

Default Risk Management on CCPs

FRIC practitioner seminar
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Default Risk Management on CCPs

- Agenda:
 - How to determine the quality of a CCP?
 - The clearing relationships
 - LCH SwapClear Risk Waterfall
 - LCH SwapClear Default Management Process
 - Timeline
 - Live Bidding
 - Auction Incentive Pools
 - Performance Based Loss Attribution

How to determine the quality of a CCP?

- CCPs are themselves subject to strict regulation, they are per definition systemically important, and their role is growing.
- The functioning and quality of a CPP is generally determined by three parameters:
 - **Membership criteria**; including capital requirements, credit ratings, derivatives volume, operational capabilities, pricing and risk management abilities etc.
 - **Waterfall model**; if losses occur in relation to a default by a member; how are these losses allocated, what is the distribution between the losses absorbed by the defaulting party, the CCP and the remaining members through the Default Fund? Is there a plan for closing down the CCP in the most extreme scenario? Is there a limited/unlimited liability commitment which may be capital demanding?
 - **Default Management Process**: What is the process for handling defaults, how are trades in the defaulted portfolio re-established, how are the other members motivated to participate actively in an auction, does the CCP have a possibility of forcefully allocating a defaulted portfolio?

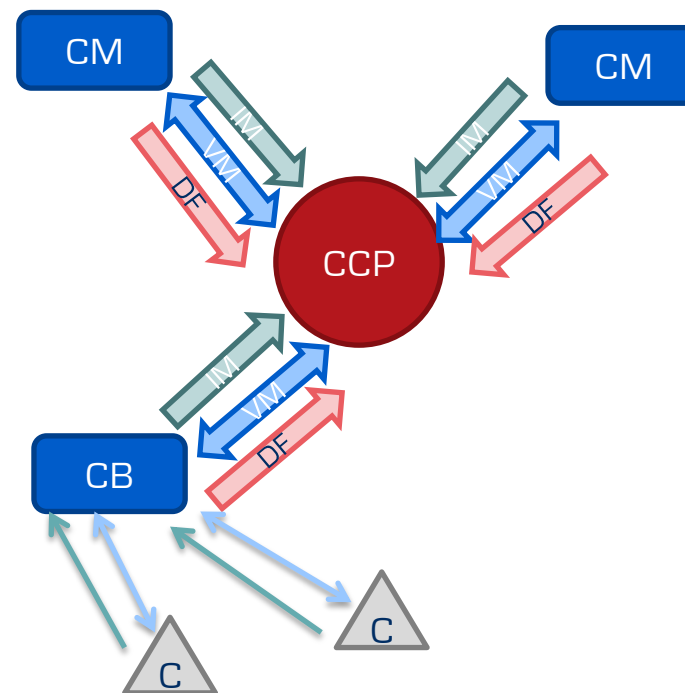
The clearing relationships

- Participants

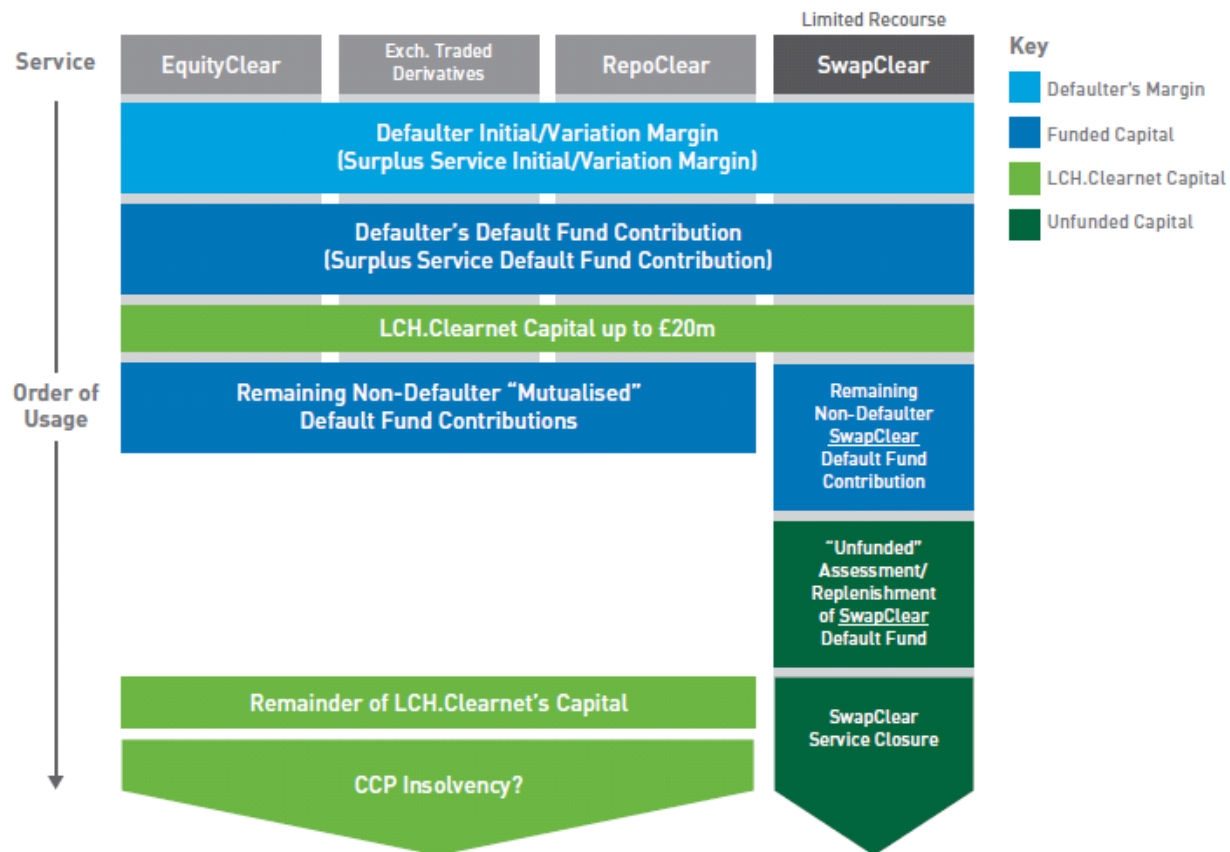
- CCP
- Clearing Members
- Clearing Brokers
- Executing Brokers
- Clients
- Indirect Clients.

- Relationships

- Trades
- Initial & Variation Margin
- Default Fund contribution
- Risk



LCH SwapClear – Risk Waterfall



What is the CCP landscape for rates?



- IRSs can or is expected to be cleared on at least 4 CCPs.
- LCH.Clearnet's SwapClear is the leading OTC CCP
 - Has been active since 1999 and has by far the largest product offering.
 - Clears approximately 50% of all IRS trades - has 51 members globally.

LCH.SwapClear - trade characteristics:

- Forward starting swaps
- Front or back stubs with or without interpolation
- Spread on the floating leg
- Negative floating rate values
- Multiple reset and payment frequency options
- Non-standard fixing lags
- All relevant day count fractions
- Following, modified following and preceding business day conventions
- Adjusted/unadjusted combinations
- Combined holiday calendars for multiple jurisdictions
- IMM roll dates

Product	Max 2Y maturity	Max 3Y maturity	Max 10Y maturity	Max 30Y maturity	Max 50Y maturity
Interest Rate & Zero Coupon Swap			CZK, DKK, HKD, HUF, NOK, NZD, PLN, SGD, ZAR	AUD, CAD, CHF, JPY, SEK	EUR, GBP, USD
Single CCY Basis Swap			CZK, DKK, HKD, HUF, NOK, NZD, PLN, SGD, ZAR	AUD, CAD, CHF, JPY, SEK	EUR, GBP, USD
Compounding Swap			DKK, HKD, NOK, NZD, PLN, ZAR	AUD, CAD, CHF, JPY, SEK	EUR, GBP, USD
Overnight Index Swap	CHF, EUR, GBP, USD				
Variable Notional Swap					EUR, GBP, USD
Forward rate agreements	CHF, CZK, DKK, HUF, NOK, PLN, SEK	EUR, JPY, USD			

LCH SwapClear Default Management Process

- Let me illustrate by example: the semi-annual Fire Drill.
- 41 Participating banks, of which 2 were taking the Driving-Test.
- FireDrill divided into 3 Phases:
 1. Import and Reconcile.
 2. Control Measure - Replication of SwapClear Valuation
 3. Live Bidding
- Trade types:
 - Vanilla IRS, Basis Swaps, Zero Coupon, IMM Roll convention swaps, Compounding Swaps, Variable Notional Swaps (VNS), Forward Rate Agreements (FRA)
- 6 Auction Packs #200,000 Trades:
 - 1) USD #70,000, 2) EUR #45,000, 3) GBP #30,000, 4) JPY #40,000, 5) CHF #7,500, 6) ZAR #4,000

LCH SwapClear DMP FireDrill – Timeline

- AcmeBank1 Defaults, we were noticed at 10:09 on 13th February 2012.
- Default Management Group, the DMG convened at the LCH London offices to begin risk neutralisation phase. This took place during 13th February 2012. (* Something went wrong in this phase, let me come back to that later).
- Daily Call Notification, a daily dial-in call was hosted to ensure all members were updated with any issues.
- Client Transfer, for members participating in Client Clearing service offering. Import and value client trades to test backup clearing broker arrangements.
 - Keywords: Segregation & Portability.

LCH SwapClear DMP FireDrill – Timeline cont.

- Release of Auction Packs, all packs released in both FpML (XML) and IMS formats on LCH Secure Area web, available on 15th February at 12:00.
- Release of SwapClear EOD batch reports, same time, containing:
 - IRS Coupon Flow, Historic Index Rates, Calendar, IRS Trade Rates, SwapClear Initial Margin, Cash Flow & Trade Level NPV, Trade Level Report, VM Yield Curve – Par Rates, VM Yield Curve – Zero Rates, IM Sensitivity Report, VM Sensitivity Report, FRA Trades, Variable Notional Swaps.
- In both Auction Packs and Reports were also the trades of Client X that defaulted on the same day as AcmeBank 1 being rejected immediately by Backup Clearing Broker, and Client Y defaulting on day 2 also rejected within the 48h window!
- Curve data was released for EOD 17th February.

LCH SwapClear DMP FireDrill – Timeline cont.

- Replication of SwapClear valuation:
 - Monday 20th February: ZAR, EUR, CHF, GBP
 - Tuesday 21th February: JPY, USD
 - Danske submitted all control valuations between 12:22 and 12:33 on 20th February.
 - At 13:08 we had received confirmation that all control valuations were within tolerances!
- The purpose of Phase 1 in the FireDrill is to demonstrate that the clearing members have successfully imported all trades and that they can roll their systems to the relevant date, in particular respecting the exclusion/inclusion of relevant cashflows.

LCH SwapClear DMP FireDrill – Timeline cont.

- Live Bidding, applying live market data and own pricing methodology to value the Auction Packs, taking into account any costs involved in consuming each currency portfolio.
- Wednesday 22nd February (within 15min window):
 - JPY at 13:00, ZAR at 13:30, EUR at 14:30
- Thursday 23rd February (within 15min window):
 - CHF at 13:00, GBP at 13:30
- Friday 24th February (within 30min window due to size of AP):
 - USD at 15:30
- At Danske we took a market snap-shot, performed full valuation of the entire Auction Pack, adjusted for costs, completed a formal Bid within:
 - JPY 4min, ZAR 2min, EUR 4min, CHF 3min, GBP 3min, USD 9min

LCH SwapClear DMP FireDrill - Results

- *Note: Removed due to non-disclosure agreement.*

LCH SwapClear – Auction Incentive Pools (AIPs)

- Principles:
 - Each member's funded and unfunded default fund contributions, will be proportionally allocated to a currency specific AIP pro-rata based upon the member's risk in the relevant currency
 - Risk by currency is measured by the member's Worst Case loss (WCL) by currency.
 - If a single currency is split into sub portfolios for the auction, then the currency specific AIP is further split based upon the risk of the sub portfolios being auctioned.
 - All clearing members will be informed of the size of their contribution to each AIP and where their contribution ranks relative to all other member contributions in that currency AIP, i.e. you are the 3rd largest contributor to the EUR AIP. However, the total AIP is unknown!

LCH SwapClear – Performance Based Loss Attribution

- If defaulters resources are exhausted, i.e. VM/IM/DF of the defaulter. Losses are distributed based on Auction Performance, by allocating AIP into tranches:
 1. Non-bidders,
 2. All other bidders, except the winning bidder
 3. Winning bidder(s)
- If the loss of a currency auction exceeds the AIP the following resources are utilized:
 4. Surplus from other AIPs
 5. Remaining resources, i.e. Default Fund contributions not allocated to AIPs.
- There are some fine details omitted here!
- The AIPs set a threshold for when an auction is success or failure.

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