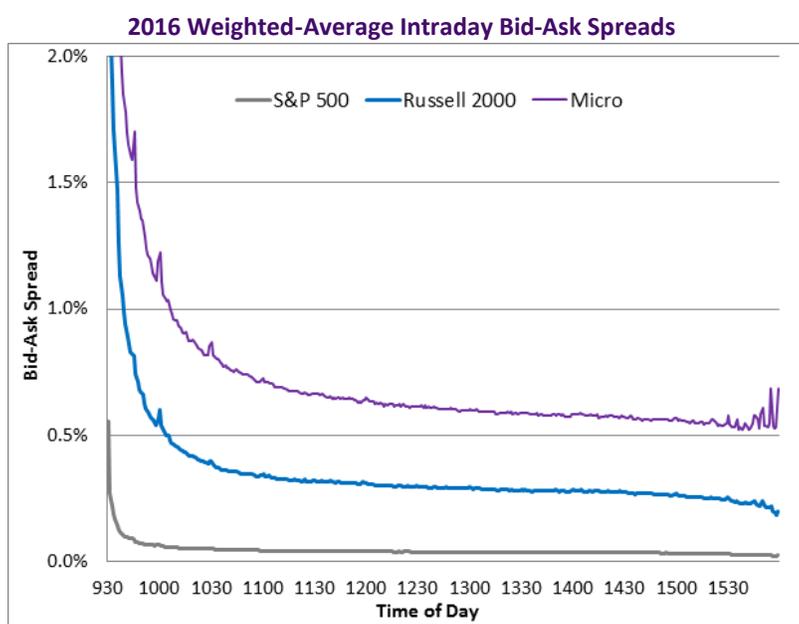


Bid-ask spreads represent an important part of transaction costs, which are not reflected in simple rates. Trading with minimal bid-ask spreads is an important part of minimizing overall trading costs, and preserving alpha. For example, for a strategy with 100% turnover per year – selling 100% of the stocks in the portfolio and replacing with 100% new ones -- bid-ask spreads of 50bps would equate to 1% in trading costs per year.

Matarin's trading partner Weeden & Co recently prepared the following table at our request, demonstrating the average bid-ask spreads of stocks in a large- (S&P 500), small- (Russell 2000), and mid-cap (Russell Microcap) index at each minute of the trading day during 2016.

This picture says a thousand words, and here are some we'd add:

- Some investors may be surprised at how wide bid-ask spreads are at the beginning of the trading day. It is also remarkable that in many cases, morning spreads remain elevated for at least an hour.
- At the open, the market is digesting overnight news and the morning price discovery process causes the range of outcomes to be wider.
- Perhaps another effect driving trading costs higher at the open is the trend toward passive investing, in which indexers prefer to get more trading done at the close. With less volume on the open, the beginning of day price discovery process is less efficient.



The magnitude of spreads is clearly proportionate with size.

- Minimizing transaction costs is particularly important among microcap stocks, where spreads are elevated throughout the day.
- The chart shows market-cap weighted spreads. Because trading costs are lower for higher market cap stocks, equally-weighted average or median bid-ask spreads would be even greater.

The implications for trading are clear. At Matarin, we avoid the open when trading, and instead enter the market after bid-ask spreads have narrowed.

- This means avoiding simple volume-weighted average price (VWAP) programs. In order to match the daily VWAP, it would be necessary to participate in opening trading. Instead, we often look at interval volume-weighted average price (iVWAP), which considers prices over a shorter, user-specified, timeframe in the trading day.
- At Matarin, we also use a transaction cost model when deciding what stocks to buy and sell in each trade. This causes the bid-ask spread of stock which we trade to be much lower than average. For example, we see spreads of 50 or 60 bps in microcap vs about 75 bps for the daily weighted average. Bid-ask spreads represent an important part of transaction costs, which are not reflected in simple rates. Trading with minimal bid-ask spreads is an important part of minimizing overall trading costs, and preserving alpha. For example, for a strategy with 100% turnover per year – selling 100% of the stocks in the portfolio and replacing with 100% new ones -- bid-ask spreads of 50bps would equate to 1% in trading costs per year.