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Effective execution and on-going valuation of derivatives

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Agenda

Effective execution and on-going valuation of derivatives

- Risks
- Case study
- Over-the-counter or exchange traded derivatives
- What do I need to trade derivatives?
- Who should undertake the execution?
- Which bank should I trade with?
- Dealing strategies
- Valuation of positions

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What do you think of when you hear the 'D' word?

- **Barings PLC**
  - 1995
  - Nick Leeson & the infamous 88888 account
  - Loss of ~£927 million
- **Metallgesellschaft AG**
  - 1993
  - USD 1.9 billion
  - Losses in commodity markets
- **Sumitomo**
  - 1996 Mr Hamanaka
  - USD 2.6 billion
  - Losses in copper trading
- **Orange County (Hammersmith & Fulham)**
  - 1994
  - ~ USD 2 billion
  - Largest Municipal bankruptcy in US history

Derivative Execution : Risks

- Traded the wrong thing
- Damaged reputation of employer (or personal reputation)
- Broken legal or regulatory restrictions

Case study

To illustrate how to go about achieving effective execution let's consider the following case:

- Insurance company has determined that it wishes to hedge out guarantees embedded in policies using a swaption
- Transactions are large,
  - DV01: GBP 300k per basis point
  - Vega: GBP 2mm per basis point
- Case study will not focus on the design of these hedges, but rather how to transact the swaption in the most effective manner

Futures, options or over-the-counter?

Exchange traded derivatives

- Dealt on a regulated exchange
- Contract price is highly transparent
- Open interest and volumes traded give guide to liquidity
- Strong parallels to dealing in physical assets

Over-the-counter derivatives

- Bi-lateral bespoke contracts
- Volume and price data less available and less reliable
- Broker screens can give insights into some OTC markets

Exchange traded derivatives

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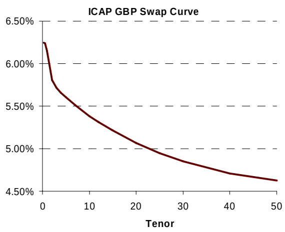
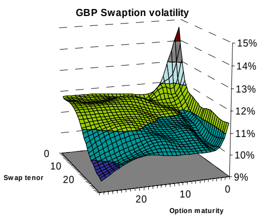
Over-the-counter derivatives





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What do I need in place to trade?

Case study: Need to trade a swaption (OTC contract)

- ISDA master agreement
- CSA (credit support annex)
- Collateral management agent
  - Fund manager
  - Custodian
- Execution agent
  - Specialist consultant
  - Fund manager

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Who should undertake the execution?

Parties that can become engaged in the execution of the derivatives:

- Insurance company (executes as principal)
- Specialist consultant (as agent for the inco)
- Fund manager (as agent for the inco)
- Investment bank (as advisor to inco as principal)

Consider alignment of interests and business model

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Which bank should I trade with?

- Best price
- Credit rating
- Scale / market presence

- Never select a counterparty purely on the basis of paying soft commission for advisory work

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Dealing strategies

The auction

- Call up between three and five banks, deal with the one that is the best price
- Effective for trades that are 'small'
  - Price discovery
  - Best price achieved
  - Transparent and auditable results
- What constitutes a small trade varies from market to market…
- Swaption required for our case study trades is too large to be traded in this manner

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Dealing strategies

Blind auction

- Ask multiple counterparties for pricing on a daily basis
- Allows price discovery
- Removes knowledge about timing of trade from market
- Difficult to apply to our case study without alerting the market that there is the potential for a transaction to occur, which might in itself impact prices

Dealing strategies

Exclusive mandate

- Deal is awarded on an exclusive basis to one counterparty
- Consider alignment of interest
- Need to ensure that it is possible to demonstrate that best execution is achieved
- This could be achieved through the appointment of an execution agent to verify terms?

Which dealing strategy for our case study?

Propose to proceed with the blind auction approach for the following reasons:

- The deal is large compared to normal market size, hence the auction approach is not suitable
- No justification for awarding an exclusive mandate
- Multiple counterparties approached to provide indicative terms for proposed trades

Price discovery: Step 1

Terms for our swaption: GBP 1bn 20year option into a 10 year swap struck at 5%

	Premium [GBP]	Time
Bank 1	45,141,000	10:02
Bank 2	46,586,324	10:48
Bank 3	43,254,448	11:13

- Lack of synchronised pricing makes prices impossible to compare

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Price discovery: Step 2

Determining the price of our swaption

- Swaption premium is a function of:
  - Swap rates
  - Volatility
  - Model used to price deal
  - Bid-offer charges
- Parameters easily observable
  - Swap rates
  - At-the-money volatility

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Price discovery: Step 2

Removing elements of market volatility from price discovery process:

- Premium = Known elements + calibration factor
- In this example = Price of ATM option + calibration factor

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Price discovery: Step 2

Applying to received pricing

	Premium	Time	ATM premium	Calibration factor	Rank
Bank 1	45,141,000	10:02	24,843,000	20,298,000	1
Bank 2	46,586,324	10:48	26,143,123	20,443,201	2
Bank 3	43,254,448	11:13	22,234,353	21,020,095	3

Valuation

Single standardised market environment

- It is not sufficient to rely on valuations of derivatives provided by counterparties
- This creates the opportunity for 'accounting' arbitrage
- Consider if the option in the case study example was divided between two counterparties:

Bank 2 Premium = 46,586,324
Bank 3 Premium = 43,254,448

Neither price is 'correct'

Nor does assigning option position from Bank 3 to Bank 2 create an opportunity for profit, since the economic outcome is the same

Valuation

Single market environment

Effective execution and on-going valuation of derivatives

Thank you…

… any questions

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