

THE OPTIONS CLEARING CORPORATION

CBOE Risk Management Conference

March 9, 2010

Who is OCC ?

Equally owned by

- CBOE
- ISE
- NYSE–AMEX
- NYSE Arca
- NASDAQ OMX PHLX

OCC is overseen by its Board of Directors

- Five exchange members
- Nine clearing members
- One public member
- OCC CEO is the Chairman

Operates in effect as a not-for-profit industry utility

Regulated by SEC and CFTC

Rated by Standard & Poor's: AAA

OCC is the Central Counterparty for

Options

- BOX Boston Options Exchange
- CBOE Chicago Board Options Exchange
- ISE International Securities Exchange
- NSDQ NASDAQ Options Market
- PHLX NASDAQ OMX PHLX
- NYSE AMEX NYSE AMEX Options
- NYSE NYSE Arca
- BATS BATS Options exchange

OCC is also the Central Counterparty for

Futures

- ONE OneChicago
- CFE CBOE Futures Exchange
- ELX Electronic Liquidity Exchange
- NYL NYSE Liffe US
- NFX NASDAQ OMX Futures Exchange

Stock loan

- Hedge OTC stock loan program
- AQS Automated Equity Finance Markets

Additional cross margin program

- OCC enters into cross margining agreement with another clearing house (example CME)
- Risk management done jointly to provide offset between two portfolios

OCC deals directly only with its Clearing Member firms

Roughly 120 clearing members

- Full service investment banks
- Regional brokerage firms
- Small broker/dealers
- Proprietary trading firms
- Execution-only firms
- Net capital ranges from roughly \$3mm to \$5bn
- Membership base is fairly stable with consolidation offset by new memberships

OCC as central counterparty

- Novation – substitution of a new obligation for an old one
- Novation occurs on trade date
- OCC becomes the seller to every buyer, and the buyer to every seller
- If a clearing member fails to make settlement (i.e., make payment for its obligations) OCC will step in
- If a clearing member fails, OCC will liquidate the firm's account(s)
- OCC role powerfully mitigates credit risk for all market participants

Two questions

- As “the buyer to every seller, and the seller to every buyer”, how does OCC manage its counterparty credit risk?
- If my firm has positions in products cleared by OCC, how does the OCC’s role impact my firm’s counterparty credit risk?

How OCC manages risk

- Membership standards
 - Initial
 - Ongoing
- Margin requirements
 - Daily
 - Intraday
- Clearing fund

Initial membership standards

- SEC registration – US broker/dealer (or exempt non-US)
- Financial requirements – \$2.5mm in minimum net capital, profitability requirements
- Operational requirements – staffing and systems
 - Possibility of a Facilities Management Agreement (using other OCC members to meet operational requirements)

Ongoing membership standards

- Minimum capital standards
- Monthly financial reporting standards on SEC/CFTC required forms
 - Ratio and trend analysis
 - Deterioration leads to higher watch level status (with possible higher margin requirements)
- Intraday surveillance
 - Real time trades monitoring
 - Monitor projected premium settlements
 - Investigation of unusual positions or large settlements

Margin requirements

- Applied daily to each clearing member firm at account level
 - Customers
 - Unaffiliated market makers
 - Affiliated market makers
 - Firm (proprietary positions)
- Each account must have collateral to cover
 - Mark-to-market value (can be negative for net short options position)
 - Downside risk (99% Expected Shortfall)
 - Stress test charges
 - Various add-ons
- Intraday margin calls made when risk coverage deteriorates significantly

Calculation of Margin requirements

System for Theoretical Analysis and Numerical Simulations (STANS)

- Introduced in 2006. Replacement of TIMS System
- State-of-the-art statistical method for risk-management applications
- Dynamic volatility modeling of each of 6,000+ individual underlyings
- Correlations and tail dependence between underlyings
- Dynamic scaling to worst of current or long-run average market conditions
- Monte Carlo simulation of profit & loss distribution
 - Portfolio of cleared products and assets pledged as collateral

Clearing fund

- All clearing members contribute
- Mutualize risk of default beyond the margin coverage
- Cash and government securities
- Fluctuates with aggregate system risk
 - Total margin requirements
 - Open interest
- Recalculated once a month
- \$2.8bn at end-2009
- OCC can oblige Clearing members to replenish Fund if it is drawn upon

Risk management performance

- Very rare for accounts to show losses in excess of margin
- Recent experiences
 - Bear Stearns
 - Lehman Brothers
 - Madoff Securities
- Only draw on Clearing Fund:
 - \$6mn, when HB Shaine & Company failed, 20 October 1987

OCC impact on counterparty credit of end-users

If end-users transact through an affiliate which is an OCC Clearing member

- Direct benefit of OCC guarantee
- Margin requirement calculated by STANS and held by OCC
- Contingent risk on contribution to Clearing Fund

OCC impact on counterparty credit of end-users

If end-users transact through a non-affiliated OCC Clearing member

- Margin calculated under Reg. T or Portfolio Margin and held by Clearing member
- OCC applies margin requirements to the Clearing member
 - STANS margin calculation does not allow a customer's pure long option positions to be used to cover short positions of other customers
- Possibility of pre-default "bulk transfer" of positions to a different Clearing member if concerned about credit risk of existing Clearing member
- In event of default by Clearing member:
 - OCC liquidates OCC accounts of defaulting firm
 - Margin, surplus on certain other OCC accounts of Clearing member, and Clearing Fund can be used to cover any deficiency
 - Any net liquidation proceeds turned over to SIPC trustee
 - End-users have claims on assets realized by SIPC trustee