Chapter 7: Operating Exposure

What is Operating Exposure?

How does Operating Exposure arise?

Managing Operating Exposure

1. via Diversification
2. via Operating Policies
3. via Financial Policies
4. via Contractual Hedging


Operating Exposure to Exchange Rates

Operating Exposure = Strategic Exposure = Competitive Exposure.

Definition: The change in a firm’s future cash-flows (or the present value of those cash-flows) caused by an unexpected change in exchange rates.

- I will ignore all changes in contractual cash-flows.
  This means Operating Exposure does not include Transaction Exposure.

Both Operating and Transaction exposure are forward-looking.

- Latter measure effects of all changes in spot rates, the former only measures surprises.

Who faces contractual exposure? Anyone with contractual obligations outstanding which are denominated in a foreign currency.

- e.g. importers, exporters, international investors, transport firms, etc.

Who faces operating exposure? A nyone who’s business is affected by the exchange rate.
Sources of Operating Exposure

How can unexpected exchange rate changes affect non-contractual cashflows?

1. Changes in domestic currency values of expected foreign cashflows?
2. Changes in foreign currency values of expected foreign cashflows?
3. Changes in expected domestic cashflows?

This last category means that almost everyone has operating exposure.

- Changes the competitiveness of company’s exports in foreign markets.
- Changes the competitiveness of competitor’s imports in domestic markets.
- Changes the costs of imported raw materials and other supplies.
- Changes government fiscal and monetary policy.

Sources of Operating Exposure (cont.)

Spot the operating exposure for these companies!

1. Hydro-Québec
   - only produces in Québec, and few imported intermediates.
   - sales depend in part on competitiveness in US market.
2. Chateau Montebello
   - exactly the same problem as Hydro-Québec.
3. Les Canadiens
   - Mainly produces and sells in Montréal.
   - problems with competitiveness in international markets for inputs (talent.)
4. Bombardier
   - production in many countries
   - customers in many countries
   - many imported intermediate goods
Comparing Exposures

Operating exposure is more subjective than contractual or accounting exposure.

- Based on expected future cashflows, exchange rates, operations
  No hard accounting data, contractual agreements.

Operating exposure is more forward-looking than other exposures.

- Often looking farther into future, after existing contracts expire.
- If we care about the PV of the firm, we want the present-discounted value of all future cashflows.

Operating exposure is more important to long-run survival of the firm.

- Risks may be larger, and more scope for risk management.

Example: Instruments du Rhone

Wholly-owned French subsidiary of a US firm. (See Exhibit 7.2)

Sells 1M units annually @ 12.80/unit, costs of 9.60/unit.

European materials and labour, half of production is exported outside euro-zone.

All sales in EUR.

accts. rec. = 1/4 annual sales = inventory.

Inventory cost = 75% of sales price.

Marginal tax rate = 34%, 600K deprec. annually.


We'll consider the effects of an unexpected depreciation of the EUR from $1.20 to $1.00.

These effects may vary. Consider 3 scenarios.

See Instruments du Rhone.xls
### Scenarios for Instruments du Rhone, S. A.

**Case 1:** Sales volume, price and operating costs do not change.
- Operating cashflow remains at EUR 1,728,600.
- However, at the new exchange rate, this is worth only $1,728,600.
- Therefore, Operating Exposure = $2,074,320 - $1,728,600 = $345,720.

**Case 2:** Sales volume doubles due to improved competitiveness.
- Increase in working capital required to finance inventory, accounts receivable.
- Cashflow falls $1.7594 M first year, higher by $ 3.8406 M thereafter.
- Higher volume offsets fall in USD profit margins.

**Case 3:** Price fixed in USD, all volumes constant.
- Cashflow improves by $2.7782 M first year, $3.4182 M thereafter.
- Costs fall in USD, while USD prices stay fixed.

**Realistically, things could be much messier.**

Different price in/out of Europe? euro costs change? different sales elasticities?

### Managing Operating Exposure via Diversification

**Equilibrium vs Disequilibrium Effects:** Disequilibrium just means that exchange rate changes may affect real operating costs or revenues (in violation of PPP), or real financing costs (in violation of Open Fisher.)
- effect may be temporary, if these conditions hold in the long run.

Diversification means spreading sales, production, financing, operations, etc. across many different currencies.

**Passive Effect:** This hedges risk, since less of the company is likely to be affected by a change in any single exchange rate.

**Option Value:** Changes create opportunities to shift towards new lower cost sources/higher revenue markets.
- harder for undiversified firm, due to lack of positioning, information, ...
- value of flexibility increases with degree of flexibility & FX risk.
- flexibility may come at a cost (excess capacity, diseconomies of scale, etc.)

Example: Goodyear in Mexico (p. 216).
Managing Exposure via Operating Policies

Note: Many of these techniques for both transaction and operating exposure.

Leading and Lagging: Suppose we have a foreign-currency account payable.
- we prefer to pay it soon if domestic currency expected to depreciate.
- we prefer to pay it later is domestic currency expected to appreciate.
- Reverse for a foreign-currency account receivable.

Changing the payment lags can give a one-time change in cashflow. However, this is a zero-sum game; if it benefits your company, it hurts your counterparties. Often find limits on extent of leads/lags possible in practice.

Risk-sharing contracts

If I price in my domestic currency, my foreign customers bear fx risk.
If I price in their currency, I bear the fx risk.

Risk-sharing contacts partially-adjust prices in response to fx changes.
- In Rhone example, imagine a price of $12.8 + 15.36)/2 = 14.08 Euros/unit.

Managing Exposure via Operating Policies (cont.)

Reinvoicing Centers: Used only in the context of intracompany trade.

All goods physically shipped directly from one part of company to another. However, financial side of transaction passes through the Center.

Centre deals with each party (buyer/seller) in their native currency. Therefore, all the exchange rate risk is in the hands of the Center. (Exhibit 7.7)
1. This means accounts of subsidiaries are free from fx-caused “noise”.
2. Concentrating fx risk management in one place allows for more specialized personnel, better price quotes from banks (due to bigger orders.)
3. Only net fx exposure needs to be hedged: avoids duplication in hedging efforts across different parts of company.

Downside of Reinvoicing center is cost of changing procedures, more complex bookkeeping, org. structure, increased legal costs, etc.
Managing Exposure via Financial Policies

Natural Hedging: Matching Cash Flows

Offset operating risk with contractual risk linked to the same currency.

Example: Canadian firm exports to US market at price fixed in USD.
- Stronger Canadian dollar means lower CAD export sales revenue.

One solution is to finance company with USD debt.
- Stronger Canadian dollar means lower debt service costs.
- Properly sized, the two effects can offset one another.

How much USD debt do they need?
- debt service = net USD export revenue.

See Exhibit 7.8 for the reverse case.

Doesn’t necessarily require debt;
- switch to US suppliers, so costs are in USD (or just pay supplies in USD.)
- works best for steady, predictable exposures (e.g. Hydro Quebec).

Currency Swaps: Currency swaps allow you to convert a debt in domestic currency to one in a foreign currency. (See Exhibit 7.11)

Consider the preceding example of the Canadian firm exporting at fixed USD price. The firm wants USD debt, but currently has only CAD debt.
- The firm promises to pay the swap dealer interest on USD debt (+ small fee).
- In exchange, the swap dealer pays the firm interest on CAD debt.
- Net effect: Firm has CAD cashflow from swap dealer to pay its existing debt but its debt service costs are fixed in USD terms.

This has the same net effect as a “back-to-back” loan.
- agreements between two firms to loan one another their domestic currencies.
- cashflows same as in swap, but accounting treatment differs.
- Hard to find just the right firm with which to exchange loans, hence popularity of swap market.

Default risk managed by right of offset, marking to market. (We’ll see about swaps in Chapter 9.)
Managing Exposure via Contractual Approaches

Why not just hedge operating risk with forwards? options?

FX derivatives create known gains/losses as exchange rates move. Operating exposures are rarely known with certainty.

Therefore, the more certain the gains/losses, the better risk reduction we can get from contractual hedging.

Example: Merck has USD-based costs and export sales. Sales volumes and prices are fairly predictable (limited competition due to patent protection.)

Merck buys long-term puts on foreign currencies vs USD.

- USD appreciation hurts Merck’s export revenues
- USD appreciation adds value to their puts.
- net effect greatly reduces fx exposure.

Note that Merck is forecasting cashflows 5-10 years into future. Forwards and options for such long horizons are relatively illiquid and costly. This limits the cost-effectiveness of this approach.

Measuring Operating Exposure

Key Questions to Ask in Identifying Exchange Rate Risk

1. Where is the company selling? (Domestic versus foreign sales breakdown.)
2. Who are the company’s main competitors? (Are they domestic or foreign? Is FX change an advantage or disadvantage?)
3. How sensitive is demand to price? (How much will sales change if we change our price?)
4. Where does the company produce? Where are the company’s inputs from? Are those inputs priced domestically or internationally? (How will the costs of our inputs change? As their relative prices change, do we have some flexibility in choosing inputs? What happens to the company’s overall cost of production?)

The key for most of these is real exchange rate risk (not nominal.)