Asset-Backed Securities: Managing the Cash Flow Risks with Swaps

Prof. Ian Giddy
Stern School of Business
New York University

Asset-Backed Securities

Identifying the risks
Restructuring the cash flows with swaps and other techniques
- Interest-rate swaps
- Currency swaps
- Reallocation of cash flows

Swaps and Cash Flow Reallocation

- Restructuring the cash flows with swaps and other techniques
  - Interest-rate swaps
  - Currency swaps
  - Reallocation of cash flows

Using Swaps: Interest-Rate Swap

- Fixed rate, interest and principal in Currency A
- Floating rate, interest and principal in Currency B

Using Swaps: Currency Swap

- Fixed ECU 7%
- Floating ECU Libor

Swaps: Mechanics and Valuation

IC&Tel
CIBC

Periodic exchanges of interest payments are made during the life of the swap. Remember that the principal amount is not exchanged.
**Interest-Rate Swap Example**

**Exchange of Interest Payments Every 6 Ms**

- Payments to Capital Markets
  - IC&Tel (BBB)
  - CIBC (AA)

- Payments to Capital Markets
  - Floating 6-Month LIBOR + 25

**Fixed 5.00%**

**Floating 6-Month LIBOR**

**Cost of Funds After Swap:**
- Pay 5.00% fixed
- Receive 5.50% fixed
- Pay LIBOR + 25
- Net Cost: 5.75% Fixed

**Cost of Funds After Swap:**
- Pay 5.50% fixed
- Receive LIBOR Flat
- Pay LIBOR + 25
- Net Cost: 6-month LIBOR - 50

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**Valuation of an Interest Rate Swap**

**Valuation of the swap is based on discounting the cash flows over its life.**

A **RECEIVE-FIXED, PAY-FLOATING SWAP:**

\[
\text{VALUE OF INTEREST RATE SWAP} = \frac{\text{PRICE OF BOND WITH N YEARS TO RUN}}{\text{PRICE OF MONEY MARKET INSTRUMENT WITH M DAYS TO RUN}}
\]
At Inception, Standard Swap is Worth Zero

Labatt’s swap:
Receive floating, pay fixed

*ASSETS*
Receiving floating
6-mo US$ Libor
Semi-annual for 5 years
Principal US$100m
Like a 5-year US$ FRN
Value = $100m

*LIABILITIES*
Paying fixed 9%
Annual for 5 years
Principal US$100m
Like a 5-year bond
Value = $100m

Two Years Later, Rates Have Fallen...

Labatt’s swap:
Receive floating, pay fixed

*ASSETS*
Receiving floating
6-mo US$ Libor
Semi-annual for 3 years
Principal US$100m
Like a 3-year US$ FRN
Value = $100m

*LIABILITIES*
Paying fixed 9%
Annual for 3 years
Principal US$100m
Like a 3-year bond
Swap rate = 6%
Value = $108m

Termination of Swaps

- Basic principle: cancel or neutralize all future swap cash flows
- What are the alternative ways in which this can be done?
  - Offsetting swap with same counterparty
  - Offsetting swap with new counterparty
  - Cancel swap
  - Reassign swap.

Default Risk in Swaps

- In-the-money swaps entail credit risk—the value of the swap is the amount owed
- At initiation, credit risk exposure is based on the potential value of the swap, which depends on potential changes in interest rates and currencies
- Credit risk can be mitigated by collateralization and by netting of bilateral exposure.

How Swaps are Quoted

<table>
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<tr>
<th></th>
<th>Years</th>
<th>Fixed USD</th>
<th>Floating USD</th>
<th>Currency Swaps</th>
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<td>5.40-5.53</td>
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</tbody>
</table>

Example

Fixed USD 8.50%
Floating USD 5yr T+-.78%

Petronas ↔ HSBC
Asset Swaps

- Investor buys cheap fixed-rate bond
- But wants a floating-rate note.

Investor buys cheap fixed-rate bond

Fixed GBP 12.73%

Asset Swaps: Default

- Perjawa Steel Co.
- Bank

Fixed GBP 12.73%

Floating USD Libor s.a. +0.75%

Default

- To get a spread over Libor:
  - Floating ABS: L+Spread
  - Floating ABS with Cap: Buy ABS & buy cap
  - Fixed ABS: Buy ABS & do fixed-floating swap

Asset-Swapping an ABS

- Considerations
  - Credit risk of swap
  - Illiquidity
**Swap Must Have Declining Balance**

**Hedging an ABS Currency Swap**
- Must hedge principal as well as interest
- Principal timing uncertain
- Amount and level of interest rate to hedge depends on prepayment rates

**Hedging an ABS Currency Swap**
- Quanto hedging instruments
- Dynamic hedging: adjust amount of hedge to changing principal values

**Counterparty Exposure**
- Currency Swap: Increasing Exposure on a Declining Principal

**Cash-Flow Reallocation**

**Case Study: Thai Cars**
- How was the transfer of assets and funds structured?
- Where is the SPV, and what are its assets and liabilities?
- Show how the swaps worked.

**Group work**
Case Study: Hong Kong Card Master Trust

- What is the relationship among the parties in this deal? (Draw a diagram)
- How are investors protected? And FSA?
- How are the interest rate and currency risks managed?
- Can you quantify the costs and benefits to Chase?

Group work