

## Vik-Giger Corporation

Multinational transfer pricing and taxation.

## US subsidiary

- ▶ Vik-Giger Corporation, headquartered in the U.S., manufactures state-of-the-art milling machines.
- ▶ It has two marketing subsidiaries, one in Brazil and one in Switzerland, that sell its products.
- ▶ Vik-Giger is considering building one new machine, at a cost of \$500,000.
- ▶ There is no market for the equipment in the United States.

## Brazilian subsidiary

- ▶ The equipment can be sold in Brazil for \$1,000,000, but the Brazilian subsidiary would incur transportation and modification costs of \$200,000.

## Swiss subsidiary

- ▶ Alternatively, the equipment can be sold in Switzerland for \$950,000, but the Swiss subsidiary would incur transportation and modification costs of \$250,000.

# Decision

- ▶ The U.S. company can sell the equipment either to its Brazilian subsidiary or to its Swiss subsidiary but not to both.
- ▶ Vik-Giger Corporation and its subsidiaries operate in a very decentralized manner. Managers in each company have considerable autonomy, with each division manager interested in maximizing his or her own division's income.

## Question 1:

- ▶ From the viewpoint of Vik-Giger and its subsidiaries taken together, should Vik-Giger Corporation manufacture the equipment?
  - ▶ (a) If it does, where should it sell the equipment to maximize corporate operating income?
  - ▶ (b) What would the operating income for Vik-Giger and its subsidiaries be from the sale? Ignore any income tax effects.

## Question 1:

To answer this question just calculate the operating income that Vik-Giger gets in either case.

## Option 1: Sell to the Swiss

Description:	Amount
Manufacturing Cost (US)	(500,000)
Transport etc. Cost	(250,000)
Sale in Swiss mkt.	950,000
<b>Vik-Giger Operating Income:</b>	<b>200,000</b>

*Note that the Swiss department sees this as 700,000 of operating income, and the US department sees this as a 500,000 operating loss.*



## Option 2: Sell to the Brazilians

Description:	Amount
Manufacturing Cost (US)	(500,000)
Transport etc. Cost	(200,000)
Sale in Brazilian mkt.	1,000,000
<b>Vik-Giger Operating Income:</b>	<b>300,000</b>

*Note that the Brazilian department see this as 800,000 operating income, and the US department sees this as a 500,000 operating loss.*

Vik-Giger prefers to sell in Brazil.

## Question 2:

- ▶ What range of transfer prices will result in achieving the actions determined to be optimal in requirement 1? Explain your answer.

## Consider the following *status quo*:

### 1. Brazil

- ▶ The Brazilian department wants to sell the machine in their market, and capture 800,000 of operating income. This is what shareholders of the combined entity also prefer as they get 300,000 operating income.

### 2. Switzerland

- ▶ The Swiss department also wants to sell the machine in their market, and capture 700,000 of operating income. This is sub-optimal from the perspective of the combined entity as they can capture more operating income by selling in the Brazilian market.

### 3. US

- ▶ The manufacturing division in the US would prefer not to produce the product in either case as they only stand to lose 500,000.

## Operating income by option and division:

	Option 0	Option 1	Option 2
Action:	Do nothing.	Sell to Swiss	Sell in Brazil
U.S. OI	0	(500,000)	(500,000)
Swiss OI	0	700,000	0
Brazil OI	0	0	800,000
Corp OI	0	200,000	300,000

## What we need from the transfer price:

Vik-Giger must **centralize the decision**, or **choose a transfer price** at which:

1. the US division agrees to produce,
2. the Brazilian division is willing to transport and market the machine, and
3. the Swiss division prefers not to transport and market the machine.

We can use a negotiation to solve this problem:

- ▶ Imagine that Vik-Giger headquarters sends the three division CEOs to a resort in the Aleutian Islands (where it is cold so they will stay inside and negotiate) and asks them to choose a transfer price.

## The US division decides to run a simple auction:

1. The US set the reserve at 500,000 as this is their cost.
2. Switzerland drops out of the bidding at 700,000 as they start to lose money beyond this point.
3. Brazil's winning bid is 700,000, this is the low end of the range of transfer prices that yield the solution that headquarters wants.

## A few notes:

- ▶ We are assuming that all of the costs quoted in this problem cover opportunity costs.
- ▶ **Vik-Giger can get the optimal choice and remain decentralized.** They only need to require a transfer price, they don't need to centralize the choice of the transfer price.



## The upper end of the range:

- ▶ Both Brazil and the US will agree to transfer prices above 700,000, with the US pushing for higher transfer prices and Brazil pushing for lower prices.
- ▶ We don't know enough to predict what the departments will actually agree to, though if they use an auction the transfer price will be very close to the price at which the Swiss drop out.
- ▶ Brazil will drop out of the bidding at 800,000 so this is the top of the range.

## Question 3:

- ▶ The effective income tax rates for this transaction follow: 40% in the United States, 60% in Brazil, and 15% in Switzerland. The tax authorities in the three countries are uncertain about the cost of the intermediate product and will allow any transfer price between \$500,000 and \$700,000. If Vik-Giger and its subsidiaries want to maximize after-tax operating income:
  - ▶ (a) should the equipment be manufactured and
  - ▶ (b) where and at what price should it be transferred?

## Optimal Transfer Pricing In the Presence of Taxes

1. Now the transfer price is no longer being used primarily for information and incentives.
2. The transfer price is now used to locate income in low tax regimes.

Let's consider our two options.

## Option 1: Sell in the Swiss market

Swiss Income (15%)	Amount	US Income (40%)	Amount
Transfer Price	(500,000)	Manufacturing Cost	(500,000)
Transport Cost	(250,000)	Transfer Price	500,000
Sale Price	950,000		
<b>Swiss PTOI</b>	<b>200,000</b>	<b>US PT/ATOI</b>	<b>0</b>
Tax	(200,000 × .15)		
<b>V-G ATOI</b>	<b>170,000</b>		

## Note the following:

1. The Swiss and the headquarters see the same after tax income numbers. The Swiss will prefer lower transfer prices, but the US will not agree, and the tax authorities will not permit it.
2. We are ignoring the ability to carry forward tax losses.
3. The US will agree to produce at this amount (it covers their opportunity cost).
4. This transfer price moves as much income as possible out of the US into Switzerland.

## Option 2: Sell in the Brazilian Market:

Brazilian Income (60%)		US Income (40%)	
	Amount		Amount
Transfer Price	(700,000)	Manufacturing Cost	(500,000)
Transport Cost	(200,000)	Transfer Price	700,000
Sale Price	1,000,000	<b>US PTOI</b>	<b>200,000</b>
<b>Brazilian PTOI</b>	<b>100,000</b>	Taxes	(200,000 × .4)
Taxes	(100,000 × .6)	<b>US ATOI</b>	<b>120,000</b>
<b>Brazilian ATOI</b>	<b>40,000</b>		
<b>V-G ATOI</b>	<b>160,000</b>		

## After-tax operating income:

	Option 0	Option 1	Option 2
Action:	Do nothing.	Sell to Swiss	Sell in Brazil
US OI	0	0	120,000
Swiss OI	0	170,000	0
Brazil OI	0	0	40,000
Corp OI	0	170,000	160,000

*Using the transfer price that minimizes taxes.*

## Now we can answer 3

- ▶ We should manufacture the product and sell it in Switzerland.
- ▶ The transfer price must be 500,000



## Question 4:

- ▶ Now suppose each manager acts autonomously to maximize his or her own subsidiary's after-tax operating income, and the subsidiaries are given the freedom to negotiate their own transfer price.
  - ▶ Which subsidiary will get the product and at what price?
  - ▶ Is your answer the same as your answer in 3? Explain why or why not.

## Imagine the auction again:

1. The optimal solution is for the US to get zero income. They will always prefer more income than is optimal for the firm.
2. The Swiss will pay up to 700,000 for the machine, even though it is sub-optimal for the company. So an auction that is limited to the prices allowed by taxes will not yield the optimal transfer price.

## So what can we do?

- ▶ Centralize the choice of transfer price, manufacturing, and sale.
- ▶ Can you think of a set of rules that will produce the correct outcome?