

Why we should change round lots now

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Introduction

The SEC's "infrastructure rule" was published in the Federal Register

on April 7, 2021, starting the clock for its eventual implementation. MEMX supports this critical effort to reform the manner in which U.S. equities market data is disseminated to investors. However, there is a long road ahead before the infrastructure rule's amendments to Regulation NMS will be implemented. In the meantime, there is more that the national securities exchanges can and should do to facilitate the needs of investors. Expediting round lot reform is a good place to start.

There is significant consensus among market participants on round lot reform and implementing these changes now will result in fairer and more efficient markets. Based on our analysis, it should also save investors billions in transaction costs over the next three years. As the saying goes, "time is money" and investors will be left footing the bill if we don't act soon to expedite these changes. That's why we're asking the listing exchanges to work together with us and the industry to get round lot reform implemented ahead of schedule by voluntarily changing round lot sizes in their listed securities to match the infrastructure rule's requirements. This practical solution to our growing odd lot problem could be implemented quickly and without imposing any major implementation costs on the listing venues, SIPs, or the industry as a whole.

Infrastructure Rule Changes to Round Lots

The infrastructure rule adds a new "round lot" definition to Regulation NMS that will base the number of shares that constitutes a round lot on the price of the security.

Avg. Closing Price for Prior Calendar Month	Round Lot Size
\$250 or less per share	100 shares
\$250.01 to \$1,000 per share	40 shares
\$1,000.01 to \$10,000 per share	10 shares
\$10,000.01 or more per share	1 share

Today, all but twelve U.S. equity securities trade with a round lot of 100 shares. If the listing exchanges change the round lot size in additional high-priced securities, we could optimize trading in hundreds of other names without waiting years for implementation of the infrastructure rule.

I. Round Lot Reform & Potential Savings for Investors

U.S. equity markets are subject to a “one-size-fits-all” market structure where securities with different trading characteristics are largely subject to the same rules and regulations. However, the way that each security trades depends on a variety of factors, and in some cases the limitations of our one-size-fits all market structure results in significant inefficiencies. One such inefficiency is seen in high-priced securities, which currently suffer from wider bid/ask spreads, even when measuring those spreads in basis points, *i.e.*, in proportion to the price of the quoted security. The infrastructure rule will eventually help to alleviate this problem by lowering applicable round lot sizes for high-priced securities currently trading with artificially wide spreads. That said, given the significant amount of time before the amendments to Regulation NMS will be implemented, it’s important to evaluate just how much the current lot constraint impacts spreads in high-priced securities. The results show that investors may be leaving money on the table under the current regime. And this issue impacts a significant portion of trading. While the number of securities priced above \$250 per share fluctuated over the October 2020 through May 2021 period that we analyzed for this round lot study, there are currently almost 200 securities that trade at prices averaging more than \$250, as shown in Chart A. While these securities made up just 3% of shares executed and 8% of trades, they accounted for an outsized 29% of dollar value traded.

Implementation Timeline

As planned, the round lot changes are slated to be implemented after competing consolidators become operational and the current exclusive SIPs are decommissioned. Without considering the potential for delay, MEMX estimates round lot changes may not be made until sometime in 2024.

Chart A: Number of Lot Constrained Securities



Round Lot Reform & Potential Savings for Investors (continued)

What's the connection between spreads and the lot size? Under Regulation NMS, only quotations for at least one round lot are considered "bids" and "offers." Therefore, the NBBO disseminated to investors through the SIPs and used for various important purposes, such as trade-through protection, pricing of pegged orders, or market center routing, only includes round lot quotations. Since round lot sizes are not currently tiered based on the price of the security, the notional value required for a quote to set the NBBO can be significantly higher in high-priced securities. The higher notional value that must be risked to establish a round lot translates into wider quoted spreads. In turn, narrowing quoted spreads should reduce transaction costs for investors. Of course, narrowing quoted spreads will not reduce transaction costs one for one as a significant amount of trading volume takes place within the spread, particularly in high-priced securities. That said, it should still meaningfully reduce transaction costs as the NBBO is used as an important reference price for trading on exchanges, ATSS, and other venues.

To get a sense of the impact of lot constraints on investor outcomes, and the potential effect of the infrastructure rule's round lot amendments on these outcomes, we analyzed quoted and effective spreads for lot constrained and other securities. Chart B below divides the universe of U.S. equity securities into buckets based on a combination of: (1) daily dollar value traded in each security during the period we studied from October 2020 through May 2021; and (2) notional value required to set the NBBO under (A) the infrastructure rule for lot constrained securities, *i.e.*, securities priced above \$250 per share that would qualify for a 40, 10, or 1 share round lot under those rules and (B) the current round lot regime for securities priced at \$250 per share or less, which would continue to be subject to a 100 share round lot¹. Since spreads are directly related to both liquidity and the notional value required to set the NBBO, we anticipate that the implementation of round lot reform may result in spreads in the lot constrained groups being reduced to levels that are similar to current spreads observed for securities in the

Notional Value Required to Set NBBO

AMZN: \$338,387

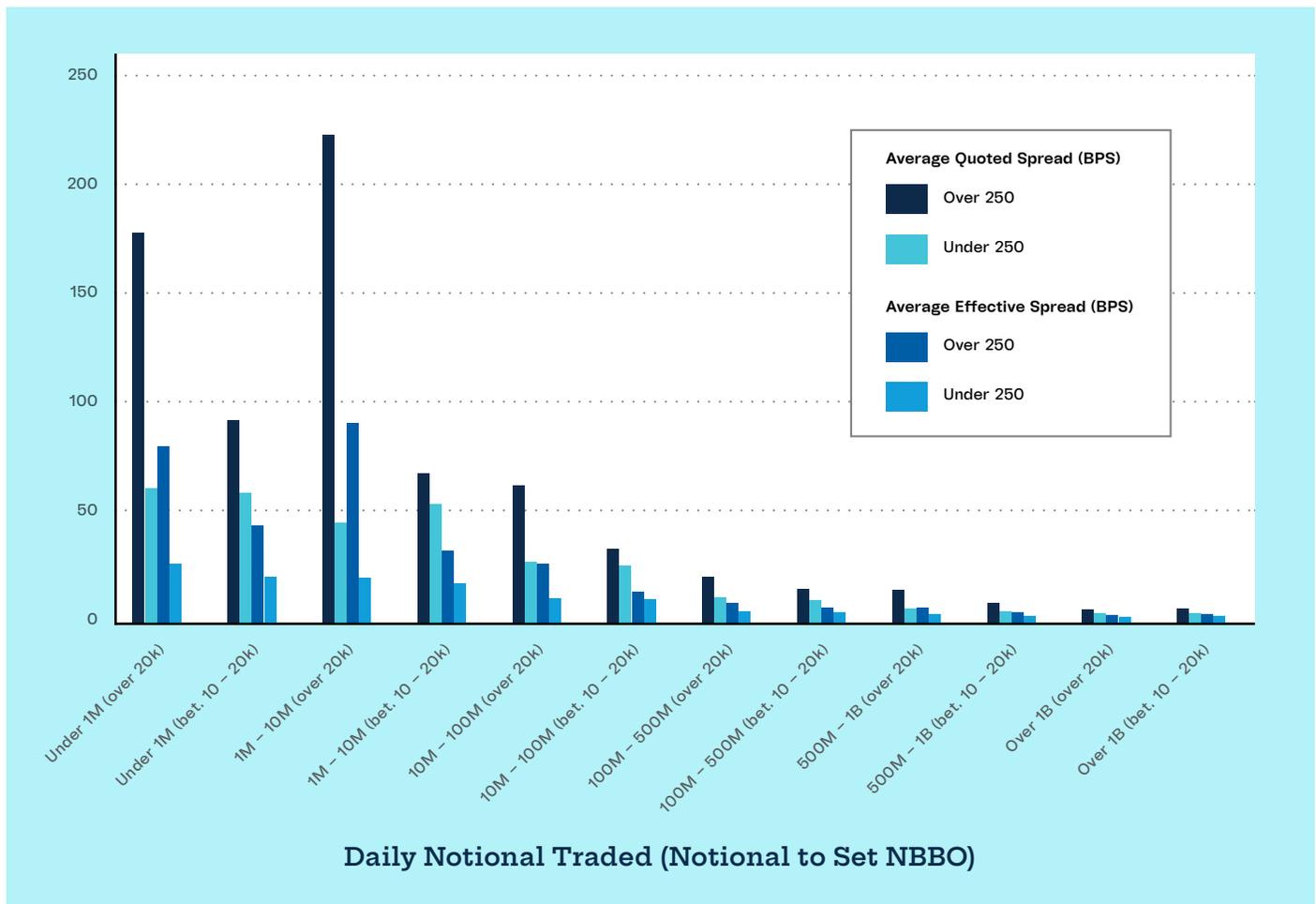
AAPL: \$13,048

¹ We matched securities into twelve groups based on these criteria. All securities that currently trade with non-standard round lot sizes of less than 100 shares were excluded from our analysis, as were thinly-traded securities with under \$50,000 in daily dollar volume traded. In addition, the smallest grouping we use for notional required to set the NBBO is \$10k – \$20k as the infrastructure rule effectively sets a floor of more than \$10k notional for all lot constrained securities subject to the round lot amendments.

Round Lot Reform & Potential Savings for Investors (continued)

comparison groups. As shown below, quoted spreads in lot constrained securities may narrow significantly if we reduce the notional required to set the NBBO in these securities, with quoted spreads in our comparison groups ranging from 21% to 79% lower than the associated lot constrained groups. What's more, these wider quoted spreads are accompanied by wider effective spreads. Similar to our observations for quoted spreads, effective spreads in our comparison groups ranged from 20% to 90% lower than the associated lot constrained groups.

Chart B: Quoted and Effective Spreads



In turn, this gives us a good way to calculate a rough estimate of potential transaction cost savings for investors that can be gained by expediting round lot reform. The effective spread measures the difference between actual trade prices and the midpoint of the NBBO multiplied by two. Higher effective spreads mean that investors pay more for the opportunity to enter into a transaction. If each lot constrained security were to have its current effective spread reduced by the average reduction of 42% shown in Table A, then changing the round lot size in those securities could result in up to \$10 million² in daily savings for investors as exchanges, broker-dealers, and other market participants trade off of a narrower spread⁴. With about 252 trading days in each year, it could cost investors up to \$7.5 billion if the industry is forced to wait three years for these round lot changes to go into effect. In fact, even if we assume only a 20% reduction in effective spread, which corresponds with the lowest effective spread change observed in our analysis, we'd still be looking at up to \$5 million per day in potential cost savings, which would translate to \$3.7 billion in potential savings over the next three years. With this much at stake, we should act now.

Not only would expediting the upcoming round lot changes save investors a significant amount in transaction costs while the industry awaits the implementation of the infrastructure rule, amending round lot sizes now would also improve market efficiency by ensuring that the information disseminated by the SIPs and used by investors to make trading decisions appropriately reflects how high-priced securities trade. Indeed, based on our analysis of lot constrained securities that would qualify for a 40, 10, or 1 share round lot under the infrastructure rule, odd lots currently account for 76% of all trades and 21% of all volume executed in those

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³ Potential cost savings was estimated for each lot constrained security on a daily basis by taking the daily dollar volume traded in the security multiplied by the security's effective spread times the average 42% estimated reduction in effective spread and divided by two to account for the fact that effective spread measures round trip costs, i.e., both a buy and a sell transaction. For purposes of calculating potential cost savings, we exclude any cost savings attributable to: (1) any securities that, on a particular day, have an effective spread greater than their quoted spread; and (2) the "meme stock" GME.

⁴ As discussed, the NBBO is central to trading in U.S. equities markets and including tighter quotations in the NBBO would impact trading in many important ways. For example, pegged orders on exchanges or ATNs would peg off of the new NBBO, potentially increasing liquidity available at better prices within the current spread, while routers would access posted liquidity at the improved NBBO before other interest could trade, and investors could use these tighter quotes to assess best execution.

Round Lot Reform & Potential Savings for Investors (continued)

Table A: Potential Quoted / Effective Spread Change

Dollar Level	Notional Size to Set NBBO	Number of Lot Constrained Securities	Avg. Quoted Speed Change	Avg. Effective Speed Change
Under 1M	Over 20k	2	-65%	-66%
Under 1M	10 – 20k	2	-36%	-52%
1M – 10M	Over 20k	2	-79%	-77%
1M – 10M	10 – 20k	11	-21%	-44%
10M – 100M	Over 20k	6	-55%	-57%
10M – 100M	10 – 20k	35	-22%	-25%
100M – 500M	Over 20k	10	-43%	-40%
100M – 500M	10 – 20k	60	-33%	-28%
500M – 1B	Over 20k	4	-54%	-44%
500M – 1B	10 – 20k	14	-39%	-31%
Over 1B	Over 20k	5	-29%	-20%
Over 1B	10 – 20k	11	-31%	-20%
Average			42%	42%

names, which suggests that a 100-share round lot size does not capture the actual unit of trading used by investors. In turn, nearly half (43%) of volume in lot constrained securities occurs at prices within the quoted spread. There's been a lot of healthy debate over the past few years about how to solve the odd lot problem in high-priced securities and many different proposed solutions. Getting additional information to investors is critical to a well-functioning market, and the infrastructure rule will also directly address odd lot transparency by allowing competing consolidators to include odd lots better than the NBBO in their market data products. We look forward to the day that this information becomes broadly available in consolidated data. In the interim, right-sizing round lot sizes is a practical and easily implemented solution to the odd lot problem that would simultaneously narrow artificially wide spreads and reduce transaction costs.

TSLA (\$617.69) and AMZN (\$3,383.87) are two of the most active stocks in the market, including significant retail participation. Odd lots account for 95% of AMZN trades and nearly 87% of TSLA trades.

II. Implementation Costs

We are cognizant that the SEC chose not to require implementation of any of the changes implemented by the infrastructure rule, including the round lot changes, on the current exclusive SIPs to avoid potential implementation costs. Although nothing prevents the exchanges from going beyond the bare requirements for implementation set by the SEC, it's worthwhile to talk about costs. Realistically, any costs associated with implementing the infrastructure rule's round lot changes ahead of the required schedule would pale in comparison to the potential benefits to investors of implementing these changes now. Indeed, we believe the round lot changes could be implemented on the current exclusive SIPs without incurring additional costs.

Non-standard round lot sizes of less than 100 shares are not a new phenomenon in U.S. equity markets. Although only a handful of securities have such smaller round lot sizes today, both the SIPs and market participants already have to support these different round lot sizes. As a result, merely adding additional securities to the list should not cause any significant implementation burden. The main potential costs would therefore flow from the changes made to facilitate the ability for investors to interpret the SIP data. Specifically, the infrastructure rule requires: (1) the dissemination of an indicator that displays the applicable round lot size for the security; and (2) that information disseminated in consolidated market data be represented in actual shares. Of these two changes, the potential implementation burden rests almost entirely with the dissemination of actual shares, which would require systems changes for both the SIPs and downstream users of SIP data whose systems may also need to be coded to the new specifications.

The convention today is for the SIPs to disseminate required size information by displaying the number of round lots as opposed to the number of shares. For example, 200 shares of TSLA would currently be displayed as "2" round lots since each round lot represents 100 shares of the stock. The infrastructure rule amends this convention and requires

Implementation Costs (continued)

that competing consolidators display “200” shares instead. While we support this change, which would provide additional clarity for investors that use SIP data, the move to actual shares can be implemented later based on the SEC’s timetable. In the interim, the exclusive SIPs already disseminate the applicable round lot size for different securities at the beginning of each trading day. Sticking with the previous example, the exclusive SIPs could therefore continue to display “5” round lots, with a message at the beginning of the day that indicates that each round lot in TSLA represents 40 shares ($5 \times 40 = 200$ shares). This phased approach would allow investors to reap the benefits of the round lot changes now, while eliminating the need for systems changes to be made to the current exclusive SIPs and giving the industry more time to prepare for the display of actual shares in consolidated market data. As a participant on the SIP operating committee, we certainly appreciate that cost is an important consideration, but we owe it to investors not to forestall needed changes on the basis of cost, particularly when there are practical steps that we can take to minimize those costs.

At MEMX, one of our core goals is to advocate for market structure changes that benefit the needs of investors and the industry. The U.S. equity market would benefit substantially from making the round lot changes in the infrastructure rule sooner rather than later. While the Commission chose not to make early adoption a requirement that does not mean that we cannot or should not choose to go above and beyond for the investors that rely on the capital markets that we steward. We hope to work with the primary listing exchanges and other national securities exchanges to make round lot changes now so that the industry can reap its benefits without delay.