

Paper P2

Performance Management

September's article on transfer pricing discussed the advantages and disadvantages of various cost-based methods. Let's now consider systems based on market price, dual pricing and the two-part tariff

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DuPont, one of the companies that pioneered transfer pricing in the early 20th century, originally adopted full cost-based transfer pricing. But the firm, which had a controlling stake in General Motors by the end of the first world war, decided to introduce a system based on market prices at the car manufacturer. It is important to recognise that this method can be adopted only if equivalent goods are made or supplied by third parties. If no comparable products are available on the open market, a cost-based method should be used. Perhaps this factor influenced DuPont's initial decision to base transfer prices on cost, since its subsidiaries in the 1910s were producing innovative goods that had few, if any, equivalents. The situation at GM in the 1920s was very different, since much of what it produced could be supplied by other manufacturers.

Market pricing appears to be an ideal way to work out the cost of internally supplied goods or services, because it's based on open-market prices. But you need to consider a couple of important questions when applying this method: should a discount be applied to the market price in order to reflect the internal savings achieved? And is the external price distorted by short-term market forces?

Internal savings will vary from business to business, but typical examples include:

- Marketing expenses. There's usually no need to incur advertising or promotion costs on these sales.
- Selling expenses. Typically, no commission is paid to sales reps for internal sales, while few, if any, travel and entertainment costs are incurred.
- Distribution expenses. Normally, few delivery costs are involved in relation to internal sales.
- Admin expenses. These costs are usually lower, since there is no need for credit control etc.
- Interest payments. Divisions don't normally obtain credit from each other.

There is no easy solution to the problem of temporary price increases or decreases owing to market distortions, because the company would risk undermining its divisions' autonomy if it imposed a price to maintain overall corporate profitability. One

EXAMPLE 7 (SEE SEPTEMBER ARTICLE FOR EXAMPLES 1-6)

Resins		Coatings	
Direct material, external	£0.70	Direct material, external (0.5kg)	£1.10
Direct material, internal	£0.00	Direct material, internal (0.5kg)	£1.00
Fixed overheads per kg	£0.65	Fixed overheads per kg	£0.30
Cost per kg	£1.35	Cost per kg	£2.40

Total fixed overheads	£6,500,000	Total fixed overheads	£1,200,000
Budget production (kg)	10,000,000	Budget production (kg)	4,000,000
Absorption rate	£0.65 per kg	Absorption rate	£0.30 per kg

External selling price per kg	£2.00	External selling price per kg	£3.00
Internal selling price per kg	£2.00	Internal selling price per kg	£0.00

External sales (kg)	8,000,000	External sales (kg)	4,000,000
Internal sales (kg)	2,000,000	Internal sales (kg)	0

Income statement	Resins	Coatings	Total
External sales (£)	16,000,000	12,000,000	28,000,000
Internal sales (£)	4,000,000	0	4,000,000
Total sales (£)	20,000,000	12,000,000	32,000,000
Manufacturing costs (£)	13,500,000	9,600,000	23,100,000
Gross profit (£)	6,500,000	2,400,000	8,900,000

EXAMPLE 8

Resins		Coatings	
Direct material, external	£0.70	Direct material, external (0.5kg)	£1.10
Direct material, internal	£0.00	Direct material, internal (0.5kg)	£0.91
Fixed overheads per kg	£0.65	Fixed overheads per kg	£0.30
Cost per kg	£1.35	Cost per kg	£2.31

Total fixed overheads	£6,500,000	Total fixed overheads	£1,200,000
Budget production (kg)	10,000,000	Budget production (kg)	4,000,000
Absorption rate	£0.65 per kg	Absorption rate	£0.30 per kg

External selling price per kg	£2.00	External selling price per kg	£3.00
Internal selling price per kg	£1.82	Internal selling price per kg	£0.00

External sales (kg)	8,000,000	External sales (kg)	4,000,000
Internal sales (kg)	2,000,000	Internal sales (kg)	0

Income statement	Resins	Coatings	Total
External sales (£)	16,000,000	12,000,000	28,000,000
Internal sales (£)	3,640,000	0	3,640,000
Total sales (£)	19,640,000	12,000,000	31,640,000
Manufacturing costs (£)	13,500,000	9,240,000	22,740,000
Gross profit (£)	6,140,000	2,760,000	8,900,000

possible answer would be to allow divisional managers to negotiate prices that take account of such distortions. The risk here is that one division may use superior negotiating power to achieve an inequitable settlement at the expense of another, or that the divisions simply may not reach an agreement.

EXAMPLE 9

Resins		Coatings	
Direct material, external	£0.70	Direct material, external (0.5kg)	£1.10
Direct material, internal	£0.00	Direct material, new s'plier (0.5kg)	£0.85
Fixed overheads per kg	£0.81	Fixed overheads per kg	£0.30
Cost per kg	£1.51	Cost per kg	£2.25

Total fixed overheads	£6,500,000	Total fixed overheads	£1,200,000
Budget production (kg)	8,000,000	Budget production (kg)	4,000,000
Absorption rate	£0.81 per kg	Absorption rate	£0.30 per kg

External selling price per kg	£2.00	External selling price per kg	£3.00
Internal selling price per kg	£0.00	Internal selling price per kg	£0.00

External sales (kg)	8,000,000	External sales (kg)	4,000,000
Internal sales (kg)	0	Internal sales (kg)	0

Income statement	Resins	Coatings	Total
External sales (£)	16,000,000	12,000,000	28,000,000
Internal sales (£)	0	0	0
Total sales (£)	16,000,000	12,000,000	28,000,000
Manufacturing costs (£)	12,100,000	9,000,000	21,100,000
Gross profit (£)	3,900,000	3,000,000	6,900,000

EXAMPLE 10

Resins		Coatings	
Direct material, external	£0.70	Direct material, external (0.5kg)	£1.10
Direct material, internal	£0.00	Direct material, new s'plier (0.5kg)	£1.00
Fixed overheads per kg	£0.65	Fixed overheads per kg	£0.30
Cost per kg	£1.35	Cost per kg	£2.40

Total fixed overheads	£6,500,000	Total fixed overheads	£1,200,000
Budget production (kg)	10,000,000	Budget production (kg)	4,000,000
Absorption rate	£0.65 per kg	Absorption rate	£0.30 per kg

External selling price per kg	£2.00	External selling price per kg	£3.00
Export selling price per kg	£1.90	Internal selling price per kg	£0.00

External sales (kg)	8,000,000	External sales (kg)	4,000,000
Export sales (kg)	2,000,000	Internal sales (kg)	0

Income statement	Resins	Coatings	Total
External sales (£)	16,000,000	12,000,000	28,000,000
Internal sales (£)	3,800,000	0	3,800,000
Total sales (£)	19,800,000	12,000,000	31,800,000
Manufacturing costs (£)	13,500,000	9,600,000	23,100,000
Gross profit (£)	6,300,000	2,400,000	8,700,000

Let's return to Chemical World, the fictitious paint manufacturer that I used as the case study in my September article. The senior managers at its Resins division believe that the transfer prices they charge the Coatings division should be based on market prices, because Resins sells the same products to

external customers at £2 per kg. Example 7 shows the profits made by each division where the external market price is used: £6.5m for Resins and £2.4m for Coatings. But Coatings does not find this arrangement acceptable – it argues that Resins incurs fewer costs when it sells internally and doesn't run the risk of bad debts. Example 8 shows the divisions' profits when a 9 per cent discount is applied to internal transfers: £6.14m for Resins and £2.76m for Coatings. But the issue here is whether the divisions can agree on the discount.

Divisions operate as firms within a firm. The first loyalty of most employees is to their division, not the group. Other divisions are often treated with suspicion, which can cause problems. Coatings next receives a quote of £1.70 per kg of resins from an external supplier. This is significantly less than the £1.82 per kg it currently pays Resins. After heated discussions between the divisions, Coatings decides to buy its material from the external supplier, since Resins refuses to cut its price in the belief that its new rival won't be able to sustain such a low price. Example 9 shows what happens when the divisions stop trading with each other: Coatings' profit increases to £3m but Resins' profit falls to £3.9m. Chemical World's profit drops to £6.9m.

Resins division eventually finds an export customer and signs a long-term deal to supply at £1.90 per kg. By this time, Coatings is paying £2 per kg for its externally bought resins, as the special price deal of £1.70 has expired. Resins can't help, since it is back to operating at full capacity for its new customer. Example 10 shows that Resins' profit rises in this case to £6.3m while Coatings' profit falls to £2.4m. While Chemical World's overall profit increases to £8.7m, this is still less than what it earned when its divisions traded with each other.

A method known as dual pricing can prevent this situation from arising. It allows both divisions to have their price. Resins has an internal selling price of £1.90 per kg (export customer), while Coatings is charged £1.70 per kg (special price). Although the divisions are now happy to trade with each other, there are problems associated with dual pricing:

- The sum of the parts (£6.3m + £3m = £9.3m) is greater than the whole (£8.9m), so an adjusting accounting entry must be raised each month: (£1.90 per kg – £1.70 per kg) x 2,000,000kg = £400,000. See example 11, next page.
- Extra administrative work is created.
- Managers may manipulate the system to obtain better prices for their divisions

Sometimes a division might be trading in an imperfect market. This exists when it's possible

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for a seller to influence the price, and hence demand, for its products. When this scenario arises, goods must be transferred at marginal cost to allow the receiving division to maximise both its profits and those of the company. But this will not give a fair assessment of performance, since the supplying division's profit will be understated and the receiving division's will be overstated. While dual pricing could be used, there is another solution, which is known as two-part tariff.

Under two-part tariff, Resins are transferred at marginal cost to enable Coatings to determine its profit-maximising price. A share of the profit made by Coatings is then transferred to Resins to give a fair assessment of their performance. While this seems reasonable, the problem is determining the amount of profit to transfer. Example 12 shows that the overall profit increases from £8.9m to £9.046m if Resins are transferred at marginal cost to enable Coatings to calculate its profit-maximising price: £3.12 per kg. The calculation assumes that the fixed production overheads in Resins (£6.5m) and Coatings (£1.2m) aren't affected by the small reduction in sales. Profits are transferred back to Resins at a rate of £0.98 per kg to allow for a fair assessment of divisional performance.

The final table below provides a summary of all the transfer pricing methods covered in the two articles. Profits at Resins range from £3.9m to £6.5m; profits at Coatings range from £2.4m to £5m; and Chemical World's total profits range from £6.9m to £9.046m. It is important to use the method that provides fair shares for all and averts a situation whereby any division might feel that it's picking up the pieces – because unhappy divisions are bad for business.

PROFITS UNDER EACH PRICING METHOD

Example	Resins	Coatings	Adjustment	Total
1	£2.5m	£6.4m		£8.9m
2	£3.9m	£5.0m		£8.9m
3*	£5.2m	£3.7m		£8.9m
4	£5.74m	£3.16m		£8.9m
5	£4.98m	£2.92m		£7.9m
6	£4.74m	£3.16m		£7.9m
7	£6.5m	£2.4m		£8.9m
8	£6.14m	£2.76m		£8.9m
9	£3.9m	£3.0m		£6.9m
10	£6.3m	£2.4m		£8.7m
11	£6.3m	£3.0m	- £400,000	£8.9m
12	£5.762m	£3.284m		£9.046m

EXAMPLE 11

Resins

Direct material, external	£0.70
Direct material, internal	£0.00
Fixed overheads per kg	£0.65
Cost per kg	£1.35

Total fixed overheads	£6,500,000
Budget production (kg)	10,000,000
Absorption rate	£0.65 per kg

External selling price per kg	£2.00
Internal selling price per kg	£1.90

External sales (kg)	8,000,000
Internal sales (kg)	2,000,000

Income statement

	Resins	Coatings	Total
External sales (£)	16,000,000	12,000,000	28,000,000
Internal sales (£)	3,800,000	0	3,800,000
Total sales (£)	19,800,000	12,000,000	31,800,000
Manufacturing costs (£)	13,500,000	9,000,000	22,500,000
Gross profit (£)	6,300,000	3,000,000	9,300,000
Dual price adjustment (£)			-400,000
Profit (£)			8,900,000

Coatings

Direct material, external (0.5kg)	£1.10
Direct material, internal (0.5kg)	£0.85
Fixed overheads per kg	£0.30
Cost per kg	£2.25

Total fixed overheads	£1,200,000
Budget production (kg)	4,000,000
Absorption rate	£0.30 per kg

External selling price per kg	£3.00
Internal selling price per kg	£0.00

External sales (kg)	4,000,000
Internal sales (kg)	0

EXAMPLE 12

Resins

Direct material, external	£0.70
Direct material, internal	£0.00
Fixed overheads per kg	£0.66
Cost per kg	£1.36

Total fixed overheads	£6,500,000
Budget production (kg)	9,900,000
Absorption rate	£0.66 per kg

External selling price per kg	£2.00
Internal selling price per kg	£0.70

External sales (kg)	8,000,000
Internal sales (kg)	1,900,000

Income statement

	Resins	Coatings	Total
External sales (£)	16,000,000	11,856,000	27,856,000
Internal sales (£)	1,330,000	0	1,330,000
Total sales (£)	17,330,000	11,856,000	29,186,000
Manufacturing costs (£)	13,430,000	6,710,000	20,140,000
Gross profit (£)	3,900,000	5,146,000	9,046,000
Cross-charge (£)	1,862,000	-1,862,000	0
Profit (£)	5,762,000	3,284,000	9,046,000

Coatings

Direct material, external (0.5kg)	£1.10
Direct material, internal (0.5kg)	£0.35
Fixed overheads per kg	£0.32
Cost per kg	£1.77

Total fixed overheads	£1,200,000
Budget production (kg)	3,800,000
Absorption rate	£0.32 per kg

External selling price per kg	£3.12
Internal selling price per kg	£0.00

External sales (kg)	3,800,000
Internal sales (kg)	0

* Please note: in example 3 in September's article, Resins' internal selling price should have been £1.35 per kg rather than £1.50. Resins' resulting profit should therefore have been £5.2m instead of £5.5m, while Coatings' should have been £3.7m instead of £3.4m.