INTERNATIONAL CORPORATE FINANCE

Foreign Exchange

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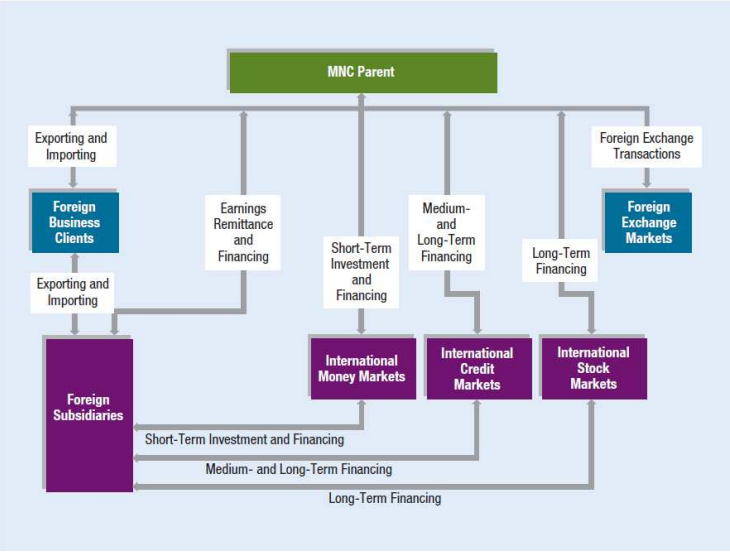
Foreign exchange risk for MNCS

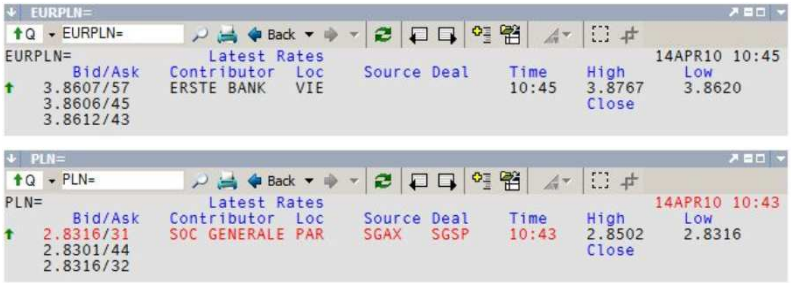


FX Rate

- Fixed vs floation
- EURPLN 4.2560 4.2590
(watch the tricks e.g. at airports:
4.2560 5.2580)
- Appreciation vs Revaluation

Market quote

- ***FX market-maker gives two prices*:**
  - **BID, quote at which they buy from others**
  - **ASK / OFFER, quote at which they sell**



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KEY DEFINITIONS

- Value date
  - Date on which the currencies are settled (through physical delivery or cash settlement)
- Currency exposure
  - Balance of foreign currency which value is dependent on FX rate (long or short; balance or off-balance)
- Liquidity position
  - Balance of local or foreign currency proceeding from mismatch of value dates of assets and liabilities
  - Liquidity position is sensitive on interest rate swings

CURRENCY EXPOSURE

- Long position
  - Assets in foreign currency → gives profits if FX rate of foreign currency goes up
- Short position
  - Liabilities in foreign currency → gives profits if FX rate goes down
- Balance position
  - Assets or liabilities on the current value date
- Off-balance / cash flow position
  - Settlement of FX cash flows will be done in the future
- Indirect FX exposure
  - FX changes affects competitiveness or volumes

FX TRANSACTION

- Transaction changing the currency exposure
- Rate measure is quantity of counter currency paid for the unit of the fore currency [YYY/XXX]
  - Big figures and pips, i.e. 1.**32 12** USD per 1 EUR
- The price is shown by market maker as
  - BID (I buy) / OFFER (ASK) (I sell)
- BID/ASK difference is called SPREAD

KEY DELIVERABLE CURRENCIES

- Major currencies
  - Key (EUR, USD, JPY, GBP, CHF)
  - Skandi (SEK, DKK, NOK)
  - Other (CAD, AUD, NZD)
- Emerging currencies
  - London based (PLN, CZK, HUF, ZAR, ILS)
  - Latam (MXN, BRL, CLP)
  - Far East (HKD, THB, SGD, PHP, KRW)

SPOT DEAL

- Standard value date on interbank market
- Two working days from the trade date:
  - Monday → Wednesday (D+2)
  - Tuesday → Thursday (D+2)
  - Wednesday → Friday (D+2)
  - Thursday → Monday (D+4)
  - Friday → Tuesday (D+4)
- Wednesday night lasts three calendar days in financial terms

Forward quatations

$$F_{USD} = S_{USD} \times \frac{1 + i_{PLN}}{1 + i_{USD}}$$

- **Forward rate is a rate at which we can close transaction today, but with the settelement occuring in the future**
- **Note: forward rate depends on current rate and interest rates. NO dependance on expectations!**

Quatations in practice (1)

Spot = 2.5000 1Y Forward = 2.5601

USD/PLN	bid	ask
USD/PLN	2.4950	2.5050
1Y	600	602

- How to read those?
  - **Forward bid: 2.4950+0.0600=2.5550**
  - **Forward ask: 2.5050+0.0602=2.5652**

Forward below spot (hrywna/złoty)

Spot = 0.5020; UAH Libor = 15%;
Wibor = 6.5% 1YForward = 0.4649

UAH/PLN	bid	ask
UAH/PLN	0.5000	0.5040
1Y	372	370

- **How shall we read it?**
  - **Forward bid to 0.5000-0.0372=0.4628**
  - **Forward ask to 2.5050-0.0370=0.4670**

Lufthansa – case study

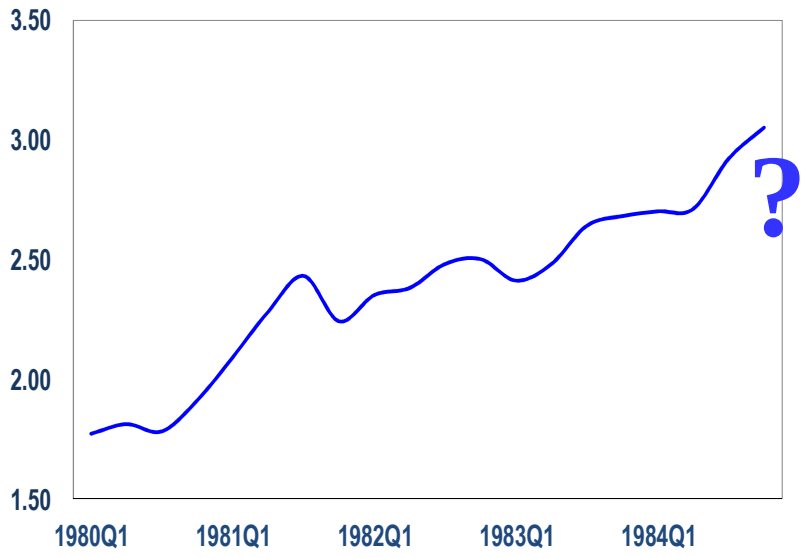
- January1985 – order for 20 Boeings 737
- Delivery: next year
- Payment $500M at delivery
- Exchange rate at contract date DM 3.2/$

What can be done?

- What choices can be made
- What did Heinz Ruhnau do?
- What were the consequences?

What made the selection tricky?

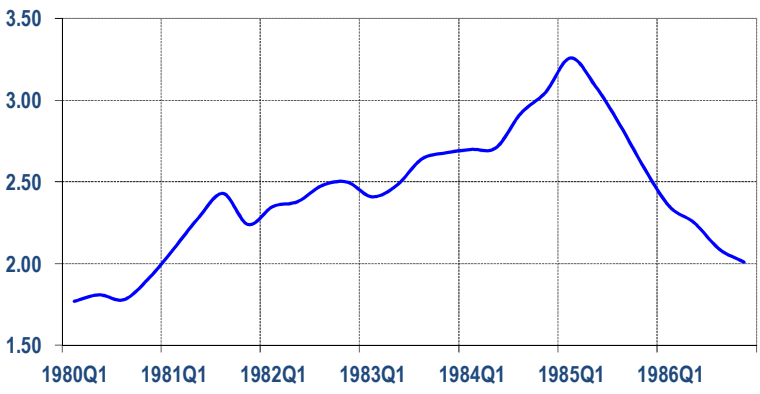
- USD had appreciated against DM
- Analysts' consensus indicated that the trend was to revert: USD was expected to depreciate against DM (as the terms of trade in the US have already weakened). Nobody kner when and by how much.
- Heinz Ruhnau decide $500M is too much riskfor his company – therefore it needs to be hedged
- Spot = Forward



Ruhnau strategy: 50-50

- $250M unhedged
- Forward hedge for $250M

A year later: 2.3DEM/USD



What were the results

Lufthansa costs:

- Unhedged portion:
  $250mio * DM 2.3/$ = DM 575mio
- Hedged portion:
  $250mio * DM 3.2/$ = DM 800mio
- Total DM 1,375,000,000

How did it compare vs alternatives?

1. No hedge

- No hedge – wait and pay
- Dollar has deoreciated in 1985 from DM3.2/$ in 1985 down to DM2.3/$ w 1986

The investment cost

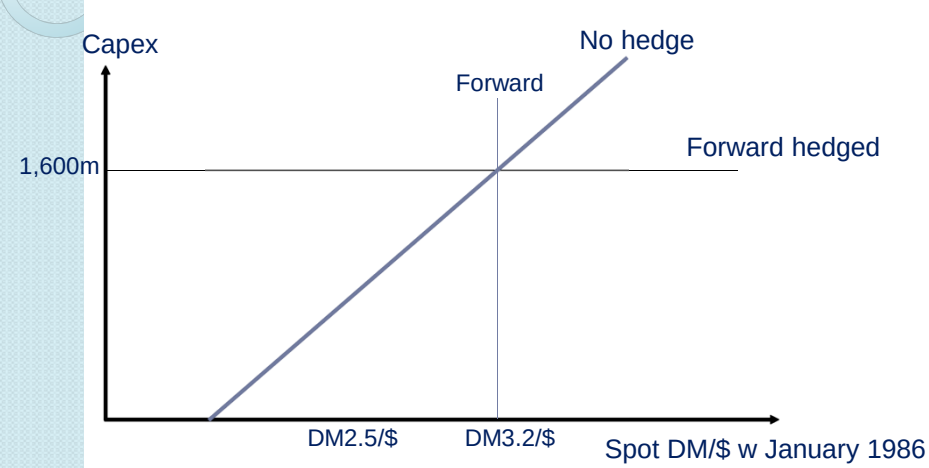
$500M * DM 2.3/$= DM 1,150,000,000

2. Forward hedge

- Forward and securing financing to get it settled
- Assuming all was forward hedged at DM 3.2/$ the investment cost would be:

$500M * DM 3.2/$= DM 1,600,000,000

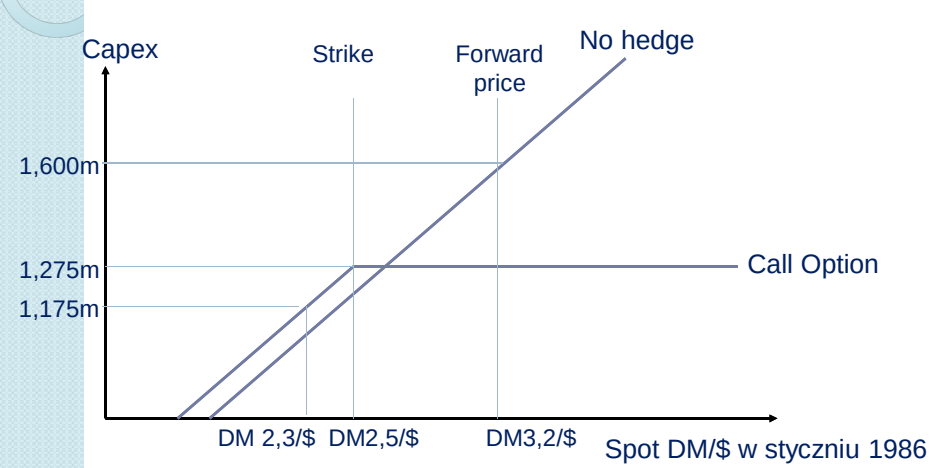
Possible outcomes



3. Option strategy

- Purchase of FX options covering $500M
- Possible options with strike at DM 2.5/$ paying 1.5%
- Premium:
  $500,000,000 * 1.5% * DM 3.2/$=DM 24,000,000
- Alternative cost (4.5%) for premium: 25,080,000
- January 1986: DM 2.3/$ no execution
- Cost:
  $500M*DM 2.3/$ + DM 25.08M =
  = DM 1,175,080,000

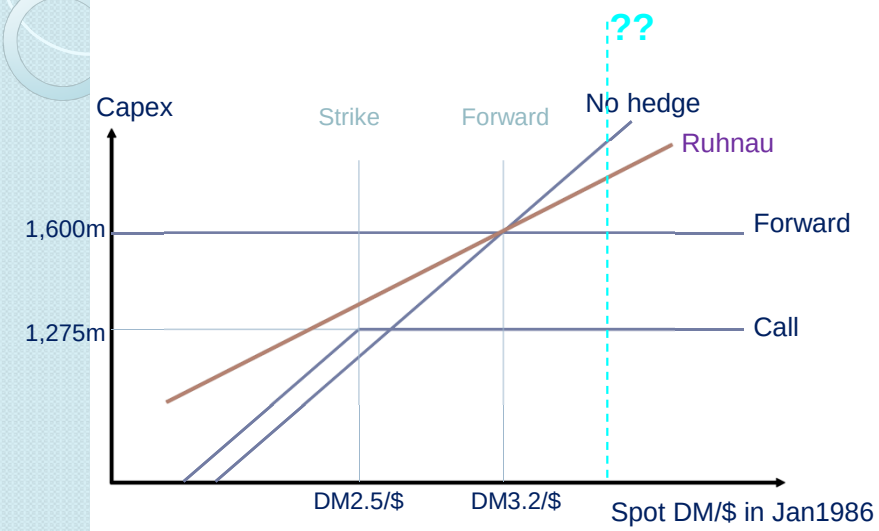
Outcomes



3. Options

- January 1986: DM 2.3/$ no execution
- We assume „option may be useful”
- Maximum cost is calculated assuming option strike, here DM 2.5/$
- $500M*DM2.5/$ + DM 25.08M =
- =DM 1,275,080,000

Spektrum wyników



And what would be in opposite situation?

1. No hedge	More expensive!!!
2. Forward	No change
3. Option	A bit more expensive (max 1,275,080,000)
4. Ruhnau	More expensive!!!

HOW WOULD YOU ASSESS RUHNAU STRATEGY?

Hedging – Anemy or friend

For:

- Financial planning
- Bancruptcy
- limiting uncertainty
- selective approach allows to tune to corporate situation

Against

- Limits opportunity gains
- At shareholders cost
- Are markets in equilibrium
- Finacnial consequences

How to decide?

Available instruments („inexpensive”)
forward, future, opcje na FX i IR

Your choice should take into account

1. Liquidity
2. Corporate risk aversion
3. Expectations

A. If shds believe the outcome of market move would be benefitial **– chose options**

B. Otherwise **– select forward**