COLLEGE OF ACCOUNTING

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Video Transcription: Determining a Transfer Price: Part 2

Hi there, this video is the second part to determining a transfer price. If you have not watched Part 1, please refer to the video, *Determining a Transfer Price: Part 1*. In this video, we will look at choosing the optimal transfer price from the range we need to determine. This will be the transfer price that allows the company as a whole to maximise its profits.

A quick recap of the example from Part 1 of determining the transfer price (TP):

- Division S has capacity to produce 33,000 units of product A.
- Division R has capacity to produce a combined total of 27,000 units of Product B and Product C.
- Division S has external demand of 9,500 units for Product A.
- Division R has external demand of 15,000 units for Product B and 12,000 units for Product C.
- Product A from Division S is used in the production of Products B and C.

To decide on the final transfer price, we need to know the fixed costs of the two divisions. The total fixed costs for Division S amounts to R2.97 million and the total fixed costs of Division R amounts to R486,000.

It is also important to know how the manager's performance is reviewed. Let's assume, for our example, that return on investment is used.

If we compare the external demand for the company's three products to its production capacity, we can see that the company has a production constraint in Product A. Remember: we use Product A in the production of both Product B and Product C, therefore the production constraint is determined by Division S.

Management needs to identify the product mix that will result in the largest profit for the company. In the short term, the company should emphasise the product with the highest contribution margin per unit sold.

Products A, B and C have the following contribution margin per unit:
From the company's perspective it makes sense to sell as many of Product B as possible. The company should then sell as many of Product A as possible, and if there is still capacity left over, then Product C should be produced and sold.

The optimal sales mix is therefore:
To first produce the full demand of Product B, which is 15,000 units; then produce the full demand for Product A, which is 9,500 units. At this point, the unused capacity in Division S is 8500 units while Division R still has a capacity of 12,000 units. The constraint is therefore in Division S, and therefore only 8,500 units of Product C can be produced and sold.

The question is: What transfer price will result in the above sales pattern?
Remember both managers' performances are evaluated based on a profit measure, ROI. The price at which Product A is transferred will be revenue to Division S and a cost to Division R, thus affecting the profits of these divisions and consequently the performance evaluation of each manager. Both managers would like to maximise their own division's performance. Therefore Manager S would want the highest transfer price, and Manager R would want the lowest transfer price possible.

In Part 1 we determined the minimum and maximum amounts for the range of transfer prices, which will optimise a company's profits in the short term. We looked at three different scenarios.

Scenario 3 had the following amounts as the potential minimum and maximum of the range: Let's take the first minimum of R325. If the transfer price was set at R325, the manager of Division S will be happy. It gives his division a Contribution Margin of R195, which is enough to cover fixed costs and make a profit.

However, the manager of Division R will not be happy to receive Product A at this price. A transfer price of R325 will result in a CM of R5 per unit for Product B, and a loss of R110 per unit for Product C. This results in an overall contribution loss of R1,245,000. He is therefore not making a profit, and will not be able to cover fixed costs.

The manager of Division R could purchase Product A from another supplier. This is not a good decision, as we saw earlier that it is in the company's best interest if Product A is sourced from Division S, and used to make Product B and Product C. Let's just say for illustrative purposes that Division R is forced to pay a transfer price of R325. Division S will be indifferent between selling Product A externally or to Division S, as it is earning R325 either way.

This means that Division S could sell 27,000 units to Division R, which is the maximum amount division R needs, and 6,000 units externally. This is not aligned with the optimal sales mix for the company. This will not maximise the profit of the company as a whole because the manager in Division R, who is evaluated against the profitability of his or her division, will stop selling Product C (which could have brought in profits, if Product A had a reasonable transfer price). Also, the manager will be unhappy, as the contribution from Product B alone is insufficient to cover the fixed costs, and Division R will always make a loss.

Now, let us look at using the minimum transfer price of R130. This transfer price will result in Division S earning a CM of R0 on all transfers to Division R. There is little incentive for the manager to do so while his performance measure is ROI. The manager will want to first meet the external demand of 9,500 units. It might be that senior management will need to force the manager to transfer any spare units to Division R at R130. Division S is still making a loss, but at least, the loss is smaller than the previous scenario where all 33,000 units were transferred to Division R.

The manager from Division R will be very happy with this price as the division makes a healthy CM on both Product B and Product C. At a transfer price of R130 we have the desired outcome for the company. This will be the theoretical minimum. However, we have one very unhappy manager because his performance measure is based on profit and all the units transferred internally will have a contribution margin of zero. We can see how a transfer price can result in profit maximisation for the company, but at the same time not be the best transfer price because of the unfairness of the performance measure used.

Let us now consider what the maximum will be. Remember that the maximum transfer price or the net marginal revenue determined previously is R330 for Product B and R215 for Product C. From Division S's perspective both R215 and R330 will result in a positive contribution margin for Product A. The divison will earn the highest CM on internal transfers for Product B at the price of R330. Then, on external sales at a price of R325. Then lastly on Product C at a price of R215. This means that from Division S's perspective the company will get the desired sales mix.

From Division R's perspective, if the TP is R330, the division will make a negative contribution margin on Product C and the manager is likely to decide not to produce and sell Product C as a result. This is not in the best interest of the company. The theoretical maximum can therefore only be R215. At R215, the division is making no contribution margin on Product C but the contribution margin on Product B is sufficient to cover the fixed costs in Division R.

We have established that the correct theoretical range would be between R130 to R215. A transfer price chosen within this range will maximise the profits of the company. Since both divisions are evaluated on profits after fixed costs, it will only be fair to choose a final Transfer Price that allows both divisions to cover all their costs.

We can, for instance, choose a transfer price of R200. At this transfer price, Division S will make a profit of R527,500.

Division R will make a profit of R1,591,500. We get the desired sales mix for the company as a whole, because at R200, Division S will first sell 9,500 units externally and then transfer 23,500 units to Division R. At a TP of R200, Division R makes a positive contribution on both Products B and C that covers fixed costs, and would therefore produce and sell both Products B and C.

We can see that the control measures of performance evaluation and transfer pricing interact with each other, and it is important to understand this interaction. The company requires a particular sales mix to maximise profits. The transfer price needs to motivate divisional managers to behave in a way that leads to this sales mix being produced and sold. At the same time, the transfer price needs to allow for a fair performance evaluation of each manager.

Thank you for watching.