Derivatives II
Characteristics

- A swap is an agreement to exchange cash flows at specified future dates according to certain specified rules:
  - Interest Rate Swaps
  - Currency Swaps

- Are customized to suit the needs of the parties to the contract
- Are not traded on any exchange
- Interest rate Swaps do not require the actual exchange of the notional amount of the contract.
- Currency Swaps requires the exchange of principal in the respective currencies on initiation and termination of the contract.

- Swaps act as a good hedge instrument. However, one major risk in entering into a Swap is default risk, risk that the counter party may not honour its obligation.

- Ways to terminate the contract:
  - Mutual Termination
  - Offsetting contract
  - Resale of Swap to another party
  - Swaption
Plain Vanilla Interest Rate Swap

- An agreement by Microsoft to receive 6-month LIBOR & pay a fixed rate of 5% per annum every 6 months for 3 years on a notional principal of $10 million

<table>
<thead>
<tr>
<th>Period</th>
<th>Libor rate</th>
<th>Floating Leg</th>
<th>Fixed Leg</th>
<th>Net Cash Flow</th>
</tr>
</thead>
<tbody>
<tr>
<td>0</td>
<td>4.20%</td>
<td>210,000</td>
<td>250,000</td>
<td>(40,000)</td>
</tr>
<tr>
<td>1</td>
<td>4.80%</td>
<td>240,000</td>
<td>250,000</td>
<td>(10,000)</td>
</tr>
<tr>
<td>2</td>
<td>5.30%</td>
<td>265,000</td>
<td>250,000</td>
<td>15,000</td>
</tr>
<tr>
<td>3</td>
<td>5.50%</td>
<td>275,000</td>
<td>250,000</td>
<td>25,000</td>
</tr>
<tr>
<td>4</td>
<td>5.60%</td>
<td>280,000</td>
<td>250,000</td>
<td>30,000</td>
</tr>
<tr>
<td>5</td>
<td>5.90%</td>
<td>295,000</td>
<td>250,000</td>
<td>45,000</td>
</tr>
<tr>
<td>6</td>
<td>6.40%</td>
<td>320,000</td>
<td>250,000</td>
<td>70,000</td>
</tr>
</tbody>
</table>

Net (For fixed rate payer) = (Swap fixed rate – LIBOR) (No. of days/360) (Notional Principal)

- Uses of an Interest Rate Swap
  - Converting a liability from
    - Fixed rate to floating rate
    - Floating rate to fixed rate
  - Converting an investment from
    - Fixed rate to floating rate
    - Floating rate to fixed rate
The Comparative Advantage Argument

Consider the diagram below. Company X (seeking a floating rate loan) and Y (seeking a fixed rate loan) go to the bank for a loan and they get the following offers if they were to borrow in fixed rates or floating rates.

- X advantageous on fixed rate
- Y advantageous on floating rate

<table>
<thead>
<tr>
<th>Company</th>
<th>Fixed borrow</th>
<th>Floating borrow</th>
</tr>
</thead>
<tbody>
<tr>
<td>X</td>
<td>5%</td>
<td>Libor</td>
</tr>
<tr>
<td>Y</td>
<td>7%</td>
<td>Libor + 100 bps</td>
</tr>
</tbody>
</table>

5%  
Co. X  
Financial Institution  
Co. Y  
Libor  
Libor + 100 bps
Currency Swaps

In the below example, X pays 7% instead of 8% on its Euro loan and Y pays 8% instead of 10% on its USD loan by entering into a Swap.

<table>
<thead>
<tr>
<th>Company</th>
<th>USD borrowing (EURO)</th>
<th>EURO borrowing (USD)</th>
</tr>
</thead>
<tbody>
<tr>
<td>X</td>
<td>5% (7%)</td>
<td>8%</td>
</tr>
<tr>
<td>Y</td>
<td>9%</td>
<td>10% (8%)</td>
</tr>
</tbody>
</table>

Company USD borrowing
Company EURO borrowing (USD)
Equity Swap

- Equity Swaps refers to an arrangement where one party pays the returns received on the stock in exchange for a return imitating a fixed rate or a floating rate bond.

- In case of a floating for equity return swap, both the parties are uncertain about the payments they will receive at the end of the period.