Des Moines Valley Company

Des Moines Valley Company has two divisions, Computer Services and Management Advisory Services. In addition to their external customers, each division performs work for the other division. The external fees earned by each division in 19x1 were $200,000 for Computer Services and $350,000 for Management Advisory Services. Computer Services worked 3,000 hours for Management Advisory Services, who, in turn, worked 1,200 hours for Computer Services. The total costs of external services performed by Computer Services were $110,000, and $240,000 by Management Advisory Services.

Required:

a Determine the operating income for each division and for the company as a whole if the transfer price from Computer Services to Management Advisory Services is $15 per hour, and the transfer price from Management Advisory Services to Computer Services is $12.50 per hour.

b Determine the operating income for each division and for the company as a whole if the transfer price from each to the other is $15 per hour.

c What are the operating income results for each division and for the company as a whole if the two divisions net their hours worked for each other and charge $12.50 per hour for the one with the excess? Which division manager prefers this arrangement?

Des Moines Valley Company **Answer**

	Computer	Management	Company
Revenue: External	$200,000	$350,000	$550,000
Internal*	$45,000	$15,000	$0
Total	$245,000	$365,000	$550,000
Cost of services: Incurred	$110,000	$240,000	$350,000
Transferred-in	$15,000	$45,000	$0
Total	$125,000	$285,000	$350,000
Operating income	$120,000	$80,000	$200,000

* Computer Services = 3,000 hours x $15 = $45,000
Management Advisory Services = 1,200 hours x $12.50 = $15,000
Revenue for one is an expense of the other.

b.	Computer	Management	Company
Revenue: External	$ 200,000	$ 350,000	$ 550,000
Internal*	$ 45,000	$ 18,000	$ -
Total	$ 245,000	$ 368,000	$ 550,000
Cost of services: Incurred	$ 110,000	$ 240,000	$ 350,000
Transferred-in	$ 18,000	$ 45,000	$ -
Total	$ 128,000	$ 285,000	$ 350,000
Operating income	$ 117,000	$ 83,000	$ 200,000

* Computer Services = 3,000 hours x $15 = $45,000
Management Advisory Services = 1,200 hours x $15 = $18,000
Revenue for one is an expense of the other.

c.	Computer	Management
Revenue: External	$200,000	$350,000
Internal*	$22,500	$0
Total	$222,500	$350,000
Cost of services: Incurred	$110,000	$240,000
Transferred-in	$0	$22,500
Total	$110,000	$262,500
Operating income	$112,500	$87,500

* Computer Services net = (3,000 - 1,200) x $12.50 = $22,500
Revenue for one is an expense of the other.

The manager of Computer Services favors this procedure for the year, but unless the hours are always in favor of Computer Services, neither manager is favored all the time.

Better Food Company

Better Food Company recently acquired an olive oil processing company that has an annual capacity of 2,000,000 liters, and that processed and sold 1,400,000 liters last year at a price of $4 per liter. The purpose of the acquisition was to furnish oil for the Cooking Division. The Cooking Division needs 800,000 liters of oil per year. It has been purchasing oil from supplies at the market price. Production costs at capacity of the olive oil company, now a division, are as follows:

Direct materials per liter	$	1.00
Direct processing labor	$	0.50
Variable processing overhead	$	0.24
Fixed processing overhead	$	0.40
Total	$	2.14

Management is trying to decide what transfer price to use for sales from the newly acquired company to the Cooking Division. The manager of the Olive Oil Division argues that $4, the market price, is appropriate. The manager of the Cooking Division argues that the cost of $2.14 should be used, or perhaps a lower price, since fixed overhead cost should be recomputed with the larger volume. Any output of the Olive Oil Division not sold to the Cooking Division can be sold to outsiders for $4 per liter.

Required:

a Compute the operating income for the Olive Oil Division using a transfer price of $4.
b Compute the operating income for the Olive Oil Division using a transfer price of $2.14.
c What transfer price(s) do you recommend? Compute the operating income for the Olive Oil Division using your recommendation.

Better Food Company **Answer**

a

Sales: External (1,200,000 x $4)	$4,800,000	
Internal (800,000 x $4)	$3,200,000	$8,000,000
Cost of goods sold:		
Variable (2,000,000 x $1.74)	$3,480,000	
Fixed (2,000,000 x $0.40)	$800,000	$4,280,000
Operating income		$3,720,000

b

Sales: External (1,200,000 x $4)	$4,800,000	
Internal (800,000 x $2.14)	$1,712,000	$6,512,000
Cost of goods sold:		
Variable (2,000,000 x $1.74)	$3,480,000	
Fixed (2,000,000 x $0.40)	$800,000	$4,280,000
Operating income		$2,232,000

c Due to current demand in excess of the capacity, the Olive Oil Division should not be penalized by having to sell inside. All sales equivalent to the current external demand of 1,400,000 should be at the market price.

Current external demand	1,400,000
Current internal demand	800,000
Total demand	2,200,000
Capacity	2,000,000
Excess demand	200,000
Internal demand	800,000
Noncompetitive internal demand	600,000

Sales: External (1,200,000 x $4)	$4,800,000	
Internal (200,000 x $4)	$800,000	
Internal (600,000 x $2.14)	$1,284,000	$6,884,000
Cost of goods sold:		
Variable (2,000,000 x $1.74)	$3,480,000	
Fixed (2,000,000 x $0.40)	$800,000	$4,280,000
Operating income		$2,604,000

American Car Company

The Assembly Division of American Car Company has offered to purchase 90,000 batteries from the Electrical Division for $104 per unit. At a normal volume of 250,000 batteries per year, production costs per battery are as follows:

Direct materials	$	40.00
Direct manufacturing labor	$	20.00
Variable factory overhead	$	12.00
Fixed factory overhead	$	40.00
Total	$	112.00

The Electrical Division has been selling 250,000 batteries per year to outside buyers at $136 each. Capacity is 350,000 batteries per year. the Assembly Division has been buying batteries from outside sources for $130 each.

Questions:

a Should the Electrical Division manager accept the offer? Explain.

b From the company's perspective, will the internal sales be of any benefit? Explain.

American Car Company **Answer**

Variable cost per battery = $40 + $20 + $12 = $72

Sales to Assembly	$	104.00
Variable costs	$	72.00
Contribution margin	$	32.00

Because the Electrical Division is not at capacity, it should sell to the Assembly Division up to 100,000 units at $104. This will add $2,880,000 (90,000 x $32) at the current level to its operating income without reducing its outside sales.

b the internal sales would be beneficial to the company because the internal variable manufacturing costs of $72 per battery are less than the external price of $130 currently being paid by Assembly Division. The company would be saving $5,220,000 (90,000 x ($130 - $72)) per year.

Silicon Computers

The Micro Division of Silicon Computers produces computer chips that are sold to the Personal Computer Division and to outsiders. Operating data for the Micro Division for 19x1 are as follows:

				Internal Sales	External Sales
Sales	@	$	10.00	$3,000,000	
	@	$	12.00		$2,400,000
Variable expenses at	@	$	4.00	$1,200,000	$800,000
Contribution margin				$1,800,000	$1,600,000
Fixed cost (allocated in units)				$1,500,000	$1,000,000
Operating income				$300,000	$600,000

The Personal Computer Division has just received an offer from an outside supplier to furnish chips at $8.60 each. The manager of Micro Division is not willing to meet the $8.60 price. She argues that it costs her $9.00 to produce and sell each chip. Sales to outside customers are at a maximum of 200,000 chips.

Questions:

a Verify the Micro Division's $9.00 unit cost figure.
b Should the Micro Division meet the outside price of $8.60? Explain.
c Could the $8.60 price be met and still show a profit for the Micro Division sales to the Personal Computer Division? Show computations.

Silicon Computers — Answer

a

Variable costs	$	4.00
Fixed costs (($1,500,000 + $1,000,000)/500,(	$	5.00
Total unit costs	$	9.00

b Yes, because the contribution margin is positive ($8.60 - $4.00 = $4.60). If it loses the internal business, the o ther sales would have to absorb the fixed costs which would force even higher external prices. the Micro Division manager does not have much bargaining power since the external sales are already at a maximum.

c

Sales (300,000 x $8.60)	$	2,580,000
Variable costs (300,000 x $4)	$	1,200,000
Contribution margin	$	1,380,000
Fixed costs (300,000 x $5.00)	$	1,500,000
Operating income	$	(120,000)

Internal sales will not show a profit. This assumes the fixed costs are still allocated at $5.00 per unit.

Home Office Company

The Home Office Company makes all types of office desks. The Computer Desk Division is currently producing 10,000 desks per year, with a capacity of 15,000. The variable costs assigned to each desk are $300 and annual fixed costs of the division are $900,000. The computer desks sell for $400.

The Executive Division wants to buy 5,000 desks at $280 for its custom office design business. the Computer Desk manager refuses the order because the price is below variable cost. The Executive manager argues that the order should be accepted because it will lower the fixed cost per desk from $90 to $60 and will take the division to its capacity, thereby causing operations to be at their most efficient level.

Questions:

a Should the order from Executive Division be accepted by Computer Desk? Why?
b From the perspective of the Computer Desk Division and the company should the order be accepted if the Executive Division plans on selling the chairs in the outside market for $420 after incurring additional costs of $100 per desk?
c What action should the company president take?

Home Office Company

Answer

a

Sales	$	280
Variable costs	$	300
Contribution margin	$	(20)

The manager should not accept the order because it is below variable costs. It will generate a loss of $100,000 (5,000 units x $(20)). This is a losing proposition in both the short run and long run.

b What the Executive Division does with the Desks after receiving them is of no consequence to the Computer Desk Division. However, the division will still object to the transfer price of $280. The company, on the o ther hand, will encourage the offer because it increases total company operating income by $100,000 (5,000 x ($420 - ($300 + $100))).

c If it wants the Executive Division to have the new business, it should arrange a dual pricing system or else have negotiated prices between divisions. Dual pricing would allow the selling division to get a market value for the transfer and the buying division to get some type of cost-plus transfer price. The negotiated price would allow the buying and selling divisions to feel like they had a part in the final price decision.

Copperstone Company

Copperstone Company has two divisions. The Bottle Division produces products that have variable costs of $3 per unit. Its 19x1 sales were 150,000 to outsiders at $5 per unit and 40,000 units to the Mixing Division at 140 percent of variable costs. Under a dual transfer pricing system, the Mixing Division pays only the variable cost per unit. The fixed costs of Bottle Division were $125,000 per year.

Mixing sells its finished products to outside customers for $11.50 per unit. Mixing has variable costs of $2.50 per unit, in addition to the costs from Bottle. The annual fixed costs of Mixing were $85,000. There were no beginning or ending inventories during the year.

Questions:

What are the operating incomes of the two divisions and the company as a whole for the year? Explain why the company's operating income is less than the sum of the two divisions' total income.

Copperstone Company **Answer**

	Bottle	Mixing	Company
Revenue: External	$750,000	$460,000	$1,210,000
Internal*	$168,000	$0	$0
Total	$918,000	$460,000	$1,210,000
Variable costs: Incurred	$570,000	$100,000	$670,000
Transferred-in	$0	$120,000	$0
Total	$570,000	$220,000	$670,000
Contribution margin	$348,000	$240,000	$540,000
Fixed costs	$125,000	$85,000	$210,000
Operating income	$223,000	$155,000	$330,000

*40,000 x $3 x 1.40 = $168,000

The internal sales are included in the company's statement because the company cannot sell to itself. Therefore, it has to swallow $48,000 of dual pricing.