

## **CASE FOURTEEN**

### **A Tale of Two Companies: Making a Pricing Decision**

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#### **Case Objectives**

- This case allows opportunities for students to apply concepts in derived demand and pricing.

#### **Case Synopsis**

- RA Circuits quoted a price of US\$6.30 for customized 8 square inch PCBs for regular customer Zantek Electronics but was asked to lower the price to US\$5.80.
- The company has to examine the market for the end product (portable DVD), assess volume of order of the PCB and estimate the costs in order to decide if they should agree to the lower price.

#### **Case Questions and Answers**

##### *Question 1*

*What conditions are expected in the DVD player market and the portable DVD player market in China in 2006? How will conditions in this market affect the market of PCB specially designed for portable DVD production?*

- In 2005, 18.744 million DVD players were sold in China with a total value of RMB11.528 billion. The unit growth of DVD players in China in 2006 is expected to be around 15%, and so volume of DVD players expected in 2006 is  $18.744 \text{ million} \times 1.15 = 21.5556 \text{ million units}$ .
- Portable DVD players constituted a small proportion of the total DVD player market in China, accounting for 5% of the total market in 2005 but this proportion is expected to be 9% in 2006. Therefore, unit volume of portable DVD players in China in 2006 is 9% of 21.5556 million = 1.94 million units.
- One unit of the PCB is needed to make 1 unit of the portable DVD player. Therefore, market demand for the 8-inch PCB for portable DVD player is expected to be 1.94 million units. This is the principle of derived demand.

- Zantek has 11.4% market share of the portable DVD player market in China in 2005. Zantek expects this share to go up to 13.8% in 2006, thus giving them sales of 13.8% of 1.94 million units = 267,720 units in 2006. Zantek, thus, may need 267,720 units of the 8-inch PCB in 2006.

*Question 2*

*What factors affect the pricing decisions for the PCB product by R A Circuits? How would you assess the situation faced by R A Circuits for these factors?*

- The first factor is competitor's price. It is not sure if the competitor has quoted US\$5.80 or if the customer is trying to use the tactic to pressure us to lower price. Even if the customer has quoted the lower price, it is unsure if the specifications of the PCB are the same. A different specification can result in lower costs.
- The second factor is costs. These include design costs, manufacturing costs, and allocated overheads. The design costs are fixed at US\$10,000.
- The materials costs are estimated to be US\$2.60. The variable overheads are estimated to be US\$0.83 per unit.
- The labor costs are estimated to be US\$2.50 per hour. The labor time per unit is estimated to be 45 minutes at the volume of 25,000. At 80% and 90% labor learning, the labor time needed will be:

Production Level	80% Learning (Labor costs at \$2.50 per hour)	90% Learning (Labor costs at \$2.50 per hour)
25,000 units (base)	45 minutes (\$1.88)	45 minutes (1.88)
50,000 units	36 minutes (\$1.50)	40.5 minutes (\$1.69)
100,000 units	28.8 minutes (\$1.20)	36.45 minutes (\$1.52)
200,000 units	23.04 minutes (\$0.96)	32.805 minutes (\$1.37)
400,000 units	18.432 minutes (\$0.77)	29.5245 minutes (\$1.23)

- Labor learning is the next factor. We can see above that costs can differ substantially depending on the level of labor learning – 80% or 90%.
- Labor costs also depend on the volume of production, so the next factor is production volume. If Zantek places all the orders of their expected volume with us, we will get 267,720 units. If they split the orders equally with the

second supplier, we will get half of that (133,860 units). If their market share is lower than expected, then these numbers will be even lower.

- The final factor is the profit margin desired. This is 20% for normal projects and 15% for projects with expected follow up order.

*Question 3*

*Should Mr. Lim agree to the reduced price of US\$5.80 from US\$6.30 for the PCB contract? Why or why not?*

- Labor costs under the different scenarios are:

	Labor Learning at 80%	Labor Learning at 90%
Labor Costs at 100,000 units (closest to split order volume of 133,860 units)	\$1.20	\$1.52
Labor Costs at 200,000 units (closest to complete order volume of 267,720 units)	\$0.96	\$1.37

- Design costs per unit at 133,860 units are  $\$10,000/133,860 = \$0.75$  per unit. At 267,720 units, it is  $\$0.37$  per unit.
- The materials costs and manufacturing overhead costs are  $\$2.60 + \$0.83 = \$3.43$ .
- Total costs under the different scenarios are as follows:

	Labor Learning at 80%	Labor Learning at 90%
Volume at 133,860 units	$\$3.43 + \$1.20 + \$0.75 = \$5.38$	$\$3.43 + \$1.52 + \$0.75 = \$5.70$
Volume at 267,720 units	$\$3.43 + \$0.96 + \$0.37 = \$4.76$	$\$3.43 + \$1.37 + \$0.37 = \$5.17$

- Incorporating the profit objectives, we have the following possible prices:

		Labor Learning at 80%	Labor Learning at 90%
At 15% profit objective	Volume at 133,860 units	$P = \$5.38/85\% = \$6.32$	$P = \$5.70/85\% = \$6.70$
	Volume at 267,720 units	$P = \$4.76/85\% =$	$P = \$5.17/85\% =$

	units	5.60	\$6.08
At 20% profit objective	Volume at 133,860 units	$P = \$5.38/80\% =$ \$6.73	$P = \$5.70/80\% =$ \$7.13
	Volume at 267,720 units	$P = \$4.76/80\% =$ \$5.95	$P = \$5.17/80\% =$ \$6.46

- We can see that the \$5.80 price is only feasible under the 80% learning curve and 15% profit objective. How is this likely?