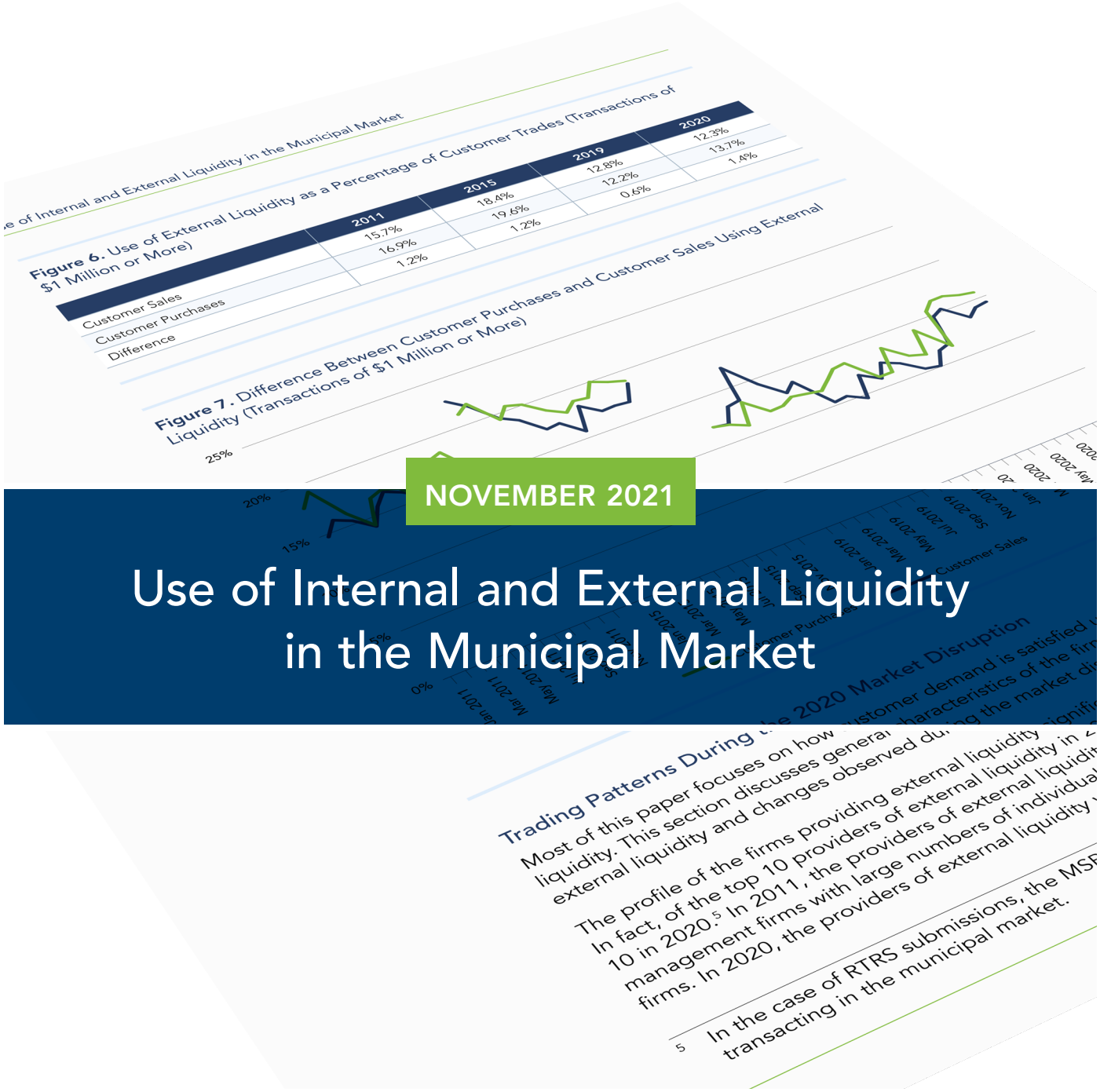
MSRB

Municipal Securities Rulemaking Board



NOVEMBER 2021

Use of Internal and External Liquidity in the Municipal Market

John Bagley and Marcelo Vieira
Municipal Securities Rulemaking Board

CONTENTS

Summary[1]

This report examines changes in patterns of customer transactions and the use of external and internal liquidity during the periods of 2011, 2015, 2019 and 2020. For the purpose of this analysis, external liquidity is defined as when a customer purchase or sale is filled using the offering or bid of a different and unaffiliated dealer than the client's dealer. The related inter-dealer trade will be for the same quantity as the customer buy or sell and transacted on the same day. This report provides an overview of the data studied, describes the methodology used in conducting the study and provides statistics and related analyses regarding the use of external and internal liquidity.

Overall, findings indicate that for all customer transactions, the use of external liquidity has increased for transactions of $100,000 or less since 2011, while the use of external liquidity has decreased for transactions of $1 million or more.[2] For customer transactions of $100,000 or less, the use of external liquidity increased significantly from an average of 30.2% in 2011 to 35.1% in 2015 and 43.6% in 2019, before decreasing slightly to 42.4% in 2020. The use of external liquidity for transactions of $1 million or more averaged 16.3% in 2011 and 19% in 2015, before decreasing to an average of 12.4% in 2019 and 13.0% in 2020.

Over the past decade, the municipal market experienced significant changes in market structure and how participants access the market. These changes included the development and proliferation of electronic trading and algorithmic and proprietary trading, as well as liquidity aggregation tools. Together, these changes contributed to the increased use of external liquidity for transactions of $100,000 or less. For smaller transactions, electronic trading created liquidity for most customer buys and sells together, predominantly through bid-wanteds or Request for Quotes (RFQs). For customer purchases, electronic trading efficiently aggregates tens of thousands of offerings and provides tools to help financial professionals and individual investors efficiently sort offerings to identify potential purchases. This is especially important since many investors only buy bonds in their home state and may only buy bonds of certain coupons, maturities, tax status, ratings, etc.

[1] The views expressed in this research paper are those of the authors and do not necessarily reflect the views and positions of the MSRB.

[2] Trades of $100,000 or less are commonly categorized as individual investor-sized trades, while trades of $1 million or more are referred to as institutional-sized trades.

Methodology

This report is based on a set of transaction data and related descriptive data for calendar years 2011, 2015, 2019 and 2020. The data set consists of approximately 35 million trades as submitted to the MSRB's Real-Time Transaction Reporting System (RTRS). To focus this analysis on secondary market customer trading in fixed-rate, long-term transactions only, the following categories of municipal trades were eliminated from the analysis when possible:

- variable rate securities;
- short-term instruments under nine months including variable rate instruments, auction rate products and commercial paper; and
- list offering price and takedown transactions, which generally encompass primary market transactions.

As mentioned above, external liquidity is defined as when a customer purchase (sale) is filled using the offering (bid) of a different and unaffiliated dealer than the client's dealer. The related inter-dealer trade will be for the same quantity as the customer buy or sell and transacted on the same day.[3] Customer transactions on any day other than the day the dealer bought (sold) the position are considered to be internal liquidity because the dealer held a position overnight, incurring additional risk and cost to finance the position.[4]

The report seeks, among other things, to identify and match customer and inter-dealer transactions based on the CUSIP, trade date, par amount and executing dealer.

[3] While external liquidity was quantified by using a corresponding interdealer trade in the same day, results using a shorter time window, e.g., one or two hours were not significantly different.

[4] Several firms with significant trading volume employ a two broker-dealer model where the capital and risk taking is with one broker-dealer and the individual investor transactions are done with a different broker-dealer. This model results in an inter-dealer trade between the affiliated dealers for all or almost all transactions with individual investors. This paper does not consider a customer trade to be filled with external liquidity unless the risk taking broker-dealer has an offsetting inter-dealer trade on the same day.

Figure 1 illustrates a small sample of the data used in the report for three different instances of external liquidity matches.

Figure 1. External Liquidity Sample

Trade Date	Trade Time	Par Amount	Trade Type	Buying Entity	Selling Entity
01/06/2015	12:15:32 PM	$50,000	Cust Purchase	Customer	Dealer 123
01/06/2015	14:15:11 PM	$50,000	Inter-dealer	Dealer 123	Dealer ABC
06/09/2019	11:10:57 AM	$150,000	Cust Sale	Dealer XYZ	Customer
06/09/2019	11:10:59 AM	$150,000	Cust Buy	Customer	Dealer 456
06/09/2019	11:11:31 AM	$150,000	Inter-dealer	Dealer ERT	Dealer XYZ
03/13/2020	9:15:04 AM	$125,000	Cust Purchase	Customer	Dealer 789
03/13/2020	12:27:42 PM	$80,000	Cust Purcahse	Customer	Dealer UIO
03/13/2020	12:27:42 PM	$80,000	Inter-dealer	Dealer UIO	Dealer 159
03/13/2020	12:27:42 PM	$80,000	Inter-dealer	Dealer 159	Dealer NHY
03/13/2020	1:59:25 PM	$500,000	Inter-dealer	Dealer 159	Dealer ERT

It should be noted that the methodology used does not account for transactions of different par amount sizes and, therefore, for example, it is possible that one larger purchase that is subsequently sold as smaller pieces could be categorized as external liquidity but not counted in this report. Similarly, a dealer could buy a bond to place into their inventory without an offsetting customer order but receive a customer order later that day for the same amount. This report would count this trade as being filled with external liquidity, when it is reasonable to categorize this pattern as being a trade filled internally.

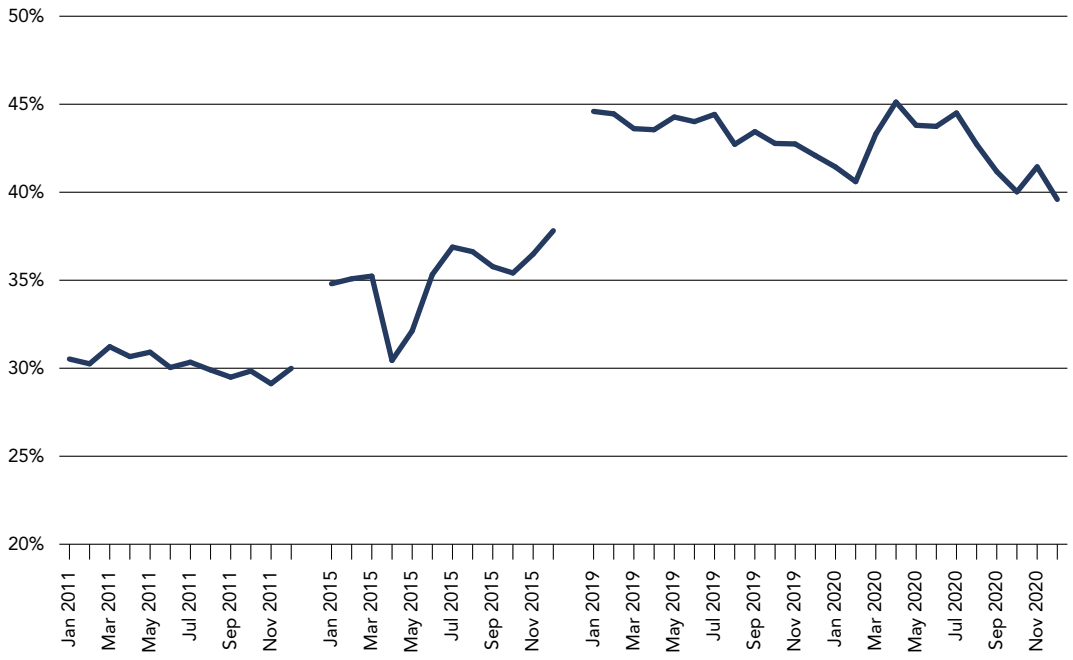
Overall Findings

All Customer Transactions

Analysis shows that the use of external liquidity increased significantly since 2011, as shown in Figure 2. For transactions of $100,000 or less, the use of external liquidity accounted for 30.2% of all customer trades in 2011. By 2015, over 35% of customer transactions used external liquidity before increasing to 43.6% in 2019. In 2020, the use of external liquidity was more volatile than the previous years analyzed, likely due to the market disruption caused by the pandemic. While 42.4% of all customer transactions of $100,000 or less used external liquidity in 2020, slightly less than in 2019, this number was elevated for several months starting in March, peaking in April at the height of the market dislocation at 45.1% and in July at 44.5%.

The percentage of customer trades of $100,000 or less using external liquidity is similar to that for customer trades of $50,000. This seems to indicate that while the use of external liquidity is very common for smaller transactions, the actual size of the trades is less significant. For example, in 2020, the use of external liquidity in trades of $50,000 or less accounted for 43.4% compared to 42.4% for trades of $100,000 or less.

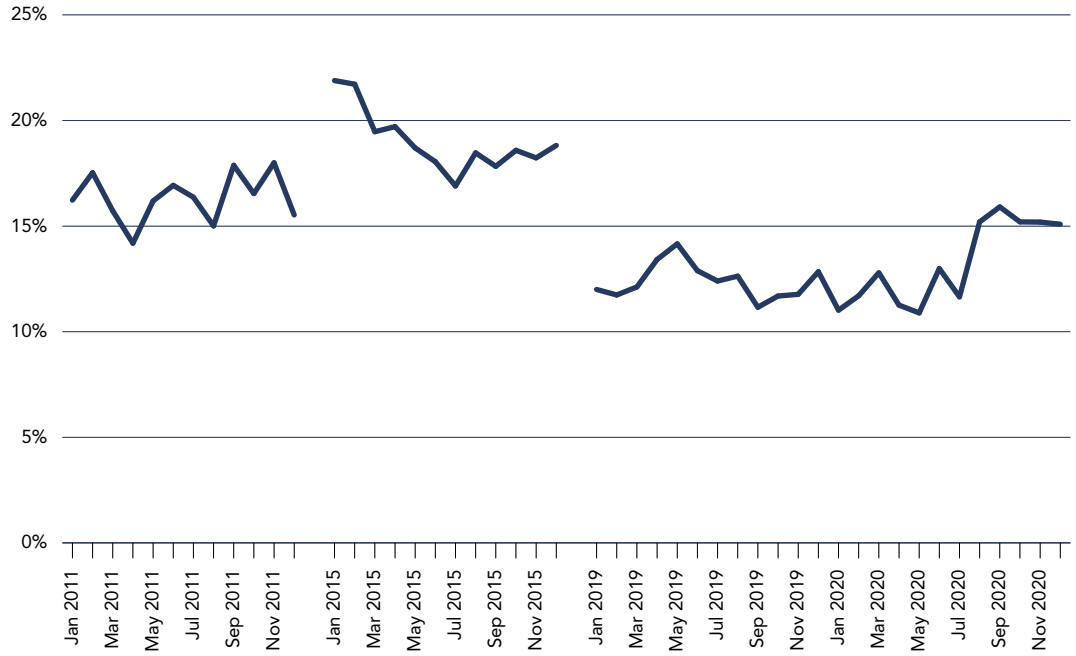
Figure 2. Customer Trades Using External Liquidity (Transactions of $100,000 or Less)



For larger transactions of $1 million or more, the use of external liquidity increased from 16.3% of all customer trades in 2011 to 19.0% in 2015. However, the use decreased after 2015 to 12.4% in 2019 before increasing slightly in 2020 to 13.0%. If the market disruption in 2020 impacted the use of external liquidity for larger transactions, it was less evident in March and April than the impact on smaller transactions as noted earlier, although the use of external liquidity increased to 14.7% in the last six months of the year. See Figure 3.

In 2020, the use of external liquidity consistently decreased as the size of the block increased. External liquidity accounted for 14.1% of trades of more than $1 million to $2.5 million, 9.8% of trades of more than $2.5 million to $5 million, 8.1% of trades of more than $5 million to $10 million and 3.6% of trades over $10 million.

Figure 3. Customer Trades Using External Liquidity (Transactions of $1 Million or More)



Customer Purchases and Sales

While certain periods analyzed for this report show similarities in the use of external liquidity between customer purchases and sales, there are some key differences, as illustrated in Figure 4. For smaller transactions of $100,000 or less, the use of external liquidity for customer purchases increased from 30% in 2011 to 33.1% in 2015 before reaching a high of 42.8% and 42.4% in 2019 and 2020, respectively. A similar trend was found in customer sales of $100,000 or less, with the use of external liquidity increasing from 30.7% in 2011 to 39.0% in 2015 before reaching a high of 44.9% in 2019 and decreasing slightly to 42.5% in 2020. While differences between customer purchases and sales were less significant in 2011 and 2020, external liquidity use had a larger variance in 2015 and 2019. See Figures 4 and 5.

Figure 4. Use of External Liquidity as a Percentage of Customer Trades (Transactions of $100,000 or Less)

	2011	2015	2019	2020
Customer Sales	30.7%	39.0%	44.9%	42.5%
Customer Purchases	30.0%	33.1%	42.8%	42.4%
Difference	0.7%	5.9%	2.1%	0.1%

For 2020, this paper focuses on the months of March and April, a period of severe market dislocation followed by a quick recovery. This approach provides an opportunity to compare these two months of uncertainty and increased liquidity difficulties with other more typical months in 2020. While the use of external liquidity was similar in terms of customer purchases and sales in 2020, there was considerable volatility during certain months of the year, particularly for customer purchases in March and April. The use of external liquidity for customer purchases of $100,000 or less was 39.6% in February before increasing to 45.8% in March and peaking at 46.7% in April. The use of external liquidity for customer sales of $100,000 or less showed very little change. External liquidity accounted for 41.8% of customer sales in February, decreasing to 40.0% in March, before increasing to 42.8% in April and 45.4% in June. By December of 2020, the use of external liquidity had decreased to 38.5% for customer purchases and 40.8% for customer sales. The data clearly shows that the use of external liquidity for smaller-sized trades increased for customer purchases in March and April 2020.

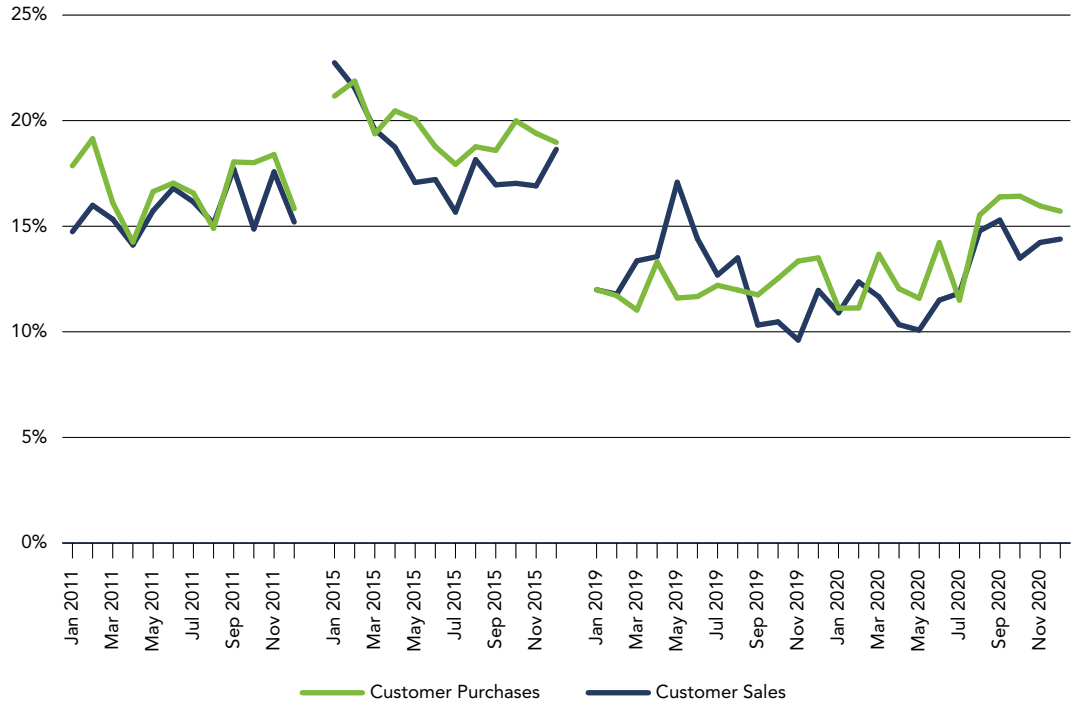
Figure 5. Comparison of Customer Purchases and Customer Sales Using External Liquidity (Transactions of $100,000 or Less)

The use of external liquidity for customer purchases of $1 million or more accounted for 16.9% of all customer purchases in 2011. That level increased to 19.6% in 2015 before decreasing to 12.2% in 2019 and increasing again to 13.7% in 2020, as shown in Figures 6 and 7. For customer sales of the same size, a similar pattern occurred: an increase from 2011 to 2015 before decreasing in 2019 and 2020.

Figure 6. Use of External Liquidity as a Percentage of Customer Trades (Transactions of $1 Million or More)

	2011	2015	2019	2020
Customer Sales	15.7%	18.4%	12.8%	12.3%
Customer Purchases	16.9%	19.6%	12.2%	13.7%
Difference	1.2%	1.2%	0.6%	1.4%

Figure 7. Difference Between Customer Purchases and Customer Sales Using External Liquidity (Transactions of $1 Million or More)



Trading Patterns During the 2020 Market Disruption

Most of this paper focuses on how customer demand is satisfied using internal versus external liquidity. This section discusses general characteristics of the firms that ultimately provided the external liquidity and changes observed during the market dislocation in March 2020.

The profile of the firms providing external liquidity significantly changed from 2011 to 2020. In fact, of the top 10 providers of external liquidity in 2011, only three remained in the top 10 in 2020.[5] In 2011, the providers of external liquidity were dominated by large wealth management firms with large numbers of individual investors, often referred as national firms. In 2020, the providers of external liquidity were almost evenly divided between

[5] In the case of RTRS submissions, the MSRB does not disseminate the identity of firms transacting in the municipal market.

national firms and firms that have little or no individual investors and whose business model is to make markets on a wide variety of bonds on various trading platforms in order to capture order flow for customer purchases and customer sales for odd-lots and smaller block positions. These relatively newer entrants into the market have grown their market share dramatically in the past 10 years and established themselves as significant providers of liquidity in the odd-lot and smaller block position sizes.

Since 2011, the percentage of external liquidity market share has become more concentrated. In 2011, the top three, five and 10 dealers providing external liquidity accounted for 18%, 26% and 42% of all liquidity by number of trades. By 2020, those numbers had increased to 23%, 31% and 45%, respectively. See Figure 8.

Figure 8. External Liquidity Provided by Top Dealers

	2011	2020	Difference
Top Three Dealers	18%	23%	3%
Top Five Dealers	26%	31%	5%
Top 10 Dealers	42%	45%	3%

Since 2011, there has been a significant decrease in the number of firms providing external liquidity. In 2011, 734 firms had at least one trade as an external liquidity provider compared to 518 in 2020. However, when looking at firms with 500 or more trades in a year (less than 10 per week), the numbers have actually increased slightly from 150 in 2011 to 156 in 2020. This trend is consistent with previous MSRB findings showing that while the number of registered dealers declined, the vast majority of the firms exiting the market did not have a significant presence in the market.[6] As Figure 9 shows, although the number of firms providing liquidity in 2020 has significantly declined from 2011, the number of firms providing "significant" liquidity continues to rise.

Figure 9. Firms Providing External Liquidity by Number of Trades

	Number of Firms	
Number of Trades	2011	2020
5,000 Trades or More	49	60
10,000 Trades or More	28	42
20,000 Trades or More	18	23

In any research of market activity that includes 2020, there is a unique opportunity to analyze market changes that occurred during the market dislocation in March 2020 related to the pandemic. When considering the market share of the top 10 liquidity providers in March 2020 compared to January and February 2020, three firms increased their market share, two firms had virtually the same market share and five firms experienced reduced market share

[6] *See* "Dealer Participation and Concentration in Municipal Securities Trading," Research Paper, Municipal Securities Rulemaking Board, May 2019.

in March 2020 compared to January and February. The top 10 firms increased market share to 51.9% in March, compared to about 47% in January and February. However, this gain is largely attributed to one firm. The three firms with the largest increase saw their combined market share grow from 16.0% to 29.7% in March. All three of these firms have little to no distribution to individual investors but rather widely distribute bid (mostly in response to RFQs) and offer size quotes. Similarly, the five firms that saw their market share decline collectively had their market share go from approximately 26% in January and February to 16.6% in March. Four of these firms have significant distribution to individual investors, the other is an alternative trading platform (ATS).

When looking at liquidity providers for customer sales, the top 10 firms providing external liquidity had little change in their combined market share from 49.7% in January and February to 48.9% in March.[7] However, one firm's increased market share is predominantly the reason these numbers stayed steady. The top firm in March 2020 had a market share almost equal to the combined market share of the next eight largest liquidity providers. While this firm was still the top liquidity provider in January and February, its market share was less than the combined market share of the second and third firms. Three of the top 10 firms providing market liquidity increased their combined market share from 17.2% in January and February to 28.7% in March. One of these three firms has a large network of individual investors while the other two do not. Five firms experienced a decline in their combined market share from 25.4% in January and February to 13.0% in March. Three of these five firms have large individual investor networks, one is a trading platform and the other does not distribute directly to individual investors.

The top 10 external providers of liquidity for customer purchases collectively increased their market share from 45.8% in January and February to 53.6% in March. The four firms that increased market share raised their cumulative market share to 34.1% from 18.1%. None of these firms has any significant distribution to individual investors. Again, one firm was responsible for the vast majority of the market share gains. Their market share was nearly equal to the combined market share of the next six largest liquidity providers in March, while it was significantly less than that in January and March. Of the five firms that saw their market share decline, four have large individual investor networks and one is an electronic trading platform. Collectively, their market share declined to 17.4% in March from 25.5% in January and February.

When looking at the change in March compared to January and February of 2020, all the firms that have little or no individual investors competing for order flow increased their external liquidity market share for customer transactions while all the national firms saw a decrease in market share. This could be attributable to national firms prioritizing their capital for their own customers rather than the street.

[7] While external liquidity percentages for customer sales did not change much in March and April 2020, bid-wanted data from the two ATS platforms predominantly for smaller-sized RFQs shows that there were more than twice as many bid-wanteds in March and April when compared to February 2020 and the number of responses per bid-wanted declined from a median of six in February to three in March and April.

Conclusion

As the landscape of the municipal market has evolved, the way market participants access the market has changed considerably since 2011. Electronic trading and liquidity aggregation tools have changed how dealers and other market participants access the market. External liquidity—defined in this report as when a customer purchase (sale) is filled using the offering (bid) of a different and unaffiliated dealer than the client's dealer—increased significantly for transactions of $100,000 or less while decreasing for transactions of $1 million or more.

For customer transactions of $100,000 or less, the use of external liquidity increased from 30.2% in 2011 to 42.4% in 2020. During the same period, the use of external liquidity for transactions of $1 million or more decreased from 16.3% to 13.0%.

In 2020, the market disruption caused by the pandemic created some volatility in the use of external liquidity, particularly for customer purchases in March and April and smaller-sized transactions. Customer purchases averaged 39.6% in February before increasing to 45.8% in March and peaking at 46.7% in April. For customer sales, the average of 41.8% in February decreased to 40% in March before increasing to 45.4% in June. By December of 2020, the use of external liquidity had decreased to 38.5% for customer purchases and 40.8% for customer sales.

MSRB staff will continue to monitor the use of external liquidity in the marketplace and will update this report when appropriate.

ABOUT THE MSRB

The Municipal Securities Rulemaking Board (MSRB) protects and strengthens the municipal bond market, enabling access to capital, economic growth, and societal progress in tens of thousands of communities across the country. The MSRB fulfills this mission by creating trust in our market through informed regulation of dealers and municipal advisors that protects investors, issuers and the public interest; building technology systems that power our market and provide transparency for issuers, institutions, and the investing public; and serving as the steward of market data that empowers better decisions and fuels innovation for the future. The MSRB is a self-regulatory organization governed by a board of directors that has a majority of public members, in addition to representatives of regulated entities. The MSRB is overseen by the Securities and Exchange Commission and Congress.

MSRB

CORPORATE OFFICE
Municipal Securities
Rulemaking Board
1300 I Street NW, Suite 1000
Washington, DC 20005
202-838-1500

MSRB SUPPORT
202-838-1330
MSRBSupport@msrb.org

ONLINE
MSRB.org
EMMA.MSRB.org
Twitter: @MSRB_News