“Could Centralised Credit Derivative Clearing ever work?”

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CORE Conference
13th March 2008

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Introduction

LCH.Clearnet forms a key part of the global financial infrastructure

- A world leading international Central Counterparty organisation, serving the broadest range of OTC and Exchange-traded markets and products
- CCPs underpin the integrity of wholesale financial markets: LCH.Clearnet handles over €1.5 trillion of risks every day

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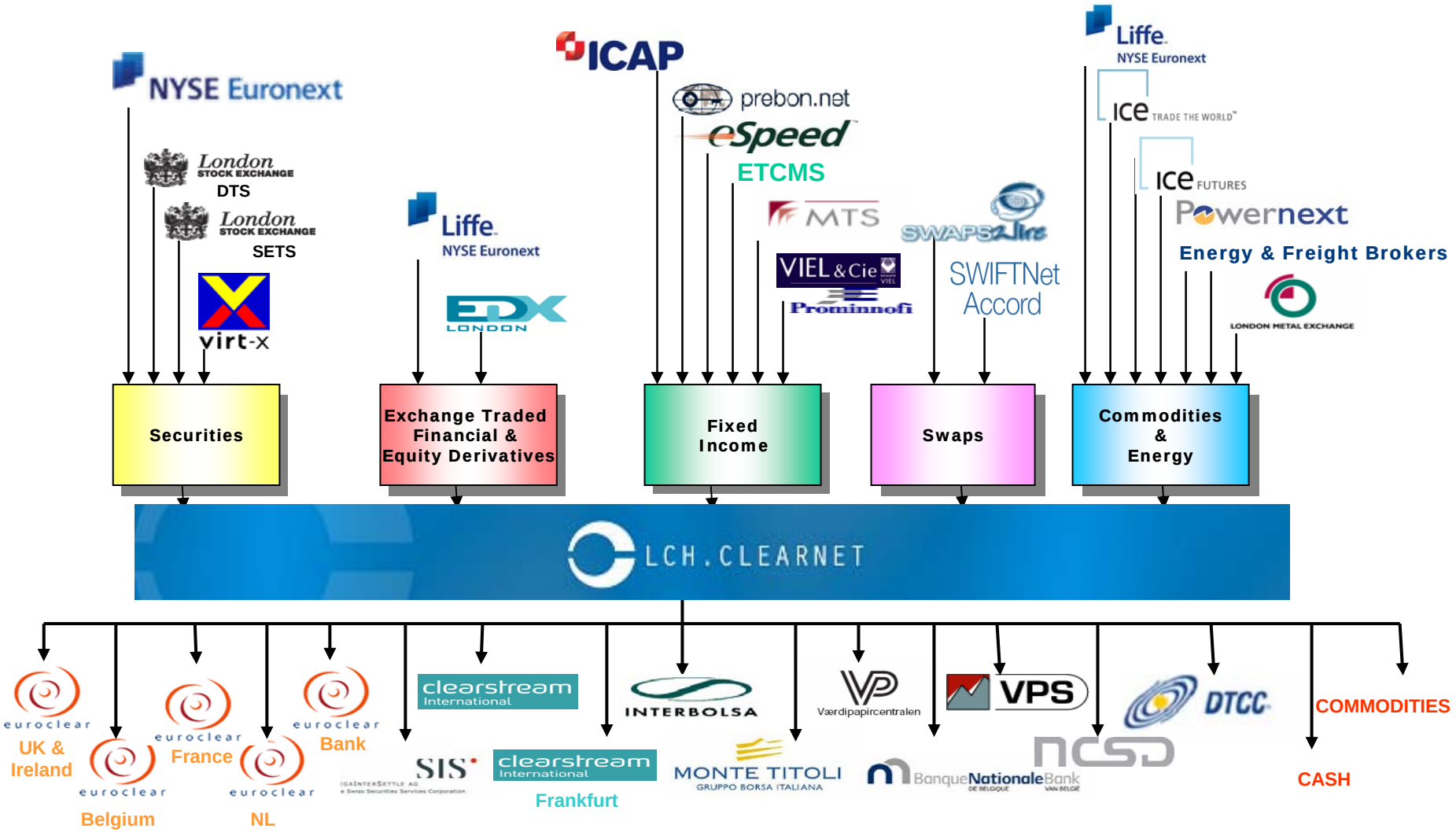
The Clearing 'Spectrum'

Clearing solutions exist for a broad range of Exchange traded & OTC markets



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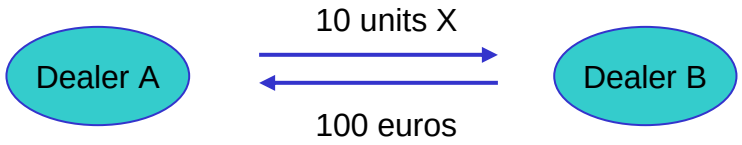
Novation

An immediate full performance guarantee provided by LCH.Clearnet

INITIAL TRADE:



NOVATES:

- Clearing House becomes the buyer to every seller and the seller to every buyer
- Immediate commitment, at the point of execution
- Principal to principal relationship
- Final commitment is with the Clearing Member

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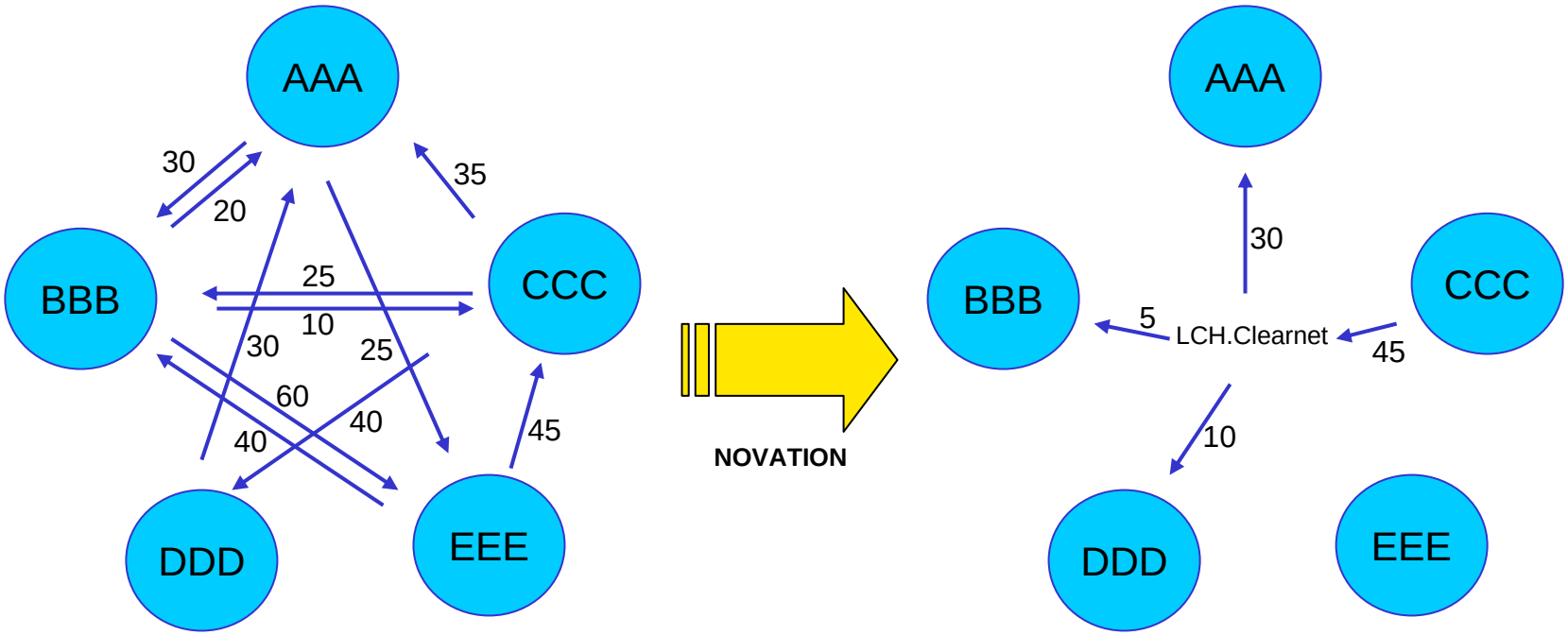
Multilateral netting



Bilateral trades under an ISDA master

Each member has a bilateral set of trades with LCH.Clearnet that represents the multilateral net of all of its trades with the service members.

Clearing House always has an equal and opposite position.
Maintains a market-neutral position.

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Risk Management: LCH.Clearnet faces two major risk questions …

Risk 1: Will a member default? This is managed by:

1. Applying Membership Criteria. To include…..

   Minimum Financial Resources
   Operational Capability
   Credit Assessment (Ratings and Regulatory information etc.)

2. Daily Member monitoring. To include……

   Position Monitoring
   - Large
   - Unusual
   - Concentration

   Margin monitoring
   - Over trading
   - Margin adequacy
   - Accumulated losses

   Stress Testing

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Margining – Variation Margin

Risk 2: How much does the clearing house stand to lose if a member defaults?

- The Clearing House takes security to protect against a Clearing Member unable to pay its losses by margining. There are two elements to margining

Variation margin

- Variation Margin represents profits and losses on open positions which are calculated daily by mark to market processes, which are then paid to or collected from the clearing house on a daily basis.
- Profits are paid in cash, losses are called in cash in the currency of the liability
- Pricing to determine daily marks based on:

Exchange Traded
- Closing prices set by Exchange
- Method for setting approved by LCH.Clearnet
- LCH.Clearnet has the discretion to change

OTC
- LCH.Clearnet Prices and Curves
- Generated from range of sources

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Margining – Initial Margin

Initial margin

- A returnable deposit covering potential price movement and risk
- The perceived risk of holding a position for 1 - 5 days (Dependant on the market and assumed close-out period) I.e. It covers the market risk in a defaulters position during the default process
- Rates are set based on a variety of algorithms which depend on the market / service
  - SwapClear uses the Portfolio Approach to Interest Rates (PAIRS)
    - A historical simulation (1250 scenarios) with the worst observed 5 day movement
  - Exchange traded derivatives typically based on Standard Portfolio Analysis of Risk (SPAN)
  - **Total Initial Margin held by LCH.Clearnet Ltd. approx. £ 25 billion**
- Intra day margin calls may also be made when price or position movements are particularly volatile and cover already held has been eroded.

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Default Fund

- Default fund : each clearing member deposits cash, min £2m or 10% of I. M. calculated on a three month average.
- LCH.Clearnet pays LIBOR +1% on default fund balances.
- Default fund only called upon if defaulting member's variation margin, initial margin and own default fund contribution are exhausted.

Current Value of the Default Fund £594 million

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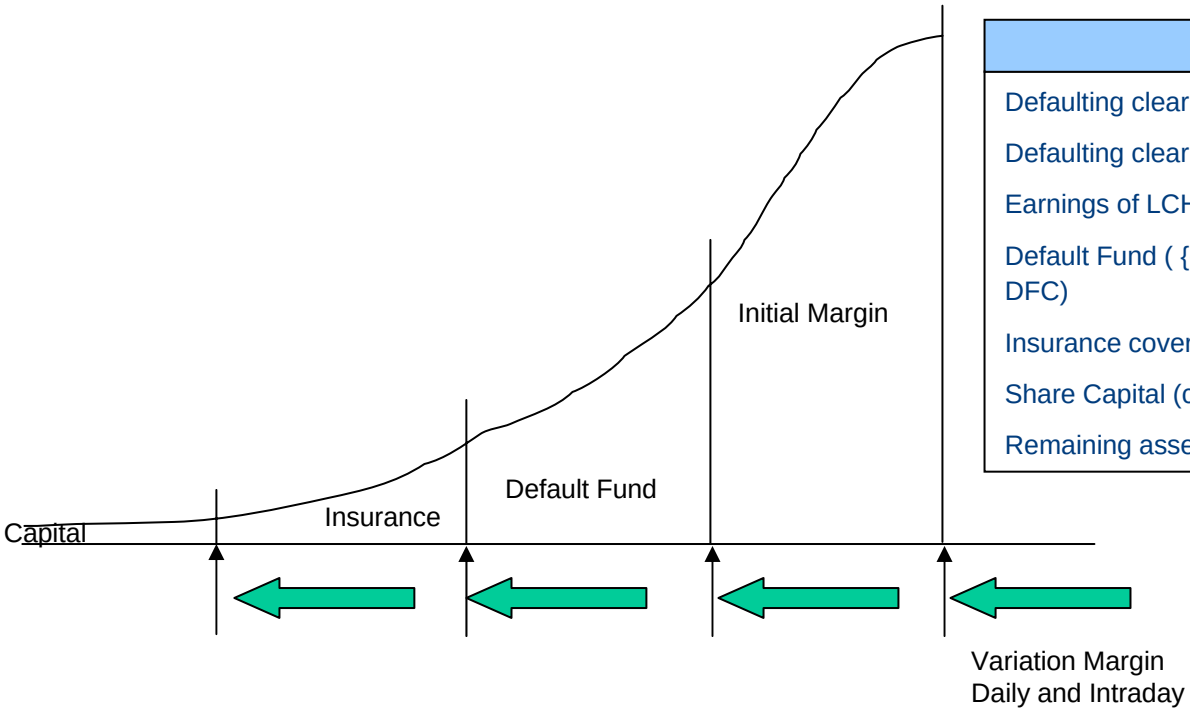
Default Backing



Financial Backing
Defaulting clearing member's initial margin (including any excess cover)
Defaulting clearing member's own Default Fund Contribution (DFC)
Earnings of LCH.Clearnet up to £20mn
Default Fund ({currently £594mn} minus defaulting clearing member's DFC)
Insurance cover (up to £200mn)
Share Capital (c.£70mn)
Remaining assets of LCH.Clearnet Ltd

APPLICATION OF POST-DEFAULT BACKING

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Levers of value created by clearing for OTC markets

Levers	Rationale
1 Reduction in exposure/ credit risk	• By netting, overall outstanding exposure is significantly reduced • Credit risk of trading counterparty is replaced with credit risk of CCP • Reductions in EAD can result in Regulatory / Economic capital savings under Basle 1 and Basle II* • Reduces opportunity costs for capital required as a buffer for losses and funding requirements
2 Reduction in operational risk	• Centralised processing and netting reduces the possibility of operational glitches • Savings in Operational Risk Capital can be recognised for banks adopting the Advanced Measurement Approach (AMA) under Basle II
3 Operational efficiency	• Simplifying trade processing through multilateral settlement netting • Reduced risk management costs by having fewer counterparties to monitor • Reduced errors and operational risks through automated straight-through-processing • Reducing legal & regulatory complexity through standardised agreements and processes
4 Other benefits	• Reduces trading credit line constraint • Can reduce the size of balance sheet by allowing the reporting of netted exposures under certain accounting treatments

* European Banking Directive 2006 mentions that an exposure value of zero can be attributed to credit risk exposures outstanding with a CCP, provided that its counterparty credit risk exposures with all participants in its arrangements are fully collateralised on a daily basis

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Considerations: The clearing of Credit Derivatives

1) Liquidity:

For a clearing service to be viable, it is critical to have a definitive, consistent and reliable source of independent pricing data (available intraday)…

- Data for CDS index trades probably largely fulfil the above requirements… But what happens to the off- the run series which are less liquid and where the level of price discovery is reduced? Once the transactions have been novated to the CCP it remains a principal until maturity
- Some names are far more liquid than others and having an independent source of credit spreads does not ameliorate the pricing issues that arise as a result.
- Increased variability in the liquidity of single names, which could make margining difficult.

2) Lifecycle events:

With other Exchange traded and OTC services that LCH.Clearnet supports, it handles all lifecycle events that occur including coupon payments, corporate actions etc…

- How would CDS assignments be handled? What happens if the transaction is assigned to a non – clearing member?

  Could this exclude the possibility of introducing a facility to compress off the run trades to a net single trade per member?
- Coupons and other settlements processed should take place via existing CCP settlement mechanisms.
- A further complexity in the credit world would be Reference entity Defaults, which would be defined as a lifecycle events. The CCP would thus need to become central in the processes that have been created e.g. The auction process, managed by Markit / Creditex and ISDA.
  - A possible added nuance with a process which involves partial physical / partial cash settlement. Having a CCP involved could arguably increase the complexity of the process.

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Considerations: The clearing of Credit Derivatives

3) Counterparty Default Management:

- Arranging a viable Default Management Process (Likely to require survivors to commit to an auction process) and in extremis, failure to bid would result in allocation to survivors.
- All participants would need to complete a default net agreement and commit to the Default Management Process
- Jump to Default for single names: How do you set the appropriate level of Initial Margin to ensure that the service is commercially viable and that margin levels are not too prohibitive? (Possibly a portfolio approach to clearing for single names?)
- How does one cater for simultaneous defaults? I.e. A clearing participant that is also a reference entity

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Possible Approach

1) Agree Scope and phasing (example)

- Phase 1: CDX / iTRAXX main indices
- Phase 2: Subsidiary indices
- Phase 3: Single Names

2) Product Design Stage (To include market agreement on governance structure)

- Member advisory group and Operations committee
- Agree valuation and margining approach. Consider impact on default (guarantee) fund
- Default Management Committee

3) Agree interactions with existing infrastructure providers (for example)

- DTCC (trade warehouse, trade source)
- Markit, Creditex, ISDA re. Reference defaults and auctions
- Agree roles of clearing house and the end-to-end process e.g.
  - CCP to determine settlement amounts
  - Obligations demanded via CSD, cash via a settlement arrangement

4) Agree on processes / licences relating to data

- Sources of data (existing providers or service participants). Licensing agreements and arrangements.
- Filtering and use of data to generate valuation curves etc. to apply to intraday valuations and margining

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Summary

- CCP Clearing for OTC markets is typically only viable for plain vanilla instruments and highly liquid transactions. It also requires a ‘critical mass’ of participants to be effective

- Clearing offers benefits that go further than either bilateral collateral agreements or payment netting and can help reduce the cost of provision of market making services and Prime Brokerage
  - Collateralisation of all exposures automatically at least once a day
  - Reduction of credit exposure to counterparties caused by:
    - Novation to the clearing house
    - Multi-lateral netting
  - Reduced capital / improved return on capital

- OTC Clearing creates a highly scalable operating environment with very low operational exception rates and with almost no sensitivity to increased volumes due to automation

- Due to volumes and liquidity issues product introduction would need to be based on Index trades first and extended iteratively

- To deliver the benefits of clearing the users need to:
  - Provide data for mark to market purposes on a closed user license basis
  - Agree an auction approach (involving the CCP) to cash settlement price setting in the event of a reference default
  - Agree to survivor rules in a Default Management Agreement similar to existing OTC Clearing services

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