Chapter 5

Using Forward Contracts in International Financial Management
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Real-World Practical Details
Reducing Default Risk
Bid-Ask Spreads

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Synthetic Rates are Worst Possible Combinations
Bounds linking Synth and Direct Rates

Using Forwards (2): Hedging
What is Exposure?
Hedging Contractual Exposure

Using Forwards (3): Speculation

Using Forwards (4): Minimizing bid-ask spreads

Using Forwards (5): Swapping loans or deposits
Swapping for Tax Reasons
Swapping to avoid excess risk spreads
Swapping to Disguise Mutual Secured Loans

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Using Forward Contracts
P. Sercu, International Finance: Theory into Practice

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Provisions for Default

- **Right of Offset**
  - If one party defaults, then the other party cannot be forced to fulfill its own part of the deal.
  - If that other party still sustains losses, the defaulting party remains liable for these losses.
  - Worst possible impact for bank (on bank’s purchase) at $T$ is $-S_T + F_{t_0,T}$, not $-S_T$.

- **Vetting and security**
  - Bank preferably deals with known customers,
  - Asks security, or
  - Refuses if necessary.

- **Short Maturities**
  - Bank offers a short-time contract & promises to roll it over.
  - At roll-over date, bank may change its mind.
Provisions for Default

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Using Forward Contracts

P. Sercu, *International Finance: Theory into Practice*

Real-World Practical Details

Default

Bid-Ask Spreads

Use #1: Arbitrage
Use #2: Hedging
Use #3: Speculation
Use #4: Minimizing bid-ask spreads
Use #5: Swapping loans or deposits
Use #6: Choices & Decisions

Adjusting the diagram for spreads

Add “bid” or “ask” superscripts:
Using Forward Contracts

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Real-World Practical Details

- Default
- Bid-Ask Spreads

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**Swap Rates with Spreads—the 2nd Law**

<table>
<thead>
<tr>
<th>Termijnkoersen</th>
<th>1 maand</th>
<th>2 maand</th>
<th>3 maand</th>
<th>6 maand</th>
<th>12 maand</th>
</tr>
</thead>
<tbody>
<tr>
<td>Amerikaanse dollar</td>
<td>19.20</td>
<td>19.28</td>
<td>37.30</td>
<td>37.50</td>
<td>58.82</td>
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<tr>
<td>Australische dollar</td>
<td>46.00</td>
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<td>84.20</td>
<td>85.10</td>
<td>128.00</td>
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<td>Brits pond</td>
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<td>24.20</td>
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<td>-28.80</td>
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<tr>
<td>Nieuw-Zeelandse dollar</td>
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<td>148.00</td>
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<td>226.00</td>
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**LIBOR**

<table>
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<th>Spot rate</th>
<th>30d</th>
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<tr>
<td></td>
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<tr>
<td>Amerikaanse dollar</td>
<td>1.1776</td>
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<td>1.5988</td>
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<td>Brits pond</td>
<td>0.6846</td>
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<tr>
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<tr>
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<td>1.7035</td>
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<tr>
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<td>9.5162</td>
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<td>1.5491</td>
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**eur**

Note how swap spreads widen the forward spread:

- [spot] [negative]
- [swap] [forward]
- [negative]
- [spot] [positive]
- [swap] [forward]

**Second Law:** spread rises with $T - t$, via effect on

- [interaction between default and bank’s worst possible loss:]
- probability of default: ...  
- worst possible loss to bank, given default: ...
- depth of market: ...
Swap Rates with Spreads—the 2nd Law

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Synthetic Rates: Ripped Off—Again

▷ Synth sale: $H_C = F_C \times \frac{1}{1.11} \times 99 \times 1.20 = F_C \times 107.027$

$\Rightarrow$ synth $F$ bid $= \frac{H_C}{F_C} = 99 \times \frac{1.20}{1.11} = 107.027$

▷ Synth purchs: $F_C = H_C \times \frac{1}{1.22} \times \frac{1}{1.09} \times 1.09 = H_C \times 0.00884596$

$\Rightarrow$ synth $F$ ask $= \frac{H_C}{F_C} = 101 \times \frac{1.22}{1.09} = 113.046$
Arb & Sh-Ar Bounds — Synth & Direct $F$s

$i$ to $v$ indicate (often mutually incompatible) conceivable direct spreads. Compare each of them separately to the synthetic, and list the conclusions:

- On the basis of no-arbitrage arguments:
- On the basis of shopping-around arguments:
- Bottom line:

Note: the synth spread rises with time to maturity, thus providing room for bigger direct spreads (see *infra*).
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What is Exposure?

◇ **General:** a sensitivity of a financial variable $V_T$ to the exchange rate $S_T$:

- not the (conditional) variance of $S_T$
- but *eg* a regression coefficient, as in

$$\tilde{V}_T = A_{t,T} + B_{t,T} \tilde{S}_T + \tilde{e}_{t,T},$$

- or a partial derivative, $\frac{\partial V_T}{\partial S_T}$.

◇ **Examples**

- FC-denominated contract, e.g. $\tilde{V}_T = 10,000 \tilde{S}_T$: $B_{t,T} = ....$
- an option’s “delta”
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What is Exposure? (2)

◊ **Contractual exposures grouped by date and currency**

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<td>a. A/R:</td>
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<td>b. Long-term sales contracts:</td>
<td>0</td>
<td>0</td>
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<td>c. Expiring deposits:</td>
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<td>1,000,000</td>
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<td>g. Loan due:</td>
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<td>h. Forward sales:</td>
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◊ **Non-contractual exposures**

- exposure not found anywhere in accounting system or some contract—eg competiveness of a plant determines its value
- exposure has to be computed from a cross-section of possible future states of the world
- to be discussed in Part III
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Using Forwards (2): Hedging

**Hedging a FC asset** (long position)
- asset (FC1): $S_T$
- forward sale: $F_{t,T} - S_T$
- sum: $F_{t,T}$

**Hedging a FC liability** (short position)
- liability (FC1): $-S_T$
- forward purchase: $S_T - F_{t,T}$
- sum: $-F_{t,T}$

Note the two-edged-sword effect: both “bad” and “good” uncertainties are gone.
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Issues in Contractual-Exposure Hedging

◊ Aggregating exposures over time

▷ Why? If flows are +1000,000 on Jan 5 and –800,000 on Jan 6: hedging just +200,000 is much cheaper than selling forward 1000,000 and buying forward 800,000.

▷ If time differences become too big, an interest-risk issue arises.

▷ Can be solved by (i) keeping time buckets narrow; (ii) using FF and FRAs (interest rate forwards); (iii) duration matching.

◊ Credit risk

▷ If default arises, hedge has to be reversed—risky!

▷ If necessary, buy credit insurance (Insurance Cy; factor; banks: L/Cs)

◊ Value hedging v cash-flow hedging

▷ value hedging is complicated: (i) interest exposure; (ii) need to continuously update all hedges
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▷ You think an asset is mispriced, ...
▷ so you “see” an extra positive or negative return that makes you give up some diversification.
▷ You must be very good, or at least think so.

◊ Speculation on the Future Spot Rate

speculating on a high $S$

▷ à la hausse (long): $F$ “too low”, $E_{you}(\tilde{S}_T - F_{t,T})$ big!

speculating on a low $S$

▷ à la baisse (short): $F$ “too high”, $E_{you}(F_{t,T} - \tilde{S}_T)$ big!
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▷ You must be very good, or at least think so.

♢ Speculation on the Future Spot Rate

- speculating on a high $S$
  ▷ "à la hausse" (long): $F$ “too low”, $E_{you}(\tilde{S}_T - F_{t,T})$ big!

- speculating on a low $S$
  ▷ "à la baisse" (short): $F$ “too high”, $E_{you}(F_{t,T} - \tilde{S}_T)$ big!
Speculation (1)

◊ Speculation?

▷ You think an asset is mispriced, ...
▷ so you “see” an extra positive or negative return that makes you give up some diversification.
▷ You must be very good, or at least think so.

◊ Speculation on the Future Spot Rate

speculating on a high $S$

▷ à la hausse (long): $F$ “too low”, $E_{you}(\tilde{S}_T - F_{t,T})$ big!
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Speculation (2)

◊ Speculation on the Future Forward Rate

▷ *$F_{t,T_2}$ “too low”:* Speculate on a rise of $F_{?,T_2}$: buy for delivery at $T_2$, and reverse at $T_1$, locking in $\tilde{F}_{T_1,T_2} - F_{t,T_2} (> 0$, you hope)

▷ *$F_{t,T_2}$ “too high”:* Speculate on a drop of $F_{?,T_2}$: sell for delivery at $T_2$, and reverse at $T_1$, locking in $F_{t,T_2} - \tilde{F}_{T_1,T_2} (> 0$, you hope)

◊ Speculation on the Future Swap Rate

\[
\begin{align*}
t &= \text{Jan 1} & T &= \text{Apr 1} & T &= \text{June 1} \\
S_t &= 100.00 & F_{t,T_1} &= 100.30 & F_{t,T_2} &= 100.70 \\
w_{t,T_1} &= 0.30 & \text{implied } w_{T_1,T_2} &= 0.40 \\
w_{t,T_2} &= 0.70
\end{align*}
\]

▷ We compare market’s risk-adjusted expectation with ours, and act when the deviation seems excessive

▷ The $F$’s on, say, $t =$Jan1 for delivery at $T_1 =$April1 or $T_2 =$June1—imply a “forward-forward” (FF) CEQ about the change April1-June1, ...

▷ … and we think they’re way off.
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◊ Speculation on the Future Swap Rate

\[ t = \text{Jan 1} \quad \text{S}_t = 100.00 \]
\[ T = \text{Apr 1} \quad F_{t,T_1} = 100.30 \]
\[ T = \text{June 1} \quad F_{t,T_2} = 100.70 \]

\[ w_{t,T_1} = 0.30 \quad \text{implied } w_{T_1,T_2} = 0.40 \]
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Speculation (3)

- This implied change $F_{t,Ju} - F_{t,Ap}$ is of course the same as the FF spread in swap rates, $w_{t,Ju} - w_{t,Ap}$; so we bet on a changing interest differential.

- How to speculate on this?

Speculating on a rise in the swap rate

Speculate on rise in $F$ by $T_1$: $\tilde{F}_{T_1,T_2} - F_{t,T_2}$ i.e.

\[
\tilde{w}_{T_1,T_2} + \tilde{S}_{T_1} - F_{t,T_2}
\]

Hedge away the $\tilde{S}_{T_1}$ risk

\[
F_{t,T_1} - \tilde{S}_{T_1}
\]

TOTAL:

\[
\tilde{w}_{T_1,T_2} + [F_{t,T_1} - F_{t,T_2}]
\]

\[
\tilde{w}_{T_1,T_2} + [w_{t,T_1} - w_{t,T_2}]
\]

Idem—via SF & FF Swaps

<table>
<thead>
<tr>
<th>ingredient</th>
<th>action at $t$ (Jan)</th>
<th>action at $T_1$ (Apr)</th>
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<tbody>
<tr>
<td>bet on $F_{Apr}$ ↑</td>
<td>buy forward Jun</td>
<td>sell forward Jun</td>
</tr>
<tr>
<td>hedge $S_{Apr}$</td>
<td>sell forward Apr</td>
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</tr>
<tr>
<td>Combined:</td>
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### Speculating on a rise in the swap rate

Speculate on rise in $F$ by $T_1$: $F_{T_1,T_2} - F_{t,T_2}$ ie

$$\tilde{w}_{T_1,T_2} + \tilde{S}_{T_1} - F_{t,T_2}$$

Hedge away the $\tilde{S}_{T_1}$ risk

TOTAL:

$$\tilde{w}_{T_1,T_2} + [F_{t,T_1} - F_{t,T_2}]$$

Idem—via SF & FF Swaps

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- How to speculate on this?

Speculating on a rise in the swap rate

<table>
<thead>
<tr>
<th>Speculate on rise in $F$ by $T_1$: $\tilde{F}<em>{T_1,T_2} - F</em>{t,T_2}$</th>
<th>$\tilde{w}<em>{T1,T2} + \tilde{S}</em>{T1} - F_{t,T_2}$</th>
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<tr>
<td>Hedge away the $\tilde{S}_{T_1}$ risk</td>
<td>$F_{t,T_1} - \tilde{S}_{T_1}$</td>
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<tr>
<td>TOTAL:</td>
<td>$\tilde{w}<em>{T1,T2} + [F</em>{t,T_1} - F_{t,T_2}] = \tilde{w}<em>{T1,T2} + [w</em>{t,T_1} - w_{t,T_2}]$</td>
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Idem—via SF & FF Swaps

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Outline

Real-World Practical Details
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  Bid-Ask Spreads

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P. Sercu, *International Finance: Theory into Practice*

Real-World Practical Details

Use #1: Arbitrage
Use #2: Hedging
Use #3: Speculation
Use #4: Minimizing bid-ask spreads
Use #5: Swapping loans or deposits
Use #6: Choices & Decisions

Minimizing bid-ask spreads

**Example:** Let 
(USD/EUR) spot 1.0400 – 1.0404
(USD/EUR) 30 days 1.0425 – 1.0431
i (simple, p.a.) 30 days 9 – 9.12%
i* (simple, p.a.) 30 days 6 – 6.12%

A: export financing

```
1,034,722.9
1,034,636.8

1.04
994,925.88

1.0076
1

1,042,500
1.0425
start here

1,000,000
```

B: investing in FX

```
start here 1,000,000

961,168.78

1.0075
1.0050

1.0404

1,007,500

1,042,500

965,974.63
965,870.96
```
Ms Takeshita’s Problems

- A foreign customer has promised a large amount of USD (= FC), but today the Club needs JPY cash to pay its workers and suppliers and does not like the exchange risk either. Should the Club borrow dollars or yens?
- The next day there are excess JPY liquidities that should be parked, risk-free. Should HG&CC go for a Yen deposit, or a swapped dollar one?
- Two days later the Club wants to earmark part of its JPY cash to settle a USD liability expiring in six months. Should they keep yens and buy forward, or move into dollars right away?
- One week later, HG&CC receives USD from a customer, and orders new irons payable in USD 180d. Should the current USD be deposited and used later on to settle the invoice?

**DATA—interest rates are p.a., simple:**

<table>
<thead>
<tr>
<th></th>
<th>JPY/USD</th>
<th>99.95 - .05 (spread 0.10)</th>
<th>180d</th>
<th>JPY/USD</th>
<th>98.88 - 16 (spread 0.18)</th>
</tr>
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<tbody>
<tr>
<td>spot</td>
<td>JPY, 180d</td>
<td>1.90 - 2.10% (0.95 - 1.05% return)</td>
<td>USD, 180d</td>
<td>3.90 - 4.10% (1.95 - 2.05% return)</td>
<td></td>
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## Ms Takeshita’s Homework

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| **finance FC A/P**  | * via FC$_t$: \(\frac{1}{1.0205} \times 99.95 = 97.942185 \text{ ☀️} \)
| (FC$_T$ to HC$_t$)  | * via HC$_T$: 98.88 \(\frac{1}{1.0105} = 97.852548 \text{ ☐️} \) |
| **HC deposit**      | * direct: 1.009500 \(\text{ ☀️} \)
| (HC$_t$ to HC$_T$)  | * synthetic: \(\frac{1}{100.05} \times 1.0195 \times 98.88 = 1.0075778 \text{ ☐️} \) |
| **invest in FC**     | * via FC$_t$: \(\frac{1}{100.05} \times 1.0195 = 0.010189905 \text{ ☐️} \)
| (HC$_t$ to FC$_T$)  | * via HC$_T$: 1.0095 \(\frac{1}{99.16} = 0.01018051 \text{ ☐️} \) |
| **park FC**          | * direct: 1.0195 \(\text{ ☀️} \)
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### NOTES
- Don’t mix up vending-machine INPUT / OUTPUT with DATA / SOLUTION
- Direct deposits yield more than swapped ones—surprised?
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P. Sercu, *International Finance: Theory into Practice*

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Swapping for Tax Reasons

- **Swapping a deposit** when capgains are not taxed:
  - swap to lower-interest currency to convert taxable interest income into tax-free capgain.

<table>
<thead>
<tr>
<th></th>
<th>Invest INR 100</th>
<th>Invest MTL 1 and hedge</th>
</tr>
</thead>
<tbody>
<tr>
<td>initial investm</td>
<td>100.00</td>
<td>100.00</td>
</tr>
<tr>
<td>final value</td>
<td>100 × 1.21 = 121.00</td>
<td>[1 × 1.10] × 110 = 121.00</td>
</tr>
<tr>
<td>income</td>
<td>21.00</td>
<td>21.00</td>
</tr>
<tr>
<td>interest</td>
<td>21.00</td>
<td>[1 × 0.10] × 110 = 11.00</td>
</tr>
<tr>
<td>capgain</td>
<td>0</td>
<td>110 – 100 = 10.00</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Neutral taxes, 33.33%</td>
</tr>
<tr>
<td>taxable</td>
<td>21.00</td>
<td>21.00</td>
</tr>
<tr>
<td>tax (33.33 %)</td>
<td>7.00</td>
<td>7.00</td>
</tr>
<tr>
<td>after-tax inc</td>
<td>14.00</td>
<td>14.00</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Only interest is taxed, 33.33%</td>
</tr>
<tr>
<td>taxable</td>
<td>21.00</td>
<td>11.00</td>
</tr>
<tr>
<td>tax (33.33 %)</td>
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<td>3.67</td>
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<tr>
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<td>14.00</td>
<td>17.33</td>
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- **Swapping a loan** when capgains are not taxed:
  - swap to higher-interest currency to get more deductible interest expense in exchange for tax-free capgain.
Swapping for Tax Reasons

◊ Swapping a **deposit** when capgains are not taxed: swap to lower-interest currency to convert taxable interest income into tax-free capgain.

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<th>Invest MTL 1 and hedge</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Initial Invest</strong></td>
<td>100.00</td>
<td>100.00</td>
</tr>
<tr>
<td><strong>Final Value</strong></td>
<td>100 × 1.21 = 121.00</td>
<td>[1 × 1.10] × 110 = 121.00</td>
</tr>
<tr>
<td><strong>Income</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Interest</strong></td>
<td>21.00</td>
<td>21.00</td>
</tr>
<tr>
<td><strong>Capgain</strong></td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td>21.00</td>
<td>21.00</td>
</tr>
<tr>
<td><strong>Neutral Taxes, 33.33%</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Taxable</strong></td>
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<td>21.00</td>
</tr>
<tr>
<td><strong>Tax (33.33%)</strong></td>
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</tr>
<tr>
<td><strong>After-tax Inc</strong></td>
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</tr>
<tr>
<td><strong>Only Interest is Taxed, 33.33%</strong></td>
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◊ Swapping a **loan** when capgains are not taxed: swap to higher-interest currency to get more deductable interest expense in exchange for tax-free capgain.
Swapping for Tax Reasons

- **Swapping a deposit when capgains are not taxed:** swap to lower-interest currency to convert taxable interest income into tax-free capgain.

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Swapping to avoid excess risk spreads

◊ **A conundrum arises when ...**
- you prefer to borrow *eg* FC (to fund-and-hedge, for example)
- but the HC loan has a better spread.

◊ **Why might HC- FC spreads be inconsistent?**
- Loans offered by different banks; *eg* house bank knows you well, foreign bank fears adverse selection (winner’s curse)
- Loans offered by same bank: sloppy homework

Example—data: INR at 21+2%, MTL at 10+2%; \( S_t = 100 \), \( F_{t,T} = 110 \).

\[
\begin{align*}
8,930.9 & \times \frac{1}{100} = 89.4309 \\
1 & \div 1.23 = 0.82 \\
110,000 & \times 110 = 100
\end{align*}
\]

You borrow at \[
\frac{100}{89.4309} - 1 = 11.82\%
\]...instead or 12%.
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How to compare spreads across currencies

**Rule:** compare PV’s (at \(r, r^*\)) of spreads,

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\frac{\rho}{1 + r} \times \frac{\rho^*}{1 + r^*}.
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**Proof:** FC and the swapped-HC loans are equivalent if

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\underbrace{\frac{1}{1 + r^* + \rho^*}}_{\text{proceeds FC loan}} \equiv \underbrace{\frac{1}{1 + r + \rho}}_{\text{proceeds HC loan}} \times \frac{F}{S},
\]

\[
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Swap as Disguised Mutual Secured Loan

◊ **Mutual secured loans?**  1966-style example

▷ BoE wants to borrow USD from BuBa, for intervention
▷ BuBa wants security: BoE should deposit an initially equivalent amount of GBP with BuBa (or in BuBa’s BIS account)
▷ Mutual right of offset: if X is naughty, then Y can do so too, and X is still responsible for any remaining losses

<table>
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<tr>
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<table>
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<tr>
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| $F$ | forward sale of USD 103m at \(2.4523\)

▷ Implied forward rate?

\[ 2.4523 = \frac{103}{42} = \frac{100}{40} \cdot \frac{1.03}{1.05} = S_t \cdot \frac{1 + r_S}{1 + r_L} = F! \] (1)

▷ Right of Offset is automatic, in swap; no need to add clauses
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◊ **Two stories, one reality?** Write a swap contract or two mutual loans with Right of Offset:
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◊ **Secured loans**
  - Gorby’s gold-backed loans
  - SF swaps between central banks
  - Repo (Repurchase order, repurchase agreement)

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◊ **Cheat**
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*Arrows show direction of loans (initial principals). Black = actual; green = original purpose.*
Why use parallel/Bk2Bk loans at all?

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Using Forward Contracts

P. Sercu, *International Finance: Theory into Practice*

Real-World Practical Details
- Reducing Default Risk
- Bid-Ask Spreads

Using Forwards (1): Arbitrage
- Synthetic Rates are Worst Possible Combinations
- Bounds linking Synth and Direct Rates

Using Forwards (2): Hedging
- What is Exposure?
- Hedging Contractual Exposure

Using Forwards (3): Speculation

Using Forwards (4): Minimizing bid-ask spreads

Using Forwards (5): Swapping loans or deposits
- Swapping for Tax Reasons
- Swapping to avoid excess risk spreads
- Swapping to Disguise Mutual Secured Loans

Using Forward Rates (6): Choices & Decisions
- Accounting Choices
- Commercial Decisions
- Financing Decisions
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Real-World Practical Details

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Use #2: Hedging
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Use #6: Choices & Decisions

Accounting Choices
Commercial Decisions
Financing Decisions

\[ F_{t,T} \] as the Intelligent Accountant’s Guide

◊ **Valuation of Outstanding Forward Deals**

▷ Show Mkt Value as \[ N \times (F_{t,T} - F_{t0,T}) \text{ discounted} \]
▷ Discounting often unthinkable to Genuine Accountants—but you can have your own secret version of the accounts
▷ M2M of forwards increases risk of *reported* profits if underlying hedgee is *not* M2M’ed \( \Rightarrow \) use M2M for other contracts too

◊ **Valuation of FC-denominated contracts:** Translate A/P, A/R at \( F_{t,T} \), not at \( S_t \) (accountants’ default option)

Valuation: Spot v Forward

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<tr>
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<td>( \circ \circ )</td>
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Accounting Choices
Commercial Decisions
Financing Decisions

-- *F* as the Intelligent SalesPerson’s Guide

- **Recommendation** Salesforce should use *F* not *S* to assess a deal’s contribution to profit.

- **Does it matter?** “*S* v *F* merely affects how total profit is split up between operating and financial items”

**Example from W. Loman’s scrapbook:**

- at *t*: sell for FC 1,000, with COGS of 20,000; no hedging
- At *T*: *S*_T turns out to be 27

<table>
<thead>
<tr>
<th></th>
<th>use <em>S</em>=25</th>
<th>use <em>F</em>=24</th>
</tr>
</thead>
<tbody>
<tr>
<td>at <em>t</em></td>
<td>Estimated Sales</td>
<td>25,000</td>
</tr>
<tr>
<td></td>
<td>– costs</td>
<td>&lt;20,000&gt;</td>
</tr>
<tr>
<td></td>
<td>= operating income</td>
<td>5,000</td>
</tr>
<tr>
<td>at <em>T</em></td>
<td>Bank</td>
<td>27,000</td>
</tr>
<tr>
<td></td>
<td>– Estimated Sales</td>
<td>&lt;25,000&gt;</td>
</tr>
<tr>
<td></td>
<td>= capgain</td>
<td>2,000</td>
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- Either way, profit = 7,000 = Bank – costs
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Real-World Practical Details

Use #1: Arbitrage

Use #2: Hedging

Use #3: Speculation

Use #4: Minimizing bid-ask spreads

Use #5: Swapping loans or deposits

Use #6: Choices & Decisions

Accounting Choices
Commercial Decisions
Financing Decisions

\[ F_{t,T} \] as the Intelligent SalesPerson’s Guide

◊ **Risk of using** \( S \): if Willy L had not taken this course,

- (unhedged:) he might have accepted the order even if COGS = 24,500
- (hedged:) he might have believed that hedging costs him 1000

Example from W. Loman’s scrapbook revisited:

- at \( t \): sell for FC 1,000, with COGS of 24,500; hedged
- At \( T \): receive 24,000

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Using Forward Contracts

P. Sercu, International Finance: Theory into Practice

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\( F_{t,T} \) as the Intelligent Financier’s Guide

◊ **Elements to be taken into account when deciding upon choice of loans:**

▷ (if speculative:) **risk-free rates** and expected rate of ap/depreciation

▷ all **costs** paid on top of the risk-free rate:

- PV’ed spreads
- Upfront costs, if sizable.

▷ effect on **risk** (e.g. financial distress)

◊ **Comments**

▷ Risk contribution is hard to quantify in terms of cash money; so better quantify PV(all costs), and then ponder whether risk considerations could reverse the answer

▷ Idea of looking at PV’ed spread is based on the option to swap the loan, so it implicitly takes the forward rate as the planning equivalent for the uncertain spot rate

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Financial Alternatives (12 mo):

Offers:

- **Bank A**: EUR at 3% (LIBOR) + 1.0%; upfront EUR 1000+0.50%
- **Bank B**: EUR at 3% (LIBOR) + 0.5%; upfront EUR 2000+0.75%
- **Bank C**: USD at 4% (LIBOR) + 0.9%; upfront USD 1000+0.50%
- **You need EUR 1m or, at $S_t = 1.333$, USD 1.333m**

Choice:

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<td>4,854.4</td>
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<tr>
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<td>USD 1.333m</td>
<td>$\frac{9,000}{1.04}$</td>
<td>8,653.8</td>
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Note: the last line implicitly computes costs on USD 1.333m and then translates into EUR i.e., divides by 1.333m. So for % costs, 1.333/1.333 cancels out, but for the fixed USD 1000 we need to divide by 1.333 (≈750.2).
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What have we learned in this chapter?

- **Bounds.** With spreads, the synthetic rates are given by the rip-off versions of the perfect-markets formula. Normally the rates should be within the synthetic spread, and surely not so far out as to not even overlap with it.

- One application is to **hedge.** Hedging affects value, even ex ante, if it interacts with the other cashflows in the firm.

- Another application is **speculation**—on the spot, the forward, or the swap rate (basis).

- Forwards can also be used, when appropriate, to chip away at transaction costs (**shopping-around** applications).

- Shopping-around scenarios with often big differences arise when the firm faces asymmetric taxes or inconsistent risk spreads in two alternative currencies: then **swapping** can be useful.

- Swaps can also be used as a legally attractive way to make **mutual secured loans**, but there are also many shadier applications.
What else have we learned in this chapter?

The Forward rate is a CEQ, so

- Do use forward rates for **accounting** valuation and updating
- Do use forward rates for **commercial** decisions
- Do use forward rates for **financing** choices