

## What, When, and Where: Understanding a Trade Timing Chart

Data analysis should begin with a review of the bigger picture to identify trends or specific areas worthy of a closer look. Our Trade Timing Chart is one of the most intuitive ways to visualize security price movement before, during, and after an order. This chart serves as an effective starting point for execution analysis. Though the Trade Timing Chart cannot answer all questions about performance on its own, it is an important first step in attributing costs to causes.

The Trade Timing Chart offers a comprehensive and visual answer to the following questions:

- When were the best opportunities to trade?
- Where did trading occur relative to these opportunities?
- What were the price trends of the securities being traded?

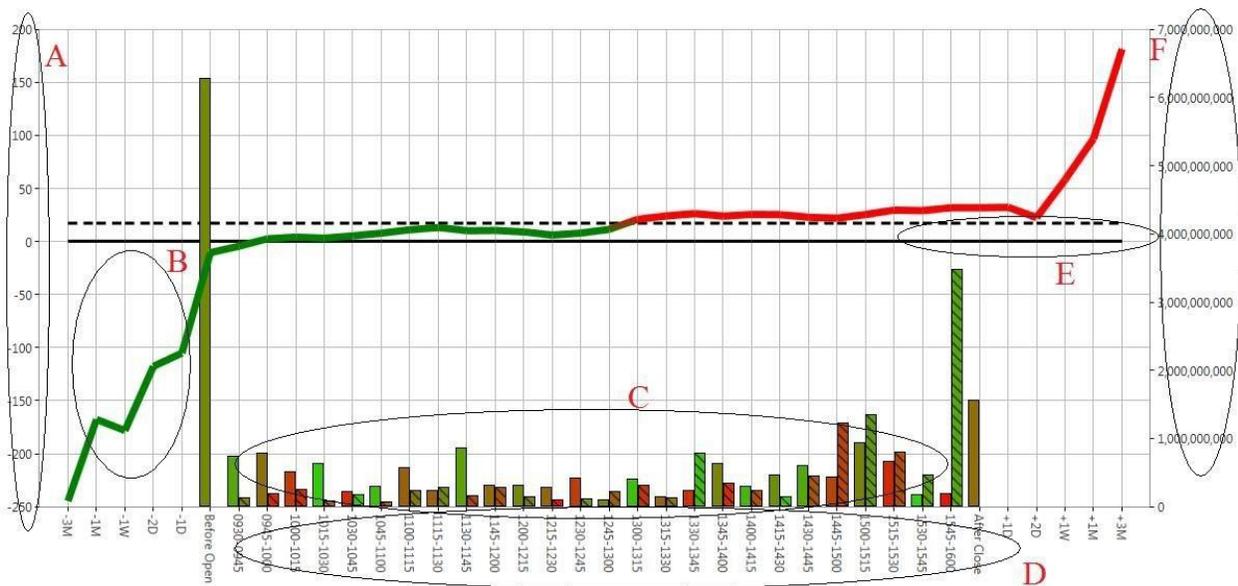


Figure 1: The Trade Informatix “Trade Timing Chart” (Uses TAP demo client data)

### Chart Elements

#### A: Left Y-Axis

This axis represents security prices in basis points relative to the reference price selected. The reference line, at zero, can be chosen by the user and will be explained in (E).

## B: Price Momentum Line

This line traces the average security prices relative to the chosen reference price, discussed in (E), throughout a time period represented on the x-axis. If the reference price selected is Arrival Price, the green sections of the price-momentum line represent that it was a good time to trade (prices below the average execution price) as the graph above demonstrates. [Note: If the reference price selected is Average Execution Price, a green line represents good performance vs. 15 Minute Interval VWAP. In the graph above, the reference line is the Arrival Price].

## C: Order & Execution Bars

The location, color, fill pattern, and height of these bars each convey relevant information about the sample. Though the data density may initially appear overwhelming, the chart is designed to convey a wealth of information at a glance.

### i) Location

At the most basic level, every time bucket between order arrival and the final fill contains a pair of bars. Their location along the x-axis indicates when the order or execution took place.

### ii) Color

Each bar can be dark red, bright green, or somewhere in the middle. This is a reflection of the orders or executions that compose the bar - more green indicates a majority were buys, while more red indicates a majority of sells in that time bucket.

### iii) Fill Pattern

Bars with a solid fill represent orders, and the bars with stripes represent executions. This distinction between orders and executions is essential for high level analysis. For example, if there is a significant stretch early in the day where the price momentum line is green, as described in (B), it is important to know whether the trader received orders in time to transact in this period and take advantage of more favorable prices.

### iv) Height

The height of the bar is matched to the right y-axis, which is discussed in (F). It shows the value represented by that bar.

## D: X-Axis

The x-axis displays the timing of the relevant data. It is split into the following general sections: Before the arrival, during the time the order is live, and after the order. The period three months before and after the order are used as the default pre- and post-trade intervals, though this length can be customized.

## E: Reference Price

The reference price is the line extending from 0 at the left y-axis and can be set as either the Arrival Price or the Average Execution Price.

## F: Right Y-Axis

The right y-axis is used in analysis of the bars described in (C). It shows the value of the executions or orders composing each bar, in United States Dollars by default.

## Putting the Pieces Together

A Trade Timing Chart is a momentum profile that reveals trading patterns not immediately apparent in the trading cost numbers alone. In the chart above, this firm's orders appear to have adverse momentum associated with them. Prices are moving against the trader (buys are rising, sells are falling) as shown by the price momentum line increasing from 3 months prior to one day before the actual execution period. During the trade, there is a continuation in this price trend. After the trade (from 2 days to 3 months after the trade completion), the trend accelerates dramatically, suggesting good stock selection.

The bars at the bottom of the chart show that orders and executions are relatively small earlier in the trading day and dramatically increase later in the day, perhaps in reaction to the aforementioned pre-trade and intra-day price momentum.

A preliminary recommendation derived from this analysis may be for the firm to trade earlier in the day. After that we could examine PM timing quality, as the data suggests that there may be missed opportunities earlier in the momentum profile.

The Trade Timing Chart can also provide more general guidance. For example, if the solid-color bars (orders) are grouped under the green sections of the price momentum line while the striped bars (fills) are grouped under red sections of the price-momentum line, one might conclude that transacting immediately after an order's arrival could be beneficial.

Patterns in the price momentum line after the close may also be of interest. A noticeable drop, especially one or two days after the trade completion could indicate price relaxation, meaning orders may have caused temporary market impact. This also could be indicated by significant movements in the line during the trading day that align with particularly large execution bars. While a Trade Timing Chart cannot answer all questions about performance on its own, it is an important first step in attributing costs to causes.

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