Butterflies, Condors, and Jelly Rolls: Derivatives Explained

American Translators Association
47th Annual Conference, New Orleans
November 1, 2006 – Ralf Lemster
Derivatives Explained

- What are derivatives?
- What are they used for?
- Challenges for translators
What are derivatives?

• Definitions
  – Futures/forwards
  – Calls/puts
  – Swaps

• Exchange-traded vs. OTC

• Underlying instruments
Definitions

A derivative is an instrument whose price is derived from the price of an underlying instrument (such as a reference asset or liability, index, basket, etc.)
Definitions

A future/forward is a binding agreement to buy/sell a specified amount [contract size] of an underlying instrument on a future date [settlement/delivery date], at a price agreed upon in advance [forward price].
Definitions

A call option is the right (but not the obligation) to buy a specified amount of an underlying instrument on, or until a future date, at a price defined in advance.
Definitions

A call option is the right (but not the obligation) to buy a specified amount of an underlying instrument on, or until a future date, at a price defined in advance.
Definitions

A put option is the right (but not the obligation) to sell a specified amount of an underlying instrument on, or until a future date, at a price defined in advance.
Definitions

A call (put) option [option type] is the right (but not the obligation) to buy (sell) a specified amount [contract size] of an underlying instrument on, or until [option style] a future date [exercise], at a price defined in advance [exercise price / strike price].
Definitions

A **swap** is a binding agreement to exchange
- a *stream of cash flows*
- a *series of assets or receivables*
- *differences in value*
over a defined term
Definitions

An **interest rate swap** is a binding agreement to **exchange** a series of **different interest payments** defined by reference to a **notional principal amount** over a **defined term**
Definitions

An interest rate swap is a binding agreement to exchange [payer / receiver] a series of different interest payments [fixed vs. floating] [fixed vs. fixed] [cross-currency] defined by reference to a notional principal amount over a defined term.
Basic positions

• Long future
Basic positions

• Short future
Basic positions

• Long call
Basic positions

• Short call
Basic positions

• Long put
Basic positions

• Short put
Basic positions

• Straddle
Basic positions

• Butterfly
Exchange-traded vs. OTC

• Exchange-traded derivatives
  – Standardised contracts traded on regulated markets
  – Trading governed by rules and regulations
  – Settlement takes place through a clearing house (often acting as a central counterparty)
  – Benchmark products include contracts on interest rates, equities, equity indices, and currencies (US only)
Exchange-traded vs. OTC

• Major exchanges
  – Chicago Mercantile Exchange/Chicago Board of Trade (*recently announced merger plans*)
  – Eurex
  – Euronext.liffe
  – Singapore Exchange
Exchange-traded vs. OTC

• OTC derivatives
  – Customised contracts traded outside regulated markets
  – Trading governed by market conventions and standard documentation
  – Settlement generally takes place bilaterally – there is a growing trend to settle through a clearing house
Exchange-traded vs. OTC

• OTC derivatives
  – Benchmark OTC markets include contracts on interest rates (swaps, FRAs), equities, equity indices, and currencies (FX forwards)
Underlying instruments

• Interest rate products
  – Short-term interest rates
  – Medium- to long-term bonds
  – Synthetic swap rates

• Equity products
  – Single equity issues
  – Equity baskets
  – Equity indices
Underlying instruments

- **Currency products**
  - Foreign exchange forwards
  - Cross-currency swaps
- **Credit products**
  - Credit default swaps
  - Total return swaps
  - Credit-linked securities
  - Credit index tranches
Underlying instruments

- Commodity products
  - Precious/base metals
  - Agricultural products
  - Other commodities
Underlying instruments

• Other products *some still being developed*
  – Insurance
  – Pollution
  – Weather
  – Real estate
  – Wine
  – …
What are derivatives used for?

• Hedging
• Trading
• Arbitrage
Hedging

- Using derivatives to reduce, contain, or minimise existing or potential risks
  - Selling equity index futures to hedge an existing portfolio of shares
  - Buying fixed-income futures (or entering into a receiver IRS) to hedge the price of an anticipated portfolio purchase
  - Buying put options to hedge the currency risk of an exporter
Hedging

- **Issues**
  - Availability of a suitable hedging instrument
  - Mismatch between
    - the maturity of the risk position and the hedge
    - the performance of the risk position and the hedge
    - **basis risk**
  - Hedging cost
  - Tax and accounting issues
Trading

- Using derivatives to assume position risk, and to profit from anticipated market movements
- Benefits of using derivatives for trading:
  - Efficient capital usage
  - Massive liquidity in key products
  - Quick entry and closeout
  - Reliable market prices
Trading

• Issues
  – Reliability of liquid markets
  – Trading controls
  – Managing exposure
Arbitrage

- Using derivatives to exploit short-term imbalances between different markets or products
- Generating a ‘risk-free’ profit by arbitraging
  - derivatives vs. cash (IRS vs. bonds)
  - derivatives vs. derivatives (same contract on different markets)
Arbitrage

• Issues
  – Hidden risks (e.g. ‘pin risk’)
  – Trading controls
Challenges for translators

• Comprehension issues
• Sources of information

• Your experience?
Challenges – some examples

• A synthetic short futures position is created by combining a short call with a long put option.
Challenges – some examples

• Option premiums are not paid or collected on sale or purchase respectively, but transferred only on exercise/assignment or on expiration of the contract.
Challenges – some examples

• The buyer of a Vertical Call Spread combination buys component 1, a call option, and sells component 2, a call option with the same underlying instrument and expiration month as component 1, but with a higher exercise price.
Challenges – some examples

• With a barrier cap the additional payment will be made if the trigger level is approached from below, whereas with a barrier floor the additional payment will be made if the trigger level is approached from above.
Challenges – some examples

• Essentially ABC is transferring the major part of the credit risk on the loans in the pool by purchasing credit protection via a Credit Default Swap from DEF, who then in turn purchases credit protection on the reference pool from a number of banks and institutional investors: the £355.7 m non-funded Super-Senior Tranche (rated AAA/Aaa by S&P and Moody’s respectively) has been insured by XYZ, the leading US monoline insurer.
Contact details

Ralf Lemster
Managing Partner
Ralf Lemster Financial Translations GmbH
Alt-Sindlingen 3-5
65931 Frankfurt/Main, Germany
http://www.rlft.de
Phone +49 69 3756199-0
Fax +49 69 3756199-9
ralf@lemstergroup.de