**TRADING TECHNOLOGIES**

# TT® Trade Surveillance

Guide to Trade Surveillance Models

# Version 1.03

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# Revision History

| Date | Version | Description |
|---|---|---|
| January 9, 2025 | 1.03 | ● Removed Bait and Switch model section |
| August 8, 2024 | 1.02 | ● Added Cross Products section |
| June 25, 2024 | 1.01 | ● Removed "Regulation" sections<br>● Rebranded Score to Trade Surveillance |
| May 22, 2024 | 1.0 | ● Initial release |

# Introduction

TT Trade Surveillance is a multi-asset trade surveillance tool with over eighty different surveillance models that identify trading behaviors that pose the greatest regulatory risk to your firm. As indicated in the table of contents, some models are configurable by end users and some are tuned by TT (core). Many pre-tuned (core) models use pattern recognition based on machine learning. As indicated, some models require market data (which is provided by TT) and others do not. The platform scores all activity based on similarity to actual regulatory cases such that compliance officers can identify risk, prioritize work, and address problematic trading behavior.

# TT Trade Surveillance Configurable Models

## Abnormal Message Model

**Note:** This model functions without market data.

The Abnormal Message alert monitors messages of a specified type for each security. The alert's aim is to identify messages that are outliers in terms of volume relative to other messages, or value in absolute terms.

## Abnormal Order Model

**Note:** This model functions without market data.

The Abnormal Order alert monitors the order messages for each security. The alert aims to identify messages that are larger than normal in terms of volume or value. The user can configure each alert using the parameters to establish which messages constitute an abnormal size.

## Abnormal Spread Model

**Note:** This model functions without market data.

This alert looks to identify unusually large differences between the bid and ask price for a security around proprietary trade executions, orders or quotes. This alert monitors for price manipulation activities that would affect the market spread that occur within a reference market in order to obtain price improvements in either a lit or dark market.

## Abnormal Trade Model

**Note:** This model functions without market data.

The alert looks to identify unusually large trades in the same direction by one or more participants in an instrument.

## Abnormal Trade Options Model

**Note:** This model functions without market data.

The alert's purpose is to identify unusually large trades by a participant in an instrument. This is accomplished via calculating a moving average of the trade volume over a time window set by the user. Conditions (again set by the user) regarding minimum trade sequence size and minimum message are also considered.

# Abusive Squeeze Model

A market participant attempts to manipulate the price of a security by obtaining a significant influence over the supply of, or demand for, or delivery mechanisms for a security.

# Abusive Squeeze Equity Model

A market participant attempts to manipulate the price of a security by obtaining a significant influence over the supply of, or demand for that security.

# Broker Order to Trade Ratio Model

**Note:** This model functions without market data.

The Broker Order to Trade Ratio alert monitors the number of order and trade messages for each broker. The Model triggers on scenarios where a broker is submitting a large number of order messages compared to trade messages which could be abusive or in violation of the exchange rule book.

# Churning Model

**Note:** This model functions without market data.

This alert detects artificial trading activity, which is typically a type of volume manipulation. This activity could be used by a broker to generate commission as well as other ulterior motives can be detected in the form of frequent buying and selling of securities with little or no contribution to meet the client's investment objectives. Churning may often result in substantial losses in the client's account, and even if profitable, may generate a tax liability for the client. Churning may be detected at buy-side or trading venue level as well.

# Creation of Floor | Ceiling Model

**Note:** This model functions without market data.

The Creation of a Floor/Ceiling alert detects orders or trades carried out in such a way that obstacles are created to the underlying financial instrument, in order to avoid negative consequences to a related spot commodity contract deriving from changes in its price i.e. a related spot commodity contract's price falling below or rising above a certain level.

# Excessive Cancels Model

**Note:** This model functions without market data.

The excessive cancels alert is designed to find market participants which could potentially be participating in market abuse by entering a large number of order cancellations.

# Front Running Model

**Note:** This model functions without market data.

Front-running is defined as the practice of a market participant trading in a particular financial instrument based on MNPI (Material non-public sensitive information) which could be gained from the  knowledge of a client's intention to trade.

# Insider Trading Model V2

Market participants may look to profit illegally from dealing on information which is both non-public  and price sensitive. The strategy is to take a large position or positions ahead of news being made  public. A Trader or client can then profit in a risk-free manner from the impact of a news  announcement by gaining a first mover advantage on the rest of the market. Reversely, Traders can  make use of material non-public information to avert losses.

## Minimum Data Requirements from Customers

- A News Feed containing Meta-Data linking the News Story to the Security in question.
- Market data tick history covering the period in question. This will be used to look for a user defined, significant price movement related to the news.
- An exchange venue must be mapped to the Venue filed on all Trades on the MarketData feed.  This is required to link to the MarketTimes.csv file stored on the TT server.
- Late reported Trades must be suppressed from the MarketData used by the analytics. This  can be done at source level or through data mapping of the Trades. Trades received outside  of market hours must not be included in price movement calculations, when they fall within  lookback and look forward time periods.
- A Unique Client ID must be provided on all Trades in the TradeData, which should be mapped  to a generic Trader field that will be the Matching Key for the Model.

# Insider Trading Price Signal Model

Market participants may look to profit illegally from dealing on information which is both non-public  and price sensitive. The strategy is to take a large position or positions ahead of news being made  public. A trader or client can then profit in a risk-free manner from the impact of a news announcement  by gaining a first mover advantage on the rest of the market. Reversely, traders can make use of  material non-public information to close an existing position and thus avert losses.

# Marking the Close Model

Price marking the close is the practice of deliberately placing buy or sell orders in the closing period  to manipulate the closing price that will be posted for a security. The closing period includes the  closing session (a predefined time such as an auction) and a configurable

lookback period before the  closing session. The alert aims to capture intent of manipulation by a display of unusual activity.

## Marking the Open Model

Price Marking the Open is the practice of deliberately placing Buy or Sell orders in the pre-trading  period to manipulate the opening price that will be posted for a Security. The pre-trading period is the  time from which orders can be entered in a venue up to the price determination point (this includes  for example, the pre-open session and open auction). The Model aims to capture intent of manipulation  by a display of unusual activity.

## Momentum Ignition Model

The Momentum Ignition Model checks if any participant is entering orders to trade or executing transactions likely to start or exacerbate a trend and to encourage other participants to accelerate or  extend the trend, in order to create an opportunity to close out or open a position at a favorable price.

## Painting the Tape Model

A form of market manipulation whereby market participants will attempt to influence the price of a  Security by buying and/or selling it in such a way as to create the appearance of substantial trading  activity in the security.

## Parking Model

**Note:** This model functions without market data.

Parking is a form of market abuse which can have different purposes, depending on the actor. For a  broker, it may be a form of kiting securities whereby the market participant moves long positions in  unrelated accounts to cover short positions that are improperly settled. For buyside firms the purpose  could be bonus or tax related.

The Parking pattern consists of selling a certain amount of securities and repurchasing the same  amount of securities at a nearly identical price. The counterparty will see a reverse pattern - first buying  then selling.

## Participant Order To Trade Ratio Model V2

**Note:** This model functions without market data.

The Participant Order to Trade Ratio alert monitors the ratio of Trade and Order/Edit/Cancel messages of a participant. The alert detects situations where a participant is submitting a

significant  number of order messages compared to trade messages within a rolling time window.

## Phishing Model

**Note:** This model functions without market data.

Executing orders to trade, or a series of orders to trade, in order to uncover orders of other participants,  and then entering an order to trade to take advantage of the information obtained — usually known as 'phishing'.

## Phishing Model V2

**Note:** This model functions without market data.

Executing orders to trade, or a series of orders to trade, in order to uncover orders of other participants, and then entering an order to trade to take advantage of the information obtained — usually known as  'phishing'.

## Phishing Model V2 Lite

**Note:** This model functions without market data.

Executing orders to trade, or a series of orders to trade, in order to uncover orders of other participants,  and then entering an order to trade to take advantage of the information obtained — usually known as  'phishing'.

## Pinging Model

Pinging is a predatory method in the toolbox of algorithmic traders to solicit information about large  hidden orders and then engage in front running or latency arbitrage. The practice involves sending a  rapid succession of small-lot offers to see if there's a large buyer/seller on a trading venue where the  bid and ask is not readily observable.

## Pre-Arranged Trade Model

This alert looks up if certain clients or traders have arranged a transaction in order to bypass the market's competitiveness or creating false market activity.

## Pump and Dump v2

**Note:** This model functions without market data.

Pump and dump is a scheme that attempts to boost the price of a security through misleading and  exaggerated statements. After driving up the price of a security, the perpetrators of this scheme will  reverse their positions at a higher price than the security was when they purchased it.

Trash and Cash is the reverse pattern, pushing down a security, buying low and selling high, once the  price has normalized.

## Ramping Model

**Note:** This model functions without market data.

"Ramping" traces the unusual appreciation or depreciation in the trade price of a particular Security  over a period of time. If a trader or client wishes to change the price of a Security, they can do so by executing a large number of trades within a short space of time at different price levels, giving the  false impression of an increase in the demand for an individual Security. This effect can also be  achieved by recklessly placing an outsized order in the market (CLOB), taking out multiple levels of the  order book at once.

## Security Order to Trade Ratio Model

**Note:** This model functions without market data.

Security Order to Trade Ratio Model looks for evidence of a high number of order type messages to  trade messages.

## Short Term High / Low Model

The alert looks to identify if prior to a large trade being placed there has been unusual price movement.

## Smoking Model

Posting orders to trade, to attract other market participants employing traditional trading techniques  ('slow traders'), that are then rapidly revised onto less generous terms, hoping to execute profitably  against the incoming flow of 'slow traders' orders to trade, usually known as 'smoking'.

## Spoofing / Layering Model

**Note:** This model functions without market data.

Spoofing/Layering is a strategy where a market participant places orders that they never have any  intention of carrying out and then cancelling those orders. The objective is to influence the

price of the security by placing orders on one side of the order book at a new Best Bid or Offer, that tempts other market participants into joining the Best Bid or Offer or further closing the spread. The broker/trader/client can then execute an order on the other side of the book at a better price after cancelling their initial order. Layering represents the case where there are multiple orders and order deletes at different price levels. Spoofing is a subset of layering where there is just one order and one delete message.

## Spoofing and Layering by Volume Model

**Note:** This model functions without market data.

Spoofing/Layering is a strategy where a market participant places large orders that they never have any intention of carrying out and then cancelling those orders after trading on the other side of the Market. The objective is to influence the price of the security by placing large orders on one side of the order book to create an in-balance that tempts other market participants to try to get ahead of the large volume order, in the order book queue, by improving the price. The broker/trader/client can then execute an order on the other side of the book at a better price and cancel their initial order. Layering represents the case where there are multiple spoofing orders at different price levels which are subsequently cancelled. Spoofing is a subset of layering where there is just one order and one cancel or multiple orders and cancels but all at the same price level.

## Spoofing by Order Depth Model

Spoofing/Layering is a strategy where a market participant places large orders that they never have any intention of carrying out and then cancelling those orders after trading on the other side of the Market. The objective is to influence the price of the security by placing large orders on one side of the order book to create an in-balance that tempts other market participants to try to get ahead of the large volume order, in the order book queue, by improving the price. The broker/trader/client can then execute an order on the other side of the book at a better price and cancel their initial order. Layering represents the case where there are multiple spoofing orders at different price levels which are subsequently cancelled. Spoofing is a subset of layering where there is just one order and one cancel or multiple orders and cancels but all at the same price level.

## Trade to Last Trade Price Model

The trade price to last trade price alert looks to see if clients are executing their trades efficiently i.e. at a "fair" market price.

## Trade Price to Close Price Model

**Note:** This model functions without market data.

The alert triggers when the price of a trade for an instrument deviates by a certain percentage from  the previous trading day closing price.

## Trade Price to Open Price Model

The alert triggers when the price of a trade for an instrument deviates by a certain percentage from  the open price.

## Trade Price to Previous Days High Model

The alert triggers when the price of a trade for an instrument deviates by a certain percentage from  the previous trading day's high price.

## Trade Price to Previous Day Low Model

The alert triggers when the price of a trade for an instrument deviates by a certain percentage from  the previous trading day's low price.

## Unusual Price Movement Model V2

The unusual price movement alert detects instances of flash crashes, or sharp swings in prices of an  instrument over a certain period of time.

## Volatility Spike Model

The volatility spike alert detects a large increase in relative volatility in a security's trade price compared to the historical norm.

## Wash Trading Model

**Note:** This model functions without market data.

The Wash Trading Model pattern targets the sale or purchase of a Security where there is no change in  beneficial interest or market risk, or where the transfer of beneficial interest or market risk is only  between parties acting in concert or collusion, other than for legitimate reasons.

## Within the Spread Model

This Model looks for Dark Pool or Off-Market trades that use a Primary Market mid-price reference at  which to match buyers and sellers where the price trade appears to be occurring outside of the Best  Bid and Offer on the reference Market.

# TT Trade Surveillance Core Models

## Market Abuse Models

### Disruptive Order

The Disruptive Order model detects aggressive orders that instantly fill through multiple price levels. Causing rapid price moves by placing orders that are either too large or aggressively priced can be seen as disruptive trading behavior and may garner regulatory scrutiny.

### Dominating the Close

Dominating the Close occurs when a single trader's fills make up the majority of the market volume of an instrument during the final three (3) minutes of the market session. The Dominating the Close model in TT Trade Surveillance analyzes and scores clusters that may indicate that a single trader is dominating the total traded volume for an instrument during the market close.

When a single trader's resting orders make up the majority of the fill volume for an instrument, they have control over the pricing of that instrument. The Dominating the Close model can alert your firm to this behavior, which may be an indication of potential market manipulation.

**Note:** The Dominating the Close model only identifies potentially suspicious trading behavior. This model does not necessarily reflect an actual rule violation.

### Floor/Ceiling

Floor/Ceiling model detects a pattern of trading activity intended to maintain the price of an instrument during the trading session. The pattern reflects an attempt to prevent the instrument price from trading lower (creating a price 'floor') or higher (creating a price 'ceiling').

To keep a price from moving through a particular price level, a trader can place one order or multiple orders on one side (buy/sell) of the market at a specific price level. These orders include a significant amount of the trading volume relative to the normal amount for the instrument. This reduces the likelihood that the market will move though that price.

This approach may not result in profit within the particular instrument, however, it may be related to another position that is tied to the price of this instrument.

### Front Running

Front Running is an attempt to leverage insider knowledge of a future transaction to benefit from the impact to an instrument's price. For example, a trader may submit their own trades before or

after submitting a larger trade for one of their clients. The trader then benefits from the change in price due to the client's trade.

The Front Running model detects an outlier point in time where significant changes in volume and price occur. From this point in time, the model can determine if a company's trader(s) benefited from the outlier event earlier and/or later in the trading session.

## Influencing the Open

The Influencing the Open model detects indirect wash trades that occur before open trading in violation of exchange rules, and looks for patterns of submitted and canceled orders that may be attempts to manipulate the indicative open price during the Pre-Open trading period.

The model is designed to identify disruptive trading practices on CME during Pre-Open trading as defined by the CME Group.

## Marking the Close

Marking the Close is a pattern of trading activity intended to manipulate the settlement price of an instrument during its settlement period. The Marking the Close beta model in TT Trade Surveillance detects potential settlement price manipulation in select CME outrights and spreads, and identifies on-exchange activity during settlement periods that may have influenced the settlement price for the most commonly traded CME products.

**Note:** TT Trade Surveillance highlights suspicious trading for both spreads and outrights in the same product. Some multileg instruments can impact the settlement price of its outrights depending on the type of instrument or the expiration months involved.

## Momentum Ignition

Momentum ignition trading patterns attempt to create directional price movement and then to capitalize on the result. Typically, momentum ignition is identified by a series of aggressive orders submitted in a short time span in an attempt to trigger resting stop orders, which then cause pre-placed orders to be executed at a profit by the ignited price movement.

## No Self Trading

No self trading flags cancellations on the ICE Exchange with the tag "no self trading". Identifies when an order which would have resulted in a self trade, was canceled by exchange via self trade prevention. The ICE exchange has explicitly stated "use of STPF in a manner that causes a disruption to the market may constitute a violation of the Rules" and this type of disruption is actively monitored for. The use of this model will allow users to identify any patterns of repeated, or potentially intentional use, of STPF functionality.

## Pinging

Pinging involves entering small orders to discover hidden book depth followed by a series of order actions designed to force the large order to trade at less desirable prices.

## Price Ramping

Price ramping is an attempt to create directional price movement. The Price Ramping model can detect a series of aggressive orders submitted in a short time span that trade through multiple price levels on the same side of the market.

# Spoofing Models (Powered by Machine-Learning)

## Automated Collusive Spoofing

Automated collusive spoofing is an attempt by two or more traders to use automated trading strategies to deceive the market into thinking that an instrument has more interest, liquidity, or depth. For example, one trader's automated strategy will submit large orders on one side for the purpose of having the other trader's strategy execute smaller orders on the opposite side. Once the smaller orders are filled, the first automated strategy cancels the larger orders.

**Note:** The Automated Collusive Spoofing Model in TT Trade Surveillance is specifically tuned for automated trading strategies and detects potential spoofing activity in manual or mixed trading. Only trading events marked as originating from automated strategies in FIX Tag 1028 are clustered and scored under this model. Any clusters that contain trading events that are not marked as originating from automated trading strategies in FIX Tag 1028 are still found in the Spoofing or Collusive Spoofing models.

## Automated Spoofing

Spoofing is an attempt to deceive the market into thinking an instrument has more interest, liquidity, or depth by placing large automated orders on one side for the purpose of causing traders to execute smaller orders on the opposite side. Once the intended orders are filled, the trader deletes the larger orders.

**Note:** The Automated Spoofing Model in TT Trade Surveillance is specifically tuned for automated trading strategies. Only trading events marked as originating from automated strategies in FIX Tag 1028 are clustered and scored under this model. Any clusters that contain a single trading event that is not marked as originating from automated trading strategies in FIX Tag 1028 are still found in the Spoofing model.

## Collusive Spoofing

Collusive spoofing represents an attempt by two or more traders to deceive the market into thinking that an instrument has more interest, liquidity, or depth. Multiple traders will play

different roles in generating and profiting from spoofing the market. For example, one trader will work together with another trader by submitting large orders on one side for the purpose of having the other trader execute smaller orders on the opposite side. Once the intended orders are filled, the larger orders are canceled.

## Spoofing

Spoofing represents an attempt to deceive the market into thinking that an instrument has more interest, liquidity or depth by placing large orders on one side for the purpose of causing traders to execute smaller orders on the opposite side. Once the intended orders are filled, the larger orders are deleted.

The Spoofing Model in TT Trade Surveillance analyzes and scores clusters that contain only manual trading or a mix of both automated and manual trading. Trading events that originate only from automated sources are scored separately by the Automated Spoofing Model.

# Cross Product Models

## Cross Product Automated Collusive Spoofing

An attempt by two or more traders to use automated trading strategies to deceive the market into thinking that one instrument has more interest, liquidity, or depth in order to take advantage of that deception in one or more correlated instruments.

## Cross Product Automated Spoofing

An attempt to deceive the market into thinking an instrument has more interest, liquidity, or depth by placing large automated orders on one side for the purpose of causing traders to execute smaller orders on the opposite side in one or more correlated instruments.

## Cross Product Collusive Spoofing

An attempt by two or more traders to deceive the market into thinking that an instrument has more interest, liquidity, or depth. Multiple traders will play different roles in generating and profiting from spoofing the market in one or more correlated instruments.

## Cross Product Spoofing

An attempt to deceive the market into thinking that an instrument has more interest, liquidity or depth by placing large orders on one side for the purpose of causing traders to execute smaller orders on the opposite side in one or more correlated instruments.

# Improperly Matched Trade Models

## Cross Trading

A cross trade occurs when a buy order and a sell order for the same instrument are entered for different accounts under the same management, such as a broker or portfolio manager. To ensure that all market participants have a fair chance to trade at a price, exchanges impose minimum delays between such transactions. A cross trade is potentially illegal when both sides of the trade occur within the delay period.

**Note:** The "resting period" (delay period) for Cross Trades is 5 seconds.

## Roundtrip Wash Trading

A roundtrip wash trade is a form of uneconomic trading where a trader buys or sells an instrument then shortly reverses out of that position at the same price. Roundtrip wash trades can be used to generate artificial volume or to generate commissions for a broker.

In TT Trade Surveillance, the Roundtrip Wash Model analyzes and scores potential round trip wash trades that occur within a short time period.

## Wash Trading

A wash trade is a form of market manipulation in which a trader simultaneously buys and sells the same instrument using the same trader ID or account. Wash trades are typically used to generate artificial volume or to generate commissions for a broker.

In TT Trade Surveillance, the Wash Trader Model analyzes and scores wash trading per user, while the Wash Account Model scores wash trading events per account.

# Message Rates Models

## Abusive Messaging

Abusive messaging involves patterns of disruptive or excessive order activity that can harm markets.

- Quote stuffing: Quote stuffing is an attempt to disrupt normal market operations by introducing latency into an exchange's quoting engine to prevent other traders from trading as intended. A trader intentionally places orders at a pace that will slow market updates.
- Microburst quote stuffing: This form of quote stuffing involves submitting extremely high rates of messages over very short periods of time, which can introduce predictable latency while avoiding traditional detection methods. For example, submitting 80 messages in a single millisecond can appear as a non-interrupting 80 messages per second, while it actually has an effective rate of 80,000 messages per second.
- Malfunctioning algorithms: Due to the speed at which algorithms can send messages, even minor errors in an algorithm can have major impacts on market behavior.

## Exchange Messaging Rate Limit

The Exchange Messaging Rate Limit model flags instances where a trader exceeds, or nearly exceeds, the exchange's messaging rate limits. By reviewing instances of excessive messaging rates in a TT Trade Surveillance cluster, compliance officers can identify potentially suspect trading activity on a per trader basis.

**Note:** This model currently only covers exchanges supported on CME Globex.

# Trading Behaviors Models

## Dominance at Open

Dominance at Open occurs when a single trader's fills make up the majority of the market volume of an instrument during the initial 15 minutes of the market session. The Dominance at Open model in TT Trade Surveillance analyzes and scores clusters that may indicate that a single trader is dominating the total traded volume for an instrument during the market open.

When a single trader's resting orders make up the majority of the fill volume for an instrument, they have control over the pricing of that instrument. The Dominance at Open model can alert your firm to this behavior, which may be an indication of potential market manipulation.

**Note:** The Dominance at Open model only identifies potentially suspicious trading behavior. This model does not necessarily reflect an actual rule violation.

## Excessive Bid/Ask

The Excessive Bid/Ask model looks for when a single trader's submitted orders make up the majority of the bid/ask volume of an instrument at different times during a trading session. The Excessive Bid/Ask model in TT Trade Surveillance uses the frequency and severity of Order Book Dominance (OBD) clusters generated for a trader/instrument combination to help determine if a trader is potentially exerting control over an instrument's price by submitting a large number of bids and asks during the session.

When a single trader's orders make up a large amount of the bid/ask volume for an instrument, this may indicate control over the pricing of that instrument. The Excessive Bid/Ask model can alert your firm to this behavior, which may be an indication of potential market manipulation.

**Note:** The Excessive Bid/Ask model only identifies potentially suspicious trading behavior. This model does not necessarily reflect an actual rule violation.

## Order Book Dominance

Order Book Dominance occurs when a single trader's resting orders make up the majority of the disclosed volume of an instrument at different times during a trading session. The Order Book Dominance model in TT Trade Surveillance analyzes and scores clusters that may indicate that a single trader is dominating the total traded volume for an instrument during the session.

When a single trader's resting orders make up the majority of the disclosed volume for an instrument, they have control over the pricing of that instrument. The Order Book Dominance model can alert your firm to this behavior, which may be an indication of potential market manipulation.

**Note:** The Order Book Dominance model only identifies potentially suspicious trading behavior. This model does not necessarily reflect an actual rule violation.

## Single-Sided Order Book Dominance

Single-Sided Order Book Dominance occurs when a single trader's resting orders make up the majority of the disclosed volume of an instrument for either the buy or sell side of the market. The Single-Sided Order Book Dominance model in TT Trade Surveillance analyzes and scores clusters that may indicate that a single trader is dominating the total traded volume for either the buy or sell side of an instrument during the session.

When a single trader's resting orders make up the majority of the disclosed volume for an instrument, they have control over the pricing of that instrument. The Single-Sided Order Book Dominance model can alert your firm to this behavior, which may be an indication of potential market manipulation.

**Note:** The Single-Sided Order Book Dominance model only identifies potentially suspicious trading behavior. This model does not necessarily reflect an actual rule violation.

# Miscellaneous Models

## Deal Time

When submitting wholesale orders, such as block trades, exchanges usually require the trades to be submitted within a specific time frame from execution (i.e., consummation time). For

example, CME requires traders to submit block trades within 5 or 15 minutes, depending on the product.

In TT Trade Surveillance, the Deal Time Model analyzes, scores, and displays the time difference between the consummation time and the submission time for block trades.

## No Self Trading

This model flags cancellations on the ICE Exchange with the tag "no self trading". This helps identify when an order which would have resulted in a self trade, was canceled by exchange via self trade prevention. The ICE exchange has explicitly stated "use of STPF in a manner that causes a disruption to the market may constitute a violation of the Rules" and this type of disruption is actively monitored for. The use of this model will allow users to identify any patterns of repeated, or potentially intentional use, of STPF functionality.