Oversight of Automated Trading Systems

ICE
March 29, 2012

Agenda

- Automated Trading Systems (ATS)

- ICE Exchange Controls

- ICE Messaging Policy & WVR

- Q&A

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Automated Trading Systems

- ## What is an Automated Trading System (ATS)?

    - ### <u>Automated</u> order submissions

        - Simple spreadsheet hooked to an ISV,

        - Auto-spreader

        - Sophisticated "black box" algorithms

    - ### Direct market access

- ## Benefits of ATSs

    - Liquidity— Provide liquidity to other market participants

    - Market Making—Taken the place of market makers on the floor

    - Tighter bid/offers— More efficient markets

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Risks from Automated Trading Systems

- ## Operational Risk

    - Order and transaction growth, high message rates

        - Significant investment in technology, bandwidth, monitoring

        - Performance impacts (exchange/users)

- ## Compliance Risk

    - Purposeful or accidental market impact

    - Monitoring and data analysis capacity
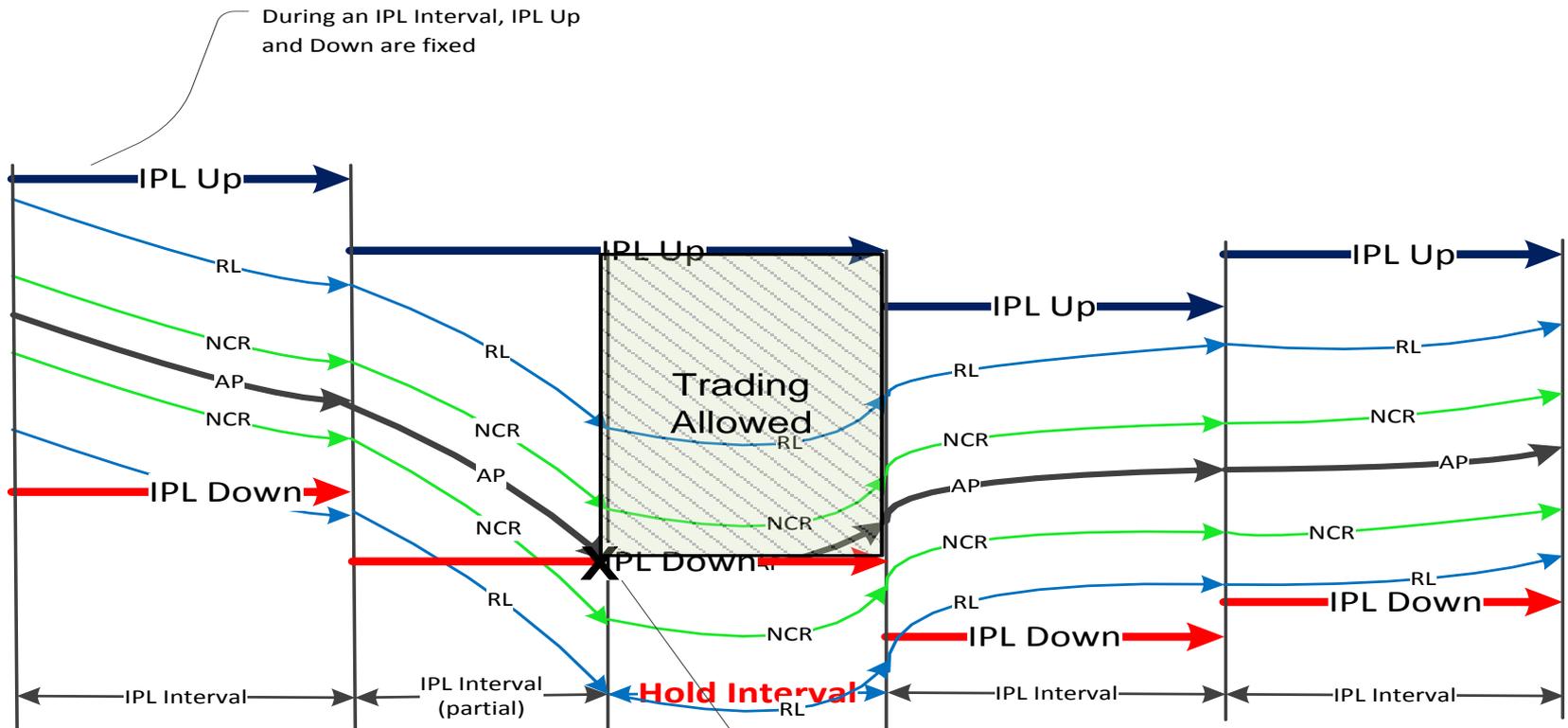
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Exchange Functional Controls

- Automated order entry validations

  - Message throttle limits

  - Max quantity limits

  - Price reasonability validation

  - Position validation

  - Orders removed upon logout

- Manual validations and controls

  - Kill All button / Log off user button / Suspend clearing accounts

  - Cleared error trade policy and "No Cancellation Range"

- Interval Price Limit (IPL)

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Interval Price Limits (IPL) Functionality

- ICE's circuit breaker protection for price spikes
- Provides a floor/ceiling price limits for within a specific timeframe configurable by market
- New floor/ceiling price limits recalculated each new time interval based on current market price
- If floor/ceiling price exceeded, market put in HOLD state
  - Does not halt trading in opposite direction of HOLD
  - Traders can manage resting orders & enter new orders
- Market HOLD notification sent to all users
- After HOLD ends, new Upper/Lower IPL limits calculated

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IPL Visual Explanation

During an IPL Interval, IPL Up and Down are fixed

IPL Up

IPL Up

IPL Up

IPL Up

RL

NCR

AP

NCR

RL

NCR

AP

NCR

RL

IPL Down

RL

NCR

AP

NCR

RL

Trading Allowed

IPL Down

RL

NCR

AP

NCR

RL

IPL Up

RL

NCR

AP

NCR

RL

IPL Down

IPL Down

Hold Interval

RL

IPL Interval

IPL Interval (partial)

IPL Interval

IPL Interval

At this point an order tries to rest or trade below IPL down which triggers a Hold Down

KEY:
AP – Market Price
NCR – No Cancel Range
RL – Reasonability Limit
IPL – Interval Price Limit (Hi/Lo)
Interval – IPL Recalculation Interval

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System Monitoring & Controls

- ATS conformance testing and approval process

- Message rate threshold alerts

- System performance reports

- ATS efficiency reports

- SMARTS

- Message policy & WVR reports

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SMARTS – Real-time Market Surveillance

- Real-time and historical graphical representation of the entire market including orders, trades, and blocks

- Reconstruct full order book, synchronized playback of multiple markets (spread months)

- Customized alerts to detect anomalies, significant price movements and potential market abuses

- Overlay related markets to view correlations

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Messaging Policy Overview - WVR

- Revised and re-launched 1 year ago
  - Replaced simplistic **Message:Lots Traded** ratio from 2008
- Established to discourage inefficient messaging
  - Reward orders that add to market liquidity
  - Penalize orders that are off market (noise)
- Based on market price at time of order entry
  - Farther from market price ~ higher message multiplier
- Policy enforced on firms meeting minimum order submission thresholds
- Evaluated separately per firm per market type per month
  - Minor / Major policy violation thresholds

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Weighted Volume Ratio (WVR)

- Message multiplier based on proximity to market price at the time of order entry

Price (ticks)	Multiplier (outright market)	Mulitplier (Spread Market)
BEST	0.0	0.0
AT	0.0	0.0
1	0.5	0.25
2	1.0	0.5
3-5	2.0	1.0
>5	3.0	2.0

$$WVR = \frac{\sum [(Multiplier)*(Message\ Count)]}{\sum Lots\ Traded}$$
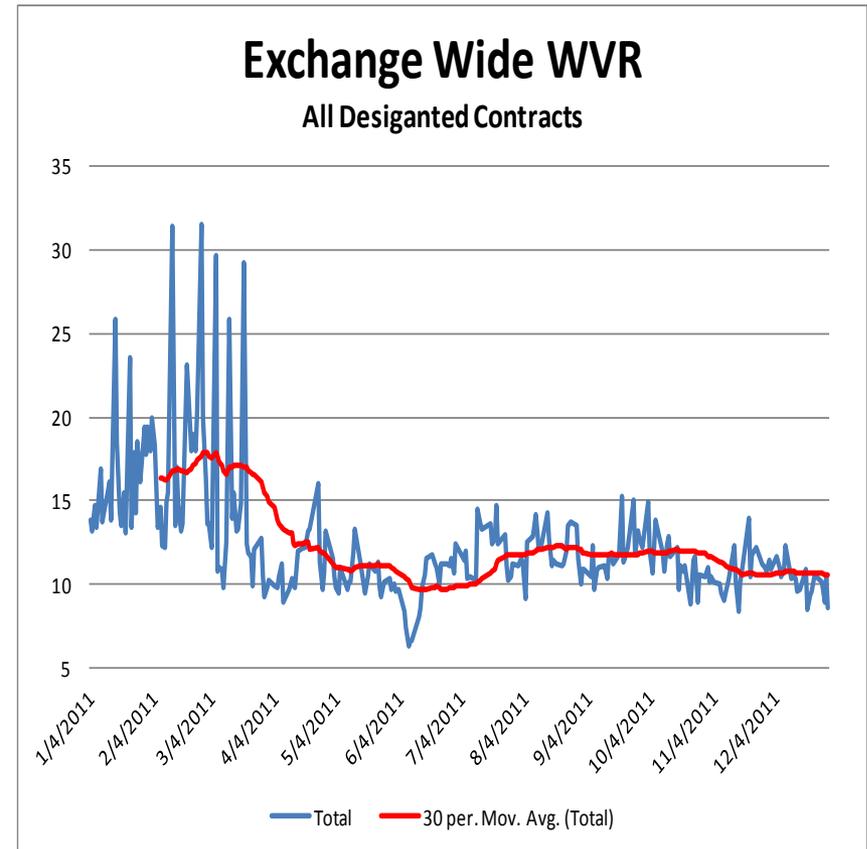
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Feedback to ATSs

- WVR order analysis reports available on website
  - Shows message breakdown by Market / Strip
- Violation reports emailed to firms next business day
  - Shows WVR violations
  - Shows message breakdown by Market / Strip
  - Shows any assessed fee

Market ID	Description	Messages	Percentage	Avg Quantity	Better than Market	At the Market	1 Tick Away	2 Ticks Away	3-5 Ticks Away	> 5 Ticks Away	Deals	Lots
860302	Sugar No. 11 Futures - NYCC - May13	5,477	13.82 %	4.82	91.91 %	5.22 %	0.22 %	0.09 %	0.40 %	2.15 %	2	2
860283	Sugar No. 11 Futures - NYCC - Mar13	4,712	11.89 %	4.68	85.72 %	11.57 %	0.34 %	0.72 %	0.81 %	0.85 %	5	5
860255	Sugar No. 11 Futures - NYCC - Oct12	3,588	9.05 %	3.73	0.03 %	0.14 %	0.20 %	80.69 %	17.64 %	1.31 %	14	21
860237	Sugar No. 11 Futures - NYCC - Jul12	2,210	5.58 %	3.44	0.18 %	0.36 %	0.50 %	94.12 %	4.57 %	0.27 %	39	391
860346	Sugar No. 11 Spr - NYCC - Oct12/Oct13	696	1.76 %	3.67	14.08 %	80.46 %	1.01 %	1.01 %	0.00 %	3.45 %	21	31
860330	Sugar No. 11 Spr - NYCC - Mar13/Jul13	135	0.34 %	3.00	30.37 %	55.56 %	10.37 %	0.74 %	2.96 %	0.00 %	1	1
860221	Sugar No. 11 Futures - NYCC - May12	83	0.21 %	3.81	0.00 %	4.82 %	2.41 %	86.75 %	6.02 %	0.00 %	13	24

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Results of Message Policy in 2011

- **WVR reduced by 33% across all Designated Contracts exchange-wide**
  - Reduced 63% across ICE US Futures markets
  - Reduced 53% across ICE OTC markets
  - Reduced 19% across UK Futures markets
- **93% reduction in major policy threshold violations**

Exchange Wide WVR
All Desiganted Contracts

Legend: Total — 30 per. Mov. Avg. (Total)

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Questions?

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