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**International Derivatives Expo 2009**  
CDS Clearing Overview  
Mark Woodward, Director – Corporate Development  
10 June 2009

## AGENDA

- Introduction to ICE
- ICE Clear CDS Clearing Offering
- Progress to Launch
- Appendices:
  - Additional information on the Risk Waterfall

*- Subject to Board and Regulatory Approval -*



## ICE INTRODUCTION

ICE is a leading global exchange operator with three regulated futures exchanges and clearing houses in the energy, agricultural commodities, equity index and currency markets. ICE also operates leading OTC energy and credit derivatives markets and clearing houses.

### Global distribution

- Screens distributed in 57 countries
- 3 regulated futures exchanges and 5 clearing houses in the U.S., Europe and Canada, as well as global OTC markets

### Diversified markets

- Energy, agricultural, equity index, currency and credit products
- Futures, OTC and Options

### Leading-edge technology

- Sophisticated, scalable infrastructure, highly accessible platform
- Risk management products and services



# ICE CLEARING HOUSE OVERVIEW

## DIVERSE MARKETS, PRODUCTS AND SERVICES

ICE Clear Europe Regulator: U.K. Financial Services Authority			ICE Clear U.S. Regulator: CFTC	ICE Trust Regulators: Fed, NYSBD, SEC
<b>Energy - Futures</b> - Crude Oil - Gas Oil - European Emissions - Coal - UK Natural Gas & Power	<b>Energy - OTC</b> - North American Natural Gas - North American Power - Global Oil and Refined Products	<b>CDS - OTC</b> - To launch CDS service – discussing timing and sequence of product introduction with customers and regulators	<b>Agricultural - Futures</b> - Sugar - Coffee - Cotton - Cocoa - OJ <b>Financial - Futures</b> - Russell Index - FX	<b>CDS - OTC</b> - North American CDX indices - To launch North American single names in 3Q09

### Related CDS Services

- Brokerage
- Delta neutral auctions
- Trade compression
- Credit event auctions
- STP, Allocations, and Novations
- Auto recouping of single name CDS



## UPDATE ON CLEARING OF CDX INDICES BY ICE TRUST U.S.

Status	Clearing to Date																															
<ul style="list-style-type: none"> <li>• <b>Currently 11 Members</b> <ul style="list-style-type: none"> <li>- Launched with: Bank of America/Merrill Lynch, Barclays, Citi, Credit Suisse, Deutsche Bank, Goldman Sachs, JP Morgan Chase, Morgan Stanley and UBS;</li> <li>- RBS and HSBC have joined subsequent to launch</li> </ul> </li> <li>• <b>As of 5<sup>th</sup> June, completed thirteen weeks of backloading covering the full suite of CDX indices</b> <ul style="list-style-type: none"> <li>- IG.8, IG.9, IG.10, IG.11 and IG.12 – 5 Yr</li> <li>- IG.8, IG.9, IG.10, IG.11 and IG.12 – 10 Yr</li> <li>- IG.HVOL.8, IG.HVOL.9, IG.HVOL.10, IG.HVOL.11 and IG.HVOL.12 – 5 Yr</li> <li>- NA.HY.8, NA.HY.9, NA.HY.10, NA.HY.11 and NA.HY.12 – 5 Yr</li> </ul> </li> <li>• <b>Smooth execution to date</b> <ul style="list-style-type: none"> <li>- Cleared 9,720 trades with notional value of \$824.5 billion</li> <li>- \$125.2 billion cleared open interest in the warehouse</li> </ul> </li> </ul>	<table border="1"> <thead> <tr> <th>Wk</th> <th>Weekly Volume (000's)</th> <th>Total Open Interest (000's)</th> <th>No. Trades</th> </tr> </thead> <tbody> <tr> <td>1</td> <td>\$7,145,682</td> <td>\$3,327,046</td> <td>91</td> </tr> <tr> <td>2</td> <td>\$14,027,864</td> <td>\$3,970,237</td> <td>100</td> </tr> <tr> <td>3</td> <td>\$23,732,639</td> <td>\$6,041,242</td> <td>208</td> </tr> <tr> <td>4</td> <td>\$26,222,793</td> <td>\$12,677,067</td> <td>214</td> </tr> <tr> <td>5</td> <td>\$4,183,409</td> <td>\$14,247,136</td> <td>64</td> </tr> <tr> <td>13</td> <td>\$93,747,789</td> <td>\$125,219,990</td> <td>1,235</td> </tr> </tbody> </table>	Wk	Weekly Volume (000's)	Total Open Interest (000's)	No. Trades	1	\$7,145,682	\$3,327,046	91	2	\$14,027,864	\$3,970,237	100	3	\$23,732,639	\$6,041,242	208	4	\$26,222,793	\$12,677,067	214	5	\$4,183,409	\$14,247,136	64	13	\$93,747,789	\$125,219,990	1,235			
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## EXECUTIVE SUMMARY

- Operating through the existing ICE Clear Europe legal and regulatory framework
  - Regulated as a U.K. Recognised Clearing House by the FSA to clear ICE Futures Europe and ICE OTC energy products
  - ICE Clear Europe received Settlement Finality Designation from the FSA under the Financial Markets and Insolvency (Settlement Finality) Regulations 1999
  - Forty four members including the eleven banks participating in CDS clearing under ICE Trust U.S.
- Managing CDS risk separately from the existing energy business
  - Separate CDS Risk Committee and Buyside Committee will be established
  - Rules amended to cover CDS Clearing (where appropriate these will be consistent with ICE Trust's rules)
  - Membership of ICE Clear Europe will be extended to cover CDS
  - A separate Guaranty Fund will be established
  - Settlement cycle for iTraxx (for EUR) will leverage existing U.K. Treasury capabilities
  - Prices submitted by iTraxx traders to independent price discovery engine between 4:30 and 4:35 GMT
- Launching with iTraxx Europe Index products (Europe main, High Vol., Crossover (High Yield)), followed by single name CDS



# ICE CLEAR CDS CLEARING BUSINESS MODEL

## ***Membership***

ICE Clear membership is open to all market participants that meet the clearing house's financial, risk and operational criteria

- Third-parties that do not meet the criteria of ICE Clear membership will be able to clear trades through clearing house members
- The ICE Clear solution will provide margin protection and enhanced portability to firms who are not direct clearing participants

## ***Open Clearing Platform***

ICE Clear allows delivery of trades directly from multiple venues including IDBs, matching engines, industry proprietary systems, etc.

## ***Implementation***

ICE Clear is designed around the existing OTC CDS product structure, and the existing transactional and operational flows which current industry participants, both buy side and sell side, utilize today.

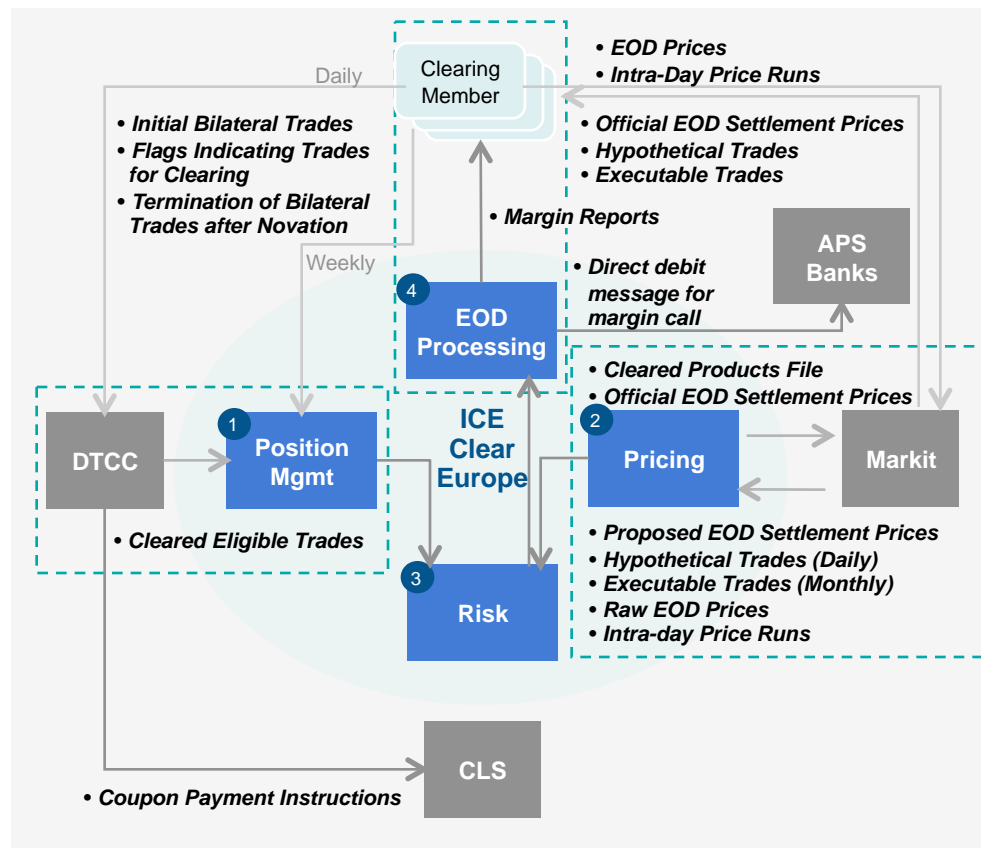
This includes working in conjunction with the existing industry warehouse and asset servicing platform at DTCC in order to make the operational processing most efficient and market transparency and reporting most useful

## ***Reporting***

ICE Clear provides settlement prices to the market daily on all positions where there is open interest in the clearing house and provides volume/OI reporting publically via its website and provides regulators with continuous reporting on the risk and positions of its clearing members



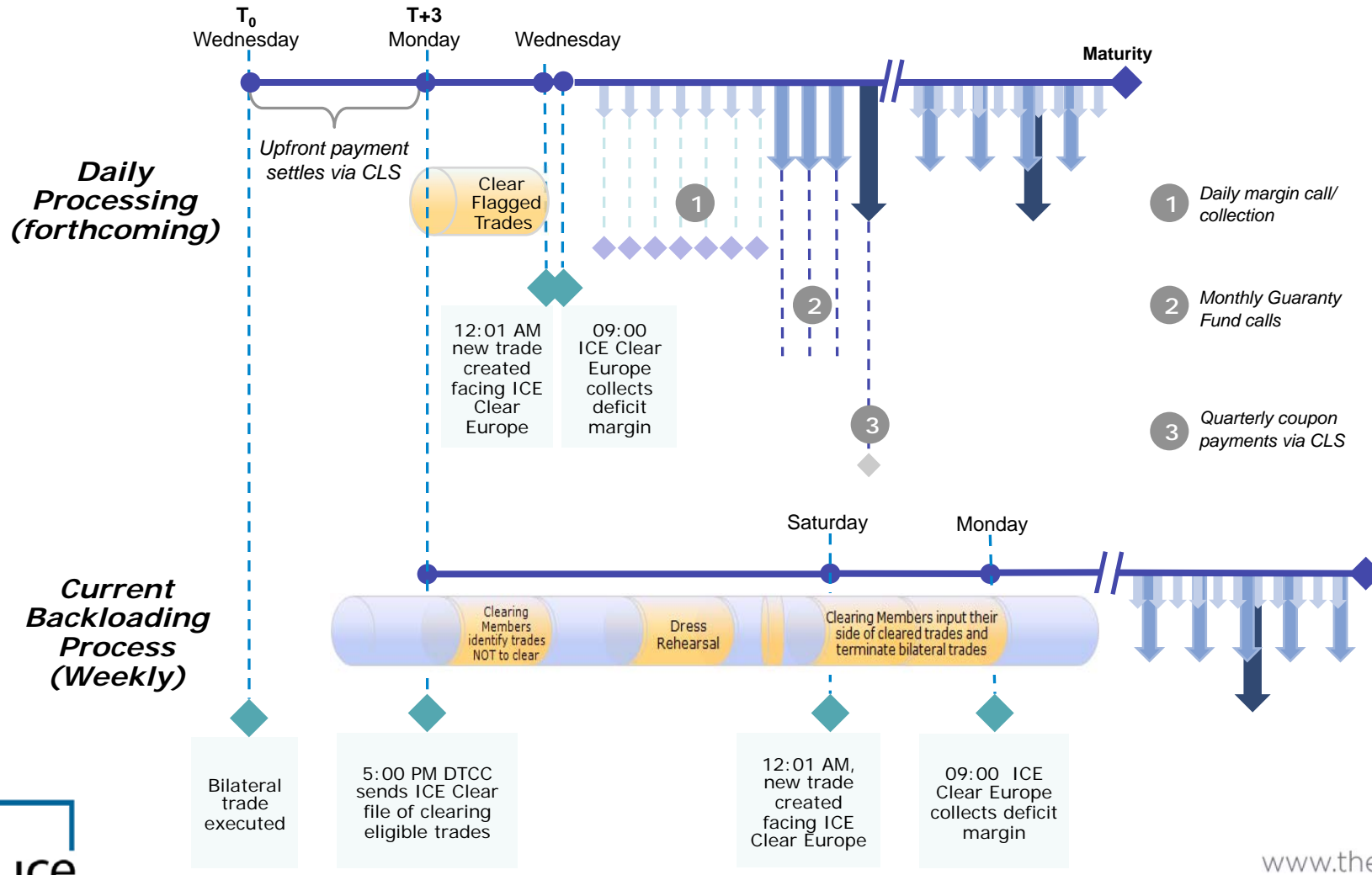
# CDS CLEARING PROCESS OVERVIEW



- 1 Position Management**
  - Receive position file from DTCC
  - Identify eligible trades based on Clearing Member flags
  - Create bilateral trades between ICE Clear Europe and Clearing Members
- 2 Pricing**
  - Provide Markit with file detailing cleared products with open interest by Clearing Member
  - Receive proposed settlement prices, matched interest trades, and raw EOD price quotes from Markit
  - Receive Clearing Members intraday price runs
  - Provide Markit with official EOD Settlement Prices
- 3 Risk**
  - Receive price and position information
  - Calculate daily Mark-to-Market margin
  - Calculate Initial Margin
  - Calculate Guaranty Fund and allocations
  - Provide inputs for end of day processing
- 4 End of Day Processing**
  - Send daily Initial and Variation Margin reports to Clearing Members
  - Provide direct debit instructions for daily margin calls



# OPERATIONAL PROCESS FLOWS



# RISK WATERFALL

## Waterfall approach for managing systemic risk

Waterfall Level	Description
<b>Membership Criteria</b>	<ul style="list-style-type: none"><li>• Ensure each Clearing Member has sufficient financial resources, operational capabilities and risk management experience</li></ul>
<b>Initial Margin Requirement</b>	<ul style="list-style-type: none"><li>• Collateralise potential Clearing Member portfolio loss under normal market conditions</li></ul>
<b>Mark-To-Market Margin Requirement</b>	<ul style="list-style-type: none"><li>• Adjust Clearing Member collateral through a daily debit/credit based on EOD mark-to-market</li></ul>
<b>Intra-day Risk Monitoring Special Margin Call Execution</b>	<ul style="list-style-type: none"><li>• Identify additional margin requirements based on a comparison of unrealized P/L to Risk Margin, understanding unusual market fluctuations, etc.</li></ul>
<b>Guaranty Fund</b>	<ul style="list-style-type: none"><li>• Mutualize losses under extreme but plausible market scenarios (i.e., 99.9% confidence interval). ICE and Clearing Members will be contributing to the Guaranty Fund</li></ul>
<b>Power of Assessment</b>	<ul style="list-style-type: none"><li>• Oblige Clearing Members to contribute a limited amount of additional default funding</li></ul>

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# RISK WATERFALL

## Membership Criteria

### Membership Criteria

- Ensures that each Clearing Member has sufficient resources and capabilities to meet obligations arising from membership:
  - Financial resources
  - Operational capacity
  - Risk management experience
- Highlights:
  - Membership criteria is contained in ICE Clear rules to ensure criteria is objective and publicly available
  - Membership based on criteria relevant to the risk and execution of CDS transactions
  - Ensures member are “sound and reliable” (BIS)

### Approach

- \$5Bn+ (Tier 1 capital). If an Applicant does not meet this criteria, it may submit a parent guarantee, at ICE Clear’s discretion, provided its parent satisfies the criteria
- A minimum long-term rating “A” or equivalent from S&P/Moody’s/Fitch or equivalent at the time of membership application. At the discretion of the ICE Clear, this requirement could be met by the Applicant’s parent
- The Applicant must be regulated by competent authority such as the Fed, SEC, FSA, CFTC or other regulators as determined by ICE Clear. This requirement could be met by an affiliate of the Applicant provided the participant would be subject to holding company group supervision
- Demonstrates operational competence, including:
  - Ability to process expected volumes
  - Adequate systems, equipment and experienced personnel
  - Ability to submit pricing
- Demonstrates risk management competence based on satisfactory completion of a risk questionnaire



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## PROGRESS TO LAUNCH

- ICE Clear Europe was operationally ready to clear CDS trades on 18 May 2009
- ICE Clear, in response to regulatory feedback, is modifying its tactical restructuring approach to ensure that the restructured single name remains centrally cleared
  - Margin approach under review
  - Approach to be confirmed with regulators
- The first roll-out to be complete by 31 July 2009
  - ICE Clear is working closely with members on the iTraxx launch and the roll-out programme for single names
  - ICE Clear is working closely with the FSA to ensure appropriate regulatory consultation is completed prior to launch



## INDIRECT PARTICIPATION AND ACCOUNT SEGREGATION SOLUTION SUMMARY

- ICE Clear Europe has designed a solution to provide clearing benefits to firms who are not direct Clearing Members:
  1. Segregation of Initial Margin
  2. Portability of Margin and Positions (pre and post-default)
- In developing its framework, ICE Clear Europe is consulting extensively with numerous buy-side participants, its existing members, as well as with its principal regulators
- Key Benefits of ICE Clear Europe Customer Solution:
  1. Robust margin segregation and portability framework equivalent to futures model
  2. Provides smooth transition roadmap for industry to clearing
    - Does not require changes to existing trading relationships or trade execution model
    - Allows firms to adopt clearing according to their own timing and needs
  3. Addresses systemic risk by supporting not only new trades but also the existing backlog of outstanding OTC CDS contracts which reside at the Trade Information Warehouse
  4. Fast Time-to-Market
    - ICE Clear Europe is operationally ready for launch to clear iTraxx trades
    - Solution leverages existing ISDA agreements to eliminate need for lengthy renegotiation
    - Existing connectivity to all dealers, ~400 buy-side and DTCC Trade Information Warehouse



## RESTRUCTURING ICE CLEAR APPROACH

- ICE Clear assembled, hosted, and led a working group focused on developing the clearing house's approach to restructuring
- An aggressive schedule of twice-weekly working sessions to address key issues and developed the approaches for:
  - Selective Position Triggering
  - Electronic Triggering
  - Trigger/notification timing
  - Physical Settlement
- To date, the approach incorporates feedback from the ISDA "Small Bang" discussions (open issue related to timing of triggers on the last day of the trigger period has been deferred to ISDA working group)
- ICE Clear expects to adopt the "Small Bang" protocol
- Prior to the full restructuring solution being in place, ICE Clear will continue to centrally clear restructured names



## CONTACTS

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## INITIAL MARGIN RISK METHODOLOGY

- Ensures that ICE CDS Clearinghouses have sufficient funds to cover potential Clearing Participant default losses under distressed market conditions
- Conservative, but not excessive, margins to collateralize risk
- Methodology accounts for instrument risk, hedging benefits and concentration charges
- Highlights
  - Identifies all risk factors
  - Generates plausible market scenarios for all risk factors
  - Allows for a wide range of portfolio strategies and financial instruments
  - Estimates portfolio replacement value in response to generated scenarios

### Approach

- Initial margin requirement may be reviewed and changed at any time
- Configured to assess risk requirements (margin) to meet replacement costs
- Risk quantile of 99% over a 5-day position replacement time horizon
- Assuming a heavy (fat) tailed and skewed distribution with dynamic volatility forecasting for daily changes in log [credit spreads]
  - Significant heavy-tailed for log credit spread increases
  - Almost normally distributed log credit spread decreases
  - No hedge offset among 'Risk Factors' (e.g., NA.IG, NA.HY)
  - Limited (conservative) offset among long-short positions on products in same risk factor (e.g., different series)
  - Concentration charges are applied by product when losses exceed a threshold of position size relative to the market depth
- Independent review validated the ICE risk methodology and models



# RISK WATERFALL

## MARK-TO-MARKET RISK METHODOLOGY

### Mark-to-Market Margin

- Ensures that margin is calculated on a daily basis based on the changing market value of positions held
- Clearing Participants are required to post additional Mark-to-Market Margin when the prior day's margin balance is insufficient to meet the current day's margin obligation
- Highlights
  - Calculates full portfolio replacement value daily
  - Leverages a single, end of day settlement price across all Clearing Members for margin

### Approach

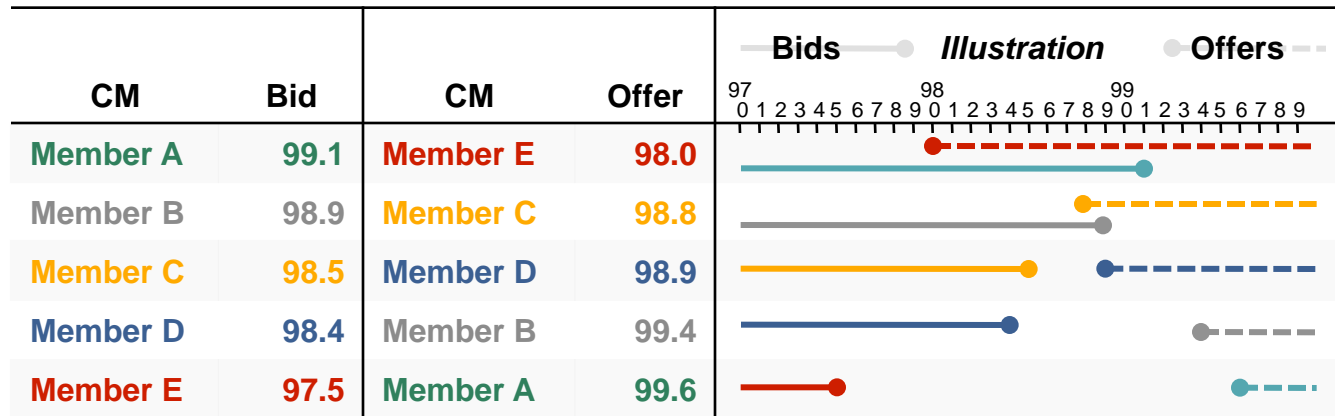
- On a daily basis, concurrent with the calculation of Initial Margin, ICE Clear calculates Mark-to-Market Margin for all Clearing Members
- ICE Clear calculates the replacement value for each index of a given series and maturity based upon daily settlement prices
- Once every position in a Clearing Member's portfolio is marked to its market price, the value of a Clearing Member's portfolio is compared with the associated prior day value
- The difference in these two values results in a margin deficit or surplus
  - Margin deficits are payable in cash and are included in the daily settlement process if insufficient cash is on deposit
  - Margin surpluses are recognized in the Clearing Member's margin account as a cash credit available for withdrawal upon request



# MARK TO MARKET DETERMINATION

## TRADABLE SETTLEMENT PRICES ENSURE QUALITY

Each Clearing Member must submit a bid/offer each day for each instrument for which it has an open position



On a frequent and unannounced basis, bid/offer submissions are considered tradeable and the algorithm crosses trades when determining a settlement price

**Member E sells to Member A**  
**Member C sells to Member B**

**Settlement Price = 98.95**

Trade at the midpoint of the crossed or locked bid/offer pair.

Based on the midpoint of the first non-crossed, non-locked bid/offer pair.



# ICE CLEAR EUROPE GUARANTY FUND RISK METHODOLOGY

- **Allows ICE CDS clearinghouses to mutualize losses under extreme but plausible market scenarios**
- **Highlights**
  - **Covers losses associated with the potential simultaneous default of the two largest Clearing Participants in the event of deteriorating market conditions**

## Approach

- **Larger of:**
  - **Down Move Residual Loss** (improving market conditions)
    - **Single** largest CM Portfolio Loss net of their posted Risk Margin
    - Portfolio Loss measured at the **99.9<sup>th</sup>** quantile over a **5** day horizon
  - **Up Move Residual Loss** (deteriorating market conditions)
    - Sum of largest **two** CM Portfolio Losses net of their posted Risk Margins
    - Portfolio Losses measured at the **99.9<sup>th</sup>** quantile over a **5** day horizon
    - Reduced P/L offsets (hedge benefits)
- **ICE also participates in the Guaranty Fund up to \$50 million**
- **Independent review validated the ICE risk methodology and models**

