



Municipal Securities Rulemaking Board



Municipal Securities Market, Trade Activity 2007-2021

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Market Overview¹

The purpose of this analysis is to identify trading patterns and anomalies in the municipal bond market over the past 15 years, from 2007 through 2021, as well as to study unique trading activity during periods of market disruption or dislocation. Throughout the 15 years, MSRB analysis showed a large decline in average par amount traded and a smaller general decrease in the number of trades in the municipal market, with periods of high trading volumes interspersed. Additionally, since 2007, the municipal securities market has experienced several periods of significant volatility in secondary market trading activity. Often, the volatility can be attributed to some form of market disruption. For example, increases in trading volume are often related to changes in market investor sentiment and behavior, overall economic environment, or rapid interest rate changes. Other research reports have identified these disruptions as they occurred, but this research report provides a historical overview across specific segments of the market and changes since 2007.

In 2007, there was over \$6.33 trillion in par traded in municipal securities.² After that high point in 2007 and the beginning of the global financial crisis in 2008, par amount traded declined rapidly, with annual par traded in 2009 dropping to \$3.13 trillion, less than half of the volume in 2007. Par amount traded continued to decline, reaching a low of just \$2.16 trillion in 2015. While par amount traded bounced back to \$2.78 trillion in 2016 and remained relatively stable until 2020, volume decreased significantly in 2021 with just \$2.09 trillion traded. (See Figure 1.) A notable exception to the declining trend was March 2020, which experienced the highest monthly volume of par traded since April 2008. (See Figure 2.)

Trade count has also seen a general decline over the past 15 years, though the trend has not been as consistent or significant as for par traded. While par amount traded was 67% lower in 2021 than in 2007, the number of trades only declined 16% overall between those years. However, the declining trend in number of trades is much more apparent in recent years, with 2019, 2020 and 2021 having the fewest trades since before 2007. The number of trades and par amount traded in 2021 was the lowest over the entire period analyzed in this report, despite near-record-high new issuance, which can be a catalyst for trading activity. Not surprisingly, the 10 months with the fewest trades all occurred in the time period between November 2019 and November 2021. The lowest monthly volume occurred in November 2020, at the time of the U.S. presidential election, with fewer than 549,000 trades in that month. Before 2019, the low point in trade volumes occurred in 2014 and 2015. (See Figures 1 and 2.)

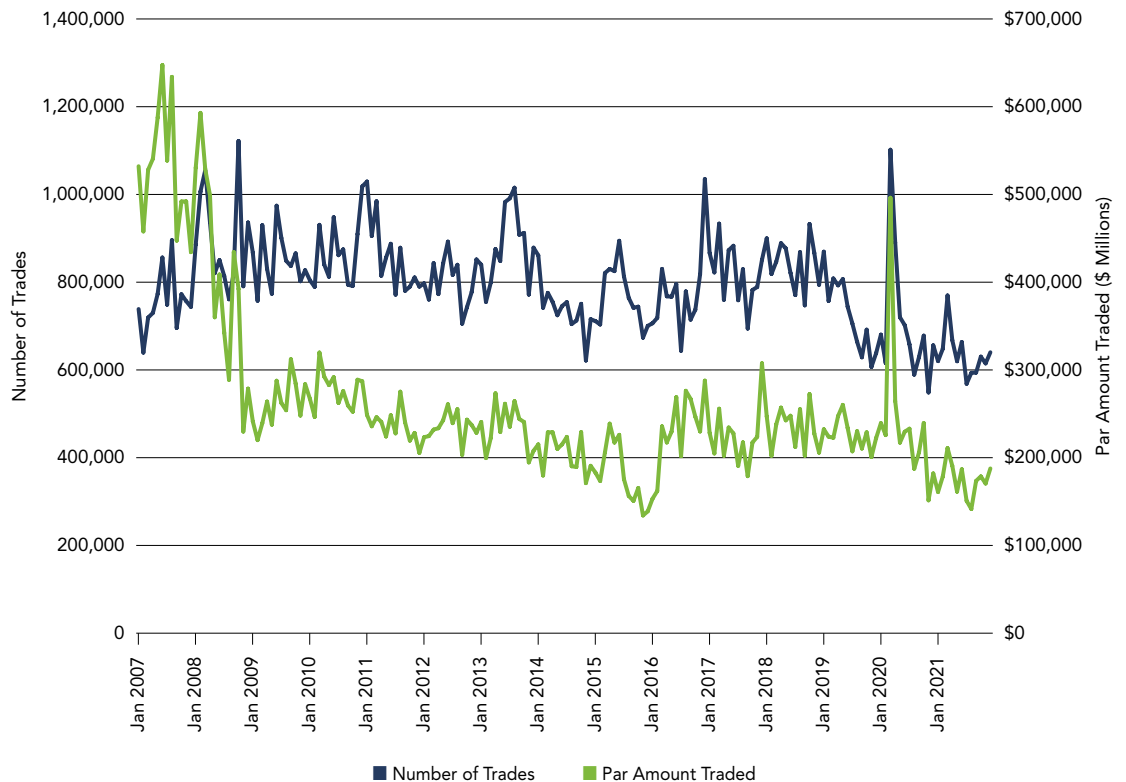
¹ The views expressed in this research paper are those of the authors and do not necessarily reflect the views and positions of the MSRB.

² All statistics in this paper exclude trades of commercial paper.

Figure 1. Annual and Average Monthly Par Traded and Number of Trades in the Municipal Market, 2007–2021

Year	Annual Par Traded (\$ Millions)	Average Monthly Par Traded (\$ Millions)	Annual Number of Trades	Average Monthly Number of Trades
2007	\$6,331,795	\$527,650	9,069,939	755,828
2008	\$4,885,862	\$407,155	10,799,180	899,932
2009	\$3,134,962	\$261,247	10,215,057	851,255
2010	\$3,326,356	\$277,196	10,375,150	864,596
2011	\$2,840,200	\$236,683	10,298,079	858,173
2012	\$2,823,873	\$235,323	9,643,499	803,625
2013	\$2,813,592	\$234,466	10,577,401	881,450
2014	\$2,472,209	\$206,017	8,863,215	738,601
2015	\$2,165,542	\$180,462	9,222,519	768,543
2016	\$2,776,236	\$231,353	9,313,196	776,100
2017	\$2,689,015	\$224,085	9,842,841	820,237
2018	\$2,810,225	\$234,185	10,132,108	844,342
2019	\$2,720,896	\$226,741	8,715,104	726,259
2020	\$2,871,823	\$239,319	8,470,229	705,852
2021	\$2,091,882	\$174,324	7,630,216	635,851

Figure 2. Monthly Par Traded and Number of Trades in the Municipal Securities Market, 2007–2021



Between 2007 and 2021, the number of trades surpassed 1 million in eight individual months: February 2008, March 2008, October 2008, December 2010, January 2011, August 2013, December 2016 and March 2020.³ Throughout this paper, these periods with more than 1 million in monthly trades are referred to as high-volume trading months.

High-Volume Trading Timeline

The high-volume trading months are listed chronologically in Figure 3. Although each high-volume trading period has unique characteristics, there are a number of recurring trends that take place in many of the months listed. In general, high-volume trading months are associated with increasing yields, a spike in the number and par amount traded of customer sales of fixed-rate securities, and a decline in the proportion of customer purchases as compared to other trade types. In addition, each period is associated with other market events that can help explain the surges in trading.

Figure 3. Months with Over 1 Million Trades of Municipal Securities

Month	Number of Trades	Par Amount Traded (\$ Millions)	Average Trade Size
February 2008	1,006,498	\$592,993	\$589,164
March 2008	1,054,915	\$529,015	\$501,476
October 2008	1,121,969	\$392,230	\$349,591
December 2010	1,018,288	\$287,122	\$281,965
January 2011	1,029,459	\$248,680	\$241,564
August 2013	1,015,438	\$264,454	\$260,434
December 2016	1,035,102	\$287,835	\$278,074
March 2020	1,101,973	\$496,237	\$450,317

February, March, and October 2008

There were more than one million monthly trades of municipal securities in February, March, and October of 2008, all associated with the market turmoil of the global financial crisis. February 2008 saw 1,006,498 trades, with \$593.0 billion traded. Note in Figures 1 and 2 that 2007 had notably higher par amount traded overall than any other year in this period. March 2008 saw 1,054,915 trades with \$529.0 billion traded. October 2008 saw the highest volume of trades over the 2007–2021 period, with 1,121,969 trades and \$392.2 billion in par traded. Economic uncertainty was high throughout 2008, as financial markets in the U.S. and abroad dealt with the aftermath of the subprime mortgage crisis and subsequent stock market crash. The global financial crisis had lasting impacts in the municipal bond market, with one example being the sudden and dramatic decline in issuance and trade volume in the variable-rate market in 2008.

³ Number of trades includes trades of all types of securities and trade types, excluding trades of commercial paper.

As variable rate programs struggled, the number of securities coming to market and available for trading also declined. Much of the decline in par amount can be explained by the deleveraging of Tender Option Bond (TOB) programs, which used variable-rate debt to leverage their portfolios and buy additional fixed-rate bonds. During the global financial crisis, TOBs were forced to sell their fixed-rate debt and retire much of their short-term debt because of the substantial losses in their portfolios. Further, banks faced with a significant increase in credit risk on their loans outstanding were less willing to renew expiring letters of credit (LOCs). Similarly, much of the decline in the number of trades can be attributed to the failed auctions in the auction rate securities (ARS) market during the crisis. The ARS programs were either collapsed or placed on the balance sheet of banks or broker dealers, often as impaired assets. These actions caused a substantial amount of short-term variable-rate debt to be retired. As a result, the municipal market has never again come close to the levels of trading seen prior to 2008.

One other fundamental change to the municipal bond market during the global financial crisis was the significant impairment of many monoline municipal bond insurance companies. These insurers suffered massive losses in the asset-backed market. This led to significant downgrades to the insurers themselves—often to junk bond level, a significantly lower rating than the underlying rating for most of the bonds they insured. In 2007, prior to the financial crisis, approximately 47% of the new issue market came wrapped with insurance.⁴ Since 2009, less than 10% of new issuance has been insured annually. Today, there are some municipal bond insurers whose business model only permits them to insure municipal bonds and no other asset classes. Insured new-issue paper accounted for 8% of new issuance in 2021, still well below the market share prior to the financial crisis. Although the significant reduction in bond insurance was a severe change in market structure, it is difficult to estimate what impact it had on trading levels in the long term.

December 2010 and January 2011

In December 2010, Build America Bonds (BABs) expired, leading to significant trading of taxable municipal securities. December 2010 saw the highest level of trading in taxable municipal bonds in any month, as issuers rushed to complete any needed deals before the expiration of the BABs program.

Also in December 2010, Meredith Whitney, a stock analyst noted for predicting trouble for bank stocks in 2007, appeared on CBS's 60 Minutes program and predicted wide-spread defaults in the municipal bond market. Ms. Whitney's report and television appearance concerned municipal bond investors, who moved to redeem municipal bond mutual fund shares. These funds saw outflows of more than \$26 billion in December 2010 and January 2011.⁵ Investors moving out of mutual funds and concern about credit for municipalities led to benchmark 10-year rates rising by almost 50 basis points and significantly higher trading levels in December 2010 and January 2011.

August 2013

August 2013 experienced a notable increase in trades related to a surge in customer purchases. Overall, there were 1,015,438 trades and \$264.5 billion in par traded in August 2013. Trade volumes subsequently fell and did so more quickly than in any other high-

⁴ Thomson-Reuters, February 2022. Excludes notes and private placements.

⁵ Investment Company Institute (ICI).

volume trading month except March 2020. (See Figure 2.) There were several market events that may have contributed to the surge in trading in August 2013. First, there was a large increase in yields from June 2013 through the end of December 2013 following the Federal Reserve’s announcement that they would taper purchases of Treasuries and mortgage-backed securities. This “taper tantrum” led to the largest three-day selloff in the municipal bond market at the time.⁶ Additionally, there was significant market stress related to the Puerto Rico debt crisis, leading to large volumes of trading of Puerto Rico bonds in late 2013, beginning around August and peaking in September and October.

December 2016

After the U.S. presidential election in 2016, trading volume jumped to 1,035,102 in December 2016, with \$287.8 billion in par traded. The increase in trading activity may have been impacted by municipal market mutual funds flows, which experienced \$28 billion in outflows between the week ending November 16, 2016, and the week ending January 4, 2017.⁷

March 2020

Trade activity skyrocketed in March 2020 as a result of the COVID-19 pandemic and the economic uncertainty associated with it. March 2020 saw the second highest monthly volume of trades over the 2007–2021 period, with 1,101,973 trades and \$496.2 billion in par traded. Trading volume, both in terms of number of trades and par amount traded, was the highest since 2008.⁸ Additionally, volatility in yields was high in certain periods during March. From March 10 to March 23, 10 trading days, benchmark yields in 10-year bonds were higher by 193 basis points (bps). Like the dislocation, the recovery was swift for high-grade municipal bonds. From March 24 to March 27, four trading days, the 10-year benchmark yields decreased by 207 bps.

Yields

Overall, yields have declined significantly over the past 15 years, with yields on 10-year bonds having fallen from around 4% in 2007 to around 1% in 2021. However, each high-volume trading month during that period occurred as rates were rising significantly. (See Figure 4.) In months with fewer than one million trades, the average percentage change from the yield six months prior was -3%, or a 6-month difference of about -0.1 percentage points. In the eight identified high-volume trading months, the average 6-month change was +24%, or a 6-month difference of about +0.47 percentage points. Historically, as yields rise in moments of market uncertainty, trade volume also rises. (See Figure 5.) February 2008 was the only month with over one million trades to see a decrease in yields compared to six months prior. However, as seen on the graph, yields did increase in February 2008 compared to the months immediately preceding. The global financial crisis began in 2007, which likely impacted this outlier in February 2008. (See Figure 4.) In general, Treasury and municipal bond yields are highly correlated and move generally in the same direction. However, as the

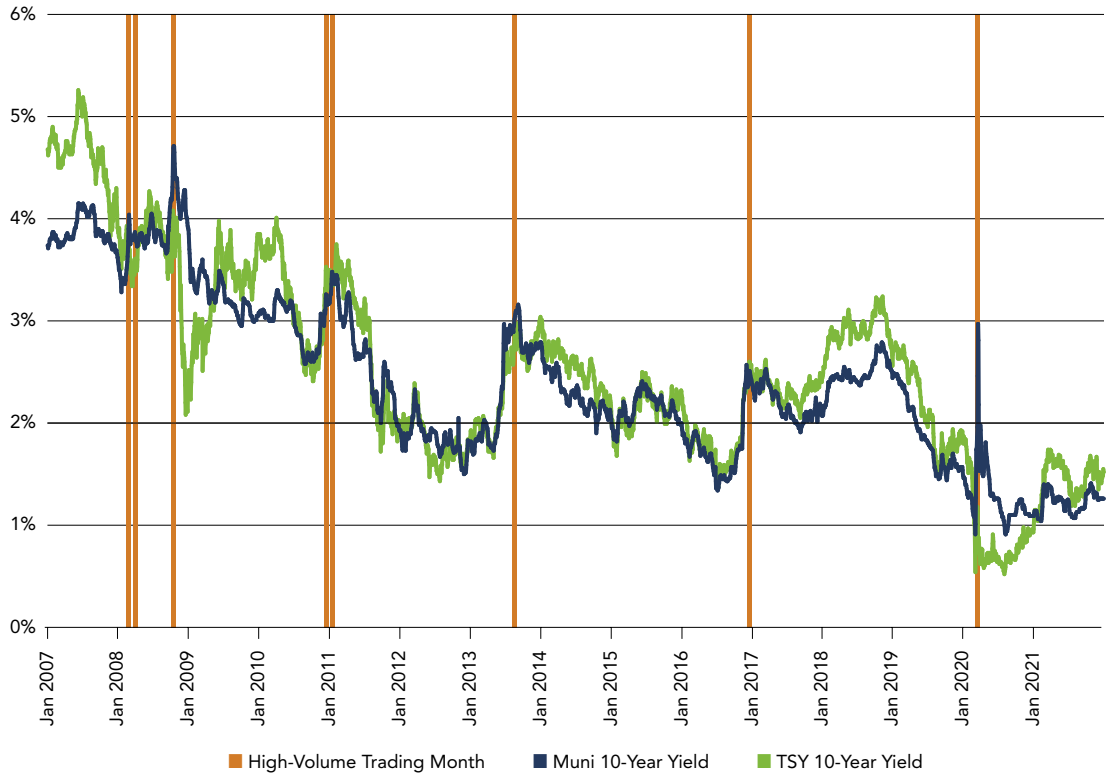
⁶ Bond Buyer, <https://www.bondbuyer.com/slideshow/analyzing-the-historic-market-selloff>

⁷ Investment Company Institute (ICI).

⁸ See “[2020 Municipal Bond Market in Review](#),” The Municipal Securities Rulemaking Board, January 2021.

10-year graph below shows, Treasury and tax-exempt yields moved in opposite directions during the financial crisis and into 2010, and then once more in March 2020. These periods represent significant market dislocations and highlight the difficulty hedging tax exempt bonds during a market dislocation.

Figure 4. 10-Year Yields, 2007–2021



Source: Municipal Market Analytics, Inc (MMA), US Department of the Treasury

Figure 5. Average 10-Year Yield and 6-Month Change During High-Volume Trading Months

High-Volume Trading Month	Mid Yield	6-Month Percent Change	6-Month Percentage Point Difference
February 2008	3.522	-9%	-0.36
March 2008	3.837	0%	0.01
October 2008	4.427	17%	0.64
January 2011	3.353	24%	0.64
February 2011	3.307	25%	0.67
August 2013	2.998	53%	1.03
December 2016	2.442	71%	1.01
March 2020	1.695	10%	0.15
Average		24%	0.47

Variable-Rate Market

The overall decline in trading volume aligns almost exactly with the decline in trades of variable-rate securities. (See Figures 1, 7, and 8.) In 2007, trades of variable-rate securities were about 25% of all trades, with trades of fixed-rate or zero-coupon securities making up the remaining 75%. This proportion declined rapidly through 2008 and reached an average of 4% by 2009. Trades of variable-rate securities comprised between 1% and 4% of trades annually between 2009 and 2021. (See Figure 10.) The dramatic decrease in the number of short-term variable-rate trades is related to the demise of ARS programs described previously.

In 2007, 70% of par traded in the municipal securities market was for variable-rate securities. This fell rapidly beginning in 2008 to 44% by 2009. In 2021, the proportion continued to fall to its lowest annual percentage in the past 15 years, at 23%. (See Figure 10.) The significant decline in par amount is also related to the dramatic decrease in Variable Rate Demand Obligations (VRDO) programs, as well as the ARS programs.

Figure 6. Variable-Rate Market Share of Overall Trade Volumes, 2007–2021

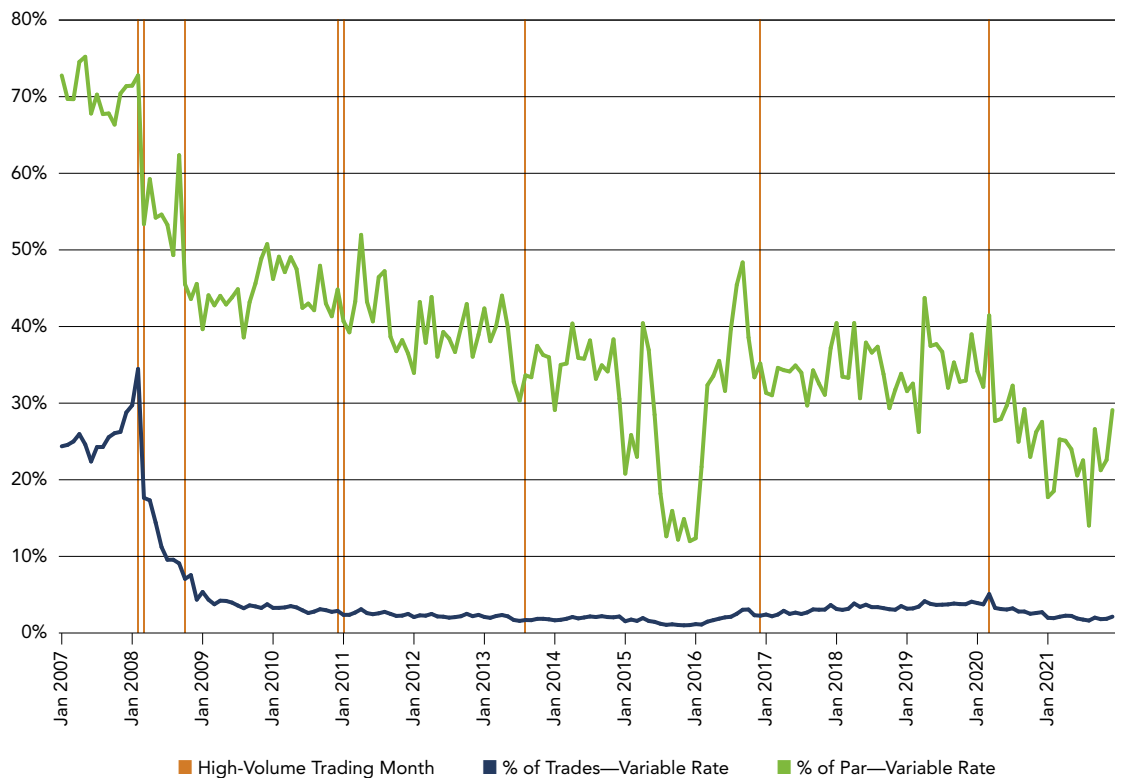


Figure 7. Monthly Number of Trades and Par Traded for Variable-Rate Municipal Securities, 2007–2021

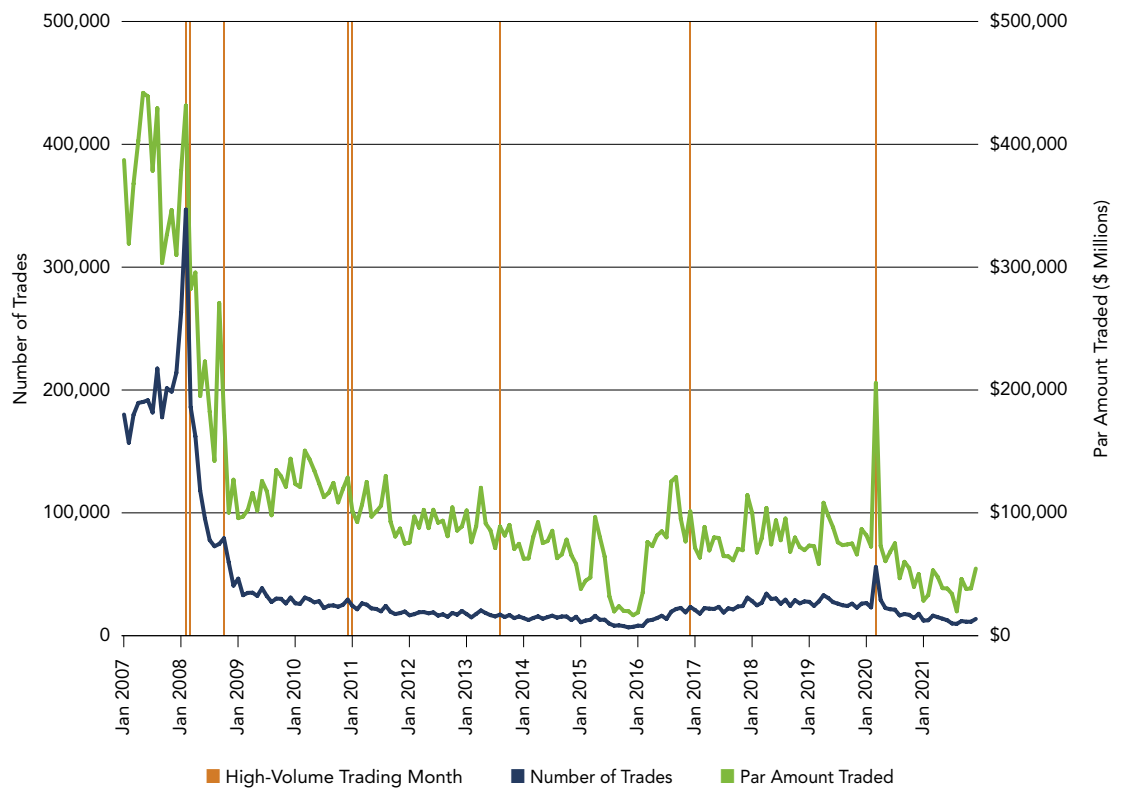


Figure 8. Annual Trade Volumes and Market Share of Variable-Rate Securities

Year	Number of Trades (Variable Rate Securities)	Percent of Trades (Variable Rate)	Par Traded (\$ Millions) (Variable Rate)	Percent of Par (Variable Rate)
2007	2,279,521	25%	\$4,452,141	70%
2008	1,576,878	15%	\$2,807,934	57%
2009	397,608	4%	\$1,384,685	44%
2010	317,639	3%	\$1,506,761	45%
2011	260,617	3%	\$1,194,797	42%
2012	214,601	2%	\$1,098,705	39%
2013	200,852	2%	\$1,041,709	37%
2014	176,474	2%	\$867,702	35%
2015	126,504	1%	\$503,861	23%
2016	191,685	2%	\$977,599	35%
2017	269,975	3%	\$897,956	33%
2018	336,723	3%	\$982,315	35%
2019	320,629	4%	\$950,606	35%
2020	283,181	3%	\$889,103	31%
2021	150,550	2%	\$470,916	23%

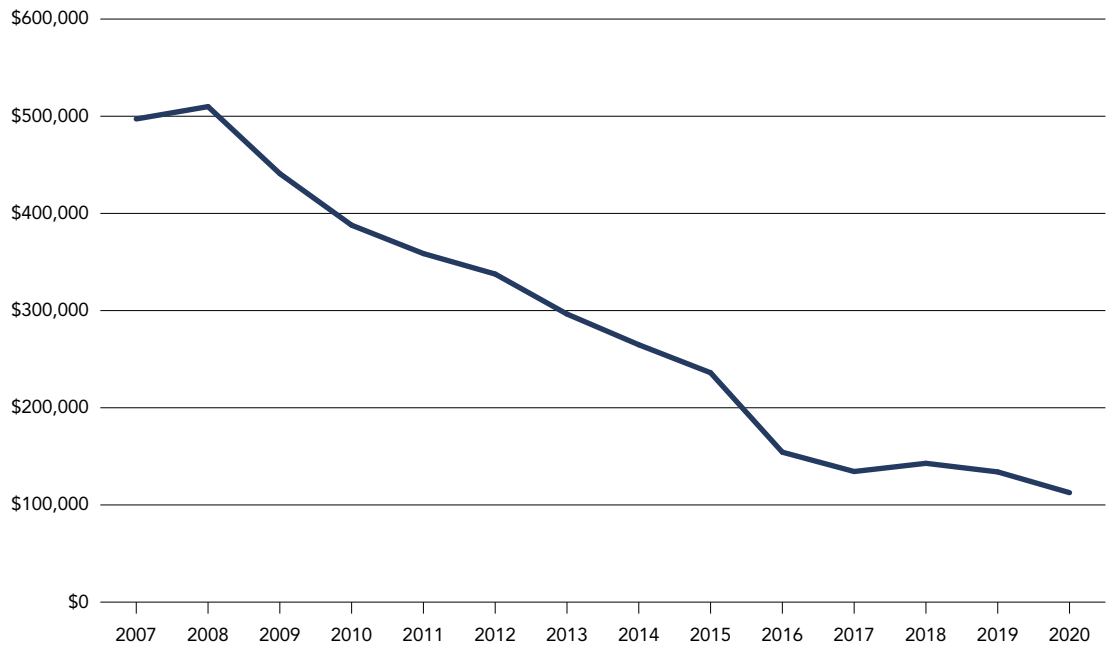
In 2007, there were about 2.3 million trades totaling \$4.45 trillion in par traded in the variable-rate market. That number plummeted during the global financial crisis in 2008 and 2009, with volumes dropping to just over 210,000 trades and \$1.10 trillion in par traded by 2012. From 2012 to 2019, annual trade volumes of variable-rate securities ranged between about 125,000 and 340,000, a significant decrease from 2007 levels. In 2021, volumes fell even further, with \$471 billion in par traded and 150,550 trades of variable-rate securities, representing a 93% decrease in annual number of trades and an 89% decrease in par amount traded compared to 2007. The only notable increase in variable-rate trading volumes occurred in March 2020, concurrent with a surge in trading throughout the municipal securities market and financial markets in general. The drop-off in 2008 related to the global financial crisis led to a fundamental shift in market structure, with apparently permanently depressed trade volumes of all types of variable-rate securities. This is further evident in the size of the VRDO and ARS market, which comprised most of the overall variable-rate market and decreased from approximately \$404 billion outstanding in early 2008 to about \$110 billion outstanding by late 2021.⁹

Since 2015, par amount traded for variable-rate municipal securities declined to the lowest volume in 2021, with \$471 billion traded, 89% lower than the highs of 2007 and 7% lower than the previous low point of \$504 billion in 2015. The number of trades also was near its lowest point ever in 2021, with 150,550 trades. In the past 15 years, only 2015 saw a lower annual number of variable-rate trades, with just 126,504 trades. (See Figure 8.) Overall, the decline in the variable-rate market is a continuation of a 15-year-long trend, which saw a dramatic decline in variable-rate balances and associated remarketing activity.

As illustrated in Figure 7, there was not much notable change in the proportion of variable-rate securities traded during high-volume trading months, indicating that when trade volumes increase overall, the market share of fixed- and variable-rate securities does not change significantly. The exceptions were in the high-volume trading months in 2008 and 2020, when par amount traded in the variable-rate market increased significantly. February and March 2008 saw increases in both trades and par traded in the variable-rate market, while par traded increased in October 2008 with no significant change in number of trades. In March 2020, both the number of trades and the par amount traded of variable-rate securities increased to their highest monthly level since September 2008.

The decline in variable-rate trading also aligns with a decline in money market fund holdings. (See Figure 9.) Note that before the global financial crisis, money market assets climbed from \$242 billion in 2000 to a peak of \$510 billion in 2008. After the initial large decline in par amount traded during the financial crisis, variable-rate trade volumes have continued to decline, likely in line with the decline in municipal securities in money market funds.

⁹ VRDO and ARS outstanding estimates based on information submitted through the MSRB's SHORT System and information from Bloomberg, LLC.

Figure 9. Holdings of Municipal Securities in Money Market Funds

Source: Federal Reserve Board Financial Accounts of the United States

Fixed-Rate Market

Meanwhile, trading in the fixed-rate municipal market has not seen the same level of change compared to the variable-rate market. While trade sizes have increased, particularly in the tax-exempt market (see Average Trade Size section), the overall number of trades and par amount traded has been more stable since 2007.¹⁰ (See Figure 10.) However, there has been a consistent decline in the annual number of trades in the fixed-rate market since 2018. Figure 11 demonstrates that the annual number of trades has varied much more significantly than overall par amount, which has remained fairly constant, hovering between \$1.6 and \$1.9 trillion each year since 2008.

¹⁰ Taxable issuance and trade volumes were notable in 2010, 2020, and 2021. In this paper, issuance and trading of taxable and tax-exempt securities are not separated. See [“Overview of the Taxable Municipal Bond Market,”](#) The Municipal Securities Rulemaking Board, August 2021.

Figure 10. Monthly Trades and Par Amount Traded, Fixed-Rate Securities, 2007–2021

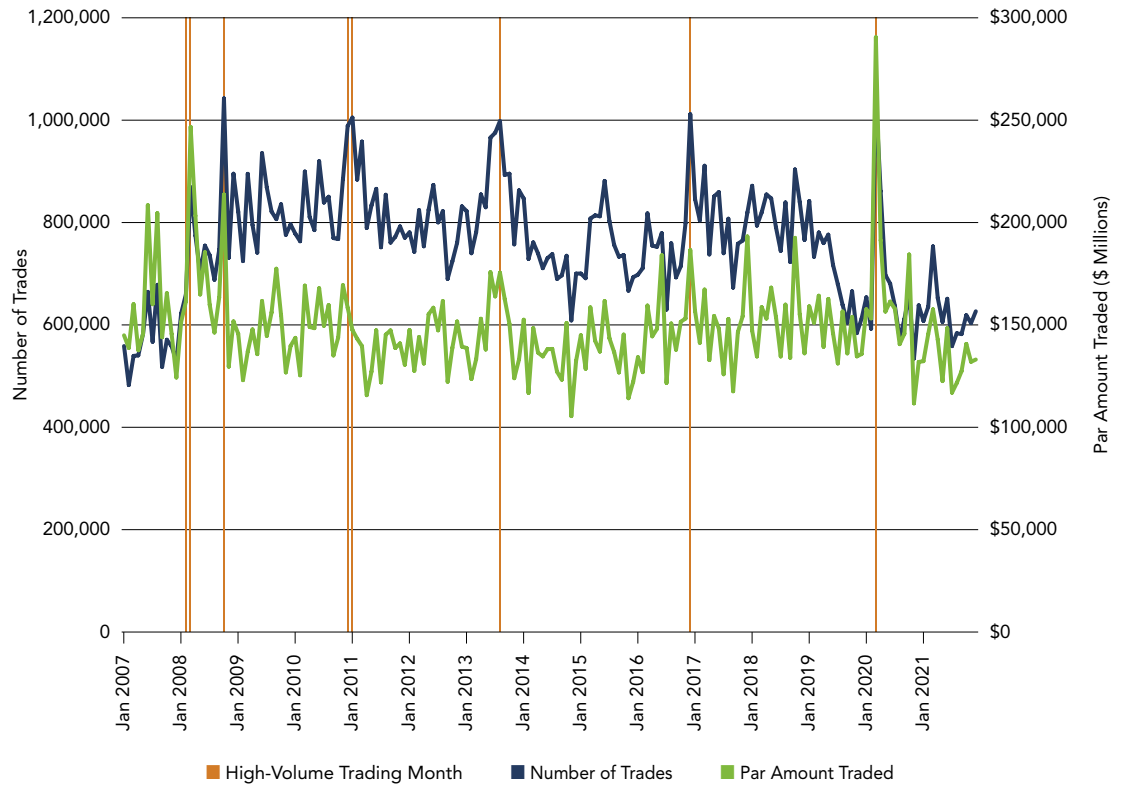


Figure 11. Annual Trade Volumes of Fixed-Rate Municipal Securities

Year	Number of Trades	Par Amount Traded (\$ Millions)
2007	6,790,418	1,879,654
2008	9,222,302	2,077,929
2009	9,817,449	1,750,277
2010	10,057,511	1,819,595
2011	10,037,462	1,645,402
2012	9,428,898	1,725,168
2013	10,376,549	1,771,883
2014	8,686,741	1,604,507
2015	9,096,015	1,661,681
2016	9,121,511	1,798,637
2017	9,572,866	1,791,059
2018	9,795,385	1,827,910
2019	8,394,475	1,770,291
2020	8,187,048	1,982,720
2021	7,479,666	1,620,966

Trading Seasonality

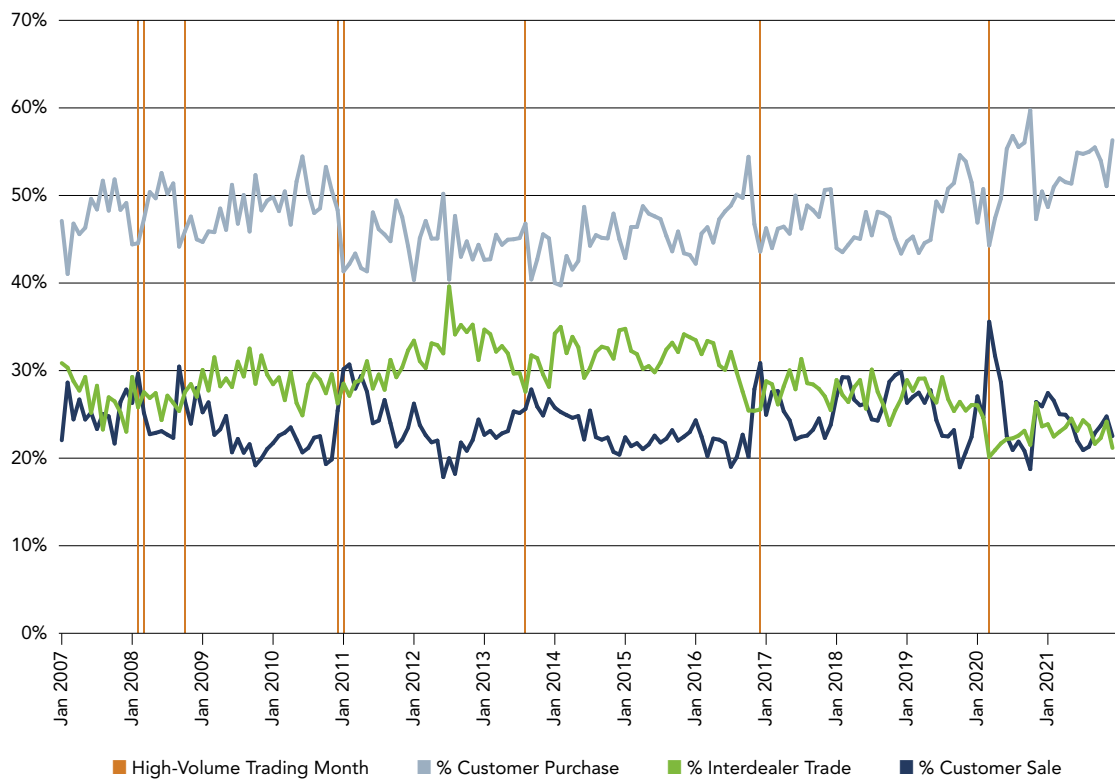
There is some seasonality in trade patterns over time. Though not consistent over each year, March and June tended to have the highest monthly amount of par traded per year, while February and November tended to have the lowest volumes. Interestingly, two of the eight identified high-volume months were in March (the month with highest monthly par amount average) but none were in June. There also are examples of high-volume trading months in February and December which, on average, are months with lower averages. Given the lack of a consistent relationship between the eight high-volume months and the monthly averages, the impact of seasonality is inconclusive.

Figure 12. Average Monthly Par Amount Traded, 2007–2021

	Avg. Par (\$ Millions)	Median Par (\$ Millions)	Minimum Par (\$ Millions)	Maximum Par (\$ Millions)	Avg. % Annual Par
January	146,946	147,146	132,296	159,094	8.3%
February	136,048	134,575	116,781	161,407	7.6%
March	169,007	158,682	133,296	290,527	9.4%
April	148,006	142,819	115,668	203,347	8.3%
May	146,601	148,074	122,549	168,228	8.2%
June	163,121	161,387	138,173	208,479	9.2%
July	141,135	143,497	116,897	163,899	7.9%
August	153,017	152,921	121,633	204,604	8.6%
September	140,048	136,081	117,577	177,455	7.9%
October	158,113	150,965	138,710	213,704	8.9%
November	136,565	134,627	105,448	169,449	7.7%
December	143,237	135,769	122,237	193,223	8.1%

Overall, the fixed-rate market experienced an increase in the market share for par amount traded in customer purchases, while the proportion of par traded in customer sales has not trended significantly in one direction or the other over time. Meanwhile, par traded in interdealer trades increased in market share in the first half of the time period then declined overall beginning around 2015. (See Figure 13.) In 2007, 48% of par traded in the fixed-rate market was customer purchases compared to 53% in 2021. Interdealer trades accounted for 27% in 2007, 34% in 2012 and 24% in 2021. In each high-volume trading month, the proportion of par traded in customer sales increased. In general, there also was a decline in the proportion of par traded in both customer purchases and interdealer trades during high-volume trading months.

Figure 13. Monthly Percent of Par Traded by Trade Type, Fixed-Rate Municipal Securities, 2007–2021



In high-volume trading months, there are typically large increases in the number and par amount traded of all types of trades. This pattern is particularly consistent in customer sales. Par traded in customer sales of fixed-rate municipal securities increases the most in high-volume trading months. (See Figure 14.) On average, high-volume trading months saw par traded in customer sales increase by 36%, or almost \$15 billion, compared to the previous month. For all other months, changes in par traded in customer sales when compared to the previous month are quite volatile, with changes ranging from an increase of 59% to a decrease of 45%. March 2020 had the largest increase in customer sales, increasing 174%, or almost \$66 billion in customer sales, compared to February 2020. (See Figure 15.)

Par traded in interdealer trades and customer purchases also increased on average during high-volume trading months and did not see much change on average during other months. On average, par traded in customer purchases increased by 22% compared to the previous month during high-volume trading months. Par traded in interdealer trades increased by 21% compared to the previous month during high-volume trading months. Overall, customer sales saw the largest percentage increases during these high-volume trading months, but customer purchases and interdealer trades also saw upticks. (See Figure 14.)

Of course, these averages do not represent the unique market conditions of each high-volume trading month. In fact, March 2008 and October 2008 both saw larger month-to-month increases in par traded in customer purchases and interdealer trades than in customer sales, likely due to the turmoil in the variable-rate market at the time. August 2013 saw a larger increase in par traded in customer purchases than in customer sales. (See Figure 15.)

Figure 14. Monthly Par Traded by Trade Type, Fixed-Rate Municipal Securities, 2007–2021

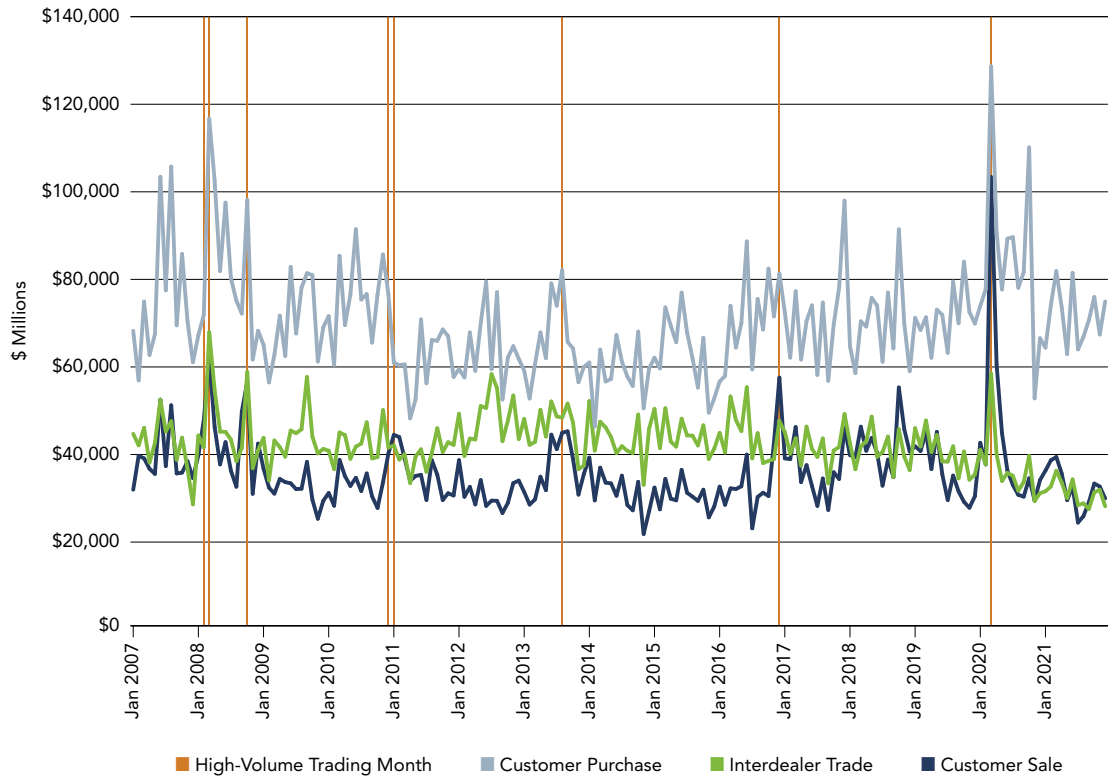


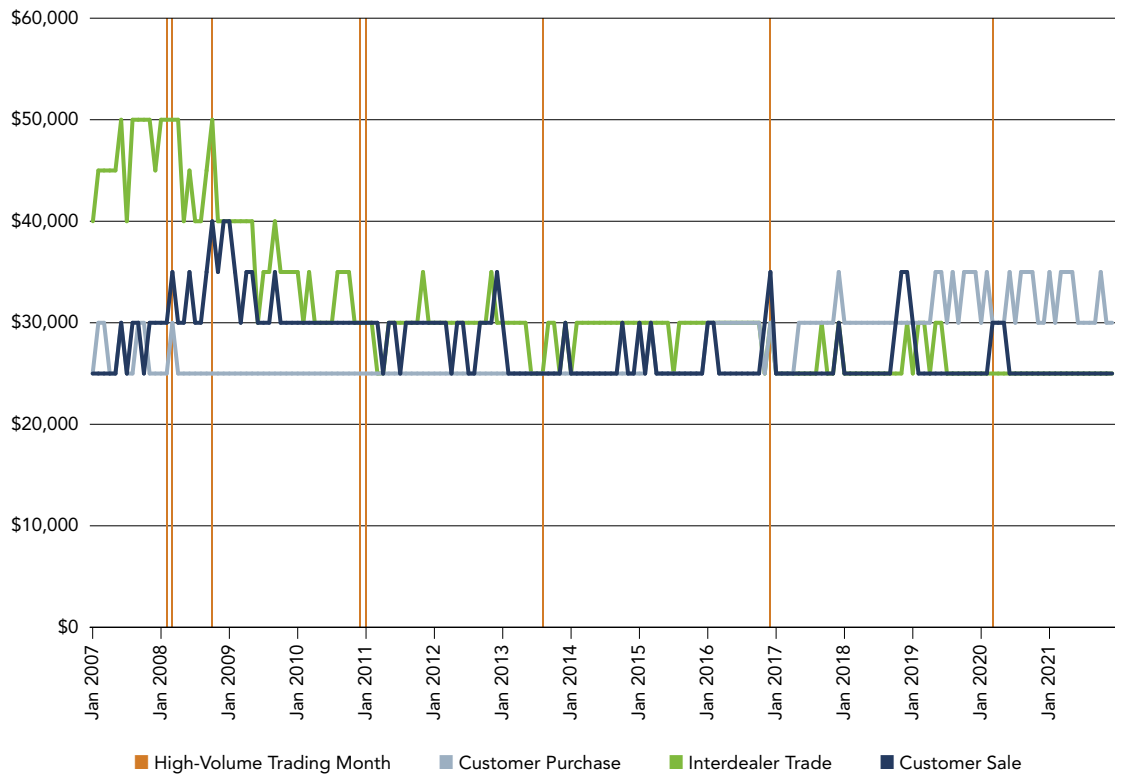
Figure 15. Average One-Month Change in Par Traded during High-Volume Trading Months, by Trade Type

High-Volume Trading Months	Customer Sales		Customer Purchases		Interdealer Trades	
	One Month Difference in Par Traded (\$ Millions)	One Month Percentage Difference in Par Traded	One Month Difference in Par Traded (\$ Millions)	One Month Percentage Difference in Par Traded	One Month Difference in Par Traded (\$ Millions)	One Month Percentage Difference in Par Traded
February 2008	8,034	20%	4,638	7%	-2,695	-6%
March 2008	14,207	30%	44,804	62%	26,297	63%
October 2008	6,839	14%	25,995	36%	17,404	42%
January 2011	4,230	11%	-15,591	-20%	464	1%
February 2011	-504	-1%	-528	-1%	-3,213	-8%
August 2013	3,750	9%	8,139	11%	-268	-1%
December 2016	14,893	35%	9,795	14%	8,753	22%
March 2020	65,658	174%	50,930	66%	20,743	55%
Average	14,638	36%	16,023	22%	8,436	21%

Average and Median Trade Size

High-volume trading months are associated with an increase in median trade size across all trade types, though this trend is especially clear among customer sales. The median trade size for interdealer trades of fixed-rate securities hovered near \$50,000 in 2007 and 2008 before dropping in 2009, falling to around \$30,000 in 2011 and \$25,000 in 2018. Meanwhile, median trade size for customer purchases has increased from around \$25,000 in 2008 through 2017 to around \$35,000 in 2019 through 2021. (See Figure 16.)

Figure 16. Median Trade Size by Trade Type, Fixed-Rate Securities, 2007–2021



As discussed in the February 2021 MSRB paper, “Municipal Securities Market Shows Notable Shift in Trading Patterns” (Trading Patterns), average trade size has increased over the past decade, particularly in customer purchases of fixed-rate securities. However, average trade size was even larger before the financial crisis, likely due to the demand for large blocks of variable rate bonds, which collapsed during the crisis. This significant change in the market is demonstrated in Figure 17, which includes trades of all coupon types, including variable-rate. During high-volume trading months, there is not a consistent pattern in average or median trade size. In March 2020, average trade size soared to \$450,317, up from \$366,681 the month before, but there was not a similar dynamic in the high-volume trading months of 2008, 2011 or 2016.

Figure 17. Average Trade Size, All Coupon Types 2007–2021

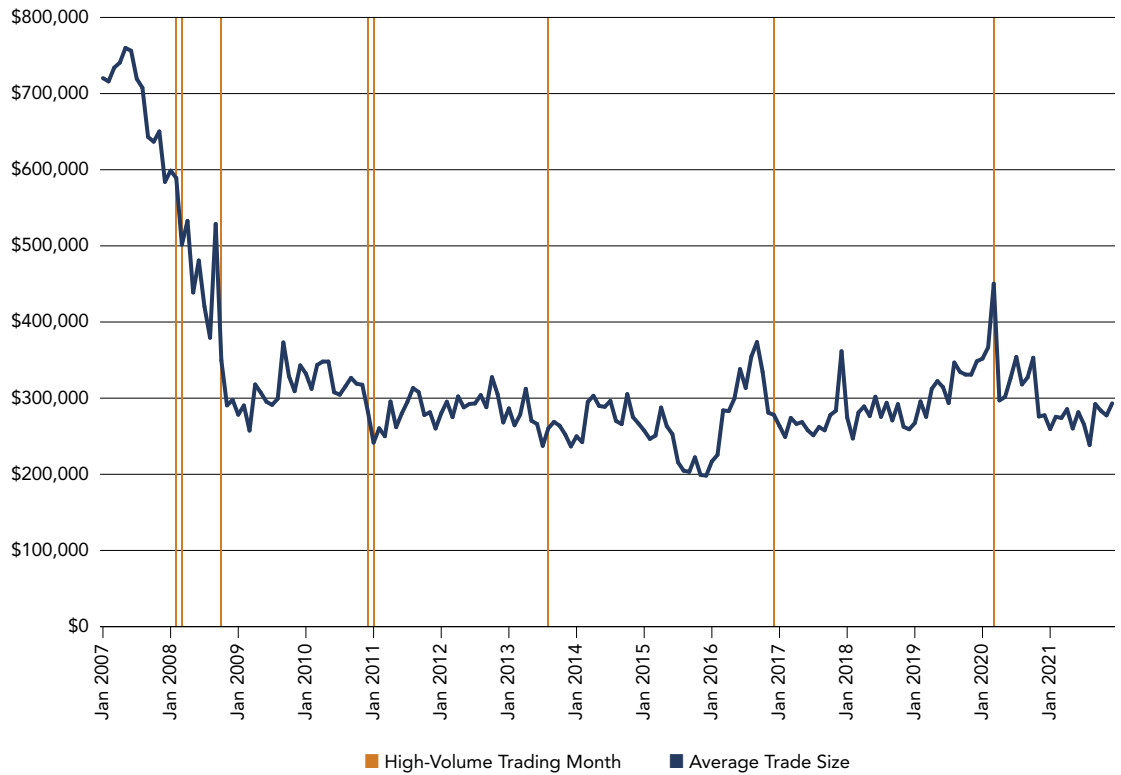
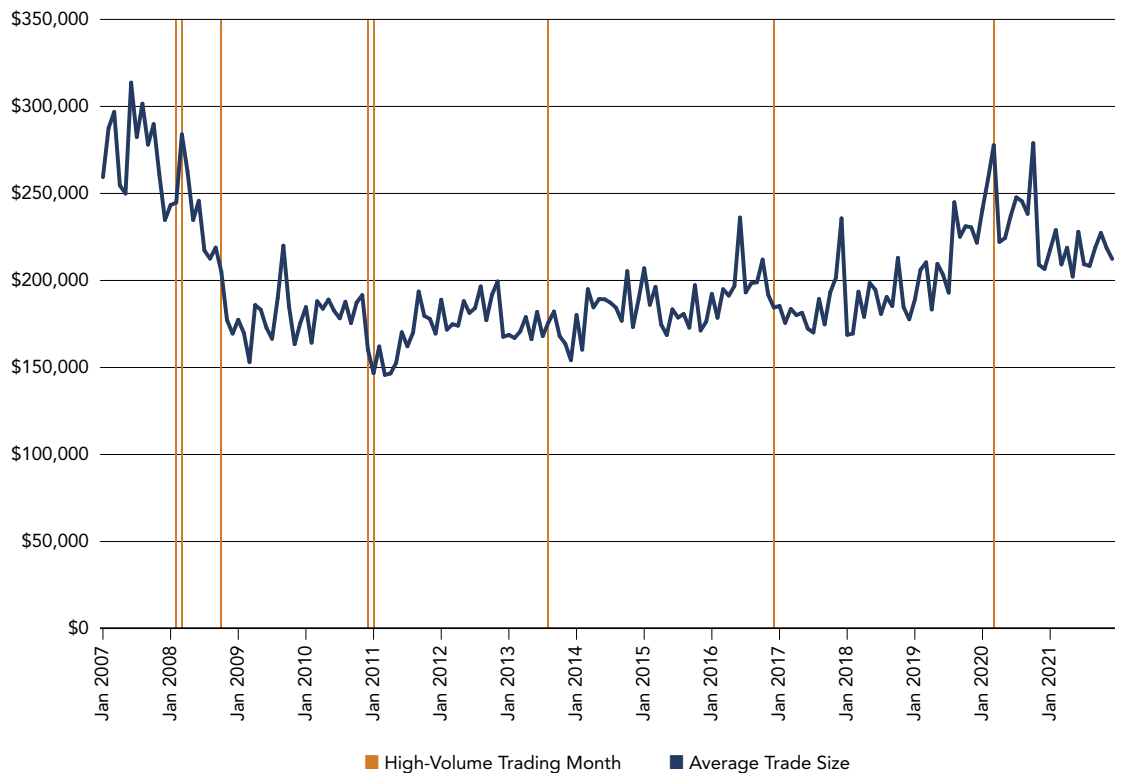


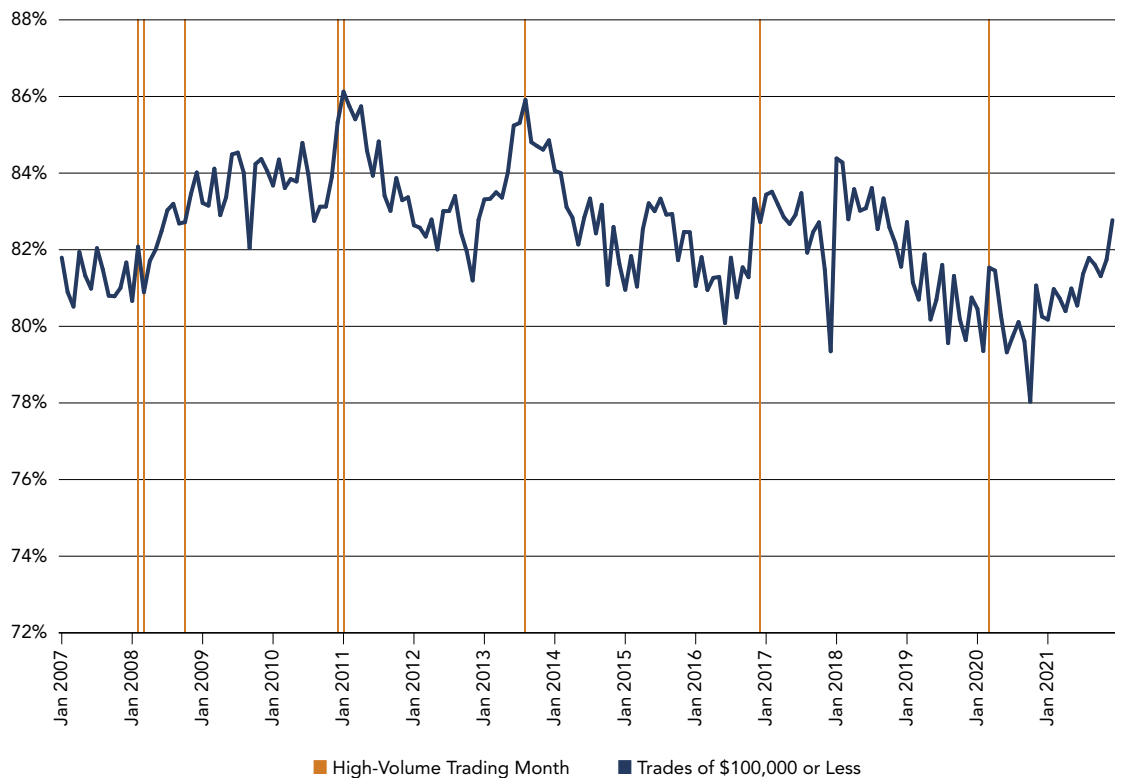
Figure 18. Average Trade Size, Fixed-Rate Securities 2007–2021



Small Transactions Trading Patterns

As discussed in the Trading Patterns paper, the overall trend of reduced numbers and market share of smaller trades, as well as increased numbers and market share of larger trades over time is significantly more pronounced when the analysis is limited to tax-exempt, fixed-rate securities. However, in certain high-volume trading months, there is a notable increase in both the number and market share of individual investor-sized trades. This trend was particularly notable in the 2011, 2013, 2016 and 2020 high-volume trading months. (See Figure 19.)

Figure 19. Percentage of All Fixed-Rate Trades of \$100,000 or Less, 2007–2021

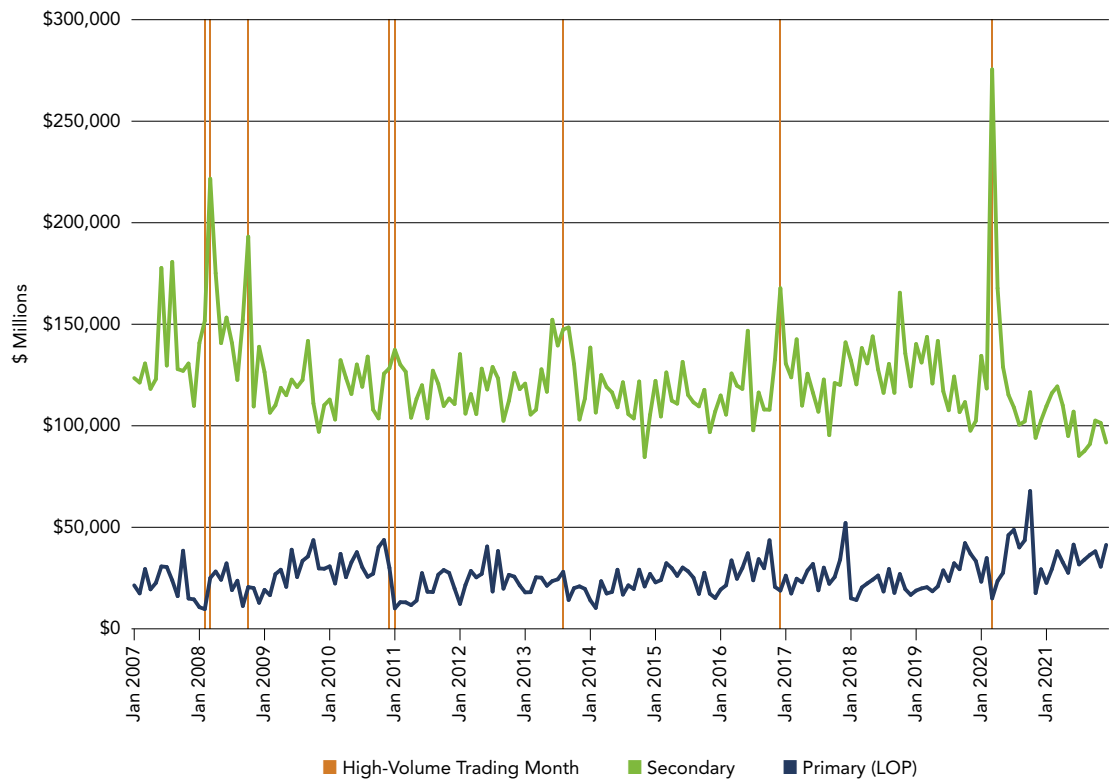


Primary and Secondary Trading Markets

As demonstrated in Figure 20, high-volume trading months experienced spikes in secondary market trading while high-volume trading months experienced small declines in primary market trading.¹¹ The largest spike in the secondary market was in March 2020 with a month-over-month increase of \$157 billion, or 133%, in par traded, increasing from \$118 billion in February 2020 to \$276 billion in March 2020. Meanwhile, par traded in the primary market declined over that time period by almost \$20 billion, or 57%, from \$35 billion in February 2020 to \$15 billion in March 2020. While March 2020 is the most extreme example of this phenomenon, the pattern is the same for the other high-volume trading months.

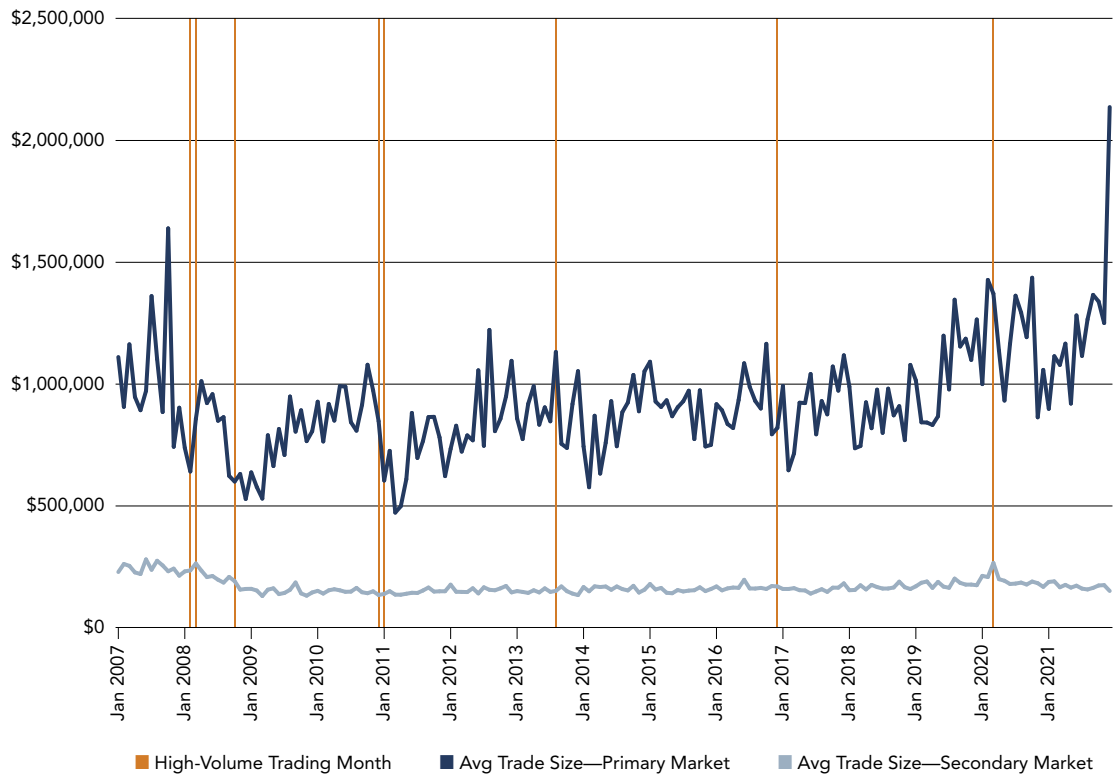
¹¹ Primary market and secondary market trades are differentiated using MSRB data on list offering price and takedown transactions, which generally encompass primary market transactions.

Figure 20. Monthly Par Amount Traded in the Primary and Secondary Markets, Fixed-Rate Securities, 2007–2021



The average trade size in the secondary market peaked in 2007. However, it has been steadily rising since 2017. March 2020 had the highest average trade size in the secondary market since 2007, at \$266,200. The highest monthly average trade size was in June 2007, at \$280,806. Similarly, primary market trade size averaged over \$1.2 million during much of 2007, then declined for the 2010s. Average trade size surpassed \$1.2 million again in 2018, and the average trade size in the primary market generally trended upward after 2018. December 2021 had the highest average trade size in the primary market over the 2007–2021 period, at over \$2 million. (See Figure 21.)

Figure 21. Average Trade Size, Primary and Secondary Markets, Fixed-Rate Securities, 2007–2021



Bond Age

In most high-volume trading months, there are surges in secondary market trading of bonds of one year or older. This trend is particularly notable in par amount traded, though it is also present in the number of trades. (See Figures 22 and 23.) That discrepancy implies some larger-sized trades of older bonds in times of market volatility. These increases in trading of older bonds contribute to the dynamic described above, where high-volume trading months are driven by the secondary market. In general, most trading of a bond occurs in the first month of issuance, but this trend is reversed during these high-volume trading months. Increases in trades and par traded of older bonds were most notable in December 2010, January 2011, and March 2020. Between 2011 and 2020, the impact was much less severe.

Figure 22. Percent of Trades by Age of Bond, 1 Year or Older, Fixed-Rate Securities, 2007–2021

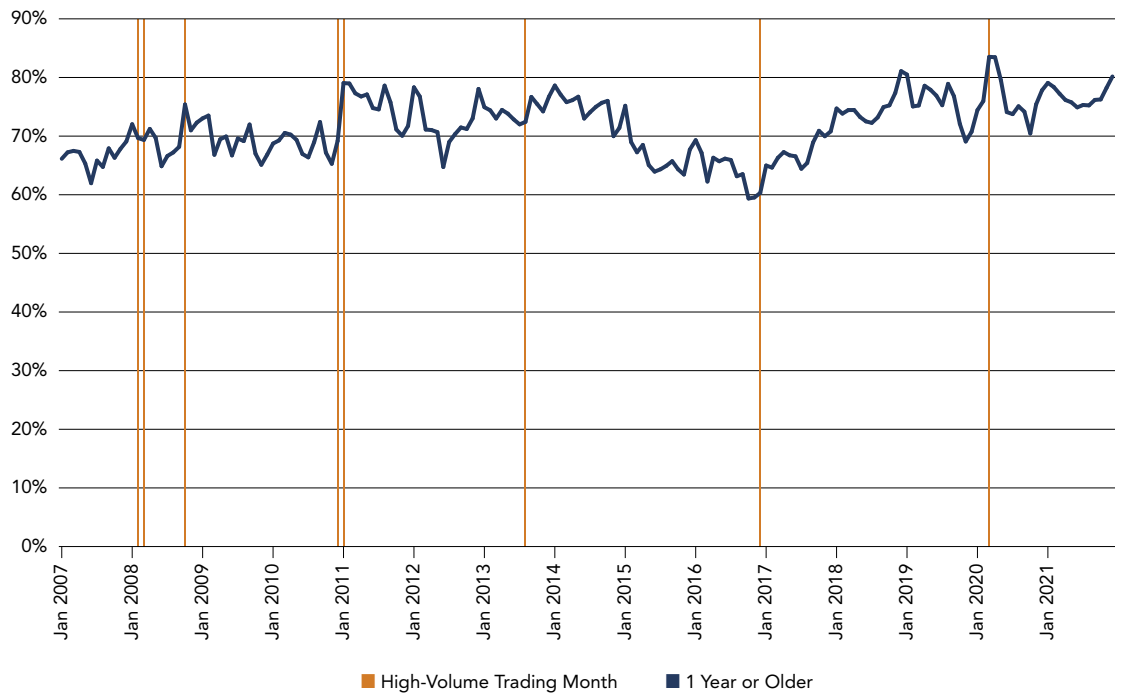
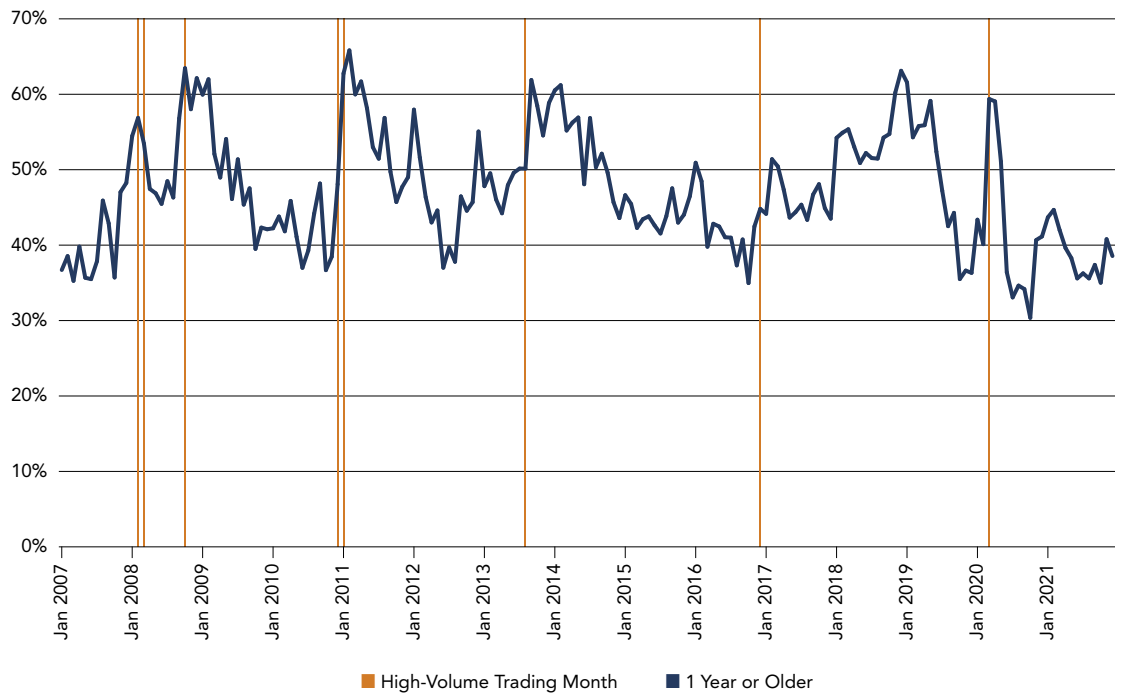


Figure 23. Percent of Par Traded by Age of Bond, 1 Year or Older, Fixed-Rate Securities, 2007–2021



Conclusion

Over the past 15 years, the municipal bond market has seen significant changes in trading patterns, particularly related to the decline in the variable-rate market since the global financial crisis. When looking at overall trading patterns in the municipal bond market, it may be advisable to look at the fixed-rate and variable-rate markets separately. Otherwise, the quick and severe decline in trading of variable-rate bonds may mask emerging trends in the fixed-rate market.

In the fixed-rate market, par amount traded and number of trades have been relatively steady, although there has been a noticeable decline beginning in 2018. In fact, in 2021 trading reached the lowest volume in terms of number of trades and the second lowest in par amount traded since 2007. Whether fixed-rate trading levels are relatively stable or declining, as we have seen recently, trading activity has consistently increased, especially in the secondary market, during periods of market disruption. This is true for short-lived disruptions like in March 2020 and longer periods of disruption such as the global financial crisis. The analysis also shows that yields and trading volumes in the fixed-rate market have been positively correlated during the high-volume trading months occurring at times of market disruption and dislocation. This holds true even as overall trading volumes have steadily declined.

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