

# **CME Group – BMV Partnership & Clearing**

## **CME Clearing Overview**

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# CME Clearing

*In more than a century of operations, no CME Clearing customer has ever lost money due to a counterparty default*

- Price transparency
- Anonymous matching
- Twice daily mark-to-market
- Zero debt system
- Objective valuations
- Clearing member oversight
- Customer funds segregation
- \$8B financial safeguards
- Industry-leading market regulation
- Strength of central counterparty

## *Exchange – Traded Derivatives*

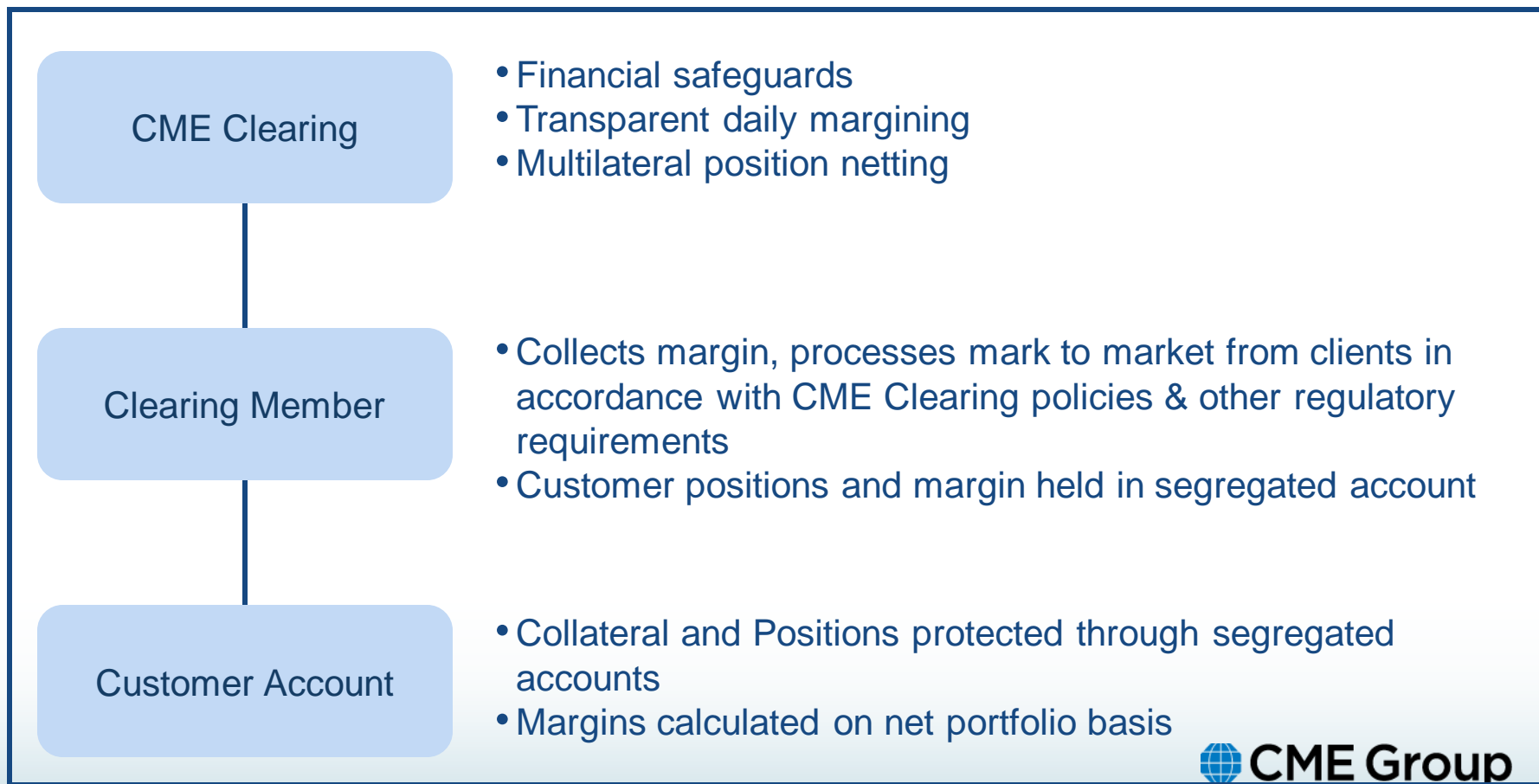
- Electronic execution via formal exchanges
- Exchange rules and regulations to govern trading
- Submitted to CME Clearing for clearing, central counterparty

## *Over-The-Counter (OTC) Derivatives*

- Voice, Broker, and electronic execution via traditional OTC methods and practice
- “Standardized” but flexibility to specify
  - Underlying instrument
  - Single and multiple settlement payment dates

# CME Group Clearing Model

*In the more than 110-year history of CME Clearing, there has never been a failure by a clearing member to pay settlement variation or meet a performance bond call, nor has there ever been a clearing member failure resulting in a loss of customer funds*



# CME Clearing

## Clearing Account Structure

# CME Account Structure

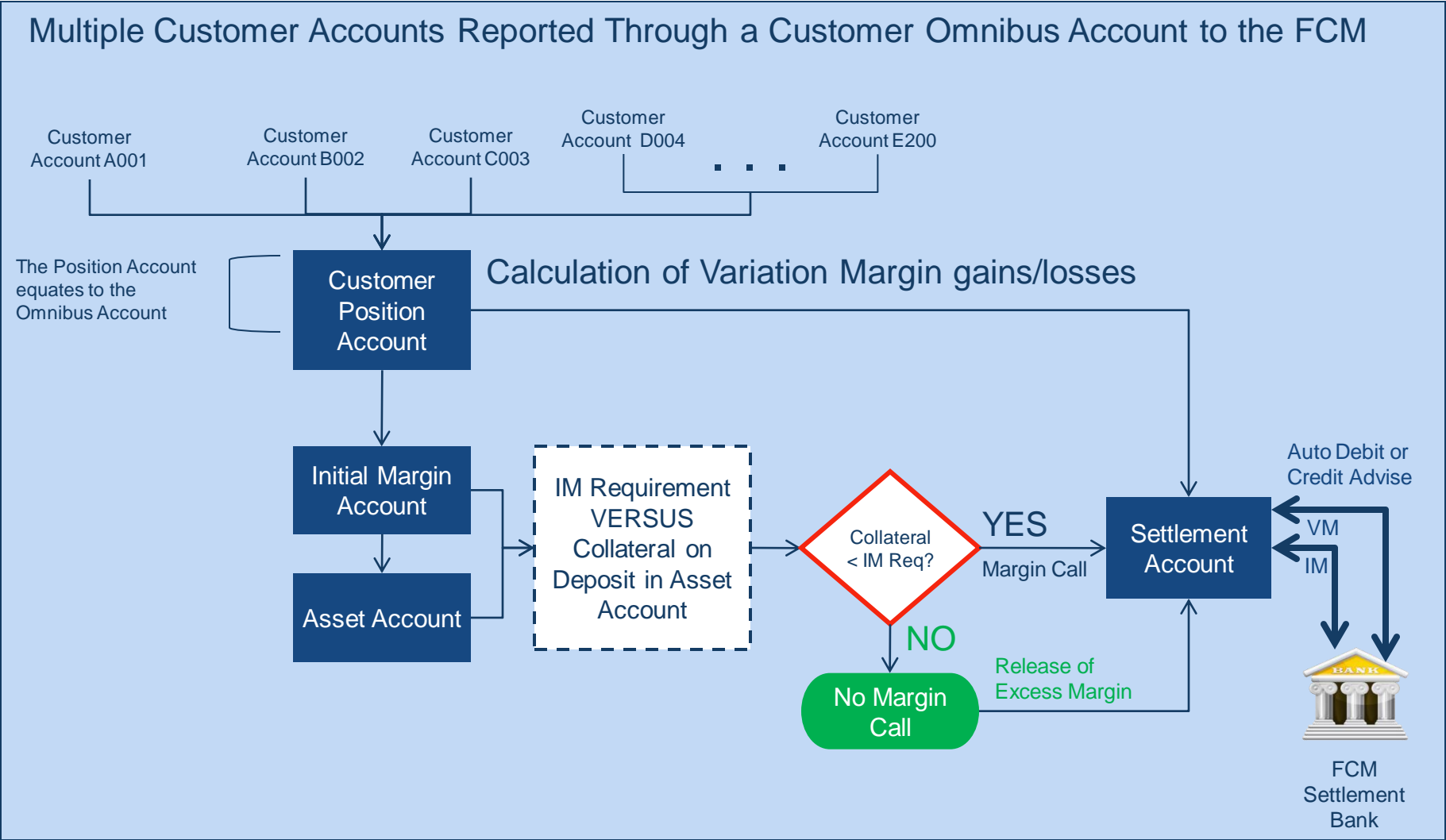
## *CME Account Type Definitions*

Account Type	Purpose
<b>Omnibus Position Account</b>	<ul style="list-style-type: none"><li>• The Position Account represents the level at which a customer's positions are aggregated at CME, and therefore the position on which the initial margin is calculated.</li><li>• One or many Position Accounts may be established for a customer.</li><li>• Trade Registers are generated for each Position Account</li></ul>
<b>Initial Margin Account</b>	<ul style="list-style-type: none"><li>• The Initial Margin Account holds the net margin requirement calculated on the associated Position Account.</li><li>• One or many Position Accounts may be linked to one or many Initial Margin Accounts.</li></ul>
<b>Asset Account</b>	<ul style="list-style-type: none"><li>• The Asset Account holds the current collateral on deposit for a specific Initial Margin Account.</li><li>• Each Initial Margin Account is linked to a single Asset Account.</li></ul>
<b>Settlement Account</b>	<ul style="list-style-type: none"><li>• The Settlement Account initiates the funding of Variation Margin Gains/Losses as well as Initial Margin Calls/Releases</li><li>• One or many Position Accounts may be linked to a single Settlement Account for Variation Margin purposes.</li><li>• A single Asset Account is linked to a single Settlement Account.</li></ul>

# CME Account Structure

## Customer Omnibus Work Flow

Multiple Customer Accounts Reported Through a Customer Omnibus Account to the FCM



# CME Account Structure

## *Customer Omnibus*

### Customer Omnibus

Example:

Multiple Accounts held at a Customer Omnibus Level

#### Use Cases

- Daily position change reporting required to receive all possible margin offsets
- Single Trade Register is generated for all the Customers activity cleared in the single position account
- Trading activity and cash flows are net at CME Clearing and broken out on the Clearing Member's books.
- Clearing Member reconciles multiple accounts to a single CME Clearing account

#### Position Account Management Requirements

- Position Change Management is required
- Clearing Member must indicate which positions are netted against each other in the position change data file
- Submit position data broken down by individual subaccount

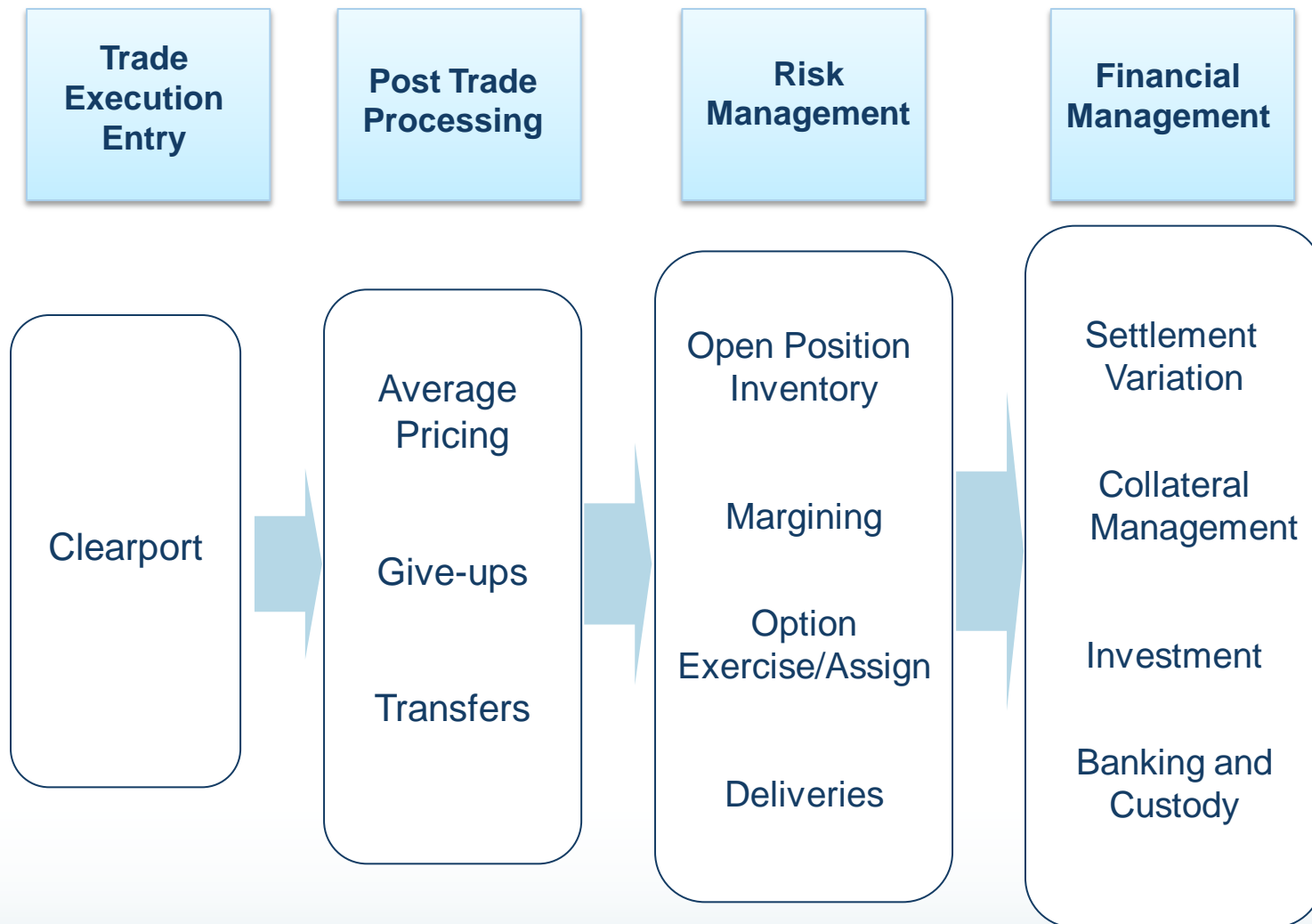
#### Margin Implications

- Margin calculation is dependent on the position change data provided
- Clearing level margin requirements may be less than the true gross margin of the customer account.

# CME Clearing

## Clearing Trade Flows

# Functions and Operations - Trade Processing Flow



# Trade Processing

## Confirmation



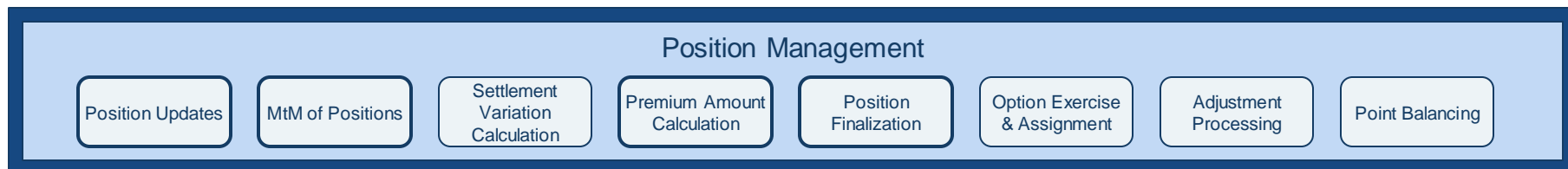
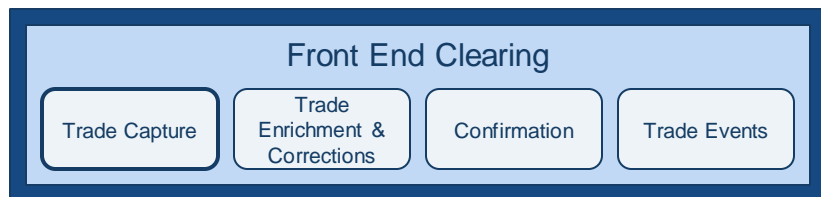
Immediately upon the trade status becoming “cleared”, Front End Clearing (FEC) generates and transmits clearing trade confirmation messages:

- To each clearing firm
- To other parties as each clearing firm may have specified – for example, back to the trader, to a trade messaging system,
- To the platform from which the trade originated
- And the trade is immediately “posted” to Positions for real-time updating of position quantity and position money amounts – and for real-time risk management

Clearing firms may now perform normal post-execution trade processing functions. This typically consists of trade enrichment, for example, account number corrections or intra-account suballocations.

# Trade Processing

## Mark-to-Market and Multilateral Position Netting



CME Clearing's real time trade and position posting:

- Enables true multi-lateral position netting, and
- Allows participants to easily trade in and trade out of positions regardless of counterparty

As trades are "posted" to the Position Management Module, position quantities and associated money amounts are immediately updated. At any moment in time, for any contract in which a position is held, we know:

- The start-of-day long and short position quantities
- Cleared buy and sell trades today, broken out by trade type
- Aggregate trade and position money amounts
- Overall long and short position quantities

# CME Clearing

## Market Risk and Default Management Overview

# CME CLEARING - RISK MANAGEMENT SYSTEM

The two most important tools in CME's system of Financial Safeguards are

1. **Performance bond** or "margin"

- a "good faith deposit" designed to cover the largest potential loss in a particular product

2. **Mark-to-market**

- prevents the accumulation of debt in the system

- Used in conjunction, twice daily **mark-to-market** and **performance bond** calculations give CME and its clearing members strong tools to prevent clearing losses.
- CME currently manages over \$100 billion in performance bond collateral and mark-to-market which averages **over \$5B** daily.
- If a firm would fail to pay mark-to-market, CME would use their performance bond to cover the loss.

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# RISK MANAGEMENT PROGRAM OVERVIEW

CME employs a dynamic and robust risk management system to monitor and mitigate the risk of default.

CME Clearing implements and oversees several core risk management functions:

- Risk Management Philosophy & Culture
- Maximize Early Detection
- Daily Risk Monitoring
- Financial Safeguards / Resources
- Clearing Member Risk Reviews
- Twice daily mark-to-market

# RISK MANAGEMENT - MAXIMIZE EARLY DETECTION

- Audit and financial surveillance functions are designed to detect deterioration of clearing members' financial condition as early as possible
- 24-hour monitoring of market conditions, market-impacting news and events
- In depth knowledge of clearing member business models, customer bases, market exposures, and exposure sensitivities
- Continuous monitoring of trading activity, P&L, performance bond exposures, post trade transactions, clearing member system viability
- Real time monitoring of clearing member-level activity
- Access to customer-level information at the large trader position-level aids in concentration risk management and credit risk

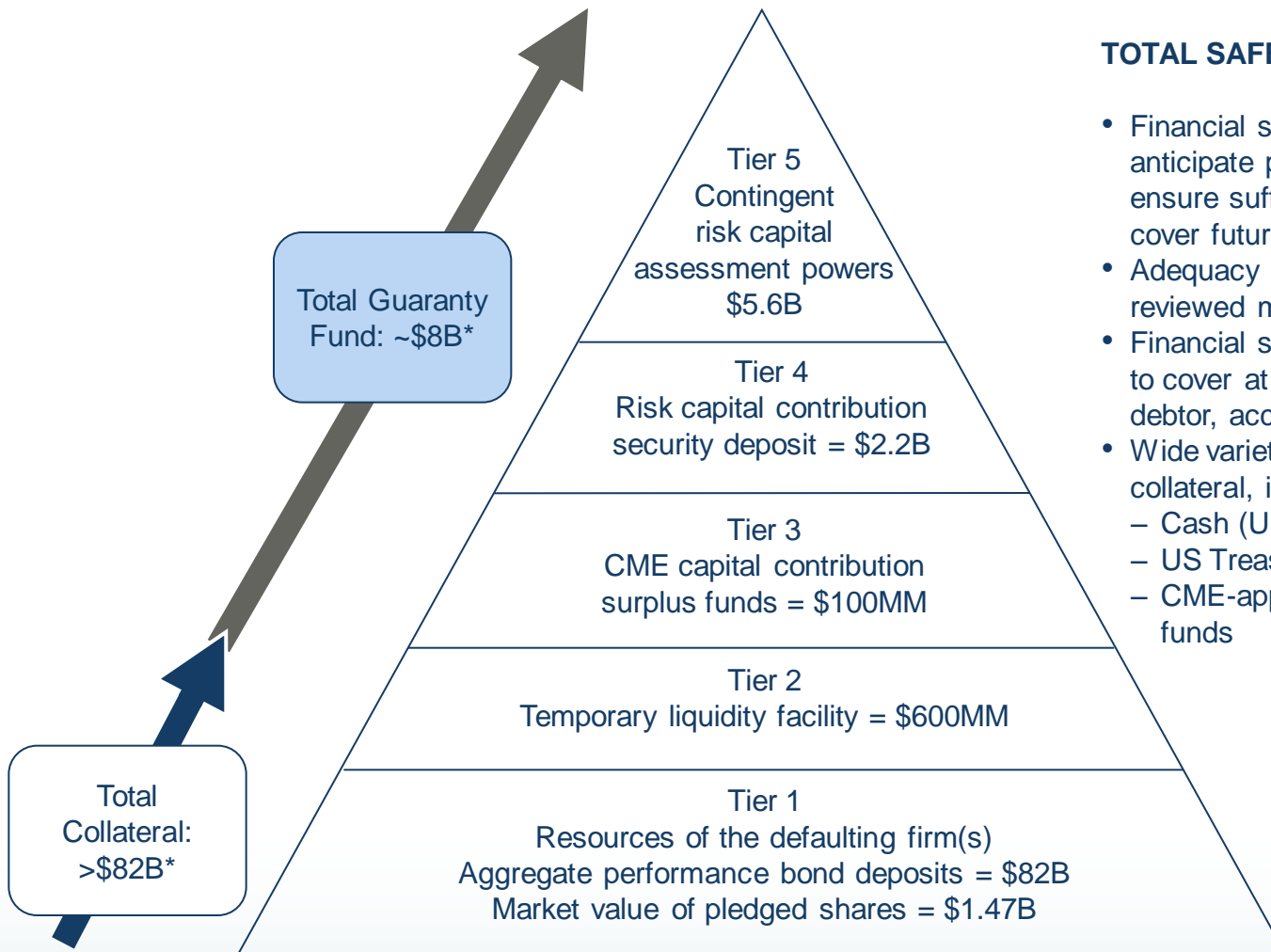
# RISK MANAGEMENT - DAILY RISK MONITORING

- Real-time positions are marked to real-time prices and are available immediately for risk analysis
- Market, operational, liquidity, and credit risk are continuously and effectively monitored on a daily basis
- Activity is monitored directly at the clearing member firm level and indirectly for large accounts at clearing member firms
- Clearing House and Audits/Risk staff of over 120 employees engage in daily processes and employ a variety of sophisticated tools to observe risk 24 hours a day, six days a week
- Aside from its dynamic risk system, CME Clearing management team has over 200 years of combined risk, financial and operational risk management experience

# RISK MANAGEMENT - TWICE DAILY MARK-TO-MARKET

- Firms' positions are marked-to-market twice daily to facilitate daily payments between buyers and sellers for changes in value of contracts
- Ensures that market losses do not accumulate to greater than one day's market move.
- All clearing members must have accounts with an approved settlement bank and with debit authority granted.
- Settlement banks approve clearing member mark-to-market pays & collect twice daily, shifting credit risk to banks.

# CME'S AGGREGATE FINANCIAL RESOURCES ARE OVER \$100B INCLUDING ITS ~\$8B GUARANTY FUND



## TOTAL SAFEGUARD OVERVIEW

- Financial safeguards are designed to anticipate potential market exposures and ensure sufficient resources are available to cover future obligations
- Adequacy of financial safeguards package is reviewed monthly by the Risk Committee
- Financial safeguards are set based on ability to cover at least the largest potential net debtor, accounting for collateral damage
- Wide variety of accepted security deposit collateral, including:
  - Cash (USD)
  - US Treasuries
  - CME-approved money market mutual funds

\* Total collateral and total guaranty amounts accurate as of 09-09-10

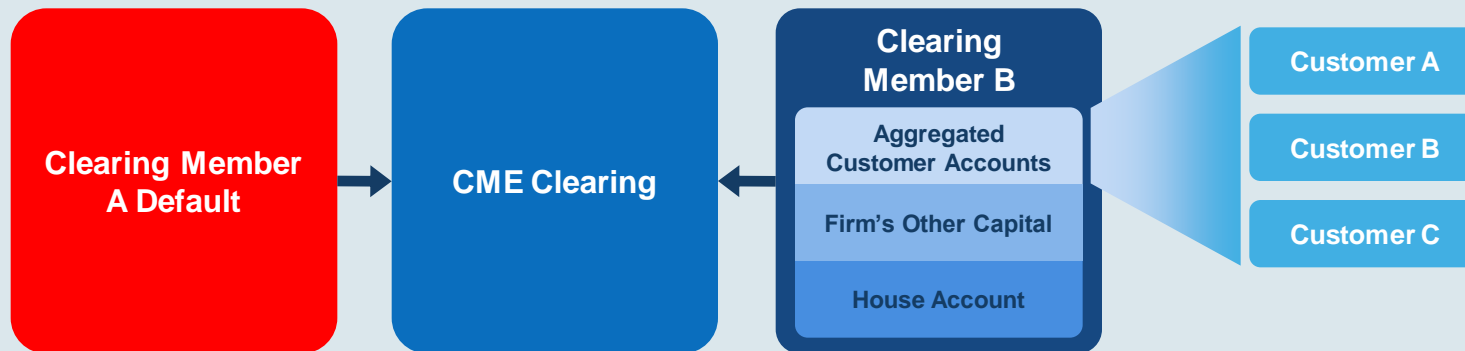
# Scenario 1: Counterparty of Customer's Clearing Member Defaults

**Scenario 1:**  
Clearing Member defaults to CME

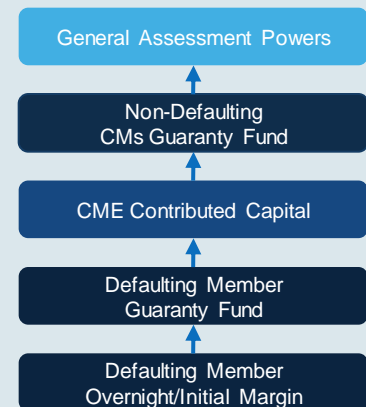
Scenario 2:  
Clearing Member B has House account default

Scenario 3:  
Customer A default is isolated to Customer A's account

Clearing member customer default



- Clearing Member A's default to CME results in the activation of standard CME clearing member default procedures and rules
- Clearing Member A's Mark-to-Market losses and subsequent auction bid will be covered by CME clearing member default capital waterfall (to the extent of available)
- Customers of counterparty clearing members are protected by the full extent of CME's capital waterfall to the extent that their clearing member is protected



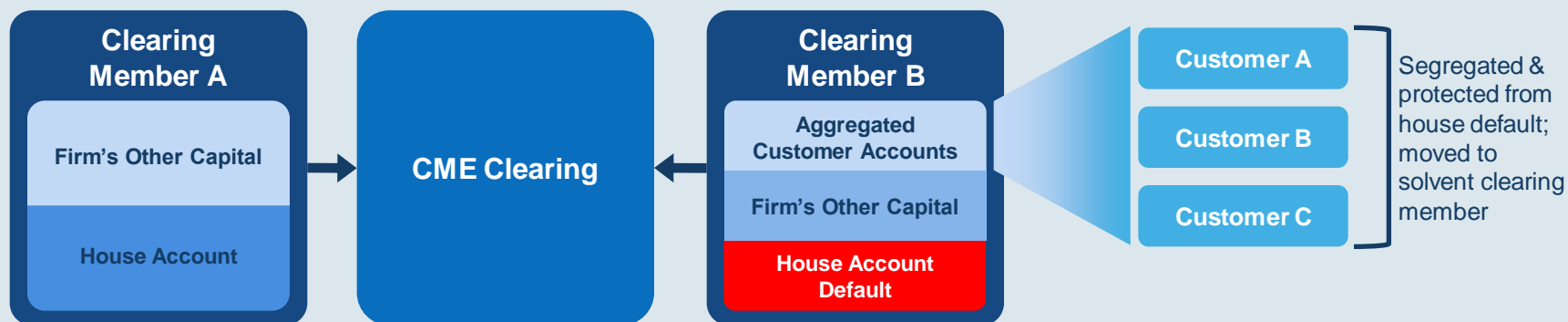
# Scenario 2: Customer's Clearing Member's House Account Defaults

Scenario 1:  
Clearing Member  
defaults to CME

Scenario 2:  
Clearing Member B  
has House account default

Scenario 3:  
Customer A default is isolated  
to Customer A's account

Clearing member customer default



- Clearing Member B's default to CME results in the activation of standard CME clearing member default procedures and rules
- Clearing Member B's Mark-to-Market losses and subsequent auction bid will be covered by CME clearing member default capital waterfall
- Defaulting member's customers are ported to solvent Clearing Member with positions and margin in tact
  - All customers may or may not move in aggregate, but will be allocated in a way that is equitable, prudent, and timely to avoid concentration risk

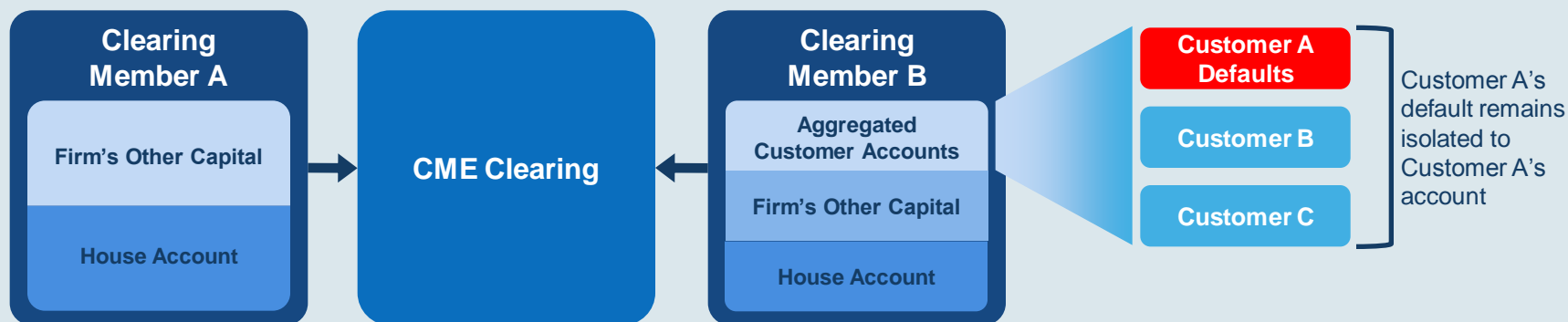
# Scenario 3: Customer A defaults, Clearing Member remains solvent

Scenario 1:  
Clearing Member  
defaults to CME

Scenario 2:  
Clearing Member B  
has House account default

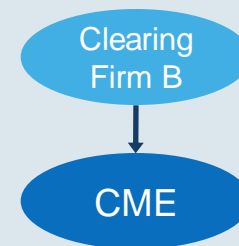
Scenario 3:  
Customer A default is isolated  
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## Clearing member customer default



- Customer A's default is isolated to Customer A's account
- If Clearing Member B is still able to meet obligations (in the history of the CME no Clearing Member has defaulted to the CME, despite the fact that customer defaults do occur) then CME is agnostic to Customer A's default (no action taken)
- Clearing Member B has the option to trade defaulting customer positions to liquidate the Customer account & reduce exposure
  - Clearing Member B can use Customer margin to cover any losses incurred
  - Clearing Member B's capital must be sufficient to absorb any additional credit losses

Clearing Member continues to pay obligation on Customer's behalf



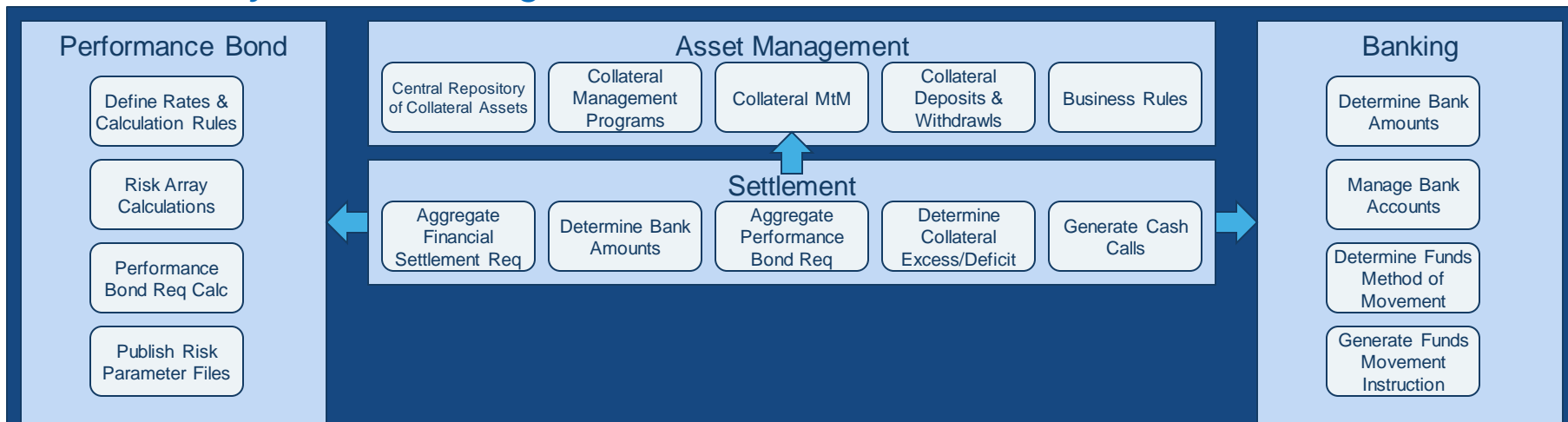
 **CME Group**

# CME Clearing

## Settlement and Collateral Management

# Settlement and Collateral Management

## Settlement Cycle Processing



### Position finalization:

- Updating position money amounts based on latest market prices
- Determining true position quantities based on clearing firm specification (“position change specification”, or PCS)
- Generating “trade register” reports and data files to facilitate automated reconciliation by clearing firms

### Margin (performance bond) calculation:

- Calculates margin requirements based on the most up-to-date position quantities

### Settlements system:

- Aggregates and nets position money amounts, both banked and collateralized
- Aggregates and nets performance bond requirements
- Compares performance bond requirements to the haircut market value (“performance bond value”) of collateral assets on deposit, to determine if collateral on deposit is sufficient
- Applies threshold rules
- Determines amounts to be banked, and allows Clearing House staff to review, modify as desired, and then approve, resulting in approved “settlement instructions”

### Banking system:

- Applies rules to the approved settlement instructions to determine the necessary banking instructions, generates and transmits these to settlement banks, typically via SWIFT

# CME Clearing Financial Unit

The CME Clearing Financial Unit's role is to:

- Take pay collects in Performance Bond, Variation Margin and Security Deposit from Clearing21
- Initiate proper movement of funds and collateral
- Ensure Member Firm financial requirements are met
- Reconcile all related cash and collateral.

# Role of Settlement Banks

- CME Clearing has a settlement bank partnership with 8 banks (JP Morgan, Harris Trust, Brown Bros., Bank of New York, Bank of America, Fifth Third Bank, Lakeside, Burling)
- All clearing member firms must open accounts with at least one of these banks
- CME Clearing has debit authority over these accounts
- Settlement banks undertake movement of funds between CME and clearing members (primarily via SWIFT messaging)
- CME Clearing uses settlement banks to distribute risk, twice each business day

# Daily Variation Pay/Collects

- Each business day by 7:30am, based on the mark-to-market of all open positions to the previous trading day's settlement price, the Clearing House pays or collects cash from each clearing member. This settlement variation is performed by CME's settlement banks based on instructions issued by the CME Clearing. When banks agree to settlement they guarantee payment on behalf of the clearing firms they represent.
- In addition to the 7:30am settlement a daily intra-day mark-to-market of all open positions, including current day trades matched prior to 11:15am, is performed using current prices.
- In times of extreme price volatility CME Clearing has the authority to perform additional intra-day mark-to-market calculations and to call for immediate payment of settlement variation.

# Performance Bond

- If a clearing member does not have sufficient performance bond collateral on deposit with the CME Clearing, the clearing member must meet a call for cash performance bond deposits by 7:30am and/or 2:00 pm which results in a direct debit to the clearing member's account at one of CME's settlement banks
- Clearing member performance bond deposits may be: cash, select foreign sovereign debt, US Treasuries, select Mortgage Backed Securities, Specialized Collateral Programs, Physical Gold, Letters of Credit, Stock, select foreign cash, and US Gov't Agency debt.
- Collateral is revalued every day and is subject to conservative haircuts. Various forms of collateral are also subject to strict limits.

# Collateral Processing

*Firms deposit new assets with us*

- They deposit the asset into our bank and custody accounts
- They tell us they're doing this in C21
- When we hear from the bank that the asset is there, we "confirm" the deposit, giving them credit for it.

*Firms request asset withdrawals from us:*

- In C21
- The system verifies that doing so will not put them in a deficit situation ("mini-settlement")
- If not, we "confirm" the withdrawal, and it is released to the firm.

# Valuing Collateral

*At 4pm, we use the PSMAPS system to obtain market prices for all assets on deposit:*

- “Physical Security Master, Analytics & Pricing System” (PSMAPS)
- Gets security master and price data from a variety of sources
- Feeds this to C21

*C21 Asset Management calculates the market value of each asset and then "haircuts" this value*

*The result: the "performance bond value" of each asset*

- How much credit we give for it against margin requirements

# Collateral Program Objectives

- Uphold the Financial Safeguards of CME
- Assume a position of simultaneous possession and control over the collateral (currently 95% of collateral)
- Employ restrictions for those forms of collateral not satisfying “possession and control” criteria (i.e., collateral over which CME has been granted control only; a “pledge”) Examples are equity stocks, IEF3 and IEF4. This type of collateral is limited to a subset of a firm’s requirement. We employ only the highest quality custodians to assist us in administering these programs.
- Construct collateral programs so that securities can be sold for or otherwise converted to cash on a same day basis, preferably within one hour.
- Develop a fundamental understanding of all collateral types and understand our client’s needs.



# Summary: Fundamentals of Financial Control

- Member firms meet requirements with appropriate collateral, or meet variation requirements with prompt payments. Settlement banks guarantee payments from member firms at two key times of each business day.
- Daily reconciliation with Banks & Custodians
- Accurate G/L postings, accurate CH reports, accurate client statements
- Segregation of Duties. Sarbanes Oxley compliant in areas of reporting and control.
- Customer Service
- Uphold Financial Safeguards
- Successful “partnerships” with banks
- Segregation of Customer Funds

# CME Collateral Programs

**CME Clearing accepts a wide variety of collateral to meet Performance Bond requirements.**

- Cash (USD and FX)
- US Treasuries
- US Government Agency Debt
- US Government Agency Mortgage Backed Securities
- Foreign Sovereign Debt (UK, Canada, Sweden, Germany and France)
- Letters of Credit
- US Equities (subset of S&P 500)
- Physical Gold
- IEF2 (Money Market Funds)
- IEF3 and IEF4 (This program permits the deposit of specific CFTC Reg. 1.25 collateral that CME does not directly accept – typically Corporate and Municipal Bonds)
- IEF5 (trust cash with interest)

	<u>Feb 2008</u>		<u>May 2009</u>		<u>Aug 2010</u>
<b>Total Collateral</b>	<b>\$68.3 billion</b>		<b>\$95 billion</b>		<b>\$82 billion</b>
<b>Total Excess</b>	<b>\$8.2billion</b>		<b>\$8.1 billion</b>		<b>\$7.5 billion</b>

# CME Clearing

## Clearing Membership Requirements

# Clearing Membership Overview

- **Clearing members protect buyers and sellers from financial loss by assuring performance on each traded contract.**
- **Although many different customers trade at CME Group, all trades are ultimately conducted between CME Clearing and a clearing member.**
- **To become a clearing member for CME products, the clearing member must:**
  - Demonstrate fiscal and moral integrity
  - Maintain capital requirements
  - Deposit a guaranty fund deposit with CME Clearing
  - Provide parent guarantee

# Clearing Member Applicant Reviews

- **With the submission of a clearing member application, applicants are screened for:**
  - ❖ Financial health via submission of certified and/or regulatory financial filings
  - ❖ Disciplinary history including verification with other exchanges where the firm is a member
  - ❖ Credit reviews through a credit check
  - ❖ Business activities & operational capacity
  - ❖ Applications are approved by the Clearing House Risk Committee

# Clearing Member Risk Reviews

- Risk Management staff conduct risk reviews on a biannual basis (or more often if necessary) with every clearing member firm to gain insight on the firm's risk management practices
- Topics generally covered include:
  - ❖ Credit and market risk management
  - ❖ New and existing account review process
  - ❖ Proprietary and customer risk monitoring
  - ❖ Investment policies
  - ❖ Liquidity risk management
  - ❖ Operational risk/disaster recovery
  - ❖ Clearing member concerns/issues
  - ❖ The firm is asked to be prepared to provide copies of routine risk reports and/or give a demonstration of risk monitoring systems employed

# Clearing Member Audit Reviews

## ➤ Financial Surveillance

- ❖ Full monthly financial reporting from all active clearing member firms (or as required by primary regulator)
- ❖ Trend analysis to identify significant changes in account balances, net capital, ownership equity (including losses), etc.
- ❖ Use of more frequent reporting requirements when concerns or fluctuations are identified

## ➤ Crisis Management

- ❖ In the event of a financial or operational crisis at a member firm, the Audit Department provides critical information regarding the firm's financial strength, customer base, margin policies, etc.
- ❖ Contractual relationships with Joint Audit Committee/Inter-market Financial Surveillance Group for the sharing of financial information, especially during a crisis

# Counterparty Reviews

- **Reviews of active CME settlement banks, lending agents, and other clearing houses focuses on:**
  - ❖ **Credit Ratings & Rating Outlook**
  - ❖ **Profitability Trends**
  - ❖ **Asset Quality**
  - ❖ **Liquidity**
  - ❖ **Growth Prospects**
  - ❖ **Customer Base**
  - ❖ **Exposure Summary**
  - ❖ **Major Lines of Business**

# Risk Management Oversight

## ➤ Clearing House Management

- Manages on-going risk monitoring functions and maintains active relationships with international clearing houses, industry information sharing bodies, and regulatory agencies

## ➤ Clearing House Risk Committee

- Co-chaired by Board members with representation from diverse clearing members, leading industry banker, and outside risk management expert specializing in the hedge fund industry
- Oversight authority over clearing member requirements, CH risk management policies, financial safeguards, and clearing member supervision
- Active participation in crisis management

## ➤ CME Executive Committee

- Oversight role in crisis management

## ➤ CFTC

- Reviews risk management and financial safeguards as well as regulatory audit function to ensure compliance with regulations

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