

National Financial Services LLC - Principal Trading Only
Nasdaq Market Making Unit and Boston Stock Exchange Specialists

Execution Quality Analysis*
December 2003

National Financial Services LLC (NFS) - Principal Trading Only - Execution Quality Highlights*

- Over 99% of the Nasdaq market maker trades, and BSE trades (listed), were executed at or within the quoted spread for the period of January to December 2003.
- The Nasdaq market makers provided enhanced liquidity (executed more than the quoted depth) between 58% and 62% of their trades from January to December 2003. The BSE listed specialists' enhanced liquidity on between 59% and 62% of their trades for the same period.
- The Nasdaq market makers price improved between 20% and 44% of their trades for the period January to December 2003. BSE specialists price improved between 19% and 55% of listed trades.
- The Nasdaq market makers' effective spread ranged from 1.9 to 1.5 cents/share (lower is better for this measure), for the period January to December 2003. On the listed side, the BSE specialists' effective spread ranged from 1.6 to 1.4 cents/share for the same period. (For further detail on this measurement, please see the discussion on page 7 of the ratio of effective spread to average quote spread).
- In December, the Nasdaq market makers executed 99% of their trades in less than five seconds, and 100% in less than sixty seconds. For listed executions, the BSE specialists executed 91% of their trades in less than five seconds and 100% in less than sixty.

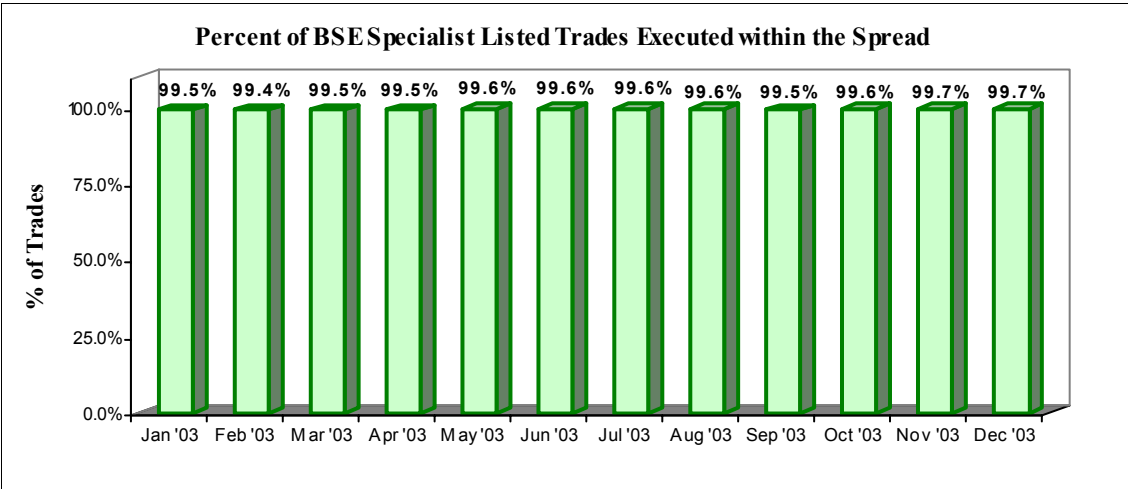
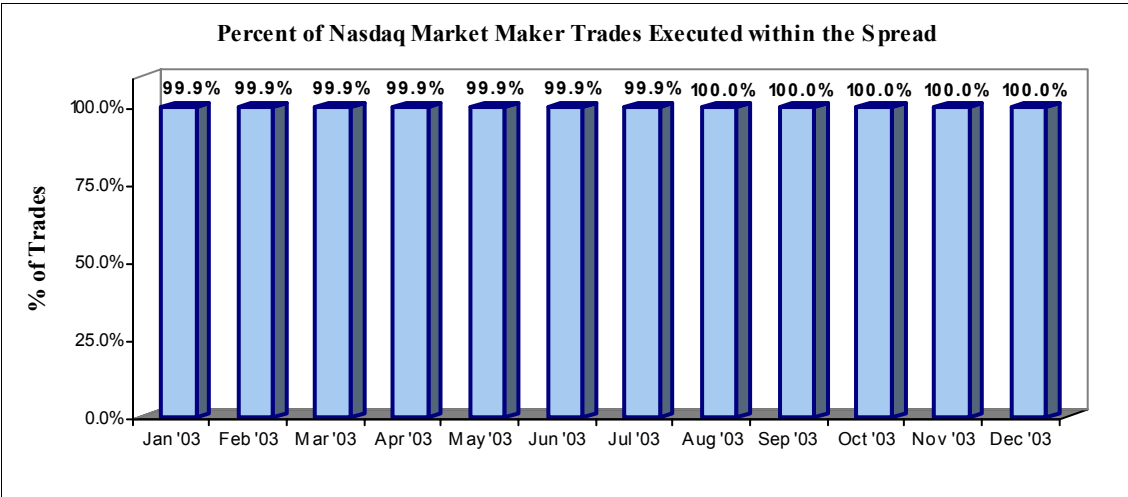
*Executions represent market orders with share sizes between 100 – 5,000 shares excluding pre-opening orders, and orders received during a locked, crossed or fast market, executed as principal by National Financial Services LLC Nasdaq market makers and specialists at the Boston Stock Exchange (listed stocks)

Source: TAG (Transaction Auditing Group) January – December 2003 reports

Execution Quality Analysis - National Financial Services LLC, Principal Trading Only

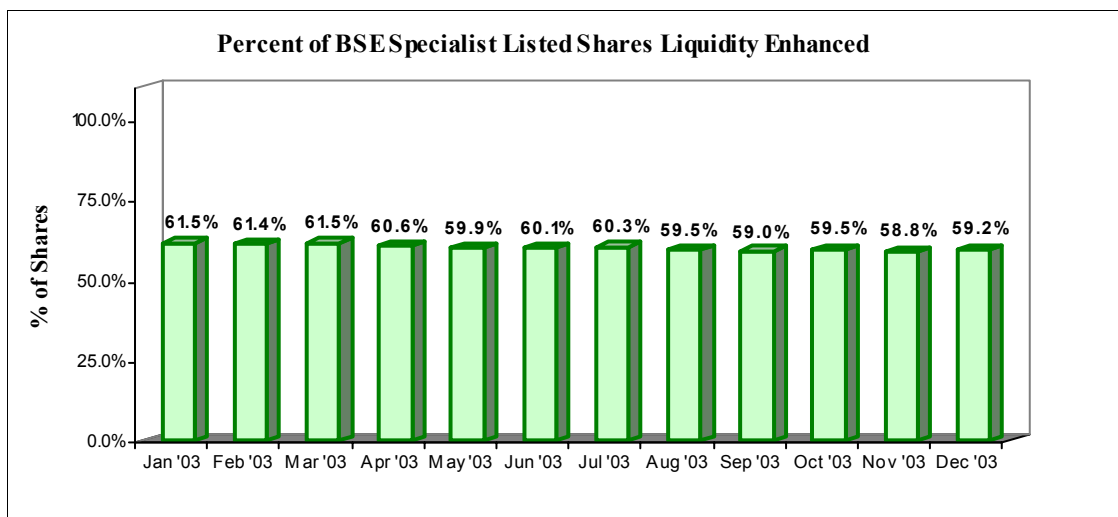
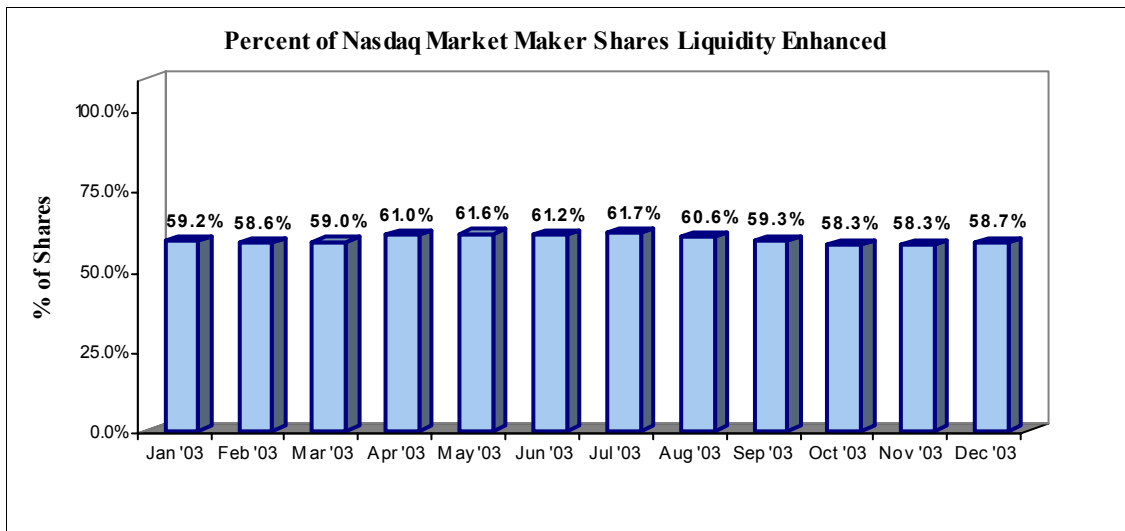
Trades within Spread

Percentage of trades executed within the prevailing bid/offer spread as measured at time of order receipt



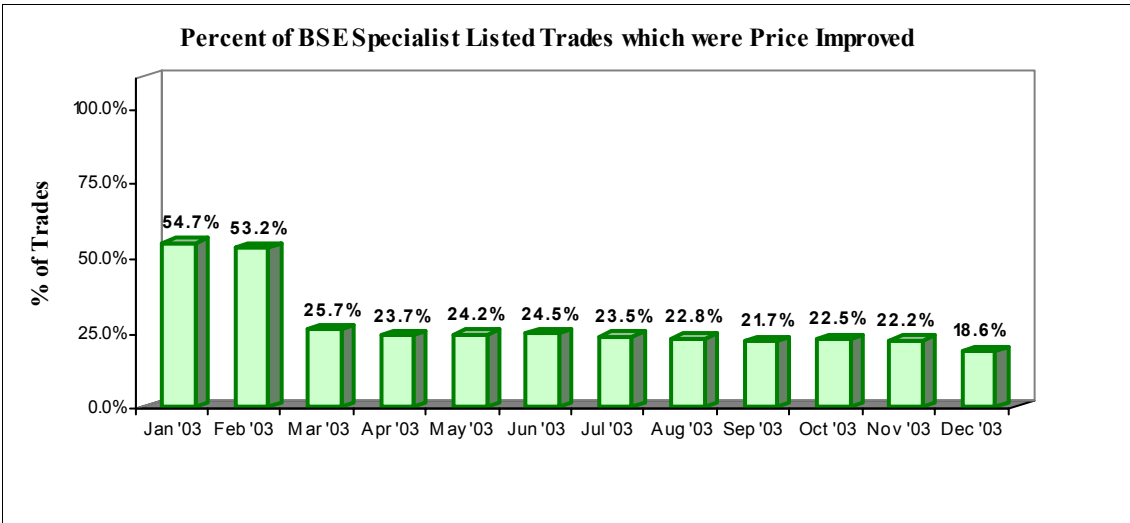
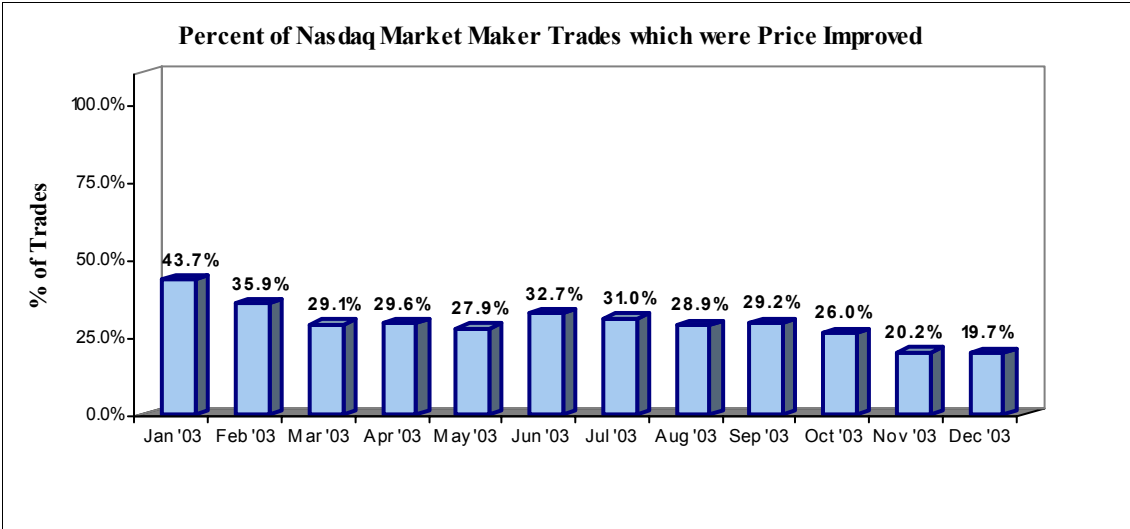
Liquidity Enhancement Analysis

Percentage of shares executed in excess of the NBBO quoted size



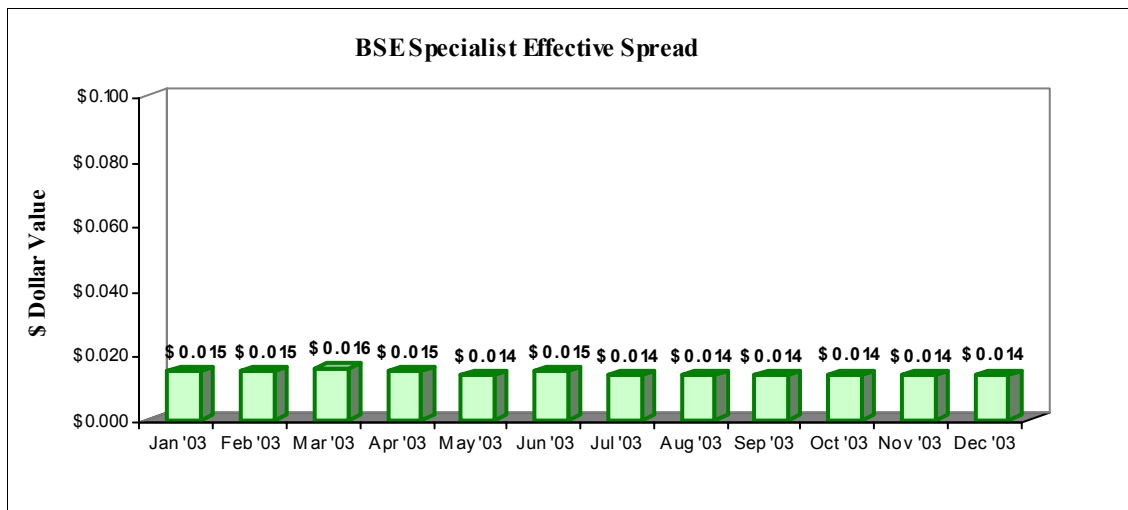
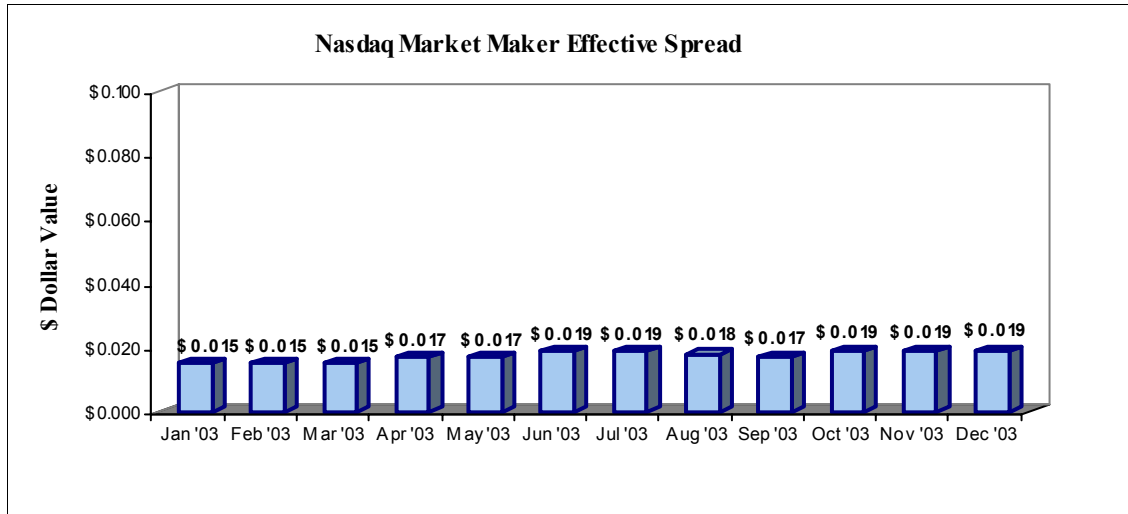
Price Improvement

Percentage of trades that were price improved vs. the NBBO



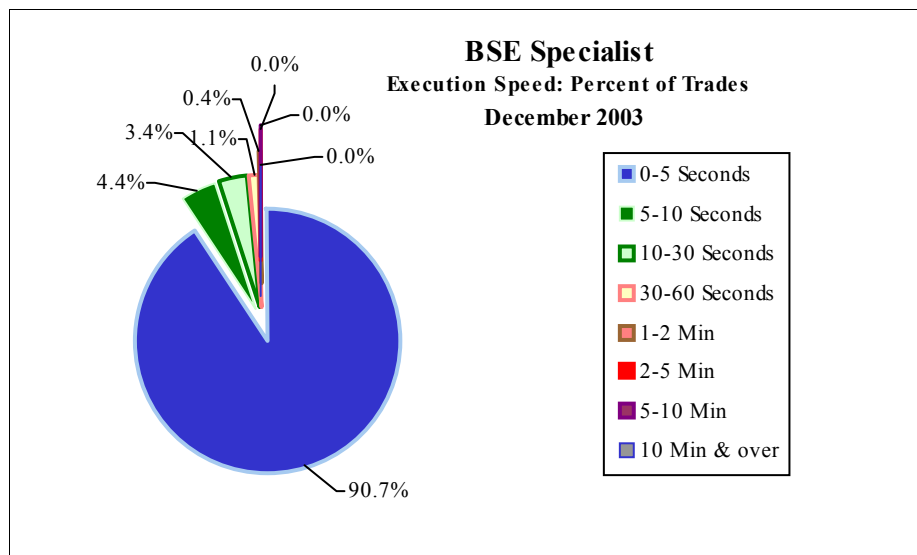
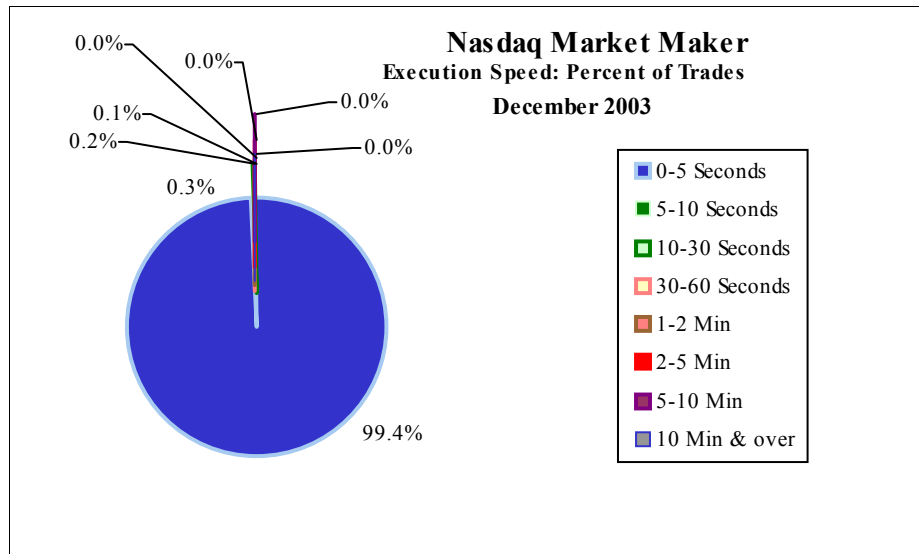
Effective Spread

Twice the variation of execution price from the midpoint of the spread



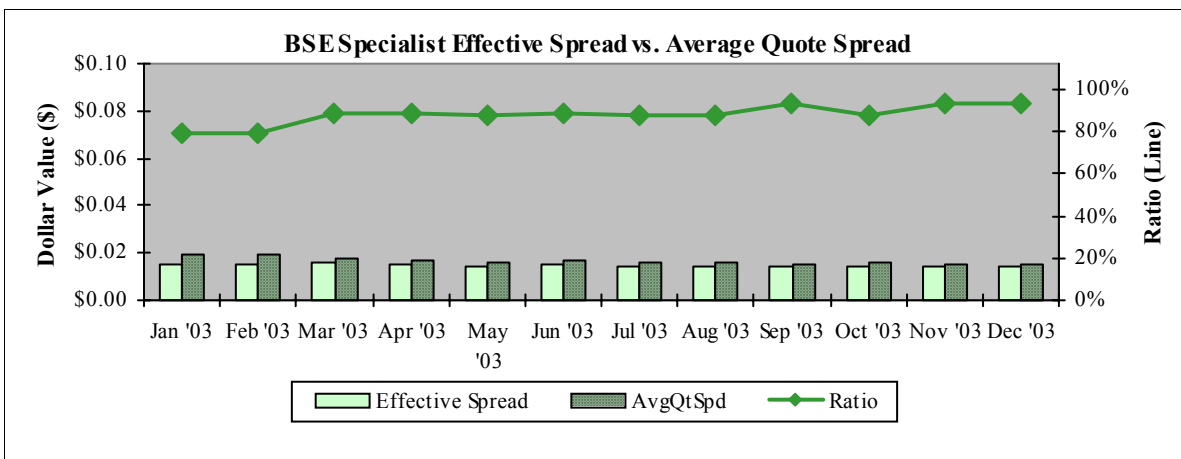
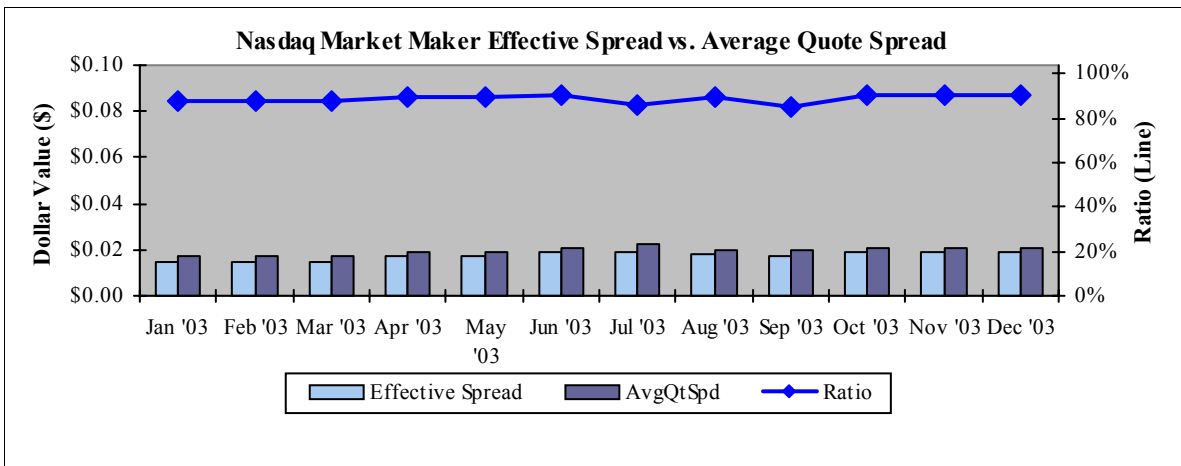
Execution Speed

Turnaround time from order receipt by the market maker or specialist to execution



Effective Spread

Twice the variation of execution price from the midpoint of the spread



- The closer an execution is to the midpoint, the better; i.e., **lower is better** for the effective spread
- The effective spread should not be viewed in isolation, but rather in light of the kinds of stocks a firm is trading, i.e., either narrow-or wide-spreads. One firm may have a low effective spread, but only because it consistently trades narrow-spread, highly-liquid stocks. Another may have a high effective spread because it trades less-liquid stocks with wide spreads. The ratio between the effective spread and the average quote spread highlights how well a firm trades, given the mix of wide-vs. narrow-spread stocks it has in its portfolio

Additional Notes

- **Impact of Volatility on Execution Quality**

The average volatility of a market maker's or specialist's book also plays a key role in determining that firm's execution quality. How readily a trader can execute within the quote, price improve, etc. is significantly influenced by the amount and frequency of price moves in the stocks he is trading.

As a result, firms, which specialize in high volatility stocks, will generally see lower levels of price improvement against a static benchmark like the NBBO, because the stocks are often moving too quickly to enable predictable executions. The stocks National Financial Services' LLC (NFS) market making unit trades on the Nasdaq side, for example, have a share-weighted average volatility, as measured by beta on the S&P 500 index, of 1.83, relatively high in relation to the market average beta of 1.00. On the listed side, NFS's Boston Stock Exchange specialists' stocks have a beta of 1.21.

So while execution quality statistics provide a useful indicator of how well or poorly a given marketplace is trading, they should always be evaluated in the context of the kinds of stocks, and particularly the volatility of those stocks, executed by that firm.

- **National Financial Services LLC (NFS) Order Flow Routing Practices**

NFS analyzes a number of factors in determining where it routes its customers' orders. The most important factor is the quality of executions delivered by the market place. Other factors NFS considers include:

- A market place's capacity to handle the volume of trades NFS generates, both in terms of its trading systems and technology, as well as its access to sources of liquidity on the scale NFS requires
- Relationships - a firm's overall service quality, and its ability to provide superior execution performance when NFS needs it
- Need to maintain back-up or contingency sources of liquidity, in the event one market place is unable to accept order flow because of a system failure or other reason
- Stock lists - certain firms choose very carefully which stocks they will or will not make markets in, and thereby limit the amount and kinds of flow NFS can send them
- Opportunity to leverage NFS's order flow to foster competition and enhance trading practices across all of its market places, in order to continually improve customers' execution quality

The NBBO (National Best Bid and Offer) is the highest bid and lowest offer posted by the NYSE, Nasdaq and the regional exchanges

The data underlying the Execution Quality Analysis have been prepared exclusively for National Financial Services LLC by TAG (Transaction Auditing Group)

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