Removal of references to 'fixed' costs to avoid confusion when calculating contribution:

Example: Absorption cost pricing

B Ltd (B), a cereal and breakfast food manufacturer was recently approached by K Ltd (K), a large supermarket chain, to tender for the manufacture and supply of 'K Brand' breakfast cereal. B has excess capacity on some of its machines and could make a maximum of 70,000 packets of cereal per week.

The K tender requires the Breakfast Food Division to quote prices for a 525g packet at three different weekly volumes: 40,000; 50,000; and 60,000 packets. The following points are relevant:

- B prepares its tender prices on the basis of full cost plus 15% of cost as a profit margin.

- For the purposes of the tender, full cost comprises the following: raw materials ($1.05 per packet), direct labour ($0.30 per packet), and packaging and transport ($0.15 per packet). In addition, charges are included in the full-cost for the following: manufacturing overheads (charged at 200% of direct labour cost) and administrative overheads (charged at 100% of direct labour cost).

- The actual incremental manufacturing and administrative overheads expected to be incurred (if the tender is successful) are forecast as $8,200 per week, unless output increases to 60,000 units (or more) when an additional $1,800 per week will be incurred.

- If the tender is successful then the actual level of sales achieved by K will determine the volume actually produced and sold. Market researchers at K have estimated that the probability of achieving weekly sales volumes of 40,000, 50,000 or 60,000 packets are 10%, 60% and 30% respectively.

- A week before the K tender was to be presented for negotiation the Breakfast Food Division received an enquiry from W Ltd (W), a rival supermarket chain. W was seeking a producer to supply 50,000 packets of a gourmet breakfast cereal weekly, and indicated a willingness to pay $2.95 per 525g packet. In this regard:

  - The estimated variable costs for the potential W contract are: raw materials ($1.20 per packet); direct labour ($0.30 per packet); and packaging and transport ($0.15 per packet).

  - The expected incremental overhead costs for W's tender are the same as for the K tender.

  - The commercial manager believes that there is a higher likelihood of W Ltd signing a contract for production than exists for the K tender.

- Note that the two sets of negotiations are completely independent of each other. None of B's 70,000 weekly excess capacity could be used for another product if either of these contracts were taken up. Both contracts, if successful, would contain provisions to guarantee a minimum of two years' supply of the breakfast cereal at the agreed price (adjusted for inflation).

Required

Select between the tenders, i.e. which should sales resources be devoted towards in an attempt to win?

(a)   Calculate the price per unit for each tender.
(b)   Calculate the expected contribution margin for each tender.
(c)   Identify other factors in making the decision about which tender to pursue.

Solution

(a) **K Ltd tender**

	$
Full cost	
Materials	1.05
Direct labour	0.30
Packing	0.15
Manufacturing overhead (200% × 0.30 (direct labour cost))	0.60
Admin overhead (100% × 0.30 (direct labour cost))	0.30
	2.40

Price (full cost + 15% of cost) = ($2.40 × 1.15) = $2.76.

(b) The expected contribution margin is calculated by multiplying each value by the probabilities of achieving those volumes.

Output	40,000	50,000	60,000	
Revenue ($)	110,400	138,000	165,600	
Variable cost ($)	(60,000)	(75,000)	(90,000)	
Incremental overhead cost ($)	(8,200)	(8,200)	(10,000)	
Incremental contribution ($)	42,200	54,800	65,600	
Probability	0.1	0.6	0.3	*Total*
Expected value ($)	4,220	32,880	19,680	56,780

The same is done for the W tender as for the K tender, except that no expected values need to be calculated.

W Ltd tender

	Unit price $	Output	Amount $
Revenue	2.95	50,000	147,500
Materials	1.20	50,000	(60,000)
Direct labour	0.30	50,000	(15,000)
Packing	0.15	50,000	(7,500)
Incremental overhead cost			(8,200)
Total			56,800

Chapter 6, section 4.1, p. 226 – 227

Rewording of example:

Example: Calculating EVA® – demonstration of technique

B division of Z Co. has operating profits and assets as below:

	$'000
Gross profit	156
Less: non-cash expenses	8
amortisation of goodwill	5
interest @ 10%	15
Profit before tax	128
Tax @ 30%	38
Net profit	90
Total equity	350
Long-term debt	150
	500

Z Co. has a target capital structure of 25% debt/75% equity. The cost of equity is estimated at 15%. The capital employed at the start of the period amounted to $450,000. The division had non-capitalised leases: these have an asset value of $20,000 for the period. The charge in the income statement for these leases was $3,000. Goodwill previously written off against reserves in acquisitions in previous years amounted to $40,000.

Required

Calculate EVA® for B division and comment on your results.

Solution

EVA®

		$'000	$'000
NOPAT			
Net profit			90.00
Add back:	Non-cash expenses	8.00	
	Amortisation of goodwill	5.00	
	Non-capitalised lease charges	3.00	
	Interest (net of 30% tax) 15×0.7	10.50	
			26.50
			116.50

	$'000
Assets	
At start of period	450
Non-capitalised leases	20
Amortised goodwill	40
	510
WACC	
Equity $15\% \times 75\%$	0.1125
Debt $(10\% \times 0.7) \times 25\%$	0.0175
WACC	0.1300

	$'000
EVA® NOPAT	116.50
Capital charge	
13% × $510,000	66.30
	50.20

The EVA® for B division in this example is $50,200.

The business has created value during the period because the return is more than the WACC. In economic terms, the ROI is 22.8% (116,500/510,000).

Chapter 18, answer to self-test question 1, p. 665

Correction to calculation of APS in part (b):

(a) Before the acquisition of Tangible Co., the position is as follows:

$$\text{Earnings per share (EPS)} = \frac{\$1.500,000}{2,000,000} = 75c$$

$$\text{Assets per share (APS)} = \frac{\$2,500,000}{2,000,000} = \$1,25$$

(b) Tangible Co.'s EPS figure is 40c ($400,000 ÷ 1,000,000), and the company is being bought on a multiple of 10 at $4 per share. As the takeover consideration is being satisfied by shares, Intangible Inc.'s earnings will be diluted because Intangible Inc. is valuing Tangible Co. on a higher multiple of earnings than itself. Intangible Inc. will have to issue 666,667 (4,000,000/6) shares valued at $6 each (earnings of 75c per share at a multiple of 8) to satisfy the $4,000,000 consideration. The results for Intangible Inc. will be as follows:

$$\text{EPS} = \frac{\$1,900,000}{2,666,667} = 71.25c \text{ (3.75c lower than the previous 75c)}$$

$$\text{APS} = \frac{\$6,000,000}{2,666,667} = \$2.25 \text{ ($1 higher than the previous \$1.25)}$$

If Intangible Inc. is still valued on the stock market on a P/E ratio of 8, the share price should fall by approximately 30c (8 × 3.75c, the fall in EPS) but because the asset backing $\left(\frac{\text{Net assets excluding goodwill}}{\text{Shares}}\right)$ has been increased substantially the company will probably now be valued on a higher P/E ratio than 8.

The shareholders in Tangible Co. would receive 666,667 shares in Intangible Inc. in exchange for their current 1,000,000 shares, that is, two shares in Intangible for every three shares currently held.

(a) **Earnings**

	$
Three shares in Tangible earn (3 × 40c)	1.200
Two shares in Intangible will earn (2 × 71.25c)	1.425
Increase in earnings, per three shares held in Tangible	0.225

(b)　　**Assets**

	$
Three shares in Tangible have an asset backing of (3 × $3.5)	10.50
Two shares in Intangible will have an asset backing of (2 × $2.25)	4.50
Loss in asset backing, per three shares held in Tangible	6.00

The shareholders in Tangible Co. would be trading asset backing for an increase in earnings.