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Video Transcription: Determining a Transfer Price: Part 1

Good day. In the video *The Control Function* we identified various financial control tools. One tool that was mentioned was transfer pricing. Transfer pricing (TP) is the process of determining a price at which goods should be transferred from one division within the business to another division within the business.

Remember that in a decentralised organisational structure, the decision-making authority for this transaction is delegated to the divisional managers. So this means the decision is made regarding this transaction without consulting head office, who only find out about what decisions have been made at the end of the reporting period.

In this video we will look at how to determine the range of transfer prices which will meet the objective of a company to maximise profits. Let's look at an example:

Assume the company has a head office and two divisions (Division S and Division R). Division S supplies a component, Product A to Division R who uses this component as an input in its production process, the products of which is called Product B and Product C. These products are sold to the external market. The component is known as an intermediate product and the product produced by Division R is known as the final product.

This transaction will be a cost item to the receiving division (Division R) and a revenue item to the supplying division (Division S). So it affects the financial performance of both divisions. Division S has capacity to produce 33,000 units of product A (the intermediate product). Division R's total capacity is 27,000 units. Division R has external demand of 15,000 units for Product B and 12,000 units for Product C.

The selling price and variable cost of Products A, B and C are as follows:

The selling price reflects the market price if the products are sold to external customers. The cost of product A is included in the cost of Product B and Product C, as it is needed in the production process of B and C.

From this, we can work out the contribution margin for each of the products.

So, how do we determine the range of transfer prices which will result in optimal decision making? Remember that the transfer price selected should ensure that the company as a whole maximises profits. Therefore the range of transfer prices should be that range which will allow this to happen.

There are three important factors to consider:

1. We are making a decision;
2. This decision only considers short term implications; and
3. When determining the range of transfer prices we only consider the financial impact of the decision.
   In deciding on a final transfer price other non-financial issues must be considered; but this is discussed in Part 2 of this series.

Since we are making a decision, we will use relevant costing principles to guide us. In other words, we are concerned about the future incremental cash flows between the various options.

From Division S's perspective (the division supplying the intermediate product), the options depend on whether an external market exists for the product. In other words, are there customers outside of the company as a whole who would purchase the product?

If no external market exists, the options are:
1. Produce and transfer to Division R; and
2. Do not produce at all.

If an external market exists, Division S now has an additional option, which is to produce and sell externally. Where there is external demand for all the products produced by Division S, this is known as a perfect market. Where there is limited external demand, this is known as an imperfect market.

Using our scenario of Division S and Division R, let us see how this is practically outworked. First we will look at the supplying division, Division S, and determine the minimum transfer price for three different scenarios:

Scenario 1:
Let's assume there is no external demand for Product A. From the company's perspective, as there is no external demand for product A, it will not bring any revenue into the company. So if Product A is produced and transferred, only a variable cost of R130 is incurred. We ignore fixed costs because it is irrelevant in the short term. So this will result in cash outflow of R130 if Division S produces and transfers Product A to Division R, and cash outflow of 0 if Division S does not produce at all. The differential cash flow between the two alternatives is a cash outflow of R130.

If the company sets the transfer price at R130, the R130 is included in the cost of Product B and Product C. Division R therefore needs to earn sufficient revenue to cover the R130 and the other costs incurred in Division R. Otherwise the company will make a loss. Therefore the minimum transfer price should be R130.

Scenario 2:
Let's assume that there is a perfect market and the external demand for Product A is 33,000 units. There is also still the internal demand from division R of 27,000 units. Remember that the capacity of Division S is 33,000 units. In this case, if Division S produces any units to be transferred to Division R, it will lose out on external sales. Remember that each unit sold to external customers would earn the company revenue of R325.

Since there is a perfect market, for every unit transferred to Division R, the company as a whole loses out on an external sale and the possibility to earn a contribution margin of R195.

By instead transferring the unit to Division R, the company should make sure it compensates itself for this loss. Therefore the company needs to set the transfer price at the Variable Cost

(of R130) incurred in producing product A, and the opportunity cost (R195) of transferring the unit to Division R rather than making the external sale.

Division R will have to earn revenue which covers this Transfer Price and compensates the company for the lost external sale. Therefore the minimum transfer price should be R325.

Scenario 3:
Let's assume there is external demand of 9,500 units for product A. The demand from Division R of 27,000 units still exists, which makes the total demand 36,500 units. The capacity of Division S is still 33,000 units, hence not all of the demand can be met. Therefore, the first 9,500 units produced will have an opportunity cost of the profit that could be earned on it, while the next 23,500 units has no opportunity cost attached to it.

Therefore, the units for which there is no external demand - the 23,500 units - will have a minimum transfer price of variable cost (R130) for the same reasons as discussed in Scenario 1. The units for which there is external demand - the 9,500 units - have a minimum amount of the variable cost plus the opportunity cost of the sale foregone - R325. And this is for the same reasons discussed under Scenario 2.

So, in general, the minimum transfer price will be:
1. Where there is external demand the minimum transfer price is set at Variable Cost plus opportunity cost.
2. Where there is no external demand, the minimum is set at variable cost.

What about the maximum transfer price? The maximum of the range is determined by looking at the impact of the transfer price on the receiving division (Division R). The transaction represents a cost to the receiving division. This division needs to determine what the maximum amount is it will be that it is willing to pay.

Division R receives product A from Division S, incurs additional production costs to convert it into either Product B or Product C, which are then sold to external customers. Division R will not sell or produce either Products B or C if it makes a loss on them. Consequently, if the transfer price pushes either of these products into a loss making territory in the short term, the transfer price will be considered too high.

So the maximum amount Division R will pay as a transfer price equals the difference between the additional costs and revenues earned by Division R. In this case, the maximum amount for Product B is R330, and for Product C, R215. This is called the Net Marginal Revenue for each of these products.

At the moment for Scenario 3 we have the following amounts which we can use to determine the final transfer pricing range. Minimum: R325 and R130. Our maximum is R330 and R215.

How do we choose the final range of transfer prices as well as a specific transfer price from this range? This should be the transfer price that allows the company as a whole to maximise its profits. We will discuss this in part two of this series. Thank you for watching.