## IIIMSRB

Municipal Securities Rulemaking Board


# Dealer Participation and Concentration in Municipal Securities Trading 



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#### Abstract

This report examines municipal securities market dealer concentration and participation in 2018, and is an update and expansion of a previous report published by the Municipal Securities Rulemaking Board (MSRB) in June 2018, which examined 2017 trends. ${ }^{1}$ Similar to the previous report, this report measures changes and identifies trends in the trading activity of municipal securities dealers. ${ }^{2}$ These trends are evaluated through two distinct measures: dealer participation and concentration of customer trades. Dealer participation is defined as the total number of dealers participating in customer municipal trades. Dealer concentration is defined as the market share of the 50 most-active dealers in terms of customer trading activity in the municipal market. Dealer participation and concentration are different measures of liquidity that provide unique insights in the municipal securities market. Changes occurring in these measures provide a means of quantifying how dealer activity has shifted over time concurrent with the decline in the number of MSRB-registered dealers participating in the municipal securities market.


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## Municipal Market Trading Activity Overview

Overall trading activity in the municipal securities market increased in 2018 with par traded up $3.7 \%$ to $\$ 3.09$ trillion, or about $\$ 12.3$ billion per day, compared to $\$ 2.98$ trillion in 2017. The number of trades increased $2.9 \%$ to 10.2 million trades in 2018, or 40,372 trades per day, up from the 9.89 million trades in 2017, and the highest since 2013, as shown in Figure 1. From 2006 to 2017, an average of nearly 39,000 transactions in municipal securities was reported to the MSRB each trading day, resulting in an average total trading value of about $\$ 14$ billion per day. ${ }^{3}$ In 2018, approximately $39 \%$ of all trades consisted of sales from dealers to customers while $23 \%$ represented purchases by dealers from customers. The remaining trades were conducted between dealers. By comparison, between 2006 and 2017, sales by dealers to customers accounted for $45 \%$ and purchases by dealers from customers accounted for $21 \%$ of all trades. Trades of $\$ 100,000$ or less remained relatively stable and accounted for approximately $85 \%$ of all customer trades for 2006, 2011, 2017 and 2018, while trades of $\$ 1,000,000$ or more accounted for $3.2 \%$ of all customer trades on average. In terms of par amount traded, trades of $\$ 100,000$ or less increased from $9.6 \%$ of all customer par amount traded in 2006 to $18.2 \%$ in 2011 before decreasing to $14.4 \%$ in 2018. Trades of $\$ 1,000,000$ or more accounted for $66.8 \%$ of par amount traded in 2018, down from the $78.4 \%$ in $2006 .{ }^{4}$

Figure 1. Municipal Trading Activity


Source: MSRB

[^1]
## Overview of Data Used and Calculation Methodology

This report is based on a set of transaction data and related descriptive data for calendar years 2006, 2011, 2017 and 2018. The data set consists of approximately 48 million trades. To focus this analysis on secondary market customer trading in fixed-rate, tax-exempt, longterm transactions only, the following categories of municipal trades were eliminated from the analysis when possible:

- variable rate securities;
- taxable securities;
- inter-dealer transactions;
- securities that mature in one year or less; and
- list offering price and takedown transactions, which generally encompass primary market transactions.

The data are categorized by customer trade type—customer purchases and customer sales—and trade sizes, including trades of \$100,000 or less, trades greater than \$100,000 but less than $\$ 1,000,000$, and trades of $\$ 1,000,000$ or more. Calculations were based on both the number of trades and par amount traded for specific periods.

While summaries of the findings are shown in Figures 3, 4, 5 and 6, a more comprehensive set of statistics can be found in Appendices A and B.

## Dealer Participation

As noted in the previous report, the number of registered municipal securities dealers has decreased over time, as shown in Figure 2. Several factors have affected the number of registered dealers, including consolidation of broker-dealers and dealers exiting the municipal securities business. The number of registered dealers as of October 1, 2018, compared to the number of dealers as of October 1, 2017, decreased 5.1\%.

Figure 2. Number of MSRB-Registered Dealers, 2009-2018
As of October 1 each year


Source: MSRB

The analysis shows that the decline in participating dealers is largely concentrated in dealers that did not have a significant presence in the municipal securities market. In 2006, 1,426 dealers conducted municipal securities trades. In 2011, 471 of the 1,426 dealers did not conduct any trades. It should be noted that the majority of the 471 dealers conducted 50 or fewer trades in $2006 .{ }^{5}$ Of the 110 dealers that did not trade in 2018 , nearly $80 \%$ effected 50 trades or less in 2017, as shown in Figure 3.

It is important to reiterate that several factors can influence the number of MSRB-registered dealers, however, in general, dealers that left the business did not execute a significant number of municipal securities transactions.

While the number of registered dealers decreased by 69 in 2018 from 2017, 57 new dealers registered with the MSRB in 2017 and 2018. New entrants accounted for about 680,000 trades and $\$ 44.3$ billion in trading activity in 2017 and 2018, collectively.

[^2]Figure 3. Changes in Dealer Participation
$\left.\begin{array}{l|c|c|c}\hline \text { Participating Dealers } \\ \text { in 2006 not } \\ \text { Participating in 2011 }\end{array} \begin{array}{cccc}\text { Participating Dealers } \\ \text { in 2011 not } \\ \text { Participating in 2017 }\end{array} \quad \begin{array}{c}\text { Participating Dealers } \\ \text { in 2017 not } \\ \text { Participating in 2018 }\end{array}\right]$

The analysis shows that trends observed in the previous report continued in 2018. While the number of dealers with 10 or fewer customer trades in 2018 rose to $20.5 \%$ in 2018 compared to $18.2 \%$ in 2017 , the percentage of dealers with the smallest number of trades was still significantly lower than $25.1 \%$ in 2006 . Dealers with 250 trades or less, or about five trades per week, accounted for $58.9 \%$ of all dealers in 2018-a substantial decline from $70.5 \%$ of dealers in 2006. Dealers that executed more than 1,000 customer trades in 2018 accounted for $24.8 \%$ of all dealers that conducted trades in 2018 —up slightly from $24.2 \%$ in 2017, but up significantly from $15.8 \%$ in 2006 . The number of dealers executing more than 25,000 trades per year continued to increase in 2018 to 43 , or $5 \%$ of all dealers, up from 39 dealers in 2017 , or $4.5 \%$ of all dealers, and 27 dealers in 2006 , or $1.9 \%$ of all dealers. A similar trend is observed when looking at the par amount traded. Changes in dealer concentration indicate that while the number of overall registered dealers has decreased since 2006, a larger percentage of dealers are participating in more transactions, both in terms of the number of trades and par traded in 2018 when compared to 2006. A summary of these findings can be found in Figures 4 and 5.

Figure 4. Dealer Participation—Number of Dealers Participating in Trades All Customer Trades Based on Number of Trades
(Additional statistics on dealer participation can be found in Appendix A)

|  | 2006 |  | 2011 |  | 2017 |  | 2018 |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
|  | Number of Dealers | Percentage of Total Dealers | Number of Dealers | Percentage of Total Dealers | Number of Dealers | Percentage of Total Dealers | Number of Dealers | Percentage of Total Dealers |
| Dealers with 1-10 Trades | 358 | 25.1\% | 271 | 22.6\% | 157 | 18.2\% | 176 | 20.5\% |
| Dealers with 11-100 Trades | 470 | 33.0\% | 364 | 30.4\% | 273 | 31.6\% | 242 | 28.2\% |
| Dealers with 101-1,000 Trades | 373 | 26.2\% | 328 | 27.4\% | 226 | 26.1\% | 226 | 26.3\% |
| Dealers with 1,001-2,500 Trades | 87 | 6.1\% | 76 | 6.3\% | 69 | 8.0\% | 75 | 8.7\% |
| Dealers with 2,501-25,000 Trades | 111 | 7.8\% | 127 | 10.6\% | 101 | 11.7\% | 96 | 11.1\% |
| Dealers with More than 25,000 Trades | 27 | 1.9\% | 31 | 2.6\% | 39 | 4.5\% | 43 | 5.0\% |

Figure 5. Dealer Participation—Number of Dealers Participating in Trades All Customer Trades Based on Par Amount Traded
(Additional statistics on dealer participation can be found in Appendix A)

|  | 2006 |  | 2011 |  | 2017 |
| :--- | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |

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## Dealer Concentration

Dealer concentration-defined in this report as the dealer market share of municipal customer trades-continued to decrease in 2018, both in terms of the number of trades conducted and par amount traded. The top three dealers accounted for $19.7 \%$ of customer trades and $24.5 \%$ of par amount traded in 2018, both lower than the $23.8 \%$ in trades and $25.6 \%$ of par traded in 2017. Based on the number of customer trades, concentration in the top five and top 10 dealers also declined significantly in 2018 compared to 2017. Concentration in the top 30, 40 and 50 dealers remained relatively stable over the years across the different trade sizes. Generally, the concentration is higher in terms of the par amount traded than in the number of trades conducted. For example, the top 15 dealers accounted for nearly $58 \%$ of all trades in 2018, compared to the $63.8 \%$ in terms of par amount traded in 2018.

For customer trades of $\$ 100,000$ or less-often characterized as retail-sized transactionsthe top three dealers accounted for $21.8 \%$ in terms of the number of trades and $20.6 \%$ of the par amount traded in 2018, compared to $25.3 \%$ and $25.6 \%$ in 2017 and $31.5 \%$ and $31.4 \%$ in 2006, respectively. Additionally, changes in customer sales of $\$ 100,000$ or less were more pronounced, declining from $29 \%$ in 2006 to $18.6 \%$ in 2018, based on par amount traded. While the analysis shows that the top three dealers accounted for fewer retail-sized trades, the number of trades of retail-sized transactions in the top 50 dealers increased from $84 \%$ in 2006 to $85.7 \%$ in 2017 and $86.7 \%$ in 2018.

For institutional-sized trades of $\$ 1,000,000$ or more, trading for the top three dealers decreased slightly from $34.9 \%$ in 2017 to $34 \%$ in 2018 based on par amount traded. That trend was significantly lower compared to $41.5 \%$ in 2006. Compared to smaller-sized trades, larger block trades of $\$ 1$ million or more continued to be more concentrated, despite overall improvements in concentrations in smaller trade sizes over the years. For example, the top 15 dealers accounted for $47.7 \%$ of trades of more than $\$ 100,000$ and less than $\$ 1$ million in 2018 compared to $78.5 \%$ for trades of $\$ 1$ million or more in 2018.

While the composition of the top five dealers in 2018 did not change compared to 2017, eight of the top 10 dealers and 18 out of the top 20 dealers in 2018 were in the top 10 and top 20 dealers in 2017.

The decrease in concentration in the top five dealers and a greater number of dealers participating in both large and small trades could be a sign of greater overall market liquidity, increased competition for customer business and a sign that customers are not as reliant on a few dealers as before.

Figure 6. Dealer Concentration—Percentage of Trades Conducted by the Top 50 Dealers All Customer Trades Based on Number of Trades
(Additional statistics on dealer concentration can be found in Appendix B)

|  | $\$ 100,000$ or Less |  |  |  | \$1 Million or More |  |  |  |  | All Sizes |  |  |
| :--- | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
|  | 2006 | 2011 | 2017 | 2018 | 2006 | 2011 | 2017 | 2017 | 2006 | 2011 | 2017 | 2018 |
| Top 3 Dealers | $31.5 \%$ | $32.2 \%$ | $25.3 \%$ | $21.8 \%$ | $27.9 \%$ | $21.9 \%$ | $26.4 \%$ | $24.7 \%$ | $29.4 \%$ | $29.4 \%$ | $23.8 \%$ | $19.7 \%$ |
| Top 5 Dealers | $45.4 \%$ | $46.7 \%$ | $37.2 \%$ | $31.1 \%$ | $39.3 \%$ | $32.6 \%$ | $36.5 \%$ | $37.6 \%$ | $42.2 \%$ | $43.3 \%$ | $34.6 \%$ | $28.5 \%$ |
| Top 10 Dealers | $63.3 \%$ | $64.2 \%$ | $54.8 \%$ | $49.4 \%$ | $59.7 \%$ | $50.2 \%$ | $54.6 \%$ | $55.9 \%$ | $58.8 \%$ | $60.1 \%$ | $51.9 \%$ | $46.5 \%$ |
| Top 15 Dealers | $68.1 \%$ | $69.7 \%$ | $64.0 \%$ | $61.3 \%$ | $70.0 \%$ | $60.1 \%$ | $66.4 \%$ | $67.7 \%$ | $63.9 \%$ | $66.2 \%$ | $60.7 \%$ | $57.8 \%$ |
| Top 20 Dealers | $71.7 \%$ | $73.8 \%$ | $69.2 \%$ | $68.7 \%$ | $75.6 \%$ | $66.2 \%$ | $74.9 \%$ | $76.2 \%$ | $68.2 \%$ | $70.8 \%$ | $65.8 \%$ | $65.1 \%$ |
| Top 30 Dealers | $77.3 \%$ | $79.4 \%$ | $76.5 \%$ | $76.9 \%$ | $83.3 \%$ | $76.5 \%$ | $84.8 \%$ | $84.9 \%$ | $74.6 \%$ | $76.4 \%$ | $73.7 \%$ | $73.2 \%$ |
| Top 40 Dealers | $81.2 \%$ | $83.0 \%$ | $81.8 \%$ | $82.8 \%$ | $87.9 \%$ | $83.5 \%$ | $89.8 \%$ | $89.7 \%$ | $79.0 \%$ | $80.4 \%$ | $79.1 \%$ | $79.0 \%$ |
| Top 50 Dealers | $84.0 \%$ | $85.7 \%$ | $85.7 \%$ | $86.7 \%$ | $90.8 \%$ | $88.9 \%$ | $93.0 \%$ | $93.1 \%$ | $82.1 \%$ | $83.4 \%$ | $83.5 \%$ | $83.5 \%$ |

Figure 7. Dealer Concentration—Percentage of Trades Conducted by the Top 50 Dealers All Customer Trades Based on Par Amount Traded
(Additional statistics on dealer concentration can be found in Appendix B)

|  | $\$ \mathbf{S 1 0 0 , 0 0 0}$ or Less |  |  |  | \$1 Million or More |  |  |  |  | All Sizes |  |  |
| :--- | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
|  | 2006 | 2011 | 2017 | 2018 | 2006 | 2011 | 2017 | 2018 | 2006 | 2011 | 2017 | 2018 |
| Top 3 Dealers | $31.4 \%$ | $26.9 \%$ | $25.6 \%$ | $20.6 \%$ | $41.5 \%$ | $32.1 \%$ | $34.9 \%$ | $34.0 \%$ | $37.0 \%$ | $24.4 \%$ | $25.6 \%$ | $24.5 \%$ |
| Top 5 Dealers | $42.6 \%$ | $41.1 \%$ | $35.4 \%$ | $30.2 \%$ | $56.8 \%$ | $46.9 \%$ | $48.4 \%$ | $49.6 \%$ | $49.8 \%$ | $34.8 \%$ | $35.9 \%$ | $37.3 \%$ |
| Top 10 Dealers | $58.5 \%$ | $59.0 \%$ | $53.3 \%$ | $48.3 \%$ | $77.4 \%$ | $67.8 \%$ | $68.0 \%$ | $69.8 \%$ | $68.1 \%$ | $52.6 \%$ | $53.5 \%$ | $54.3 \%$ |
| Top 15 Dealers | $63.8 \%$ | $65.4 \%$ | $61.6 \%$ | $59.4 \%$ | $85.4 \%$ | $74.7 \%$ | $76.7 \%$ | $78.5 \%$ | $76.0 \%$ | $63.2 \%$ | $63.9 \%$ | $63.8 \%$ |
| Top 20 Dealers | $68.0 \%$ | $70.3 \%$ | $66.7 \%$ | $65.8 \%$ | $88.9 \%$ | $79.8 \%$ | $83.5 \%$ | $85.0 \%$ | $80.8 \%$ | $69.1 \%$ | $71.0 \%$ | $70.8 \%$ |
| Top 30 Dealers | $74.3 \%$ | $76.1 \%$ | $74.0 \%$ | $74.4 \%$ | $92.9 \%$ | $86.5 \%$ | $90.6 \%$ | $91.2 \%$ | $86.0 \%$ | $76.9 \%$ | $79.9 \%$ | $80.0 \%$ |
| Top 40 Dealers | $78.9 \%$ | $80.3 \%$ | $79.5 \%$ | $80.1 \%$ | $94.9 \%$ | $90.7 \%$ | $94.0 \%$ | $94.3 \%$ | $89.3 \%$ | $82.4 \%$ | $85.0 \%$ | $85.3 \%$ |
| Top 50 Dealers | $82.0 \%$ | $83.3 \%$ | $83.9 \%$ | $84.1 \%$ | $96.2 \%$ | $93.9 \%$ | $96.1 \%$ | $96.3 \%$ | $91.4 \%$ | $86.4 \%$ | $88.3 \%$ | $88.7 \%$ |

## Conclusion

As noted in the MSRB report published in 2018, municipal securities dealer concentration and participation has changed significantly since 2006. Those trends continued in 2018, with the top 10 dealers accounting for less market share of customer trades compared to 2017.

The data also show that most dealers that did not conduct trades in 2018 provided little liquidity in the market in 2017, with over half of the dealers participating in fewer than 10 trades. Meanwhile, the number of dealers that executed a substantial amount of business, categorized as more than 25,000 trades per year, continued to increase in 2018 to 43, or $5 \%$ of all dealers, up from 39 dealers in 2017, or $4.5 \%$ of all dealers, and 27 dealers in 2006, or $1.9 \%$ percent of all dealers. Additionally, dealer concentration varies based on trade size with a higher concentration in institutional-sized trades compared to smaller trades (less than $\$ 1$ million). While it is hard to identify the exact reasons for changes in concentration and participation over the years, growth in algorithmic trading, which did not exist in 2006, is a relatively new source of liquidity and may have contributed to these changes, particularly for small-sized transactions, as well as investments by dealers in technology to improve trading efficiency.

It is also important to note that while the decline in the number of MSRB-registered dealers continued in 2018, 57 new dealers registered with the MSRB in 2017 and 2018. These new registrants accounted for about 680,000 trades and $\$ 44.3$ billion in trading activity in those two years.

The MSRB welcomes feedback and suggestions on this report, as well as recommendations on additional analysis that could be helpful to municipal market stakeholders. Please contact MSRB Director of Research Marcelo Vieira at mvieira@msrb.org or 202-838-1500. View more statistical reports and analyses of municipal market trade activity on the MSRB's website at www.MSRB.org.

## Appendix A: Dealer Participation

Number of Dealers Participating in Customer Trades Based on the Number of Trades
Tax-exempt, long-term, fixed-rate municipal securities-excluding list offering price transactions when possible
All Customer Trades

|  | 2006 |  |  | 2011 |  |  | 2017 |  |  | 2018 |  |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| Total Dealers | 1,426 |  |  | 1,197 |  |  | 865 |  |  | 858 |  |  |
| Trade Distribution | Number of Dealers | Percentage of Total Dealers | Trading Impact | Number of Dealers | Percentage of Total Dealers | Trading Impact | Number of Dealers | Percentage of Total Dealers | Trading Impact | Number of Dealers | Percentage of Total Dealers | Trading Impact |
| Dealers with 1-5 Trades | 256 | 18.0\% | 0.01\% | 184 | 15.4\% | 0.01\% | 120 | 13.9\% | 0.01\% | 120 | 14.0\% | 0.01\% |
| Dealers with 6-10 Trades | 102 | 7.2\% | 0.02\% | 87 | 7.3\% | 0.01\% | 37 | 4.3\% | 0.01\% | 56 | 6.5\% | 0.01\% |
| Dealers with 11-25 Trades | 189 | 13.3\% | 0.07\% | 135 | 11.3\% | 0.04\% | 102 | 11.8\% | 0.03\% | 94 | 11.0\% | 0.03\% |
| Dealers with 26-50 Trades | 141 | 9.9\% | 0.12\% | 111 | 9.3\% | 0.08\% | 81 | 9.4\% | 0.06\% | 67 | 7.8\% | 0.05\% |
| Dealers with 51-100 Trades | 140 | 9.8\% | 0.23\% | 118 | 9.9\% | 0.16\% | 90 | 10.4\% | 0.13\% | 81 | 9.4\% | 0.11\% |
| Dealers with 101-250 Trades | 177 | 12.4\% | 0.67\% | 130 | 10.9\% | 0.38\% | 81 | 9.4\% | 0.25\% | 87 | 10.1\% | 0.27\% |
| Dealers with 251-500 Trades | 103 | 7.2\% | 0.83\% | 110 | 9.2\% | 0.72\% | 74 | 8.6\% | 0.52\% | 83 | 9.7\% | 0.59\% |
| Dealers with 501-1,000 Trades | 93 | 6.5\% | 1.53\% | 88 | 7.4\% | 1.16\% | 71 | 8.2\% | 1.04\% | 56 | 6.5\% | 0.75\% |
| Dealers with 1,001-2,500 Trades | 87 | 6.1\% | 3.19\% | 76 | 6.3\% | 2.18\% | 69 | 8.0\% | 2.14\% | 75 | 8.7\% | 2.30\% |
| Dealers with 2,501-10,000 Trades | 82 | 5.8\% | 9.73\% | 91 | 7.6\% | 8.17\% | 71 | 8.2\% | 7.25\% | 69 | 8.0\% | 7.03\% |
| Dealers with More than 10,000 Trades | 56 | 3.9\% | 83.59\% | 67 | 5.6\% | 87.10\% | 69 | 8.0\% | 88.57\% | 70 | 8.2\% | 88.85\% |
| TOTAL TRADES | 4,369,134 |  |  | 5,485,897 |  |  | 5,114,251 |  |  | 5,156,858 |  |  |

Customer Purchases Only

|  | 2006 |  |  | 2011 |  |  | 2017 |  |  | 2018 |  |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| Total Dealers | 1,266 |  |  | 1,071 |  |  | 778 |  |  | 773 |  |  |
| Trade Distribution | Number of Dealers | Percentage of Total Dealers | Trading Impact | Number of Dealers | Percentage <br> of Total <br> Dealers | Trading Impact | Number of Dealers | Percentage of Total Dealers | Trading Impact | Number of Dealers | Percentage <br> of Total <br> Dealers | Trading Impact |
| Dealers with 1-5 Trades | 238 | 18.8\% | 0.02\% | 169 | 15.8\% | 0.01\% | 101 | 13.0\% | 0.01\% | 105 | 13.6\% | 0.01\% |
| Dealers with 6-10 Trades | 114 | 9.0\% | 0.03\% | 75 | 7.0\% | 0.02\% | 51 | 6.6\% | 0.01\% | 56 | 7.2\% | 0.01\% |
| Dealers with 11-25 Trades | 172 | 13.6\% | 0.10\% | 116 | 10.8\% | 0.05\% | 100 | 12.9\% | 0.05\% | 78 | 10.1\% | 0.04\% |
| Dealers with 26-50 Trades | 122 | 9.6\% | 0.15\% | 105 | 9.8\% | 0.10\% | 67 | 8.6\% | 0.07\% | 75 | 9.7\% | 0.09\% |
| Dealers with 51-100 Trades | 120 | 9.5\% | 0.29\% | 108 | 10.1\% | 0.21\% | 68 | 8.7\% | 0.16\% | 73 | 9.4\% | 0.16\% |
| Dealers with 101-250 Trades | 152 | 12.0\% | 0.83\% | 126 | 11.8\% | 0.54\% | 89 | 11.4\% | 0.46\% | 93 | 12.0\% | 0.49\% |
| Dealers with 251-500 Trades | 91 | 7.2\% | 1.11\% | 108 | 10.1\% | 1.03\% | 69 | 8.9\% | 0.77\% | 68 | 8.8\% | 0.76\% |
| Dealers with 501-1,000 Trades | 77 | 6.1\% | 1.84\% | 71 | 6.6\% | 1.33\% | 57 | 7.3\% | 1.23\% | 49 | 6.3\% | 1.13\% |
| Dealers with 1,001-2,500 Trades | 68 | 5.4\% | 3.65\% | 74 | 6.9\% | 3.25\% | 59 | 7.6\% | 2.75\% | 67 | 8.7\% | 3.46\% |
| Dealers with 2,501-10,000 Trades | 70 | 5.5\% | 11.23\% | 72 | 6.7\% | 9.56\% | 69 | 8.9\% | 10.13\% | 60 | 7.8\% | 9.62\% |
| Dealers with More than 10,000 Trades | 42 | 3.3\% | 80.75\% | 47 | 4.4\% | 83.90\% | 48 | 6.2\% | 84.37\% | 49 | 6.3\% | 84.24\% |
| TOTAL TRADES | 2,970,998 |  |  | 3,801,338 |  |  | 3,284,577 |  |  | 3,212,204 |  |  |

Customer Sales Only

|  | 2006 |  |  | 2011 |  |  | 2017 |  |  | 2018 |  |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| Total Dealers | 1,277 |  |  | 1,087 |  |  | 791 |  |  | 776 |  |  |
| Trade Distribution | Number of Dealers | Percentage of Total Dealers | Trading Impact | Number of Dealers | Percentage of Total Dealers | Trading Impact | Number of Dealers | Percentage of Total Dealers | Trading Impact | Number of Dealers | Percentage of Total Dealers | Trading Impact |
| Dealers with 1-5 Trades | 324 | 25.4\% | 0.05\% | 267 | 24.6\% | 0.04\% | 154 | 19.5\% | 0.02\% | 169 | 21.8\% | 0.02\% |
| Dealers with 6-10 Trades | 111 | 8.7\% | 0.06\% | 96 | 8.8\% | 0.04\% | 66 | 8.3\% | 0.03\% | 56 | 7.2\% | 0.02\% |
| Dealers with 11-25 Trades | 190 | 14.9\% | 0.23\% | 143 | 13.2\% | 0.14\% | 99 | 12.5\% | 0.09\% | 85 | 11.0\% | 0.08\% |
| Dealers with 26-50 Trades | 127 | 9.9\% | 0.33\% | 103 | 9.5\% | 0.22\% | 84 | 10.6\% | 0.17\% | 75 | 9.7\% | 0.15\% |
| Dealers with 51-100 Trades | 132 | 10.3\% | 0.67\% | 111 | 10.2\% | 0.46\% | 69 | 8.7\% | 0.26\% | 75 | 9.7\% | 0.28\% |
| Dealers with 101-250 Trades | 136 | 10.6\% | 1.56\% | 96 | 8.8\% | 0.90\% | 83 | 10.5\% | 0.75\% | 88 | 11.3\% | 0.77\% |
| Dealers with 251-500 Trades | 79 | 6.2\% | 1.98\% | 84 | 7.7\% | 1.75\% | 74 | 9.4\% | 1.46\% | 61 | 7.9\% | 1.16\% |
| Dealers with 501-1,000 Trades | 55 | 4.3\% | 2.82\% | 61 | 5.6\% | 2.54\% | 34 | 4.3\% | 1.28\% | 41 | 5.3\% | 1.48\% |
| Dealers with 1,001-2,500 Trades | 52 | 4.1\% | 5.76\% | 47 | 4.3\% | 4.57\% | 37 | 4.7\% | 3.34\% | 38 | 4.9\% | 3.35\% |
| Dealers with 2,501-10,000 Trades | 47 | 3.7\% | 17.30\% | 52 | 4.8\% | 17.35\% | 47 | 5.9\% | 12.24\% | 45 | 5.8\% | 12.68\% |
| Dealers with More than 10,000 Trades | 24 | 1.9\% | 69.24\% | 27 | 2.5\% | 71.99\% | 44 | 5.6\% | 80.36\% | 43 | 5.5\% | 80.00\% |
| TOTAL TRADES | 1,398,136 |  |  | 1,684,559 |  |  | 1,829,674 |  |  | 1,944,654 |  |  |

## Number of Dealers Participating in Customer Trades Based on the Par Amount Traded

Tax-exempt, long-term, fixed-rate municipal securities-excluding list offering price transactions when possible

|  | 2006 |  |  | 2011 |  |  | 2017 |  |  | 2018 |  |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| Total Dealers | 1,426 |  |  | 1,197 |  |  | 865 |  |  | 858 |  |  |
| Trade Distribution | Number of Dealers | Percentage of Total Dealers | Trading Impact | Number of Dealers | Percentage <br> of Total <br> Dealers | Trading Impact | Number of Dealers | Percentage of Total Dealers | Trading Impact | Number of Dealers | Percentage of Total Dealers | Trading Impact |
| Dealers with \$50,000 Par or Less | 102 | 7.2\% | 0.00\% | 72 | 6.0\% | 0.00\% | 51 | 5.9\% | 0.00\% | 47 | 5.5\% | 0.00\% |
| Dealers with \$50,001$\$ 100,000 \mathrm{Par}$ | 70 | 4.9\% | 0.00\% | 47 | 3.9\% | 0.00\% | 22 | 2.5\% | 0.00\% | 30 | 3.5\% | 0.00\% |
| Dealers with $\$ 100,001$ $\$ 500,000$ Par | 196 | 13.7\% | 0.00\% | 170 | 14.2\% | 0.01\% | 90 | 10.4\% | 0.00\% | 99 | 11.5\% | 0.00\% |
| Dealers with $\$ 500,001-$ $\$ 1,000,000 \text { Par }$ | 118 | 8.3\% | 0.01\% | 82 | 6.9\% | 0.01\% | 70 | 8.1\% | 0.01\% | 59 | 6.9\% | 0.00\% |
| Dealers with $\$ 1,000,001$ $\$ 2,000,000 \mathrm{Par}$ | 126 | 8.8\% | 0.01\% | 90 | 7.5\% | 0.02\% | 67 | 7.7\% | 0.01\% | 58 | 6.8\% | 0.01\% |
| Dealers with $\$ 2,000,001$ $\$ 5,000,000$ Par | 162 | 11.4\% | 0.04\% | 128 | 10.7\% | 0.05\% | 93 | 10.8\% | 0.04\% | 91 | 10.6\% | 0.03\% |
| Dealers with $\$ 5,000,001$ $\$ 10,000,000 \mathrm{Par}$ | 118 | 8.3\% | 0.07\% | 101 | 8.4\% | 0.09\% | 58 | 6.7\% | 0.05\% | 66 | 7.7\% | 0.05\% |
| Dealers with \$10,000,001$\$ 25,000,000$ Par | 140 | 9.8\% | 0.18\% | 119 | 9.9\% | 0.24\% | 96 | 11.1\% | 0.18\% | 97 | 11.3\% | 0.15\% |
| Dealers with \$25,000,001$\$ 100,000,000$ Par | 161 | 11.3\% | 0.67\% | 166 | 13.9\% | 1.05\% | 118 | 13.6\% | 0.75\% | 102 | 11.9\% | 0.54\% |
| Dealers with $\$ 100,000,001-$ \$500,000,000 Par | 122 | 8.6\% | 2.31\% | 110 | 9.2\% | 3.21\% | 88 | 10.2\% | 2.36\% | 99 | 11.5\% | 2.28\% |
| Dealers with More than $\$ 500,000,000$ Par | 111 | 7.8\% | 96.70\% | 112 | 9.4\% | 95.32\% | 112 | 12.9\% | 96.61\% | 110 | 12.8\% | 96.93\% |
| TOTAL PAR (\$ Billion) |  | \$1,253 |  |  | \$812 |  |  | \$844 |  |  | \$992 |  |

Customer Purchases Only

|  | 2006 |  |  | 2011 |  |  | 2017 |  |  | 2018 |  |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| Total Dealers | 1,266 |  |  | 1,071 |  |  | 778 |  |  | 773 |  |  |
| Trade Distribution | Number of Dealers | Percentage of Total Dealers | Trading Impact | Number of Dealers | Percentage of Total Dealers | Trading Impact | Number of Dealers | Percentage of Total Dealers | Trading Impact | Number of Dealers | Percentage of Total Dealers | Trading Impact |
| Dealers with \$50,000 Par or Less | 69 | 5.5\% | 0.00\% | 59 | 5.5\% | 0.00\% | 33 | 4.2\% | 0.00\% | 32 | 4.1\% | 0.00\% |
| $\begin{array}{r} \text { Dealers with } \$ 50,001- \\ \$ 100,000 \text { Par } \end{array}$ | 53 | 4.2\% | 0.00\% | 39 | 3.6\% | 0.00\% | 24 | 3.1\% | 0.00\% | 29 | 3.8\% | 0.00\% |
| Dealers with $\$ 100,001$ $\$ 500,000$ Par | 195 | 15.4\% | 0.01\% | 145 | 13.5\% | 0.01\% | 86 | 11.1\% | 0.01\% | 96 | 12.4\% | 0.01\% |
| Dealers with $\$ 500,001-$ $\$ 1,000,000$ Par | 115 | 9.1\% | 0.01\% | 77 | 7.2\% | 0.01\% | 56 | 7.2\% | 0.01\% | 49 | 6.3\% | 0.01\% |
| Dealers with $\$ 1,000,001-$ \$2,000,000 Par | 106 | 8.4\% | 0.02\% | 77 | 7.2\% | 0.02\% | 62 | 8.0\% | 0.02\% | 53 | 6.9\% | 0.01\% |
| Dealers with $\$ 2,000,001-$ $\$ 5,000,000 \mathrm{Par}$ | 161 | 12.7\% | 0.08\% | 126 | 11.8\% | 0.09\% | 86 | 11.1\% | 0.06\% | 91 | 11.8\% | 0.06\% |
| Dealers with $\$ 5,000,001$ $\$ 10,000,000 \mathrm{Par}$ | 113 | 8.9\% | 0.12\% | 84 | 7.8\% | 0.13\% | 66 | 8.5\% | 0.10\% | 68 | 8.8\% | 0.09\% |
| Dealers with \$10,000,001$\$ 25,000,000$ Par | 116 | 9.2\% | 0.27\% | 140 | 13.1\% | 0.50\% | 86 | 11.1\% | 0.30\% | 77 | 10.0\% | 0.23\% |
| Dealers with \$25,000,001$\$ 100,000,000$ Par | 141 | 11.1\% | 1.03\% | 134 | 12.5\% | 1.53\% | 114 | 14.7\% | 1.35\% | 109 | 14.1\% | 1.09\% |
| Dealers with $\$ 100,000,001$ $\$ 500,000,000$ Par | 112 | 8.8\% | 3.71\% | 105 | 9.8\% | 5.56\% | 76 | 9.8\% | 3.72\% | 80 | 10.3\% | 3.47\% |
| Dealers with More than $\$ 500,000,000$ Par | 85 | 6.7\% | 94.76\% | 85 | 7.9\% | 92.14\% | 89 | 11.4\% | 94.42\% | 89 | 11.5\% | 95.03\% |
| TOTAL PAR (\$ Billion) |  | \$707 |  |  | \$451 |  |  | \$469 |  |  | \$534 |  |


|  | 2006 |  |  | 2011 |  |  | 2017 |  |  | 2018 |  |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| Total Dealers | 1,277 |  |  | 1,087 |  |  | 791 |  |  | 776 |  |  |
| Trade Distribution | Number of Dealers | Percentage of Total Dealers | Trading Impact | Number of Dealers | Percentage of Total Dealers | Trading Impact | Number of Dealers | Percentage of Total Dealers | Trading Impact | Number of Dealers | Percentage of Total Dealers | Trading Impact |
| Dealers with \$ 50,000 Par or Less | 163 | 12.8\% | 0.00\% | 109 | 10.0\% | 0.00\% | 70 | 8.8\% | 0.00\% | 78 | 10.1\% | 0.00\% |
| Dealers with \$50,001$\$ 100,000$ Par | 80 | 6.3\% | 0.00\% | 75 | 6.9\% | 0.00\% | 41 | 5.2\% | 0.00\% | 37 | 4.8\% | 0.00\% |
| Dealers with $\$ 100,001$ $\$ 500,000$ Par | 226 | 17.7\% | 0.01\% | 182 | 16.7\% | 0.01\% | 118 | 14.9\% | 0.01\% | 99 | 12.8\% | 0.01\% |
| Dealers with $\$ 500,001-$ $\$ 1,000,000$ Par | 113 | 8.8\% | 0.01\% | 89 | 8.2\% | 0.02\% | 76 | 9.6\% | 0.02\% | 60 | 7.7\% | 0.01\% |
| Dealers with $\$ 1,000,001$ \$2,000,000 Par | 116 | 9.1\% | 0.03\% | 101 | 9.3\% | 0.04\% | 73 | 9.2\% | 0.03\% | 70 | 9.0\% | 0.02\% |
| Dealers with $\$ 2,000,001$ $\$ 5,000,000 \mathrm{Par}$ | 143 | 11.2\% | 0.08\% | 113 | 10.4\% | 0.10\% | 76 | 9.6\% | 0.06\% | 92 | 11.9\% | 0.06\% |
| Dealers with $\$ 5,000,001$ \$10,000,000 Par | 97 | 7.6\% | 0.12\% | 81 | 7.5\% | 0.16\% | 61 | 7.7\% | 0.12\% | 57 | 7.3\% | 0.09\% |
| Dealers with \$10,000,001$\$ 25,000,000$ Par | 88 | 6.9\% | 0.26\% | 90 | 8.3\% | 0.41\% | 59 | 7.5\% | 0.26\% | 61 | 7.9\% | 0.21\% |
| Dealers with \$25,000,001$\$ 100,000,000$ Par | 103 | 8.1\% | 0.98\% | 101 | 9.3\% | 1.39\% | 82 | 10.4\% | 1.10\% | 76 | 9.8\% | 0.83\% |
| Dealers with $\$ 100,000,001-$ $\$ 500,000,000$ Par | 76 | 6.0\% | 2.99\% | 71 | 6.5\% | 4.08\% | 60 | 7.6\% | 4.16\% | 66 | 8.5\% | 3.25\% |
| Dealers with More than \$500,000,000 Par | 72 | 5.6\% | 95.51\% | 75 | 6.9\% | 93.79\% | 75 | 9.5\% | 94.25\% | 80 | 10.3\% | 95.52\% |
| TOTAL PAR (\$ Billion) |  | \$546 |  |  | \$360 |  |  | \$375 |  |  | \$548 |  |

## Appendix B: Dealer Concentration

Percentage of Trades Conducted by the Top 50 Dealers
Tax-exempt, long-term, fixed-rate municipal securities-excluding list offering price transactions when possible
All Customer Trades

|  | \$100K or Less |  |  |  | Greater \$100K - Less \$1MM |  |  |  | \$1MM or More |  |  |  | All Sizes |  |  |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
|  | 2006 | 2011 | 2017 | 2018 | 2006 | 2011 | 2017 | 2018 | 2006 | 2011 | 2017 | 2018 | 2006 | 2011 | 2017 | 2018 |
| Top 3 Dealers | 31.5\% | 32.2\% | 25.3\% | 21.8\% | 22.5\% | 17.9\% | 20.2\% | 19.1\% | 27.9\% | 21.9\% | 26.4\% | 24.7\% | 29.4\% | 29.4\% | 23.8\% | 19.7\% |
| Top 5 Dealers | 45.4\% | 46.7\% | 37.2\% | 31.1\% | 30.3\% | 26.9\% | 28.1\% | 25.9\% | 39.3\% | 32.6\% | 36.5\% | 37.6\% | 42.2\% | 43.3\% | 34.6\% | 28.5\% |
| Top 10 Dealers | 63.3\% | 64.2\% | 54.8\% | 49.4\% | 43.7\% | 40.1\% | 42.6\% | 40.5\% | 59.7\% | 50.2\% | 54.6\% | 55.9\% | 58.8\% | 60.1\% | 51.9\% | 46.5\% |
| Top 15 Dealers | 68.1\% | 69.7\% | 64.0\% | 61.3\% | 51.6\% | 48.1\% | 51.6\% | 48.7\% | 70.0\% | 60.1\% | 66.4\% | 67.7\% | 63.9\% | 66.2\% | 60.7\% | 57.8\% |
| Top 20 Dealers | 71.7\% | 73.8\% | 69.2\% | 68.7\% | 57.9\% | 54.5\% | 58.2\% | 55.2\% | 75.6\% | 66.2\% | 74.9\% | 76.2\% | 68.2\% | 70.8\% | 65.8\% | 65.1\% |
| Top 30 Dealers | 77.3\% | 79.4\% | 76.5\% | 76.9\% | 66.4\% | 64.7\% | 67.8\% | 65.8\% | 83.3\% | 76.5\% | 84.8\% | 84.9\% | 74.6\% | 76.4\% | 73.7\% | 73.2\% |
| Top 40 Dealers | 81.2\% | 83.0\% | 81.8\% | 82.8\% | 72.2\% | 71.7\% | 74.2\% | 73.8\% | 87.9\% | 83.5\% | 89.8\% | 89.7\% | 79.0\% | 80.4\% | 79.1\% | 79.0\% |
| Top 50 Dealers | 84.0\% | 85.7\% | 85.7\% | 86.7\% | 77.0\% | 76.9\% | 78.9\% | 78.8\% | 90.8\% | 88.9\% | 93.0\% | 93.1\% | 82.1\% | 83.4\% | 83.5\% | 83.5\% |
| Number of Trades | 3,659,825 | 4,785,683 | 4,334,428 | 4,318,343 | 527,471 | 568,888 | 629,341 | 665,446 | 181,838 | 131,326 | 150,482 | 173,069 | 4,369,134 | 5,485,897 | 5,114,251 | 5,156,858 |
| Percentage of Total Trades | 83.8\% | 87.2\% | 84.8\% | 83.7\% | 12.1\% | 10.4\% | 12.3\% | 12.9\% | 4.2\% | 2.4\% | 2.9\% | 3.4\% |  |  |  |  |

Customer Purchases Only

|  | \$100K or Less |  |  |  | Greater \$100K - Less \$1MM |  |  |  | \$1MM or More |  |  |  | All Sizes |  |  |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
|  | 2006 | 2011 | 2017 | 2018 | 2006 | 2011 | 2017 | 2018 | 2006 | 2011 | 2017 | 2018 | 2006 | 2011 | 2017 | 2018 |
| Top 3 Dealers | 32.3\% | 33.6\% | 27.7\% | 25.3\% | 23.5\% | 18.3\% | 24.4\% | 23.9\% | 27.4\% | 20.8\% | 24.6\% | 24.4\% | 30.1\% | 31.1\% | 26.1\% | 23.2\% |
| Top 5 Dealers | 46.3\% | 48.5\% | 40.8\% | 35.8\% | 31.5\% | 27.7\% | 32.9\% | 31.1\% | 38.3\% | 31.2\% | 35.7\% | 37.3\% | 43.4\% | 45.6\% | 38.2\% | 33.5\% |
| Top 10 Dealers | 64.8\% | 66.3\% | 59.6\% | 56.1\% | 44.6\% | 41.0\% | 45.9\% | 44.3\% | 58.2\% | 48.7\% | 53.8\% | 55.6\% | 60.8\% | 62.8\% | 56.8\% | 53.2\% |
| Top 15 Dealers | 69.9\% | 71.8\% | 68.3\% | 65.9\% | 53.1\% | 48.7\% | 54.3\% | 52.4\% | 68.8\% | 58.4\% | 65.1\% | 66.9\% | 66.0\% | 68.7\% | 62.3\% | 62.6\% |
| Top 20 Dealers | 73.6\% | 75.7\% | 72.8\% | 71.3\% | 59.0\% | 55.0\% | 61.0\% | 58.7\% | 74.2\% | 64.8\% | 73.8\% | 75.5\% | 70.1\% | 72.9\% | 69.8\% | 67.9\% |
| Top 30 Dealers | 79.0\% | 80.9\% | 79.6\% | 79.0\% | 66.9\% | 64.8\% | 70.0\% | 68.4\% | 82.0\% | 75.0\% | 83.6\% | 84.4\% | 76.0\% | 78.2\% | 76.5\% | 75.5\% |
| Top 40 Dealers | 82.3\% | 84.4\% | 83.9\% | 84.0\% | 72.7\% | 71.9\% | 75.8\% | 75.3\% | 87.0\% | 82.3\% | 89.1\% | 89.3\% | 80.0\% | 81.9\% | 81.4\% | 80.9\% |
| Top 50 Dealers | 85.1\% | 86.7\% | 87.0\% | 87.3\% | 77.6\% | 76.6\% | 79.9\% | 79.8\% | 90.2\% | 87.6\% | 92.4\% | 92.6\% | 83.0\% | 84.6\% | 85.0\% | 84.5\% |
| Number of Trades | 2,530,484 | 3,396,844 | 2,819,456 | 2,723,909 | 340,429 | 338,557 | 387,600 | 400,402 | 100,085 | 65,937 | 77,521 | 87,893 | 2,970,998 | 3,801,338 | 3,284,577 | 3,212,204 |
| Percentage of Total Trades | 85.2\% | 89.4\% | 85.8\% | 84.8\% | 11.5\% | 8.9\% | 11.8\% | 12.5\% | 3.4\% | 1.7\% | 2.4\% | 2.7\% |  |  |  |  |

Customer Sales Only

|  | \$100K or Less |  |  |  | Greater \$100K - Less \$1MM |  |  |  | \$1MM or More |  |  |  | All Sizes |  |  |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
|  | 2006 | 2011 | 2017 | 2018 | 2006 | 2011 | 2017 | 2018 | 2006 | 2011 | 2017 | 2018 | 2006 | 2011 | 2017 | 2018 |
| Top 3 Dealers | 29.9\% | 28.8\% | 22.4\% | 18.4\% | 20.6\% | 18.0\% | 16.8\% | 13.5\% | 28.5\% | 23.3\% | 28.4\% | 25.8\% | 28.0\% | 25.5\% | 21.1\% | 16.9\% |
| Top 5 Dealers | 43.5\% | 42.5\% | 32.4\% | 27.3\% | 28.1\% | 25.7\% | 23.8\% | 20.6\% | 40.7\% | 34.2\% | 38.5\% | 37.9\% | 39.6\% | 38.5\% | 29.9\% | 24.5\% |
| Top 10 Dealers | 60.0\% | 60.3\% | 48.2\% | 44.1\% | 42.6\% | 39.7\% | 38.3\% | 35.7\% | 61.7\% | 52.6\% | 56.7\% | 57.4\% | 55.2\% | 55.7\% | 44.8\% | 40.3\% |
| Top 15 Dealers | 65.1\% | 66.1\% | 58.1\% | 57.9\% | 51.7\% | 48.2\% | 48.2\% | 45.2\% | 71.7\% | 62.4\% | 68.5\% | 69.8\% | 61.4\% | 61.8\% | 54.0\% | 53.2\% |
| Top 20 Dealers | 69.1\% | 70.6\% | 65.3\% | 66.6\% | 58.2\% | 55.5\% | 55.1\% | 52.8\% | 77.6\% | 68.5\% | 76.6\% | 78.0\% | 66.1\% | 67.0\% | 61.1\% | 61.8\% |
| Top 30 Dealers | 75.6\% | 76.9\% | 74.3\% | 76.3\% | 67.2\% | 66.3\% | 65.8\% | 63.9\% | 85.2\% | 78.7\% | 86.2\% | 86.0\% | 73.1\% | 73.6\% | 71.2\% | 71.7\% |
| Top 40 Dealers | 80.2\% | 81.6\% | 81.0\% | 82.6\% | 73.7\% | 73.7\% | 73.2\% | 72.5\% | 89.7\% | 85.6\% | 91.3\% | 90.6\% | 78.0\% | 78.6\% | 78.0\% | 72.3\% |
| Top 50 Dealers | 83.3\% | 85.2\% | 85.6\% | 87.0\% | 78.6\% | 78.9\% | 79.1\% | 78.9\% | 92.2\% | 90.6\% | 94.1\% | 94.2\% | 81.5\% | 82.7\% | 83.2\% | 83.4\% |
| Number of Trades | 1,129,341 | 1,388,839 | 1,514,972 | 1,594,434 | 187,042 | 230,331 | 241,741 | 265,044 | 81,753 | 65,389 | 72,961 | 85,176 | 1,398,136 | 1,684,559 | 1,829,674 | 1,944,654 |
| Percentage of Total Trades | 80.8\% | 82.4\% | 82.8\% | 82.0\% | 13.4\% | 13.7\% | 13.2\% | 13.6\% | 5.8\% | 3.9\% | 4.0\% | 4.4\% |  |  |  |  |

Percentage of Par Amount Traded Conducted by the Top 50 Dealers
Tax-exempt, long-term, fixed-rate municipal securities-excluding list offering price transactions when possible
All Customer Trades

|  | \$100K or Less |  |  |  | Greater \$100K - Less \$1MM |  |  |  | \$1MM or More |  |  |  | All Sizes |  |  |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
|  | 2006 | 2011 | 2017 | 2018 | 2006 | 2011 | 2017 | 2018 | 2006 | 2011 | 2017 | 2018 | 2006 | 2011 | 2017 | 2018 |
| Top 3 Dealers | 31.4\% | 26.9\% | 25.6\% | 20.6\% | 21.1\% | 16.4\% | 18.9\% | 17.7\% | 41.5\% | 32.1\% | 34.9\% | 34.0\% | 37.0\% | 24.4\% | 25.6\% | 24.5\% |
| Top 5 Dealers | 42.6\% | 41.1\% | 35.4\% | 30.2\% | 29.0\% | 24.5\% | 25.9\% | 24.3\% | 56.8\% | 46.9\% | 48.4\% | 49.6\% | 49.8\% | 34.8\% | 35.9\% | 37.3\% |
| Top 10 Dealers | 58.5\% | 59.0\% | 53.3\% | 48.3\% | 42.9\% | 37.4\% | 40.4\% | 38.0\% | 77.4\% | 67.8\% | 68.0\% | 69.8\% | 68.1\% | 52.6\% | 53.5\% | 54.3\% |
| Top 15 Dealers | 63.8\% | 65.4\% | 61.6\% | 59.4\% | 51.5\% | 46.4\% | 50.6\% | 47.7\% | 85.4\% | 74.7\% | 76.7\% | 78.5\% | 76.0\% | 63.2\% | 63.9\% | 63.8\% |
| Top 20 Dealers | 68.0\% | 70.3\% | 66.7\% | 65.8\% | 58.0\% | 53.1\% | 57.7\% | 55.1\% | 88.9\% | 79.8\% | 83.5\% | 85.0\% | 80.8\% | 69.1\% | 71.0\% | 70.8\% |
| Top 30 Dealers | 74.3\% | 76.1\% | 74.0\% | 74.4\% | 67.4\% | 64.0\% | 67.6\% | 65.6\% | 92.9\% | 86.5\% | 90.6\% | 91.2\% | 86.0\% | 76.9\% | 79.9\% | 80.0\% |
| Top 40 Dealers | 78.9\% | 80.3\% | 79.5\% | 80.1\% | 73.2\% | 71.4\% | 74.6\% | 73.8\% | 94.9\% | 90.7\% | 94.0\% | 94.3\% | 89.3\% | 82.4\% | 85.0\% | 85.3\% |
| Top 50 Dealers | 82.0\% | 83.3\% | 83.9\% | 84.1\% | 77.9\% | 77.2\% | 79.6\% | 79.4\% | 96.2\% | 93.9\% | 96.1\% | 96.3\% | 91.4\% | 86.4\% | 88.3\% | 88.7\% |
| Par Amount Traded (\$ Bil) | \$119.8 | \$148.1 | \$142.3 | \$142.6 | \$151.0 | \$157.7 | \$176.4 | \$186.6 | \$982.6 | \$505.8 | \$524.9 | \$663.0 | \$1,253.4 | \$811.5 | \$843.6 | \$992.2 |
| Percentage of Total Par Amount | 9.6\% | 18.2\% | 16.9\% | 14.4\% | 12.0\% | 19.4\% | 20.9\% | 18.8\% | 78.4\% | 62.3\% | 62.2\% | 66.8\% |  |  |  |  |

Customer Purchases Only

|  | \$100K or Less |  |  |  | Greater \$100K - Less \$1MM |  |  |  | \$1MM or More |  |  |  | All Sizes |  |  |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
|  | 2006 | 2011 | 2017 | 2018 | 2006 | 2011 | 2017 | 2018 | 2006 | 2011 | 2017 | 2018 | 2006 | 2011 | 2017 | 2018 |
| Top 3 Dealers | 32.5\% | 27.9\% | 28.3\% | 24.3\% | 22.1\% | 16.8\% | 23.0\% | 22.3\% | 41.5\% | 31.4\% | 33.8\% | 33.7\% | 36.4\% | 23.0\% | 23.5\% | 23.0\% |
| Top 5 Dealers | 44.2\% | 42.6\% | 39.9\% | 35.8\% | 30.1\% | 25.4\% | 30.4\% | 28.5\% | 56.0\% | 46.8\% | 47.4\% | 50.1\% | 48.0\% | 32.7\% | 34.9\% | 36.1\% |
| Top 10 Dealers | 60.7\% | 61.3\% | 57.7\% | 54.3\% | 43.8\% | 38.2\% | 43.3\% | 41.9\% | 76.3\% | 67.2\% | 66.7\% | 69.3\% | 66.0\% | 50.8\% | 52.7\% | 53.5\% |
| Top 15 Dealers | 66.1\% | 67.6\% | 66.4\% | 63.8\% | 52.3\% | 46.7\% | 52.9\% | 50.9\% | 84.9\% | 74.0\% | 75.5\% | 77.7\% | 74.1\% | 62.1\% | 63.6\% | 63.6\% |
| Top 20 Dealers | 70.3\% | 72.1\% | 70.9\% | 68.8\% | 58.9\% | 53.2\% | 60.0\% | 57.7\% | 88.3\% | 79.0\% | 82.5\% | 84.1\% | 79.3\% | 68.1\% | 70.1\% | 70.6\% |
| Top 30 Dealers | 76.1\% | 77.7\% | 77.4\% | 76.5\% | 67.5\% | 63.9\% | 69.7\% | 68.1\% | 92.2\% | 85.8\% | 89.9\% | 90.7\% | 84.8\% | 75.6\% | 79.1\% | 79.4\% |
| Top 40 Dealers | 80.2\% | 81.4\% | 82.0\% | 81.8\% | 73.5\% | 71.4\% | 75.9\% | 75.7\% | 94.5\% | 90.3\% | 93.7\% | 94.0\% | 88.3\% | 81.2\% | 84.6\% | 85.1\% |
| Top 50 Dealers | 83.0\% | 84.1\% | 85.3\% | 85.1\% | 78.3\% | 76.6\% | 80.3\% | 80.4\% | 95.9\% | 93.4\% | 95.8\% | 96.0\% | 90.7\% | 85.4\% | 87.8\% | 88.3\% |
| Par Amount Traded (\$ Bil) | \$82.8 | \$100.9 | \$93.2 | \$90.7 | \$95.9 | \$92.1 | \$107.2 | \$110.7 | \$528.3 | \$258.5 | \$268.1 | \$332.8 | \$707.0 | \$451.4 | \$468.5 | \$534.3 |
| Percentage of Total Par Amount | 11.7\% | 22.3\% | 19.9\% | 17.0\% | 13.6\% | 20.4\% | 22.9\% | 20.7\% | 74.7\% | 57.3\% | 57.2\% | 62.3\% |  |  |  |  |

Customer Sales Only

|  | \$100K or Less |  |  |  | Greater \$100K - Less \$1MM |  |  |  | \$1MM or More |  |  |  | All Sizes |  |  |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
|  | 2006 | 2011 | 2017 | 2018 | 2006 | 2011 | 2017 | 2018 | 2006 | 2011 | 2017 | 2018 | 2006 | 2011 | 2017 | 2018 |
| Top 3 Dealers | 29.0\% | 25.4\% | 22.8\% | 18.6\% | 19.3\% | 16.4\% | 15.3\% | 12.5\% | 41.4\% | 33.3\% | 36.1\% | 34.3\% | 37.8\% | 26.8\% | 28.2\% | 26.9\% |
| Top 5 Dealers | 39.2\% | 39.0\% | 32.1\% | 26.5\% | 27.3\% | 23.3\% | 22.4\% | 19.6\% | 57.7\% | 47.0\% | 49.9\% | 49.1\% | 52.2\% | 37.4\% | 38.5\% | 38.6\% |
| Top 10 Dealers | 54.4\% | 55.5\% | 45.7\% | 42.6\% | 42.9\% | 37.1\% | 39.8\% | 34.2\% | 78.7\% | 68.8\% | 69.7\% | 70.3\% | 71.2\% | 56.1\% | 54.9\% | 55.8\% |
| Top 15 Dealers | 60.1\% | 62.2\% | 54.5\% | 54.4\% | 51.9\% | 46.5\% | 47.4\% | 44.4\% | 86.0\% | 75.9\% | 78.5\% | 79.9\% | 79.1\% | 65.0\% | 65.4\% | 65.2\% |
| Top 20 Dealers | 64.9\% | 67.3\% | 61.1\% | 62.6\% | 58.7\% | 54.0\% | 55.1\% | 52.5\% | 89.6\% | 81.1\% | 85.1\% | 86.6\% | 83.2\% | 71.1\% | 73.0\% | 74.3\% |
| Top 30 Dealers | 72.2\% | 74.4\% | 71.2\% | 72.7\% | 68.2\% | 65.7\% | 66.1\% | 64.2\% | 93.7\% | 87.5\% | 91.3\% | 92.1\% | 88.1\% | 78.8\% | 81.3\% | 81.3\% |
| Top 40 Dealers | 77.8\% | 79.5\% | 78.2\% | 79.3\% | 74.7\% | 73.4\% | 74.0\% | 72.6\% | 95.6\% | 91.8\% | 94.9\% | 95.1\% | 90.9\% | 84.2\% | 85.9\% | 86.0\% |
| Top 50 Dealers | 81.7\% | 83.2\% | 83.5\% | 84.2\% | 79.7\% | 78.9\% | 79.6\% | 79.1\% | 96.9\% | 94.8\% | 96.9\% | 97.0\% | 92.8\% | 88.3\% | 89.1\% | 89.6\% |
| Par Amount Traded (\$ Bil) | \$37.0 | \$47.2 | \$49.1 | \$51.9 | \$55.2 | \$65.6 | \$69.2 | \$75.9 | \$454.3 | \$247.3 | \$256.8 | \$330.2 | \$546.4 | \$360.1 | \$375.1 | \$457.9 |
| Percentage of Total Par Amount | 6.8\% | 13.1\% | 13.1\% | 11.3\% | 10.1\% | 18.2\% | 18.5\% | 16.6\% | 83.1\% | 68.7\% | 68.5\% | 72.1\% |  |  |  |  |

## ABOUT THE MSRB

The MSRB protects investors, state and local governments and other municipal entities, and the public interest by promoting a fair and efficient municipal securities market. The MSRB fulfills this mission by regulating the municipal securities firms, banks and municipal advisors that engage in municipal securities and advisory activities. To further protect market participants, the MSRB provides market transparency through its Electronic Municipal Market Access (EMMA ${ }^{\top}$ ) website, the official repository for information on all municipal bonds. The MSRB also serves as an objective resource on the municipal market, conducts extensive education and outreach to market stakeholders, and provides market leadership on key issues. The MSRB is a self-regulatory organization governed by a 21 -member 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.

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[^0]:    1 MSRB, Dealer Participation and Concentration in Municipal Securities Trading, June 2018, http://msrb.org/~/ media/Files/Resources/MSRB-Dealer-Participation-and-Concentration-Report.ashx?la=en.

    2 Collectively referred to as dealers throughout this report.

[^1]:    ${ }^{3}$ The MSRB provides statistical data on market activity on its website at www.MSRB.org and through its Electronic Municipal Market Access (EMMA ${ }^{\oplus}$ ) website at www.EMMA.MSRB.org. Certain statistics in this report exclude certain types of securities. See Overview of Data Used and Calculation Methodology section.
    4 Includes only tax-exempt, long-term, fixed-rate municipal securities and excludes list offering price transactions.

[^2]:    5 Includes only tax-exempt, long-term, fixed-rate municipal securities and excludes list offering price transactions.

