
Currency Volatility and Business Unit Economics: *A Brief Review*

Exchange Rate Math

- When discussing fluctuations, always use:

(foreign currency / local currency)

i.e. 20¢ per peso, not 5 peso/USD

- Fluctuations are multiplicative, not additive. Examples:

	Year 1	Year 2	Cumulative Δ
➤	- 20%	- 20%	- 36%
➤	+ 50%	- 33%	0%
➤	+ 50%	- 50%	- 25%
➤	- 80%	+ 400%	0%

Changes in Nominal Exchange Rates

- Appreciation (i.e. from 6 p/\$ to 4 p/\$)
 - Makes exports more difficult
 - Makes imports look cheaper
- Depreciation (i.e. from 4 p/\$ to 6 p/\$)
 - Makes exports easier
 - Makes imports look more expensive

	Year 1	Year 2
peso/dollar	6	4
peso cost of \$1mm import	6 million	4 million
dollar cost of 1 mm peso export	166,667	250,000

A Pop Quiz

If the following conditions apply:

1. A peso is worth 20¢ at the beginning of the period.
2. Inflation is 25% in Mexico
3. Inflation is 0% in the United States

How many cents must a peso be worth at the end of the period for the real exchange rate to remain unchanged?

Real vs. Nominal Exchange Rates

- Nominal exchange rate—the figure you see quoted in the paper.
- Real exchange rate—the inflation-adjusted exchange rate.
 - Calculated using an index relative to a base year
 - For example: 1990 = 100

Calculating the “Real” Exchange Rate

$$RER_{t=1} = RER_{t=0} * \left[\frac{(1 + \% \Delta peso)}{(1 + \% \Delta dollar)} \right] * \left[\frac{(1 + \% Inflation_{Mexico})}{(1 + \% Inflation_{U.S})} \right]$$

Note: You are not responsible for this equation.

Real ER Fluctuations: Primarily Affect Trade/Competitiveness

➤ Real Appreciation

- Inflation with fixed nominal
- Increase in nominal value

- Exports tougher
- Import comp. stronger

➤ Real Depreciation

- Decrease in nominal value
- Infl. below trading partners

- Exports easier
- Import comp. easier

Nominal ER Fluctuations Affect Balance Sheet and Repatriation

➤ Nominal appreciation

- Foreign debt easier to service
- Raises value of assets and local earnings to foreign parent

➤ Nominal depreciation

- Increases burden of servicing foreign debt
- Reduces value of assets and local earnings to foreign parent

Strength of Effects Depends On:

- Whether sector is exposed to trade
- Sources of inputs (local or foreign)
- Margins (provide a cushion to absorb shocks)
- Presence of substitutes / Product differentiation
- Capital structure (Debt/equity; foreign/local debt)

Business Unit and MNE Effects Often Differ

	Bus Unit	MNE
Deval.	+ Increased volume – Foreign currency debt	– assets worth less – each unit of local earnings worth less
Appreciate	– Less competitive + Foreign currency debt	+ assets worth more + each unit of local earnings worth more

Managerial Issues

- Important to monitor foreign rivals, both current and potential. Scenario planning for ER shifts.
- Understand your competitive and balance sheet exposure to ER shifts.
- Consider supply diversification across currencies
- Think carefully about incentive structures

Currency Volatility and Hyperinflation: Lessons

- Largest effects are on cross-border transactions
 - » Volatility leads to fewer cross-border linkages
- Volatility increases business complexity
 - » Inflation flows, collection efforts, qualifying clients
- Volatility makes planning across periods difficult
 - » Lower capital investment.