

Chapter 25

Swaps Revisited

Valuation of Swaps

- The standard approach is to assume that forward rates will be realized
- This works for plain vanilla interest rate and plain vanilla currency swaps, but does not necessarily work for non-standard swaps

Variations on Vanilla Interest Rate Swaps

- Principal different on two sides
- Payment frequency different on two sides
- Can be floating for floating instead of floating for fixed
- It is still correct to assume that forward rates are realized
- How should a swap exchanging the 3-month LIBOR for 3-month T-Bill rate be valued?

Compounding Swaps

- Interest is compounded instead of being paid
- Example: the fixed side is 6% compounded forward at 6.3% while the floating side is LIBOR plus 20 bps compounded forward at LIBOR plus 10 bps.
- This type of compounding swap can be valued using the “assume forward rates are realized” rule. This is because we can enter into a series of forward contracts that have the effect of exchanging cash flows for their values when forward rates are realized.

Currency Swaps

- Standard currency swaps can be valued using the “assume forward LIBOR rate are realized” rule.
- Sometimes banks make a small adjustment because LIBOR in currency A is exchanged for LIBOR plus a spread in currency B

More Complex Swaps

- LIBOR-in-arrears swaps
- CMS and CMT swaps
- Differential swaps

To value these we assume that the realized rate is the forward rate plus a convexity adjustment

Equity Swaps

- Total return on an equity index is exchanged periodically for a fixed or floating return
- When the return on an equity index is exchanged for LIBOR the value of the swap is always zero immediately after a payment. This can be used to value the swap at other times.

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Swaps with Embedded Options

- Accrual swaps
- Cancelable swaps
- Cancelable compounding swaps

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Other Swaps

- Indexed principal swap
- Commodity swap
- Volatility swap
- Bizarre deals: for example the P&G 5/30 swap

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