

made. Note that absorption and marginal costing will generally report the same profit or loss if there is no stock movement.

So which approach is right? Although there are arguments for and against each costing system, an argument in favour of absorption costing is that it applies the matching concept. This is particularly relevant for manufacturing companies with seasonal businesses – toys, fireworks etc – that produce monthly accounts. Marginal costing will understate profits in months where goods are made for future sales and inflate profits in months where sales exceed production, because factory overheads are charged to the month in which the products were made. Absorption costing, however, provides a better indication of monthly profitability, since factory overheads are charged to the profit and loss account when the products are sold.

Although this article considers absorption costing variances, the key message remains the same: students will be better placed to calculate variances, understand why they are calculated and cope with “unusual” data if they ask a simple question. ■

Grahame Steven is a lecturer at Napier University, Edinburgh

3 Absorption cost reconciliation

Budgeted net profit		£2,800
Sales volume variance	-40 packets	-£112
Sales price variance		£48
Material price variance		£106
Material usage variance		-£60
Labour rate variance		£11
Labour efficiency variance		-£20
Variable overhead expenditure variance		-£30
Variable overhead efficiency variance		£15
Fixed overhead variance		-£100
Fixed overhead volume variance		<u>£125</u>
Actual net profit		£2,783

4 Marginal cost reconciliation

Budgeted net profit		£2,800
Sales volume variance	-40 packets	-£212
Sales price variance		£48
Material price variance		£106
Material usage variance		-£60
Labour rate variance		£11
Labour efficiency variance		-£20
Variable overhead expenditure variance		-£30
Variable overhead efficiency variance		£15
Fixed overhead variance		-£100
Actual net profit		£2,558

Opportunity knocks

Bob Scarlett

If you want the most equitable and neutral transfer pricing system for strategic business units, there's a clear choice – but it's not always the most practical one

Transfer pricing is a practice whereby one strategic business unit (SBU) within an organisation charges another SBU in the same entity for the supply of goods or services. The main features of an SBU are that:

- its managers are allowed a degree of independence in how they run it;
- its performance is measured and reported as if it were an independent business;
- its managers are normally rewarded in a manner linked to SBU performance.

An SBU's affairs should therefore be managed to give it many of the characteristics of an independent business. But one problem

this arrangement creates is the issue of transfer pricing. In designing a pricing system, management accountants should take note of the following main requirements:

- The system should provide an equitable distribution of profit between divisions.
- It should be neutral in that it does not induce dysfunctional behaviour.
- It should be simple and transparent so that it is cost-effective

The benchmarks against which any transfer pricing system can be judged are therefore equity, neutrality and simplicity.

All sorts of different transfer pricing systems are possible. But there are two extreme

positions: “outside market selling price”, above which no SBU would accept transfers in; and “marginal cost”, below which no SBU would agree to make transfers out. For obvious reasons, the receiving SBU will never accept transfers at above market price and the supplier SBU will never agree to make transfers at below its marginal cost of production. One other possible transfer pricing system is “opportunity cost” – the costs incurred and contribution foregone by the transferor division as the direct result of making a transfer.

Consider the following simple case to explore the merits of three alternative

1 Impact on B's profit from manufacture of one product in first scenario

Pricing system	Marginal cost	Market price	Opportunity cost
Transfer price	-5	-10	-5
B marginal cost	-3	-3	-3
Selling price	<u>12</u>	<u>12</u>	<u>12</u>
Contribution	4	-1	4

2 Impact on B's profit from manufacture of one product in second scenario

Pricing system	Marginal cost	Market price	Opportunity cost
Transfer price	-5	-10	-10
B marginal cost	-3	-3	-3
Selling price	<u>12</u>	<u>12</u>	<u>12</u>
Contribution	4	-1	-1

transfer pricing systems in two different scenarios. The company AB Ltd has two divisions, A and B. Division A produces units at a marginal cost of £5 each. Division B makes products (each incorporating one unit) at a marginal cost of £3 each (excluding the cost of the unit). The outside selling price of the unit is £10 and that of the product is £12. Should the firm adopt a transfer pricing system based on marginal cost, market selling price or opportunity cost?

In answering this question you should consider two alternative scenarios: first, where there is no capacity constraint in A; and, second, where A is operating at full capacity and unit transfers to B mean that outside sales must be foregone.

Scenario 1: no capacity constraint in A

The manufacture of products is advantageous to AB Ltd as a whole. The total cost of manufacture is £8 per product (£5 in A and £3 in B) and the selling price is £12, giving a contribution of £4 per product. But the manager of B is the person who will decide whether products are manufactured or not. He will be guided in this only by the impact such manufacturing will have on the profit of division B.

Let's examine the likely outcome under each of the three alternative transfer pricing systems. Table 1 shows the impact on the profit of division B from the manufacture of one product under each possible system. In this case, the opportunity cost to A of transferring one unit is the same as marginal cost. Division A simply manufactures one extra unit and its opportunity cost is the marginal cost thereof. Transfer pricing systems based on marginal and opportunity cost both achieve the "correct" result in that B's manager would manufacture and sell the product. But a transfer pricing

system based on market price comes up with the "wrong" result. The manager of B would refuse to manufacture the product – dysfunctional behaviour that's not in the interests of the company as a whole.

Scenario 2: capacity constraint in A

The manufacture of products under this scenario is disadvantageous to AB Ltd as a whole. The total cost of manufacture is £8 per product, and a £5 contribution has to be foregone as a result of reducing outside sales from A by one unit. The manufacture and sale of a product at £12 therefore gives rise to a negative contribution to AB Ltd as a whole of £1 (see table 2).

In this case, the opportunity cost to A of transferring one unit is its marginal cost of production (£5) plus the contribution foregone (£5) by being forced to reduce sales to outside customers by one unit. The transfer price at opportunity cost is therefore £10. Transfer pricing systems based on market price and opportunity cost both achieve the correct result – ie, the manager of B would refuse to manufacture the product. But a pricing system based on marginal cost might induce the wrong result. If the manager of B could force the transfer of a unit at a transfer price of £5, division B might benefit but AB Ltd as a whole would lose out.

Note that only the transfer pricing system based on opportunity cost produces the correct outcome in both scenarios.

What are we to conclude from this case? Let's appraise each of the three transfer pricing systems considered against the benchmarks of equity, neutrality and simplicity.

A transfer pricing system based on marginal cost cannot be relied upon to produce a fair distribution of profit between divisions. It leaves no element of profit with the transferor division, and this is entirely

inappropriate if the transferor has to forego profitable outside business in order to manufacture the unit that's being transferred. Similarly, a transfer price based on market price cannot be relied on to produce a fair distribution of profit, given that it allows the transferor to earn a full market profit on a transaction that carries no risk or management cost.

Neither of these systems is satisfactory if rigidly applied in all circumstances. A system based on opportunity cost is more sensitive, since it takes account of circumstances. If the transferor does not have to forego outside business in order to make a transfer, then there is no reason why the transferor should make a profit from a risk-free internal transfer. The opportunity cost system achieves that result. Conversely, if the transferor has to forego a market profit to make the transfer, then the transfer should carry a market profit margin. The opportunity cost system achieves that result too, so there's a strong argument that this approach gives the most equitable result.

Both marginal cost and market price transfer systems can induce dysfunctional behaviour in certain circumstances. But opportunity cost prevents this possibility under all circumstances. Transfer at opportunity cost means that the manager of the transferee division will always be charged the amount that the company as a whole incurs and foregoes in order to make the transfer. In theory, this system offers perfect neutrality.

Marginal cost and market price systems are usually fairly simple to operate. Marginal cost is easy to calculate, while market price (as long as there is one) is easy to identify. But opportunity cost can be ambiguous, because it depends on the precise circumstances of the business at any given moment. In the case of AB Ltd, whether or not division A is operating at full capacity may vary from day to day. Determining an appropriate transfer price for a particular unit will therefore require detailed investigation and negotiations every time a transfer is made. An opportunity cost transfer pricing system may be theoretically correct, but it may be too complicated for practical use.

In designing management accounting systems, the financial manager must take various priorities into account. This often involves judicious compromises between theoretical correctness and practicality. ■

Bob Scarlett is an accountant and consultant