

Oversight of Automated Trading at CME Group

Dean Payton, Managing Director, Market Regulation

**CFTC TECHNOLOGY ADVISORY COMMITTEE
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Changes in Market Structure & Infrastructure

Increased Automation

**Technological
Innovation &
Market
Structure
Evolution**

**Expand
Access,
Transparency,
& Competition**

**Participants
Seek to Optimize
Quality &
Efficiency of
Execution**

**Evolution of
Market
Oversight
&
Risk
Management**

Competitively Executed Volume By Venue

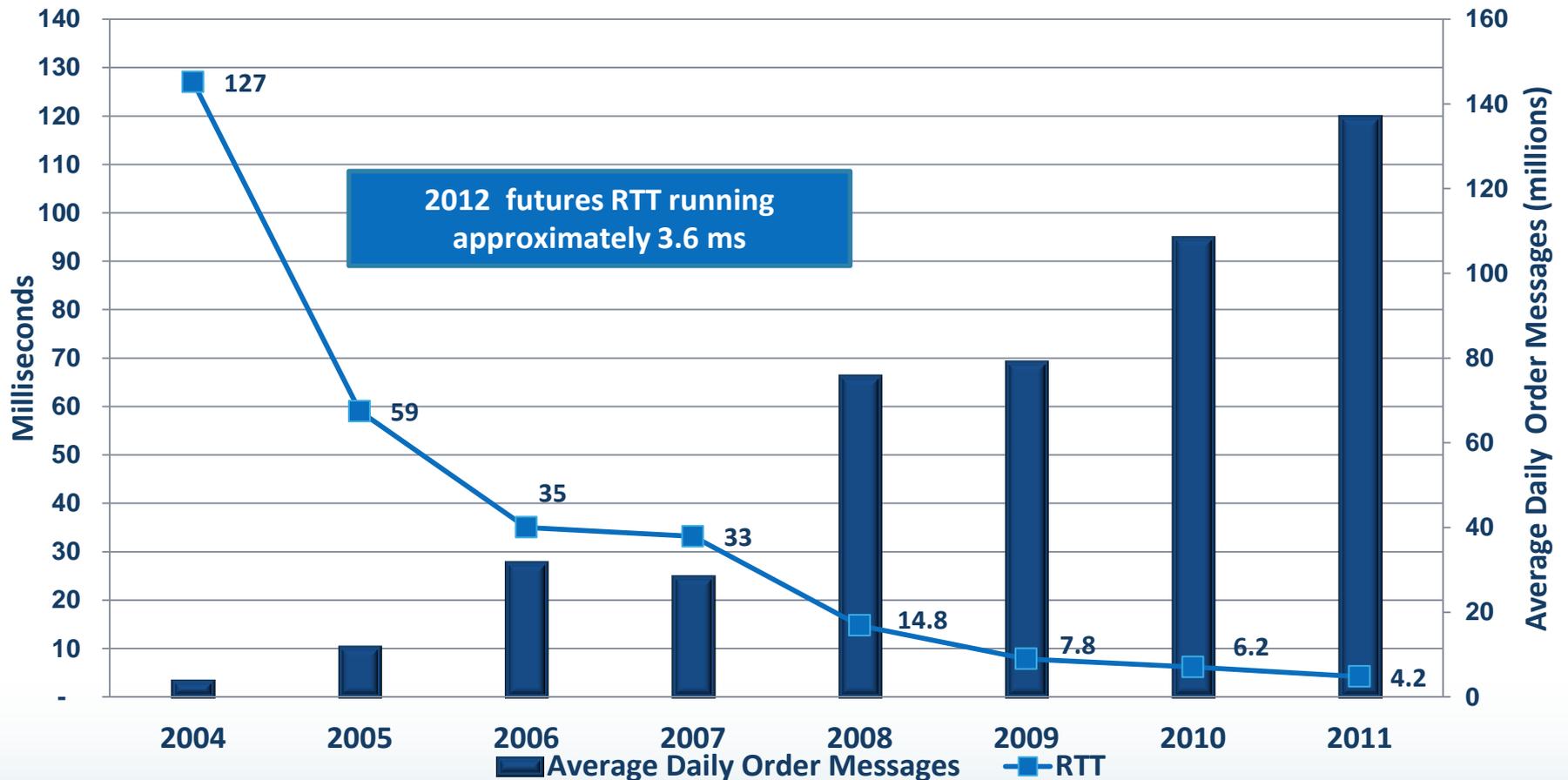
Open Outcry Trading
12% of Volume



Electronic Trading
88% of Volume



Improvements in CME Globex Infrastructure Have Increased the Efficiency of Trading



Evolution of Market Driving Evolution of Oversight

LEVEL PLAYING FIELD



**A
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Topics

**Fair
Access**

**Risk of
Disruption**

**Oversight
Capabilities**

**Trading
Practices**

RISK CONTROLS



SURVEILLANCE





Equal Access to Host Proximity & Data

- ❑ All participants have non-discriminatory access to the same connectivity options at the same prices
- ❑ Market data is disseminated to all participants simultaneously
- ❑ All participants have access to identical data
- ❑ Anonymity of traders and firms is protected in all bids, offers and execution reports
- ❑ All orders are processed in the order received
- ❑ Bids and offers are available to all participants and matched according to transparent algorithms (primarily Price/Time or Pro-Rata)



CME Group Electronic Audit Trail

- ❑ CME Group's Market Regulation Department has developed a **highly granular and precise audit trail** for electronic order, trade and market data information which we further **enrich with substantial reference data**.
- ❑ Market Regulation tracks every order, modification, cancellation, rejection, transaction and book state change on the Globex platform at the millisecond level in its regulatory systems.



Data Set Comparison & Audit Trail Tools

Order Entry Data (RAPID System)	Cleared Trade Data (SMART System)	Market Data (ARMADA System)
Order entry and trade data	Processed trade data from Clearing House	Order book, trade price and volume
≈ 35 data fields	≈ 120 data fields	Price, time and quantity
≈ 250-300 million messages per day	≈ 7.5 million transactions per day	≈ 80-100 million book state changes per day
Live and History	T+1 and History	Live and History

In addition, we have a **Large Trader Reporting System** which gives us access to end-of-day positions of all reportable accounts - representing ≈ 80% of open interest.



Electronic Audit Trail – Identification Fields

How we know **WHO** is acting in
CME Group markets.



Identified Market Participants represent $\approx 90\%$ of Volume
Identified Operator IDs (Tag 50s) represent $\approx 75\%$ of Volume
Each order is designated as automated or manual entry (Tag 1028)



Multifaceted Oversight

Real-Time Monitoring
Risk Parameters
Messaging Efficiency
Trade Cancellations
Trading Halts



Risk Management Reviews
Globex Credit Controls
Account Level Live Alerts

Trade Practice Surveillance – Programs & Research
Robust Data Query and Analytical Tools
Live Account Level and Market Alerts
Investigations and Enforcement



Key Regulatory Transactional Data Systems

Rapid System

- Electronic Order Entry and Trade Data – Live & History
- System connected into the Globex infrastructure
- In-memory database can read/aggregate 1 billion messages per second

➤ Specific functions:

- Detail
- Aggregation
- Profiles
- Reconstructed Order Books
- Account Position and Volume Alerts



Key Regulatory Transactional Data Systems

Smart System

- Highly enriched dataset of cleared trades (T+1 and history) across all venues with a full suite of analytical applications including:
 - Participant and Market Profiles
 - Pattern Detection
 - Volumetric Analysis
 - Trader Anomalies
 - Graphic Capabilities

Armada System

- Publicly Disseminated Market Data - Live & History
- Multispeed Market Replay Functionality



Oversight: Market Regulation

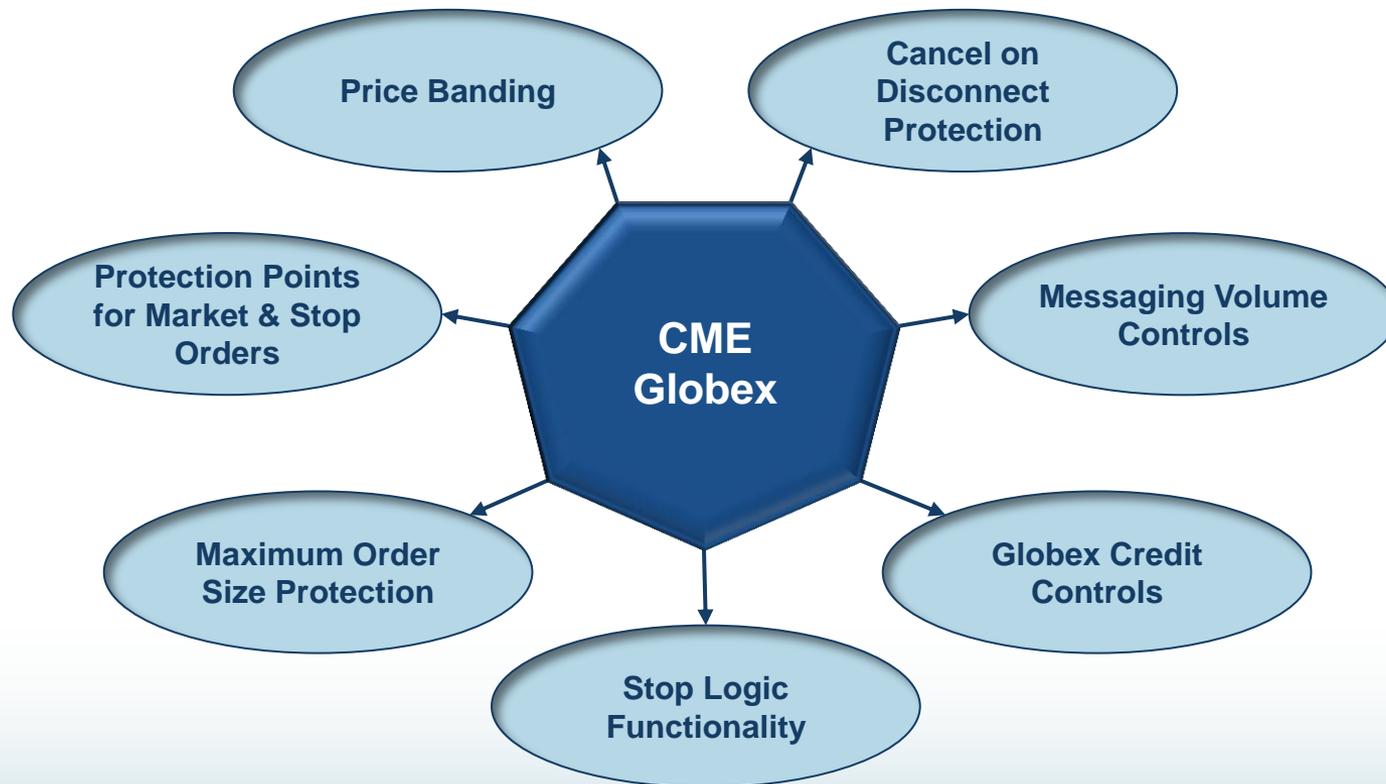
□ Types of Surveillance & Investigations

- **Disruptive Risk Management Deficiencies**
(e.g. Risk Controls, Testing, Supervision)
- **Disruptive Trading or Messaging Practices**
(e.g. Spoofing, Pre-Open Abuses, Manipulation)
- **Trade Practice Abuses**
(e.g. Wash Trades, Prearrangement, Money Pass, Frontrunning)
- **Anomalies & Complaints**
(e.g. Participant Referrals, Stop Logic Events, Error Trades)



Risk & Volatility Mitigation Controls

- ❑ Robust risk management and volatility mitigation frameworks are critical to market integrity and market participant confidence. CME Group has designed **strong risk and volatility mitigation controls at the exchange level** which complement firm-level controls.





Risk & Volatility Mitigation Controls

Product	Price	Non-Reviewable Range	%	Price Banding	%	Stop-Logic Trigger	%	Protection Points	%
E-Mini S&P	1390.00	6.00	0.4%	12.00	0.9%	6.00	0.4%	3.00	0.2%
Corn	6.7300	0.1000	1.5%	0.0975	1.4%	0.1000	1.5%	0.0500	0.7%
10-Year Notes	128-19	0-30	0.7%	0-20	0.5%	0-30	0.7%	0-15	0.4%
Euro FX	1.3200	0.0040	0.3%	0.0060	0.5%	0.0040	0.3%	0.0020	0.2%
Gold	1655.0	10.0	0.6%	12.0	0.7%	10.0	0.6%	5.0	0.3%
Crude Oil	108.00	1.00	0.9%	0.75	0.7%	1.00	0.9%	0.50	0.5%

E-mini S&P, Corn and Crude Oil also have price limits and/or circuit breakers.



Globex Credit Controls

- **Required automated pre-trade risk controls** at the trading firm level without introducing additional order processing latency
- Clearing Firm **Risk Administrator has ability to select real-time actions if the risk limits are hit**, including: e-mail notification, blocking of non-risk reducing orders, cancellation of working orders, kill button, early warning options
- Provides **protection against high level risks** arising from adverse execution activity and is intended to **complement risk management tools used by trading firms and clearing firms**



New Risk Management Interface (RMI)

- To be introduced April 1, 2012
- New risk management tool consisting of a web services API and a GUI that allows clearing firms to automatically block/unblock order entry at the following levels:
 - execution firm
 - account
 - futures/options
 - side of market
 - product
 - exchange
- Allows firms to build into cross exchange risk systems

- Futures trading is not suitable for all investors, and involves the risk of loss. Futures are a leveraged investment, and because only a percentage of a contract's value is required to trade, it is possible to lose more than the amount of money deposited for a futures position. Therefore, traders should only use funds that they can afford to lose without affecting their lifestyles. And only a portion of those funds should be devoted to any one trade because they cannot expect to profit on every trade.

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