads as succeeding beyond merit and others as unfairly failing to meet goals established for them. These practices could be highly destructive of morale.

Because of all this confusion, compounded by the failure of any one of the four basic methods to emenge as superior or more widely used, considerable additional research will be necessary "to prescribe principles, postulates, conventions, etc. of accounting necessary to the establishment of a transfer price that will reduce managerial conflict and promote goal congruence between the two levels of management. $"^{3}$ What will be presented in this chapter is a survey of some selected variants of the four basic transfer pricing methods. These variants are the product of some of the additional research that is needed, and has already been done, that was referred to in the preceding paragraph. These variants attempt to overcome some of the disadvantages of not only each of the four basic methods as presented in Chapter 2, but also some additional decision-making problems that will be presented along with each of the variants. Just how these methods attack the shortcomings of cost, cost-plus, market, or negotiated transfer prices will be presented, along with pros and cons of the variants themselves.

## Variable Cost

Variable, marginal, and incremental costs mean much the same thing and, as a result, will be consolidated for our purposes. "Incremental cost is defined as the difference in total cost which results from undertaking one activity rather than another. ${ }^{4}$ Marginal cost is "based on the additional cost caused by the production of an
additional unit of product. ${ }^{5}$ A takeoff on cost and/or cost-plus, variable costing avoids many of the disadvantages in these more common cost approaches.

A first major advantage of variable costing is that it helps overcome the problems associated with absorbing fixed costs when full cost transfer pricing, as described in Chapter 2, is used. With full costing, the buying division often will agree, for example, to pay the transferring division its budgeted fixed costs plus its standard variable costs for the product transferred. Where less than the entire production of the transferor goes to the transferee, an appropriate allocation of fixed costs is used in place of total fixed costs. The allocation is based on budgeted, instead of actual, production. Where variable costs are set tightly, an allowance is made for a reasonable degree of unfavorable variances.

Under this full-costing system, the
. . . buying division is penalized if purchases exceed the forecast. The transferring division gets the benefit to the extent it controls its fixed costs below the budget and its variable costs below the standard. 6

The transferring division is penalized if its costs are excessive, however. Moreover, other problems result if the transferring division sells little or nothing outside the company and it is regarded as a profit center. The transferor will always report a loss equivalent to the underabsorbed fixed costs (assuming no other variances occur). The transferor's status as a profit center will thus be destroyed under the full-costing methods described in Chapter 2. Variable costing eliminates the problems above, because fixed cost absorption does not even figure into the transfer price.

There are other advantages to using the variable-cost variant as a transfer price. Some of these are:

1. Variable pricing determines the cost of underlying processes in terms that are relevant for short-run decisions on pricing, promotion, and product policy. Only marginal pricing can be used for "what if" decisions, pricing policy changes, capital budgeting, make or buy, and level of output. Full cost, or market price, contributes no relevant data toward these decisions, for the marginal costs of the transferred item have to be known to make such a decision. Moreover, marginal cost assures that a sound pricing decision coincides with the goal of maximizing overall profits. Marginal pricing, then, will help insure that the identical nature of the goals of top management and of division management is more than just a coincidence.
2. The "buying division has a guide as to when it is in the company's interest to acquire a product or material from outside sources so long as it knows the short-run marginal cost of producing the product inside the company." ${ }^{7}$
3. ". . . Problems of assigning overhead cost to joint product operations and changing overhead loadings as a result of variations in operating rates are avoided." 8

In contrast to the preference expressed in the literature, only a few companies are actually employing marginal costs. ${ }^{9}$ This indicates that the marginal cost transfer pricing technique does have its drawbacks.

One disadvantage, and a serious one at that, is that only divisions selling outside will show a profit. This problem can be overcome by assigning an artificial profit margin, but this generates arbitrary or imaginary profits. All profit resides with the purchasing division, while the fixed costs, at least in theory, remain in the producing division. The selling division, then, can absorb its fixed costs only by any sales it may make, if it makes any, outside the division. As a result of all this, the effect of marginal costs is to identify either the selling or buying division as a cost center and the other a profit center. There is a valid argument that the performance of the producing division could be measured by cost (by way of variances and/on performance vs. budget). A major problem in this respect is in making a proper distinction between performance of the divisional management in its outside sales and its performance in internal production (measured by labor performance, cost variances, etc.).

A second disadvantage is that "management may overlook profitable changes in methods or product flows because the inefficiencies of one division are covered up by the low costs of more efficient divisions that worked on the product in earlier stages."10

Another disadvantage is that the commercial abilities of a wellrounded division manager are stunted when variable cost transfer pricing is used. "He is isolated from the pitfalls and opportunities of the market and is confined to the role of a service-division manager."1l

A fourth pitfall involves arriving at an optimum solution as to whether to process further or sell on an intermediate market. Neither
demand for the product nor costs of production remain constant. Thus, determining total variable costs at different stages is difficult. In addition, with several intermediate markets available at various transfer points, linear programming must often be used to arrive at the optimum solution mentioned above. ${ }^{12}$ In sum, these techniques are complicated; also, unrealistic assumptions must be employed as to cost behavior, market prices, and demand schedules for various divisions. Thus, variable cost is difficult to use successfully.

Another problem, which is the fifth and final drawback, is that variable costing fails to alleviate a glaring drawback of full costing that was outlined in Chapter 2. That drawback is that there is no incentive for the supplying plant to reduce cost. Thus, variable costing, as with full costing, still fails the test of making corporate goals and division goals congruent, in that there is incentive for the supplying plant to meet schedules and quality requirements but no cost reduction motive.

## Two and Three Part Transfer Prices

As was just brought out in the immediately preceding section of this chapter, the apparent logical alternative to full-cost transfer pricing is the use of variable costs only. However, it was brought forth that "the variable cost method places too much emphasis on the short-run, as indicated by the use of marginal contribution ideology and the absence of a charge for fixed manufacturing costs."13

Also, with the variable cost method, all divisions involved in intracompany transfers are regarded as cost centers. The result is thus similar to full cost transfer pricing, where the producing
division shows no element of profit in the transfer price. "The transferor, as such, would feel disadvantaged if the transferee paid only a variable cost for products which required the incurrence of fixed manufacturing costs."14

A two part transfer price consisting of the standard variable cost to manufacture plus a lump-sum share of fixed manufacturing cost, could accommodate both the transferor and transferee. ${ }^{15}$ Richard $c$. Vendig has studied this approach in an article entitled "Three Part Transfer Price." ${ }^{16}$
"A two-part transfer price could engender long-run and shortrun divisional decision making which would be simultaneously beneficial to the divisions as well as to the company as a whole. ${ }^{17}$ Herein lies the major advantage of two and three-part prices over variable cost transfer pricing.

One advantage that Vendig gives alleviates the problem of one division, through the transfer price, taking on the inefficiencies of another division. Since the transferee has "no control over the efficiency of the transferor (manufacturing) division, its profit performance within the company should not reflect the efficiencies or inefficiencies of the selling division. ${ }^{18}$ Therefore, including variable cost at standard, rather than actual, would motivate the transferors "to operate as efficiently as possible in order to produce a favorable variance and favorable evaluation in terms of variable costs."19

Next, fixed costs must be dealt with. Their treatment is another advantage, as fixed costs are no longer neglected, or treated as variable. These costs represent capacity used in the manufacture of
an item. If another division wishes to purchase the item, it should be charged for the proportion of the capacity costs incurred. What measure of capacity is fair to all? First, to the transferee, the proportionate amount of capacity costs directly traceable to the item would be acceptable, but the allocation of non-traceable fixed costs would have to be accomplished on an arbitrary basis. The manager of the transferee division would not want costs which were not directly attributable to the item included in the price. Second, both divisions want a realistic measure of capacity.

As a guideline . . . Shillinglaw suggests referring to the average operating level assumed by the designers when they were considering how large to construct the plant. Actual capacity could then be established as a percentage above or below this design norm, based on a practical assessment of de facto utilization. Traceable fixed costs would be assigned in terms of a proportion of budgetable traceable fixed costs equal to the ratio of capacity used or budgeted for the transferred items. ${ }^{20}$

If current average expected use is materially different from average planned operating levels as set forth in the designer's specifications, the managers of the involved divisions will have to determine through negotiations the proportion of fixed costs to be assigned to transferred items.

To prevent the transferor from treating these fixed costs as variable costs, they should be included in the transfer price as a lump-sum payment. By being included as a lump-sum payment, fixed costs maintain their characteristic nature of being a "handicap" which must be overcome by a profit contribution. ${ }^{21}$

The transfer price now includes variable costs at standard (so that the efficiencies or inefficiencies of the transferor are not passed on to the transferee) and a lump-sum payment representing a portion of traceable budgeted fixed cost (based on the expected
average operating level of the transferor and the expected demand of the transferee).

Now, both short-term (variable costs) and long-term (fixed costs) are considered. Evaluation of a division's performance can now be made for either context or even for both simultaneously. Within any planning period it is possible to make knowledgeable decisions on a variable cost basis, since the fixed costs are committed. . . . For decisions beyond the current planning period, the segments have information for making long-term decisions because fixed costs are shown separately. 22

Adding the third part to this transfer pricing method negates the argument that the two-part method recognizes no profit. To enhance the two-part transfer pricing method, Vendig would add a charge for the use of capital.

Although top management would set the rate charged for capital, the users of capital in effect determine the amount of capital employed "in essentially the same manner as the lump-sum charge for traceable fixed costs. Thus, the capital charge should be considered traceable." 23

The three-part transfer price, therefore, keeps three separate parts of a transfer price. This can be very useful in evaluating both long-range and short-range problems.

The advantages of the two and three-part pricing methods are thus summed up by Vendig himself:

The three-part transfer price says in effect that . . . if the distinction between variable and fixed costs and also the charge for the use of capital is so useful, . . . why not embody it in accounting systems concerning the assignment of costs among the various divisions of the firm. The basic nature of each element of cost will not be obscured and, if fixed costs are assigned to using divisions in lump-sum amounts, the often heard comment, "you are ignoring fixed costs," will be eliminated. (Transferors) would be satisfied as long as appropriate recognition is given to the basically distinct cost categories, and especially if performance is evaluated in terms of variances from budget. Manufacturing divisions would also be satisfied, since they would be given appropriate credit for costs incurred including an element for profit via a
capital charge. Management and accounting systems specialists also would be satisfied, since the three-part transfer price inclines divisions toward appropriate consideration of long-run and short-run facets of decision-making. ${ }^{24}$

## Contribution Approach

A substitute for negotiated prices based on market is the contribution approach to transfer pricing. Richard J. Schwab deals with this approach in an article entitled "A Contribution Approach to Transfer Pricing." ${ }^{25}$

This method, Schwab claims, may be used where the goods transferred do not have a ready competitive market price, or when division managers are not allowed to enter outside markets. For the method to work, the accounting system must incorporate these features:

1. Standard cost system based on products
2. Variance analysis segregated by departments
3. Contribution margin of each product line ${ }^{26}$

In effect, the contribution margin, coupled with the total variable cost at standard, forms the basis for formulating the transfer price. By calculating the ratio of this overall contribution margin to total standard variable costs, a percentage of contribution margin to variable costs is established. "This ratio is applied to the standard variable cost added in each department to determine the contribution margin applicable to that department. This is a value added approach to transfer pricing." 27

## The effect of these calculations is that:

Each department receives a percentage of the total contribution of the product based on the standard variable cost it adds to the product. The transfer-out price is determined by adding to the trans-fer-in price the standard variable cost incurred and the contribution margin allocated to that department. 28

Exhibit $1^{29}$ illustrates the method. Assume that to produce and sell this unit, the variable cost has been set in the budgeting process. The contribution margin/variable cost ratio states that for every dollar of variable costs incurred, fifty cents worth of contribution to recovering fixed costs and earning net income is made. "In each department the total variable costs are calculated and the ratio applied to determine its contribution margin. ${ }^{30}$ Departmental contribution margin and variable cost at standard are added to the transferredin price to arrive at the transferred-out price.

Before evaluating this system, the problem of autonomy versus efficiency must be considered. As it was stated at the beginning of this section, this method can be used when outside markets are not available. Much department autonomy is lost when an outside market doesn't exist, however. Some of this autonomy can be retained by allowing each manager to control his own costs. By doing so, however, managers will ". . . select production methods which have high variable costs and low fixed costs so as to increase their contribution margin." 31 This leads eventually to less than optimal operation.

This problem can be handled in one of two ways. One way is to let managers make their own cost decisions and to justify their actions to central control personnel as being the most efficient in terms of production costs. This first method is merely a compromise between divisional autonomy and maximum efficiency. "Neither autonomy nor efficiency are satisfactorily guaranteed by this arrangement." ${ }^{32}$ The second way, which is perhaps a better way, is to recognize "that by not

EXHIBIT 1

DERIVING TRANSFER PRICE BY CONTRIBUTION MARGIN

|  | Total costs | Departmental costs |  |  |
| :---: | :---: | :---: | :---: | :---: |
|  |  | Dept. 1 | Dept. 2 | Dept. 3 |
| Cost analysis: |  |  |  |  |
| Direct materials | \$10.00 | \$ 6.00 | \$ 4.00 | -0- |
| Direct labor | 20.00 | 6.00 | 4.00 | \$10.00 |
| Variable factory overhead | 10.00 | 3.00 | 2.00 | 5.00 |
| Total variable cost of production | \$40.00 | \$15.00 | \$10.00 | \$15.00 |
| Selling and administrative variable cost | 10.00 |  |  |  |
| Total variable cost | \$50.00 | Contribution |  |  |
| Selling price | 75.00 |  |  | 50\% |
| Contribution margin | \$25.00 | Varia | cost ${ }^{\text {S }}$ |  |
| Transfer prices: |  | -0- | \$22.50 | \$37.50 |
| (1) Transfer-in price |  | \$15.00 | 10.00 | 15.00 |
| (2) Total variable cost added (from above) |  |  |  |  |
| (3) Contribution margin of department ( $50 \%$ of standard variable cost) |  | 7.50 | 5.00 | 7.50 |
| Transfer-out price |  | \$22.50 | \$37.50 | \$60.00 |

permitting outside purchasing, central management has already dealt a fatal blow to a main tenet of decentralization. Little more seems to be lost in having central control of fixed and variable costs." ${ }^{33}$

Thus, the first advantage of this contribution margin approach is established. It is, in fact, that costs can be carefully controlled, unlike some of the four basic transfer pricing methods outlined in the previous chapter. As Schwab puts it: "Allocating the contribution margin should result in careful analysis of available production techniques by department managers primarily to increase their share of the contribution margin by increasing variable costs." ${ }^{34}$ Central asset purchasing avoids overuse of production methods that rely heavily on variable costs, "but careful examination of production possibilities should be encouraged." ${ }^{35}$ Moreover, division managers are strongly motivated to control variable costs, as they will be evaluated on the basis of the contribution margin of their department. The same effect could be accomplished through the use of variance analysis, but use of only that technique would not encourage careful evaluation of production techniques.

A second major advantage is that short-run decision making is facilitated. This is also unlike full costing, either cost or costplus, which is not conducive to such decision-making. Under the contribution margin method, the total contribution margin of all departments is allocated equitably to each department.

The data thus generated can then be used to compare the cost of the department through the cost added to the eventual products of the firm. Decisions relating to the continuance of the department are thereby readily available. If the contribution of the department is negative and the product could be purchased in an outside market, a make/buy decision must be made. This entails the usual fixed and
variable cost analysis. The information for this analysis is already available because of the allocation of cost and contribution margin. 36

In summarizing some of the other more pertinent advantages of the method, these favorable points are established:
l. "A simple, understandable system of cost allocation between departments is established."37 This system, like variable costing, is useful for both evaluation and goal attainment. Costs are allocated, and a profit is built into the system.
2. "Accurate standard cost estimations are promoted since departments are evaluated on this basis." ${ }^{38}$ Division morale is affected because both departmental and top level management participate in setting standards. None of the four basic methods, save for full costing at standard, feature this standard consciousness.
3. "Cost control is encouraged because standard cost is used to determine contribution margin. Variance analysis is also possible."39
4. Like variable costing and, again unlike the basic transfer pricing methods, "departmental evaluation based on contribution margin is useful for make/buy, continued production pricing, and ROI decisions. ${ }^{40}$
5. As stated before in this section, "careful analysis of available production techniques is promoted."41 Department managers will be tempted to increase departmental variable costs but must justify all methods to top management.
6. "Department managers are fairly evaluated on a simple and understandable basis." 42

To sum it up, Schwab proposes that negotiated price based on market be used whenever a competitive market exists and can be entered into because the three elements of decentralization, which are (1) autonomy, (2) evaluation, and (3) goal congruence, are best met by this method. However, when competitive markets don't exist or when the firm chooses not to enter, market price can't provide a valid transfer price. Contribution margin transfer prices are the next best solution.

## Cost Incurred by Other Divisions

A proponent of the method, Walter $H$. Crompton, ${ }^{43}$ states that defects, as already pointed out in this paper, of the four basic transfer pricing methods can be remedied through the use of transfer pricing based on costs incurred by other divisions. This proponent, Walter H. Crompton, has wsitten an article that appeared in the April, 1972 edition of Management Accounting. All quotes, illustrations, and references in this section are from that article.

Crompton first lists some of the defects of all four of the basic methods. He attacks full cost methods by stating that "it has its most serious drawback in the fact that the receiving plant gets full sales credit and prime responsibility for margin whereas the supplying plant has an incentive not to reduce cost, but to raise the standard so as to absorb more of its overhead and make the products for which it receives sales credit more profitable. ${ }^{144}$ Thus, these methods may force product or marketing decisions that are not in the best interests of the company.

Marginal or variable cost again provides little incentive for the producing division to reduce costs, and makes production even less desirable for the supplying plant.

As for market prices, their use may result in some plants making bad decisions such as "turning away some business that would be profitable for the company if the price were between market and the supplying plant's incremental costs, but not profitable when parts had to be obtained at full market price. ${ }^{45}$ A spin-off of market price, negotiation, is attacked because it results in gamesmanship between divisions.

Thus all methods are deficient in one or more ways. "They do not equate corporate benefit with division benefit. They consume executive time. They do not provide credit for accomplishment. And they are subject to manipulation. ${ }^{46}$

But Crompton feels a simple method eliminates or diminishes the defects of these other methods mentioned above. This method distributes profits by a formula which seems inequitable but which serves to optimize both divisional and corporation profit.

Consider only Plants A and B. Plant A provides a part
(standard cost $=C_{a}$ ). $B$ adds standard cost including shrinkage ( $C_{b}$ ) and then sells the product for $S$. The corporate gross margin is then: $M=S-\left(C_{a}+C_{b}\right)$.

Now allocate to the plants the following gross margins:

Plant A:

$$
M_{a}=\frac{M C_{b}}{C_{a}+C_{b}}
$$

Plant B:

$$
M_{b}=\frac{M C_{a}}{C_{a}+C_{b}}
$$

The inequity, Crompton states, is now obvious. Each plant receives margin credit in proportion to the cost incurred by the other. This inequity disappears when the budget is set, each plant being budgeted to receive sales credit by formula, and being rated by performance compared to budget.

Consider the incentive--any reduction in cost by either plant goes immediately to its own gross margin without affecting the other plants. Simultaneously, it goes to the corporation's gross.

There is a double incentive built in that will further encourage cost reduction. Each plant will compete with each other to reduce costs in order to gain a greater share of the margin at the time the next budget is set.

The margin should be credited to the supplying plant when goods are transferred. A corresponding debit would be posted to the receiving plant, to an account that would be adjusted at the time of sale of the finished product. The inventory would then be automatically carried at standard cost.
"The receiving plant not only would have the inventory on its books, but would be carrying on its books as a margin loss all the margin that had been credited to the supplying plant. The incentive to control inventories is thus built into the system. ${ }^{47}$

There appear to be limits for such incentives, especially when a plant puts most of the cost into a product or when it is operating at, or close to, the limits of technology--that is, when it sees no clear way of improving its performance and gets little margin for its work. The impact of this problem can be minimized without losing the desirable features of the proposal by modifying the formula structure so that the plant contributing the most cost never gets less than a certain percentage of the margin.
"If this percentage is set at 25 the distribution becomes:
Plant A:

$$
M_{a}=\frac{M}{4} \times \frac{C_{a}+3 C_{b}}{C_{a}+C_{b}}
$$

Plant B:

$$
M_{b}=\frac{M}{4} \times \frac{3 C_{a}+C_{b}}{C_{a}+C_{b}} .{ }^{48}
$$

Clearly, however, a division supplying spark plugs to the automobile assembly division should not receive almost all the margin on the finished product. The system would work best where each of the two plants contributes more than about $15 \%$ of the total cost and I would recommend its adoption with some such restriction. 49

What about the addition of a third plant in the sequence? Such an addition adds only one factor in the proportioning equation. The simple margin allocated to Plant A would be:

$$
M_{a}=\frac{M\left(C_{b}+C_{c}\right)}{2\left(C_{a}+C_{b}+C_{c}\right)}
$$

An application of the two-plant example above should be considered. Consider Plant A's initial cost to be equal to $\$ .80$, and Plant B's initial cost to be equal to $\$ \mathbf{\$ 2 0}$. The product sells for $\$ 2.00$, leaving a gross margin of $50 \%$, or $\$ 1.00$. Distribution of the margin is $\$ .20$ to Plant $A$ and $\$ .80$ to Plant B. If Plant A improves
its cost figures by $10 \%$ to $\$ .72$ with no change at Plant $B$, then the distribution (of more gross margin) is $\$ .235$ to Plant A and $\$ .845$ to Plant B.

For example: ${ }^{50}$

$$
\begin{aligned}
& M_{a}=\frac{\$ 1.00 \times \$ .20}{\$ .80+\$ .20}=\$ .20 \\
& M_{b}=\frac{\$ 1.00 \times \$ .80}{\$ .80+\$ .20}=\$ .80
\end{aligned}
$$

when original costs are:

$$
\begin{array}{ll}
c_{a}=\$ .80 & s=\$ 2.00 \\
c_{b}=\$ .20 & M=\$ 1.00
\end{array}
$$

When new costs are:

$$
\begin{array}{ll}
c_{a}=\$ .72 & s=\$ 2.00 \\
c_{b}=\$ .20 & M=\$ 1.08
\end{array}
$$

$$
M_{a}=\frac{\$ 1.08 \times \$ .20}{\$ .72+\$ .20}=\$ .235
$$

$$
M_{b}=\frac{\$ 1.08 \times \$ .72}{\$ .72+\$ .20}=\$ .845
$$

"If Plant A does nothing and Plant B reduces its cost $10 \%$ to $\$ .18$ then the distribution is $\$ .187$ to Plant A and $\$ .833$ to Plant B:

$$
M_{a}=\frac{\$ 1.02 \times \$ .18}{\$ .80+\$ .18}=\$ .187 .151
$$

A great advantage in this method, as can be deducted from the examples, is that each plant must thus match the other in reducing costs in order to retain its share of margin dollars. "With both plants sharing in the benefits of reduced costs, a cooperative effort aimed at establishing quality standards, part design modifications, etc., has a better chance of success than under a transfer pricing plan
without this benefit." ${ }^{52}$ No other plan that this paper presents has such a benefit.

In summary, Crompton feels his method has the following advantages:

> Corporate profits and plant profits are maximized together. It provides interplant cost competition, promotes interplant competition in shrinkage reduction, improves incentive to control inventory and hasten shipments, encourages new business through accurate estimating, is simple in concept, minimizes executive attention required, and adds little in the way of accounting complications. ${ }^{53}$

## Mediation

Two features of mediation can help alleviate some of the major shortcomings of negotiation that were mentioned above. One feature will help eliminate the vast amounts of time needed to negotiate prices, and the other will help eliminate hard feelings developed between the divisions as a direct result of negotiation.

The first feature uses a "list" price for each part, based upon cost, standard cost, or competitive market price for each article. Items could then be classified into groups. Bargainers would then use "list" price as a basis for bargaining and would negotiate for a percentage markup or discount on each group. Thus, the advantage of starting with a "list" price is that very little time is wasted in haggling over prices once the "list" price is established.

Another feature of negotiation that would help minimize some basic shortcomings is the actual use of a mediator. This mediator would be a temporary feature in negotiations, for ". . . as profit-center managers gain experience in using the competitive pricing system and
grow to appreciate its value, the effective mediator will work himself out of a job."54

One of the functions of the mediator is'to separate the truth from the exaggerated, conflicting, misguided and prejudiced pricing facts which parties often bring to the conference." 55 The mediator should "aim at securing agreement by keeping the negotiations going, by supplying information, and by exercising business judgement on issues of fact as well as on commercial alternatives."56 Thus, another advantage of the mediator is that he keeps the talks going smoothly and prevents the extremely able manager who may not have the talent for negotiating from being taken advantage of by his more "slick-talking," and possibly less-talented, counterpart.

A cardinal rule is that the mediator should assist in the talks; he should not arbitrate. This is because arbitration is expensive and time-consuming, makes everyone feel cheated, and gives everybody an alibi for profit and volume results.

## Accounting for Inter-plant Sales

The accounting procedures that are used in pricing and recording inter-plant sales and purchases will directly affect the operating results as shown on the income statements of the plants involved. These operating results will vary substantially, depending on the methods used. Such results could thus ". . . result in misleading figures and, possibly, in poor managerial decisions." 57 After making intercompany eliminations, however, the consolidated income statement will be the same, no matter what method of transfer pricing is used.

The purpose of this section is to illustrate the different results that will be obtained by using three different accounting methods for inter-divisional transfers and to list the advantages and disadvantages of each of the methods used in Exhibits 2 and 3.58 It will also be shown, through the use of Exhibit $4,{ }^{59}$ how the disadvantages as illustrated in the first two examples, can be overcome without sacrificing any of the advantages. Richard H. Braughman has researched the area of accounting for inter-plant sales. ${ }^{60}$

The following data will be assumed:

1. The company consists of three plants. Plants A and B manufacture parts that are sold outside and to Plant $C$, which is primarily an assembly plant.
2. Plant A sales equal $\$ 200,000, \$ 100,000$ of which is to outsiders and $\$ 100,000$ to Plant $C$, based on outside selling prices. Thus interdivisional prices are made at market prices. The average direct cost of its sales is $65 \%$ of outside selling prices.
3. Plant $B$ sales amount to $\$ 250,000$. Of that, outside sales amount to $\$ 200,000$, and sales to Plant C equal $\$ 50,000$. The average direct costs are equal to $60 \%$ of outside selling price.
4. Most purchases made by Plant C are from Plants A and B. $\$ 5,000$ of purchases are made from outside venders. All sales are made to outsiders. Direct costs are $70 \%$ of net sales. ${ }^{61}$

Method 1
The profit and loss statement shown in Exhibit 2 shows the results based on interplant sales made by $A$ and $B$ at regular outside selling prices. Plant $C$ records the total cost of purchases in its

## EXHIBIT 2

PROFIT AND LOSS STATEMENT BASED ON INTERPLANT SALES TRANSFERRED AT REGULAR OUTSIDE SELLING PRICES TO THE PURCHASING PLANT'S RAW MATERIAL ACCOUNT

| (000 Omitted) | $\begin{gathered} \text { Plant } \end{gathered}$ |  |  | $\begin{gathered} \text { Plant } \\ \mathrm{B} \end{gathered}$ |  | $\begin{gathered} \text { Plant } \\ \mathrm{C} \end{gathered}$ |  | Sub Total |  | Interplant Eliminations |  | Total |  |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| Net Sales |  |  | \$200 |  | \$250 |  | \$300 |  | \$750 |  | \$150 |  | \$600 |  |
| Direct Cost of Sales |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| Raw Material | 80 | 0 |  | 100 |  | 155 |  | 335 |  | 150 |  | 185 |  |  |
| Direct Labor \& Overhead | 50 | 0 |  | 50 |  | 110 |  | 210 |  | - |  | 210 |  |  |
| Total |  |  | 130 |  | 150 |  | 265 |  | 545 |  | 150 |  | 395 |  |
| Marginal Contribution - Dollars |  |  | \$ 70 |  | \$100 |  | \$35 |  | \$205 |  | \$ - |  | \$205 | $\pm$ |
| - \% |  | 5\% |  | 40\% |  | 12\% |  | 27\% |  | - |  | $34 \%$ |  |  |
| Period Costs |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| Manufacturing | 30 | 0 |  | 40 |  | 10 |  | 80 |  |  |  | 80 |  |  |
| General E Administrative | 15 | 5 |  | 20 |  | 15 |  | 50 |  |  |  | 50 |  |  |
| Total |  |  | 45 |  | 60 |  | 25 |  | 130 |  |  |  | 130 |  |
| Net Profit Before Tax |  |  | \$ 25 |  | \$ 40 |  | \$ 10 |  | \$75 |  |  |  | \$ 75 |  |
| Investment - Dollars | 100 |  |  | 160 |  | 40 |  | 300 |  |  |  | 300 |  |  |
| - \% Return |  | 5\% |  | 25\% |  | 25\% |  | 25\% |  |  |  | 25\% |  |  |

raw materials account. Market price, of course, is the method used in this example. This method correctly measures the profitability of each plant and also the ROI. However, the $\$ 35,000$ marginal contribution and the $12 \%$ of sales of Plant C does not reflect the true results since the cost of parts purchased from Plants $A$ and $B$, as recorded by Plant $C$, includes not only the direct costs of Plants $A$ and $B$ but also period costs and profits of those two supplying plants. All this could mislead management unless they understood how the accounting system works. Assume, for example, that a customer of Plant $C$ offers a major increase in its purchase orders to $C$, if $C$ reduces its prices by $10 \%$. The offer would be turned down because the average contribution margin of $12 \%$ does not allow much latitude in making a price reduction. In reality, the true average marginal contribution of all parts sold by C is $30 \%$ as shown in Exhibits 2 and 3. Hence, a price concession of $10 \%$ may be desirable.

## Method 2

The income statement shown in Exhibit 3 shows results if interplant sales are made by Plants $A$ and $B$ to $C$ at standard direct cost. This cost method correctly reports marginal contribution dollars and the corresponding percentages of net sales as they relate to all sales other than inter-plant sales. "However," Braughman states, "the 'Net Profit Before Tax' and the return on investment figures are not a true measure of the profitability of the various plants since only standard direct costs are included in the transfer price."62
"Plants A and B receive no credit for the period costs or for the investment involved in manufacturing parts sold to Plant C. . . .

EXHIBIT 3
PROFIT AND LOSS STATEMENT BASED ON INTERPLANT SALES TRANSFERRED AT STANDARD DIRECT COST ONLY TO THE PURCHASING PLANT'S RAW MATERIAL ACCOUNT
(000 Omitted)
Net Sales
Less Inter-plant Sales
Net Outside Sales
Direct Cost of Sales
Raw Material
Direct Labor $\varepsilon$ Overhead
Total Direct Cost of Sales
Less Inter-plant Sales
Net Direct Cost of Sales
Marginal Contribution - Dollars

- \%

Period Costs
Manufacturing
General \& Administrative Total
Net Profit Before Tax
Investment - Dollars

- \% Return

Plant
A
\$165
65
$\$ 100$

Plant
B
\$230
30
$\$ 200$
80
$\begin{array}{r}50 \\ \hline 130\end{array}$
65

- $\quad \frac{65}{\$ 35}$
$35 \%$


## 30

$\xrightarrow{15}$

|  |
| ---: |
| 65 |
| $\$ 35$ |


| 100 |
| ---: |
| 50 |
| 150 |
| 30 |



Plant
C

| $\$ 300$ | $\$ 695$ |
| :--- | ---: |
|  | - |
| $\$ 300$ | $\$ 600$ |

The marginal contribution generated by sales of Plants $A$ and $B$ to all customers other than Plant $C$ must absorb all period costs assigned to Plants $A$ and $B$ and earn a satisfactory return on the investments of these two plants."63 These weaknesses concerning variable costing have already been pointed out in a previous chapter, when variable cost transfer pricing was evaluated.

Exhibit 3 shows the weaknesses of using variable costs only as a transfer price. For instance, Exhibit 3 's income statement could lead management to conclude that Division A is unprofitable while Division C is highly profitable. This is not necessarily true, as shown in Exhibit 4. Without a full understanding of the accounting method used in handling inter-plant transactions and their effects on the profit and loss statement, ". . . management may make erroneous decisions with respect to investing for plant expansions or directing sales efforts to products sold by Plant c. ${ }^{64}$

Method 3
The profit and loss statement, as shown by Exhibit 4, reverts to showing inter-plant sales at regular outside selling prices. For Plants A and B, the income statement is identical to that in Exhibit 2. The statement differs for Plant $C$, however:
. . . due to the difference in the accounting method of handling the purchase. In Exhibit 2, the total cost was recorded as a raw material purchase. In Exhibit 4, the total cost is split and recorded partially in the raw material account and partially in a period cost account designated as 'Purchased Period Costs and Profit.' The amount to be recorded in the raw material account would be the standard direct cost portion only, while the remaining cost would be charged to purchased period costs and profit. 65

## EXHIBIT 4

PROFIT AND LOSS STATEMENT BASED ON INTERPLANT SALES TRANSFERRED AT REGULAR OUTSIDE SELLING PRICES TO THE PURCHASING PLANT'S RAW MATERIAL AND PERIOD COST ACCOUNTS

| (000 Omitted) | $\underset{\mathrm{A}}{\text { Plant }}$ |  | $\underset{B}{\text { Plant }}$ |  | $\underset{\mathrm{C}}{\text { Plant }}$ |  | Sub Total |  | Interplant Eliminations |  | Total |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| Net Sales |  | \$200 |  | \$250 |  | \$300 |  | \$750 |  | \$150 |  | \$600 |
| Direct Cost of Sales |  |  |  |  |  |  |  |  |  |  |  |  |
| Raw Material | 80 |  | 100 |  | 100 |  | 280 |  | 95 |  | 185 |  |
| Direct Labor \& Overhead | 50 |  | 50 |  | 110 |  | 210 |  | - |  | 210 |  |
| Total |  | 130 |  | 150 |  | 210 |  | 490 |  | 95 |  | 395 |
| Marginal Contribution - Dollars |  | \$70 |  | \$100 |  | \$90 |  | \$260 |  | \$55 |  | \$205 |
| -\% | $35 \%$ |  | $40 \%$ |  | $30 \%$ |  | 35 |  | 37\% |  | 34 |  |
| Period Costs |  |  |  |  |  |  |  |  |  |  |  |  |
| Regular Manufacturing Costs | 30 |  | 40 |  | 10 |  | 80 |  | - |  | 80 |  |
| Purchased Period Costs \& Profit | - |  | - |  | 55 |  | 55 |  | 55 |  | - |  |
| General \& Administrative | 15 |  | 20 |  | 15 |  | 50 |  | - |  | 50 |  |
| Total |  | 45 |  | 60 |  | 80 |  | 185 |  | 55 |  | 130 |
| Net Profit Before Tax |  | \$25 |  | \$40 |  | \$ 10 |  | \$75 |  | \$- |  | \$75 |
| Investment - Dollars | 100 |  | 160 |  | 40 |  | 300 |  |  |  | 300 |  |
| - \% Return | $25 \%$ |  | $25 \%$ |  | 25\% |  | 25 |  |  |  | 25 |  |

This method necessitates the selling plants furnishing the purchaser with a breakdown of selling prices showing their direct costs at standard. The difference ". . . between that cost and the selling price represents the standard marginal contribution they have included in their selling price to cover their period costs and yield a profit."66

This method of handling inter-plant sales has all the advantages of Methods 1 and 2 and none of their disadvantages. The marginal contribution percentage is the same as in Exhibit 3, while the ROI percentage is the same as in Exhibit 2. The consolidated profit and loss statement, after inter-plant sales and purchases are eliminated, are identical in each exhibit.

The use of a separate account to record 'Purchased Period Costs and Profits' could be most helpful to management if they were faced with making a decision as to whether to close a plant that was not earning an adequate return on its investment if this plant was being supplied parts from other plants in the company. 67

Assume Plant $C$ shows a loss of $\$ 10,000$. Management wants to close it down. However, if C's profit and loss statement included "Purchased Period Costs and Profit" of $\$ 25,000$, closing $C$ would reduce profits of Plants $A$ and $B$ by $\$ 25,000$. Therefore, the company would incur a net loss by discontinuing operations of Plant $C$, unless Plants $A$ and $B$ reduced period costs due to a loss of sales to $C$, or they could use the now unused capacity more profitably.

Transfer Planning
David H. Li has addressed the problem of under on overabsorbed fixed costs when a full-costing transfer pricing method is used. ${ }^{68}$

As this paper has already noted, full cost transfer pricing makes the selling division not a profit center but a cost center. The transfer price, as a result, is just a cost standard under a different label. This is particularly so if transfer prices are based on standard costs.
"'Profit' reported by a selling division with little on no outside sales is no different from favorable variances reported by other cost responsibility centers. Such 'profit' data are not suitable for computing the divisional ROI." 69

In addition, other problems are brought out. That is, shall the buying division be held responsible for the seller's volume variances? For example, the selling division incurs $\$ 21,000$ of fixed costs in a representative month. In anticipation of transferring 7,000 units to the buying division, the selling division established the fixed cost portion of the full cost at $\$ 3$ per unit. If the buying division purchases only 5,000 units and no units are sold outside the company, the selling division has unabsorbed fixed costs of $\$ 6,000$ (2,000 units at \$3 per unit). The question is, which division should be held responsible for this volume variance? ${ }^{70}$

To answer this question, interdivisional transfer planning is needed, not only in terms of price, but also in terms of volume. The establishment of planning ransfers as to volume in advance is advantageous to the buying division, for this planning "appeals to morale and operating efficiency; it certainly facilitates divisional planning."71 To the selling division, this knowledge permits it enough lead time to plan capital acquisitions as well as to evaluate ". . . the adequacy of
its productive capacity."72 To both divisions, then, this planning formalizes decentralization and acknowledges the fact that profit centers do indeed exist.

Next transfer planning as to price is dealt with by Li. He feels that:

Negotiated price has a great deal to offer if the number of units to be transferred is known. This is because the selling division would be in a position to quote two figures. One is a lump-sum charge representing roughly the pro-rata share of the selling division's fixed costs and ROI that must be borne by the buying division for committing the selling division's facilities to the buying division's use. The other is the standard variable cost per unit of the product to be transferred. ${ }^{73}$

To a buying division, the transfer price, converted to a per unit basis, should be lower than market price. This is because the buying division will assume the risk of unfavorable volume variances if the actual number of units it needs falls below that amount planned. To a selling division, the buying division becomes a favored customer with a long-term contract. As a result, the seller will realize savings from integration and from passing on some of the risk of unfavorable variances to the buying division.
"This arrangement protects the buying and selling divisions as separate profit responsibility centers as well as pinpoints the responsibility for unfavorable volume variances. It also provides data suitable for decision-making and product costing."74

In addition to divisional advantages, there are benefits from this method that accrue to the company as a whole. They are: (1) The buying division must plan very carefully the number of units it will purchase. (2) If its needs are in excess of those planned, the buying division is encouraged to let its needs be known to the selling division
before buying on the outside. This is because the selling division, if it has unused capacity, would probably quote a price not much higher than the variable cost. (3) The buying division can make attempts at making optimum output decisions, since the marginal cost is available. ENDNOTES
$I_{\text {Larson, }}$ "Decentralization in Real Life," p. 32.
${ }^{2}$ Ibid.
${ }^{3}$ Ibid.
${ }^{4}$ Wojdak, "External Aspects of Transfer Pricing," p. 344.
$5^{5}$ Dean, "Decentralization and Intracompany Pricing," p. 69.
$6^{\prime \prime}$ Transfer Pricing: A New Perspective," p. 807.
${ }^{7}$ Dean, "Decentralization and Intracompany Pricing," p. 69.
$8_{\text {Ibid. }}$
${ }^{9}$ Sharav, "Transfer Pricing," p. 59.
${ }^{10}$ Dean, "Decentralization and Intracompany Pricing," p. 70.
${ }^{11}$ Ibid.
${ }^{12}$ Wojdak, "External Aspects of Transfer Pricing," p. 345.
${ }^{13}$ Richard E. Vendig, "Three-Part Transfer Price," Management Accounting (NAA) 55 (September 1973):34.
${ }^{14}$ Ibid., p. 35.
${ }^{15}$ Ibid.
${ }^{16}$ Ibid., pp. 35-36.
${ }^{17}$ Ibid., p. 35.
${ }^{18}$ Ibid.
${ }^{19}$ Ibid.
${ }^{20}$ Ibid.

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21
    Ibid.
22Ibid., pp. 35-36.
23 Ibid., p. 36.
24}\mathrm{ Ibid.
25}Richard J. Schwab, "Contribution Approach to Transfer Pricing,"
Management Accounting (NAA) 56 (February 1975):46-48.
26}\mathrm{ Ibid., p. 46.
27 Ibid., p. 47.
28 Ibid.
29
    Ibid.
30
    Ibid.
31
    Ibid.
32
    Ibid.
33
    Ibid., p. 48.
34}\mathrm{ Ibid.
35
    Ibid.
36 Ibid.
37
    Ibid.
38}\mathrm{ Ibid.
39 Ibid.
40}\mathrm{ Ibid.
4l}\mathrm{ Ibid.
42Ibid.
43}\mathrm{ Crompton, "Transfer Pricing," p. 46.
44}\mathrm{ Ibid.
45Schwab, "Contribution Approach," p. }46
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46
Ibid.
${ }^{47}$ Crompton, "Transfer Pricing," p. 47.
${ }^{48}$ Ibid.
$4^{\text {Ibid. }}$.
50
Ibid.
${ }^{51}$ Ibid.
52 Ibid., p. 48.
53
Crompton, "Transfer Pricing," p. 48.
${ }^{54}$ Dean, "Decentralization and Intracompany Pricing," p. 72.
${ }^{55}$ Ibid.
56
Ibid.
${ }^{57}$ Raymond H. Baughman, "Accounting for Interplant Sales," Management Accounting (NAA) 52 (September 1970):41.

58
Ibid., p. 42.
$5^{\text {Ibid }}$.
60
Ibid., pp. 41-43.
${ }^{61}$ Ibid., p. 41.
62
Ibid., p. 43.
$63^{\text {Ibid }}$.
${ }^{64}$ Ibid.
${ }^{65}$ Ibid.
${ }^{66}$ Ibid.
${ }^{67}$ Ibid.
${ }^{68}$ David H. Li, "Interdivisional Transfer Planning," NAA Bulletin--
Management Accounting 46, section 1 (June 1965):51.
${ }^{69}$ Ibid., p. 52.
${ }^{70}$ Ibid.
${ }^{71}$ Ibid., p. 53.
${ }^{72}$ Ibid.
${ }^{73}$ Ibid.
${ }^{74}$ Ibid., p. 54.

## SUMMARY AND CONCLUSIONS

This paper has now evaluated the four basic transfer pricing methods, and has also gone on to present some selected variances that will help to minimize the shortcomings of those four basic methods. While each of these basic methods and variants is far from perfect, each has certain advantages, and each is more applicable to a certain situation than another.

In effect, then, this paper has attempted to show that all of the above alternatives for transfer pricing are reasonable in one situation or the other, and that the choice of the method to be used can be made only after the purpose for which the information to be used is determined. It is a basic fact that the same transfer price cannot be stretched to serve too many purposes. Management must decide in each case what the transfer price is expected to accomplish. The selection of a particular method depends upon the purpose for which the information is to be used.

In other words, after evaluating all the basic methods and their variants, it is to be concluded that a firm's transfer pricing system should consist of several different transfer prices. A decentralized firm might want to use incremental or variable costs for internal decision purposes, market price for external reports, and full cost for consolidated financial statements.

Whatever method is selected, it still holds that the transfer price, at the highest level, should promote both efficient divisional management and informed capital budgeting. At the decision level, transfer prices should lead to goal congruence; that is, conforming the goals of the division manager with the goals of the corporation.

It was stated earlier in this chapter that what management wishes the intracompany pricing methods to accomplish will dictate the system followed. For example, if the system is used as the primary means for controlling costs and profits, for measuring operational results, and for directing the profit flow in the most profitable ways, some market price method is necessary. In other words, if the goal of establishing transfer prices is to measure the profit performance of divisions, then market price is the best method to use. This price is effective because it simulates market conditions if the divisions were separate corporate entities rather than subdivisions of one entity.

Market price is also the most useful transfer price for the use of external users for, as brought out in this paper, such users are interested in the long-run competitive performance of the division. In particular, the user is concerned with whether or not the division and/ or its management should be retained. To make such a decision, the external user will require full cost and generation of a competitive profit. A valid measurement of this is market price.

In summation, pricing intracompany transfers at market price gives the external user a basis for comparing the financial statements of divisions within a firm with those of independent companies who produce identical goods and services. Whether or not the return on
alternative investments is higher can only be determined if marketbased transfer prices are used for external divisional reports.

It has been observed that market price does have its problems. In summation, some of those problems are that market price is not always the list price, and that market may be affected by terms of payment, freight absorptions, quality concessions, and captive markets.

Marginal costs should also be used in the recommended system. While the selling division should use a market price to compute its revenues, the purchasing division should use marginal costs of the selling division to determine cost.

Marginal costs will be particularly effective for some decisionmaking purposes, as this paper has covered. In short, these costs are needed for make or buy decisions, capital budgeting, and reducing operations. They are also needed for making optimal solutions for pricing and output. Neither full costs nor market prices can be used in making these decisions.

For make or buy decisions, for example, a knowledge of costs which can be avoided by purchasing the product, rather than making it, is needed. This requires a breakdown of costs not supplied by the use of market price. The same type of information is needed for the decision of whether or not to drop a product.

Also, variable, incremental, or marginal costs are needed for capital budgeting decisions. A capital budgeting decision made by a division buying components from another division should be based on the incremental cash inflows and outflows which will result from the investment. These flows are tied to variable and semi-variable cost,
not to the market price of intermediate components purchased from other divisions of the company.

General financial statements, on the other hand, require that inventories be recorded at cost to conform to generally accepted accounting principles. This cost must be full cost, including manufacturing overhead, but not including any element of unrealized profit. Moreover, cost-based transfer prices need to be supplied, particularly if consolidated statements are to be prepared. Since these types of statements are the most widely used method of external reporting for diversified companies, a transfer price to satisfy these requirements must be used. This price is full cost.

Selected variants of the four basic methods were also explored in this paper. All of these methods have as their goal the advancement of the firm from the behavioral standpoint. All of the variants explored indicated that research is being conducted in using transfer prices to improve operations from a behavioral basis, but none of these variants can be used as an all-purpose transfer price. As a result, the variants, too, fall in favor of the multiple transfer pricing system.

It may well be that, due to the actual operation of the decentralized entity, transfer prices should be established from a predominantly behavioral point of view, especially if top management uses profit as the principal evaluation item of the division. Goal congruence could be achieved and the division manager would act so as to maximize the goals of the firm. The accountant is not yet competent in the behavioral area, but his research in developing variants is encouraging, though incomplete. Hopefully, research in the area will yield an all-purpose price instead of the mixture advocated here.

In summary, then, the same transfer price that is used as a means for tax avoidance or profit recapture is also expected to be a suitable basis for judging a division's performance and awarding bonuses. It is sometimes also used for capital budgeting decisions, thereby compounding the inequity. To solve the problem, at least for now, the following system of different transfer prices for different situations is recommended:

| Use | Method of Pricing |
| :--- | :--- |
| Measuring Performance | Market Price (Negotiated <br> price if market price is <br> not available) |
| Decision Making | Marginal Costs, Variable <br> Costs (As a substitute for <br> marginal costs), and |
| Gifferential Costs <br> General Financial <br> Accounting (Prepared <br> in conformance with <br> generally accepted <br> accounting principles) | Full Costs (Excluding <br> intracompany profits) |

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