

*National Financial Services LLC
NASDAQ and Listed Orders
Execution Quality Analysis*
November 2020*

*National Financial Services LLC (NFS) – Execution Quality Highlights**

- In November, NFS executed 98.1% of its NASDAQ shares and 98.5% of its Listed shares at or within the quoted spread.
- NFS price improved 84.7% of its NASDAQ shares and 86.3% of its Listed shares during the month of November.
- NFS's effective/quoted spread on the NASDAQ side was 23.1% and on the Listed side, 20.6%, (lower is better for this measure) for the month of November. (For further detail on this measurement, please see the description on page 3 of the ratio of effective spread to average quote spread.)
- In November, the firms' average execution speed was .07 seconds for NASDAQ shares and .14 seconds for Listed executions.

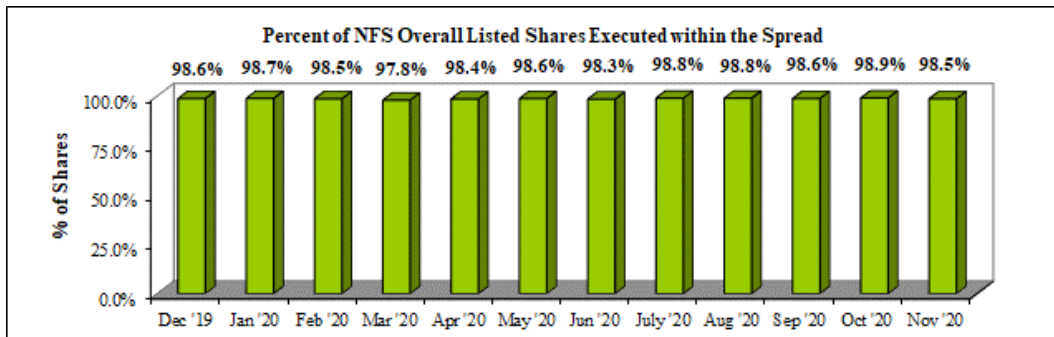
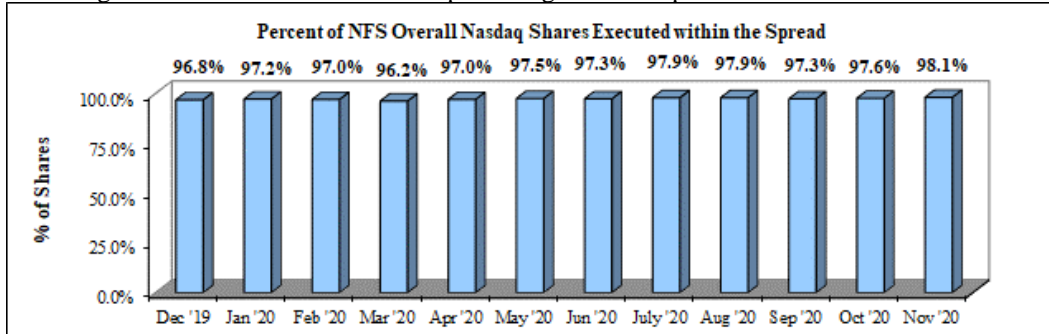
* Executions represent market orders with share sizes between 100 – 1,999 shares executed as agent through 3rd party market centers and by National Financial Services affiliated desks, excluding pre-opening orders. Analysis includes those exchanges or market centers to which we route at least 2% of our monthly NASDAQ and Listed share volume.

Source: IHS Markit December 2019 to November 2020 reports

Execution Quality Analysis – National Financial Services LLC (NFS), Principal and Agency Trading Combined

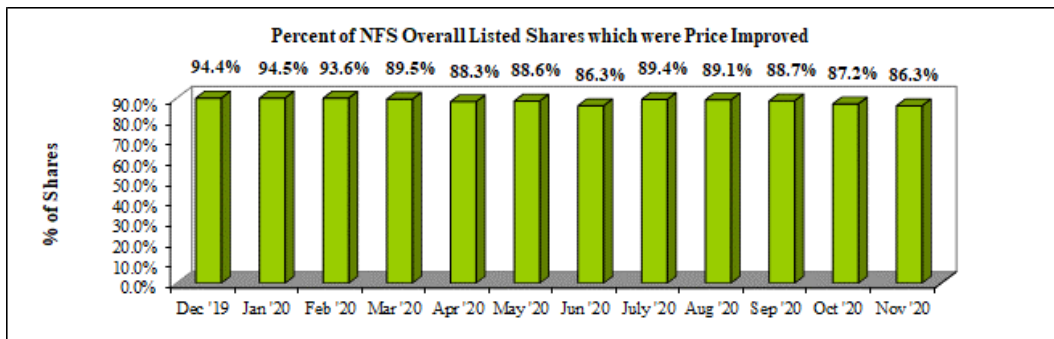
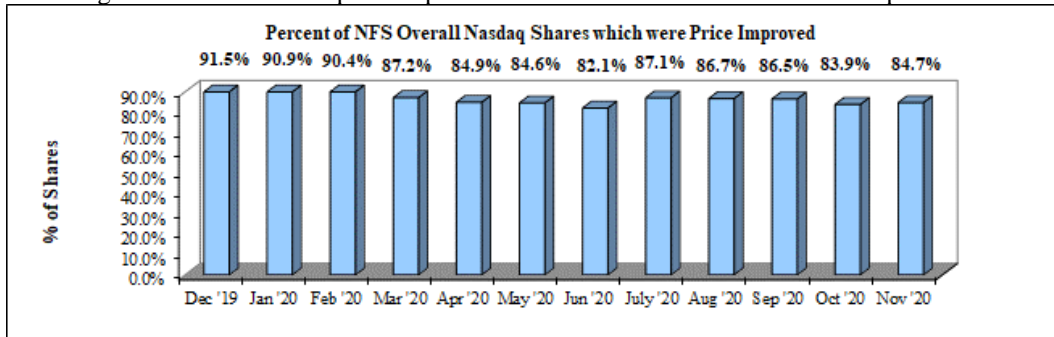
Shares within Spread

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

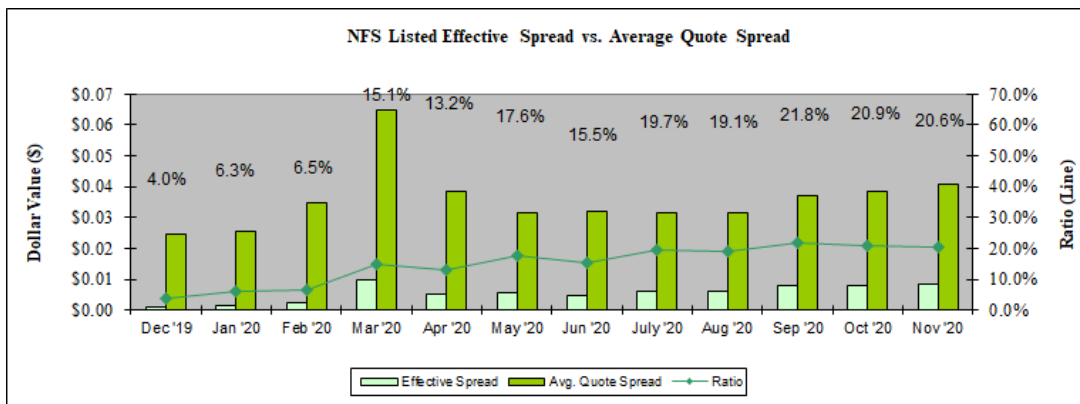
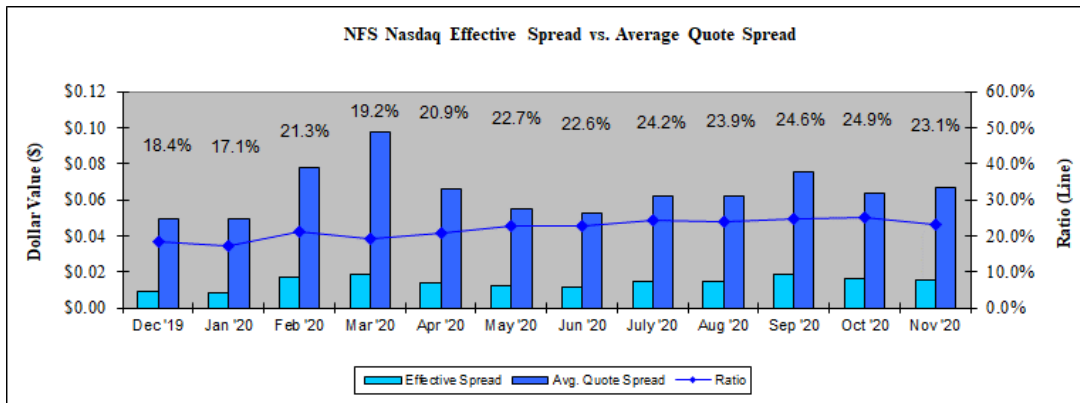


Price Improvement

Percentage of shares that were price improved vs. the NBBO at time of order receipt



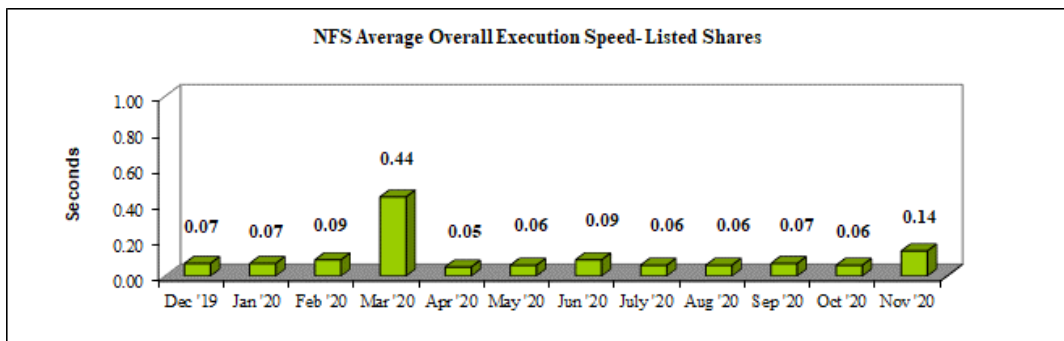
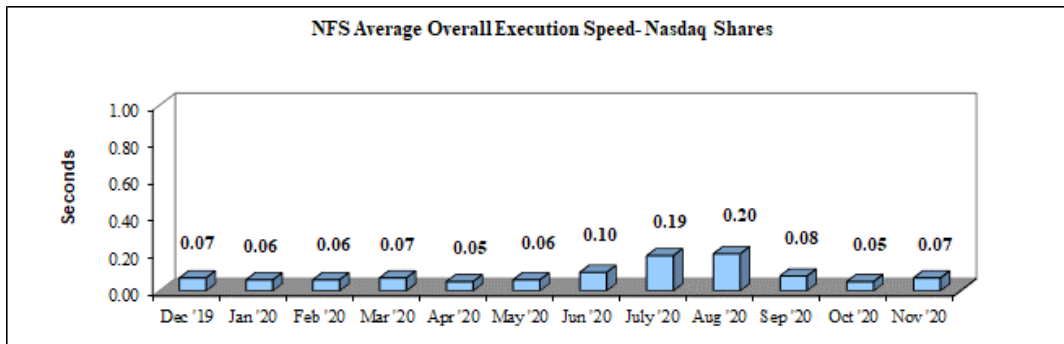
Effective Spread vs. Average Quote Spread



- The closer an execution is to the midpoint, the better; i.e. **lower is better** for the effective spread and effective/quoted spread.
- The effective spread should not be viewed in isolation, but rather in the 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, effective/quoted spread, highlights how well a firm trades, given the mix of wide- vs. narrow-spread stocks it has in its portfolio.

Execution Speed

Turnaround time from order receipt by NFS to execution



Additional Notes

- **Impact of Volatility on Execution Quality**

The average volatility of a market center's book also plays a key role in determining that market center'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.

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's (NFS) Order Flow 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 marketplace. Other factors Fidelity considers include:

- A marketplace'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 scales 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 marketplace 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 or Offer) is the highest bid and lowest offer for a security for all exchanges and market centers.

The data underlying the Execution Quality Analysis have been compiled exclusively for National Financial Services LLC (NFS) by IHS Markit.

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