International Financial Management: Review

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International Financial Management

1. Management, Markets and Linkages
2. Exchange Rate Determination and Forecasting
3. Hedging Tools: Forwards vs Futures vs Options
4. Measuring and Managing Risk
5. Managing Corporate Financial Structure
6. Swap-Linked Financing
7. Bank and Money Market Financing
8. Long Term Financing in Intl Capital Markets
9. Hybrids and Structured Finance
10. Integrated Multimarket Financing
What Is So Special about Corporate Finance in the Int’l Environment?

- Financial Markets Are Partially Linked / Partially Separated
- Exchange Rates Fluctuate
  - Risks - Eg currency exposure measurement and management
  - Opportunities - such as deviations from purchasing power parity
  - Analytical Tools - like exchange rate determination and hedge pricing

Currency Fluctuations

JPY/USD and AUD/USD exchange rate history
To Fix or To Float, That is the Question

- Independent free float
- Managed float
- Frequent devaluations or revaluations
- Crawing peg
- Tied by formula to inflation index
- Basket peg
- Pegged to one currency
- Absolutely fixed to one currency

Implication of EMU

- Only Eurofed creates money
- Central banks can no longer print money to finance public deficits
- Only a nation’s creditworthiness determines ability to run a fiscal deficit
Domestic Policies, Domestic Prices and Interest Rates, and Exchange Rates

Forecasting in a Fixed-Rate System

STEP 1 Calculate the equilibrium exchange rate given relative money supplies, inflation, economic growth and other factors.

STEP 2 Estimate outflow of foreign exchange resulting from current and capital account deficit.

STEP 3 Estimate number of months that present policies can be sustained, given the availability of reserves and available borrowing sources versus their rate of depletion.

STEP 4 Predict which of limited policy options the government will choose:
- Exchange controls
- More foreign debt
- Deflation through tight monetary and budgetary policies, or
- Devaluation
**Market Efficiency: A Random Walk?**

Random walk: If the market is efficient, today's spot rate reflects all available information. Every new movement of the spot exchange rate results from new information. By definition, new information cannot be anticipated. Hence each move of the exchange rate must be unexpected, or random.

\[
S_{t+1} - S_t = \frac{1+I^*}{I^*} S_t
\]

**Purchasing Power Parity: Theory and Evidence**

- **Japan 1995**
- **Mexico 1994**
Unbiased Forward Rate Theory

International Fisher Effect
**Interest-Rate Parity**

\[
$1 \left(1 + \frac{1}{E_S}\right) = \left(\frac{1}{S_t}\right)(1 + \frac{1}{EBP}) F^n_t
\]

where \(S_t\) is the spot exchange rate (dollars per British Pound) and \(F^n_t\) is the forward rate.

to a close approximation,

\[
\left(\frac{1}{E_S} - \frac{1}{EBP}\right) = \left[\frac{(F^n_t - S_t)}{S_t}\right] (365/n) 100
\]

**Interest-rate differential** = forward premium or discount

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**Where the Eurocurrency Market Fits In**

- US Domestic Market
- Eurodollar Market
- Euro-Deutsche Mark Market
- Foreign Exchange Market
- Euro-Yen Market
- Euro-Commercial Paper Market
- Euro-Floating Rate Note Market
- Straight Eurobond Market
- German Domestic Market
- Japanese Domestic Market

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Hedging Transactions Exposure

- Types of exposure
  - One-shot exposure
  - Hedging approaches:
    - Open
    - Forward
    - Money market
    - Futures
    - Options
- Ongoing transactions exposure

The Forward Rate Tracks the Spot Rate
Managing Exchange Risk: Tools & Techniques

Borrowing
Lending

Symmetrical contracts
Kinky contracts

Forward contracts
OTC options

Futures
Exchange-traded options

Swaps
Exotics

Currency Option Pricing

Profit (gain or loss)

Forward market price of currency

F-K

Time Value

F

K

Call option price line

E(F1 + F2 - K)

Time Value

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View on Direction, Volatility or Both?

Which Instrument?

<table>
<thead>
<tr>
<th>Identifyable exposure</th>
<th>Debt, swaps, forward contracts</th>
</tr>
</thead>
<tbody>
<tr>
<td>Uncertain exposure</td>
<td>Instruments with flexibility, such as forwards and futures</td>
</tr>
<tr>
<td>Exposure that threatens financial distress</td>
<td>Deep-out-of-the-money options</td>
</tr>
<tr>
<td>View on direction and volatility</td>
<td>At-the-money options</td>
</tr>
</tbody>
</table>
A Corporate Foreign Exchange Roadmap

UNDERSTANDING THE EXCHANGE RISK MANAGEMENT PROBLEM
- Value of hedging
- Goals
- Nature of the business

MEASUREMENT OF EXPOSURE
- ACCOUNTING
- TRANSACTION
- ECONOMIC

HEDGING METHODS
- OPERATIONAL
- FINANCIAL

Examples:
- Sourcing flexibility
- Pricing strategy
- Market diversification
- Linear
  - Forwards
  - Futures
  - Debt
  - Currency swaps
- Exchangerate contingent
  - Options
  - Debt with option features
- Contingent on other events
  - Event options
  - Probability-based hedging

NATURE OF THE CASH FLOW EXPOSURE:
- One-shot?
- Linear?
- Contingent on exchange rates?
- Contingent on other events?

Foreign Exchange Risks

Three kinds of currency risk
- Transactions
- Translation exposure
- Economic exposure
**Transactions Exposure: Hedging**

λ Reeves International (CT) has a subsidiary in Italy. It makes printing blankets for sale in Europe.

λ Reeves Italy has to pay a dividend of approximately ITL 24 m. in December. How should Reeves hedge this?

◆ Forwards?
◆ Futures?
◆ Money market hedge?
◆ Do nothing?

**Measures of Translation Exposure**

<table>
<thead>
<tr>
<th></th>
<th>All Current</th>
<th>Current/ noncurrent</th>
<th>Monetary/ nonmonetary</th>
<th>Temporal (US GAAP)</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Assets</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Cash</td>
<td>C</td>
<td>C</td>
<td>C</td>
<td>C</td>
</tr>
<tr>
<td>A/R</td>
<td>C</td>
<td>C</td>
<td>C</td>
<td>C</td>
</tr>
<tr>
<td>Inv.</td>
<td>C</td>
<td>C</td>
<td>H</td>
<td>H</td>
</tr>
<tr>
<td>Fixed</td>
<td>C</td>
<td>H</td>
<td>H</td>
<td>H</td>
</tr>
<tr>
<td><strong>Liabilities</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Current</td>
<td>C</td>
<td>C</td>
<td>C</td>
<td>C</td>
</tr>
<tr>
<td>Long term</td>
<td>C</td>
<td>H</td>
<td>C</td>
<td>C</td>
</tr>
<tr>
<td>Equity</td>
<td>Residual</td>
<td>Residual</td>
<td>Residual</td>
<td>Residual</td>
</tr>
</tbody>
</table>

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**Economic Exposure**

“Change in the economic value of the firm resulting from unanticipated exchange rate changes”

- Contractual vs noncontractual cash flows
- Cash flow projections based on elasticities, etc.
- Anticipated vs. unanticipated changes
- Exposure and the parity assumptions: “In the long run, we are not exposed”
- The “cost of hedging”
- Currency of denomination vs. currency of determination

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**Value at Risk for a Corporation**

- Base rates/ Currency market conditions
  - Volatilities
  - Correlations
- Historical rates/ Discrete scenarios
- Transactional Database
  - Portfolio Database
  - Projected Revenues
  - Projected Operating Costs
- Model 1
  - Interest Rates
    - Model 2
      - Equities
    - Model 3
      - Commodities
    - Model 4
      - Currencies

Estimates of Cash Flow Distribution

Impact on Earnings

Mean
Corporate Value at Risk: Farmco

<table>
<thead>
<tr>
<th>CURRENCY</th>
<th>FARMCO WORLDWIDE</th>
<th>WEIGHT (%)</th>
<th>VOLATILITY (%)</th>
<th>$ AT RISK</th>
</tr>
</thead>
<tbody>
<tr>
<td>AUD</td>
<td>$0</td>
<td>0.00%</td>
<td>2.84</td>
<td>$0</td>
</tr>
<tr>
<td>BEF</td>
<td>$6,165</td>
<td>1.04%</td>
<td>3.69</td>
<td>$376</td>
</tr>
<tr>
<td>CAD</td>
<td>($200,758)</td>
<td>-34.03%</td>
<td>1.79</td>
<td>$5,939</td>
</tr>
<tr>
<td>DKK</td>
<td>($5,835)</td>
<td>-0.99%</td>
<td>3.62</td>
<td>$349</td>
</tr>
<tr>
<td>FFR</td>
<td>($96,626)</td>
<td>-16.38%</td>
<td>3.75</td>
<td>$5,985</td>
</tr>
<tr>
<td>DEM</td>
<td>$22,365</td>
<td>3.79%</td>
<td>3.82</td>
<td>$1,411</td>
</tr>
<tr>
<td>ITL</td>
<td>($69,650)</td>
<td>-11.81%</td>
<td>3.67</td>
<td>$4,219</td>
</tr>
<tr>
<td>JPY</td>
<td>($15,688)</td>
<td>-2.66%</td>
<td>3.71</td>
<td>$961</td>
</tr>
<tr>
<td>NLG</td>
<td>$10,605</td>
<td>1.80%</td>
<td>3.79</td>
<td>$662</td>
</tr>
<tr>
<td>ESB</td>
<td>$47,660</td>
<td>8.08%</td>
<td>3.35</td>
<td>$2,632</td>
</tr>
<tr>
<td>SEK</td>
<td>$6,826</td>
<td>1.16%</td>
<td>3.97</td>
<td>$447</td>
</tr>
<tr>
<td>CHF</td>
<td>$6,500</td>
<td>1.10%</td>
<td>4.28</td>
<td>$459</td>
</tr>
<tr>
<td>GBP</td>
<td>($101,277)</td>
<td>-17.17%</td>
<td>3.18</td>
<td>$5,309</td>
</tr>
<tr>
<td>TOTAL</td>
<td>$589,954</td>
<td>100.00%</td>
<td></td>
<td>$28,749</td>
</tr>
</tbody>
</table>

FARMCO: DOLLARS AT RISK
(95% PROBABILITY LOSS WON'T EXCEED THIS AMOUNT) In 1 month
$ 10,709

Corporate Finance

- INVESTMENT
  - PORTFOLIO
  - CAPITAL
  - M&A
- FINANCING
  - DEBT
  - EQUITY
- RISK MGT
  - MEASUREMENT
  - TOOLS
### Getting the Financing Right

#### Step 1: The Proportion of Equity & Debt

- Debt
- Equity

- **Achieve lowest weighted average cost of capital**
- **May also affect the business side**

#### Step 2: The Kind of Equity & Debt

- Debt
- Equity

- **Short term? Long term?**
  - Baht? Dollar? Yen?
- **Bonds? Asset-backed?**
  - Convertibles? Hybrids?
- **Debt/Equity Swaps?**
- **Private? Public?**
- **Strategic partner?**
  - Domestic? ADRs?
- **Ownership & control?**
Three Parts of a Currency Swap

- FMC
  - GBP 100
  - USD 150
- FMC
  - Fixed GBP 12%
  - Floating USD Libor s.a.
- FMC
  - GBP 100
  - USD 150
- BANK
  - GBP 100
  - USD 150

Swaps: Applications of Valuation

- ABB
  - Fixed ECU 7%
  - Floating ECU Libor
- BVB
- FRN

- Valuation
- Off-market swaps
- Cancellation
- Counterparty exposure
- Hedging swap positions
Estimating the Cost of Funds in a Swap

**FMC**
- Fixed GBP 11.73%
- Floating USD Libor -0.25%

**BANK**
- Fixed GBP 12%
- Floating USD Libor s.a.
- Floating USD Libor -0.25%

Banks and the Money Market

1. Short-term financing techniques, such as commercial paper
2. Syndicated lending
The International Capital Market

1. Eurobonds, foreign bonds and global bonds
2. The international equity market
3. Structured finance

International Bond Markets are Linked

Issuers and investors compare terms in the domestic and Eurobond markets, which are linked across currencies via currency swaps.
“Hybrid” Features of A Bond Issue

- Conversion Feature - compound option
- Warrants - two instruments
- Index-linked bonds
- Call Feature
  - Bond value = straight bond value - call value

*These are all example of hybrid bonds and should be priced by decomposition*

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**The Deutsche Deal**

**DEUTSCHE**

Deutsche sells 3-year floating rate note paying LIBOR - 3/8%

For 1% p.a., Deutsche sells CSFB a swaption (the right to pay fixed 8.35% for 5 years in 3 years)

**SCOTTISH LIFE**

For an additional 3/4% p.a., Deutsche buys three-year put option on 5-year fixed-rate 8.35% note to SL in 3 years

**CSFB**

CSFB sells the swaption to a corporate client seeking to hedge its funding cost against a rate rise

**CLIENT**
**Financing Ciba**

1) What is Ciba's **debt-to-equity ratio**, and what might one advise the company about what it should be?

2) How much of Ciba's debt is **fixed-rate borrowing**, and should this proportion change?

3) How much of the company's debt should be **long term**?

4) What is the composition, by **currency**, of Ciba's debt? What should it be?

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**Debt? Equity? What kind?**

<table>
<thead>
<tr>
<th>Debt?</th>
<th>Equity?</th>
<th>What kind?</th>
</tr>
</thead>
<tbody>
<tr>
<td>DEBT</td>
<td>Fixed</td>
<td>Dollar</td>
</tr>
<tr>
<td></td>
<td>Floating</td>
<td>US CP</td>
</tr>
<tr>
<td></td>
<td>Long</td>
<td>Euro CP</td>
</tr>
<tr>
<td></td>
<td>Short</td>
<td>Bank debt</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>EQUITY</td>
<td>Fixed</td>
<td>Hybrid</td>
</tr>
<tr>
<td></td>
<td>Floating</td>
<td>Callable</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Index-linked</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Convertible</td>
</tr>
<tr>
<td></td>
<td></td>
<td>With warrants</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Equity options</td>
<td>Restricted</td>
</tr>
<tr>
<td></td>
<td>Private sale</td>
<td>Public offering</td>
</tr>
<tr>
<td></td>
<td>Full rights</td>
<td>Domestic</td>
</tr>
<tr>
<td></td>
<td></td>
<td>International</td>
</tr>
</tbody>
</table>

**FINANCING ALTERNATIVES AVAILABLE TO MAJOR CORPORATIONS**

- Subordinated funds
- Project finance
- Term loan
- Revolving facility
- Real estate
- Leasing
- Asset-backed
- Unsecured
- Domestic
- Eurobond
- MTN
- FRN
- VRN
- Euro CP
- US CP
- APP
- Bank debt
- Callable
- Index-linked
- Convertible
- With warrants
- Restricted
- Full rights
- Private sale
- Domestic
- International
- Stripped
- Unstripped
- Straight
- Dripper