Introduction to Equity Derivatives

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Internal use only
Equity derivatives overview

- Products
- Clients
- Client strategies
- Barclays Capital
Equity derivatives products

- **Equity Swaps**: Investor pays LIBOR + spread and receives performance of underlying
- **Vanilla options**: Call and put options
- **Variance swaps**: OTC contracts to buy/sell the realised variance (volatility squared) on an underlying
- **Dividend swaps**: OTC contracts to buy/sell the dividends of companies without investing directly in the companies
- **Correlation swaps**: OTC contracts to buy/sell the average realised correlations amongst a basket of stocks
- **Structured products**: Customised solutions for specific clients
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Barclays Capital

**Equity derivatives clients**

<table>
<thead>
<tr>
<th>Institutional investors</th>
<th>Eg, portfolio managers. They are often benchmarked to a given index and generally need to protect themselves against adverse market moves.</th>
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</thead>
<tbody>
<tr>
<td>Corporates</td>
<td>Treasury functions such as financing and stock options programs require equity derivatives solutions.</td>
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<tr>
<td>Retail / private banks and investors</td>
<td>Investors are attracted to customised structured products that are made up of derivative components.</td>
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<tr>
<td>Hedge funds</td>
<td>Generally take advantage of pricing anomalies that surface as a result ‘natural’ flows.</td>
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Client decision making

**Institutional investors**
- Larger decisions can take weeks/months as committees deliberate. Smaller ones can be executed on the spot.

**Corporates**
- Generally much collaboration on a customised solution which can take months or longer.

**Retail / private banks and investors**
- Could be days or weeks depending upon their mandate and customer demand.

**Hedge funds**
- Generally the quickest and they execute in good size. Custom risk transfers might take longer.
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  - Institutional
  - Corporate
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Client strategies overview

- **Institutional investors**
  - Put protection
  - Collars
  - Call overwrites

- **Hedge funds**
  - Leverage
  - Volatility trading

- **Corporates**
  - Buybacks
  - Financing
  - Compensation

- **Retail / private investors**
  - Structured products
  - Eg, capital guaranteed notes
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Institutional investors (real money)

- **Put protection**
  - Risk aversion
  - Regulatory constraints (e.g., stress testing)

- **Collars**
  - Mitigates cost of protection
  - Sacrifice upside potential

- **Call overwrites**
  - Generally done on stocks
  - Generates income

- **Other strategies**
  - Eg, 1x2 call spread overlays
  - Sell further upside to amplify smaller returns

*All strategies presented as overlays (i.e., assuming client already holds the underlying).*
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Corporate equity derivatives

- **Buybacks**
  - Selling puts
  - Eg, Vodafone

- **Financing**
  - Rights issues
  - Convertible bonds

- **Compensation**
  - Employee stock option programs (ESOPs)
  - Eg, Microsoft

Diagram:
- Assets
- Debt
- Equity
- Convertible issuance, rights issues, ESOP
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Barclays Capital

Retail / private investors (structured products)

- Investors want upside participation but worried about directly investing in equity markets
- Large demand to provide tailored exposures to equities as well as other assets (eg, commodities)

Example: Total investment of 100 over 5 years

- Invest 70 in a zero coupon bond that matures to 100 in 5 years
- Allocate remaining 30 in (at-the-money) call options on an underlying asset (or basket of)
Example: Capital guaranteed note in pictures
Barclays Capital

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Hedge funds

- Some use options as a means of leverage but most primarily speculate on volatility
- Strategies include
  - Volatility relative value
  - Dispersion / correlation
  - Skew trades
  - Dividends
- One general trend is to take other side of some of the asymmetric flows
- For example, volatility skew:
  - Empirically, markets go up over time,
  - … but downside options (puts) cost more than upside options (calls)
Volatility ‘dimensionality’

Volatility is not just a single number…

- Index or single stock
- Choice of strikes (and call or put)
- Choice of maturity

Index vol is lower but term structure is steeper

* Stock vol LHS, index RHS

Lower strike implied vols generally higher

* x-axis = strike as % of spot
Volatility related flows

Index volatility generally in demand
- Protection buying
- Structured products (participation)

Stock volatility generally in supply
- Call overwriting
- Structured products (yield enhancement)
- Convertible bonds / buybacks

Implied correlation generally elevated as a result of these flows (equivalent to saying index volatility is rich relative to single stock volatility)
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Equity Derivatives within Barclays Capital

Clients
- Hedge funds, prop desks, fund managers, pensions, insurers, endowments, corporates, retail + private banks, etc.

Sales
- Coverage split between client, regional, and product focus

Trading
- Flow
- Exotics
- Delta-1
- Arbitrage
- Structuring

Research
- Equity derivatives research is divided amongst regions but coordinated globally. Supports sales, trading and clients.