

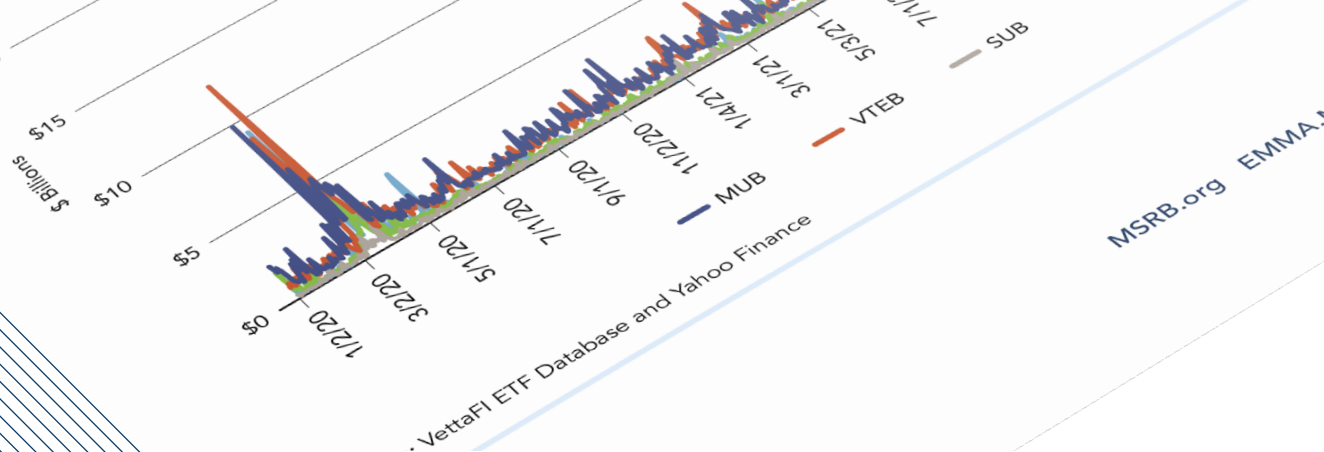


Municipal Securities Rulemaking Board

JANUARY 2023

2022 Municipal Market Year in Review

Figure 11. Trading Volume of Five Largest Municipal ETFs, 2020-2022



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Introduction¹

2022 was highlighted by significantly higher interest rates, record outflows from tax-exempt mutual funds and a record number of trades for individual municipal bonds. Although investors redeemed the highest volume of tax-exempt mutual funds the market has ever seen, they also dramatically increased their demand for individual municipal bonds as interest rates rose. Tax-loss swaps, enabling investors to realize losses in mutual funds, exchange traded funds (ETFs) and bonds also increased trade volume. The new issue market saw a significant drop in overall new issues, in particular taxable new issues and refunding deals, as rising interest rates made those deals less appealing to issuers.

¹ The views expressed in the research papers are those of the author(s) and do not necessarily reflect the views and positions of the MSRB Board and other MSRB staff.

Trade Volume

In 2022, a record number of trades was reported to the MSRB. Figure 1 below shows the yearly number of trades back to 2007. The number of trades in 2022 reached 12.69 million, 17% higher than the previous record in 2008 and 66% higher than in 2021, when a record low of just over 7.6 million trades was reported. The turnaround in trade count in 2022 follows a period of steadily declining trade count from 2018–2021, which coincides with a period of generally declining interest rates and lower volatility.

Figure 1. Annual Municipal Market Activity, 2007–2022

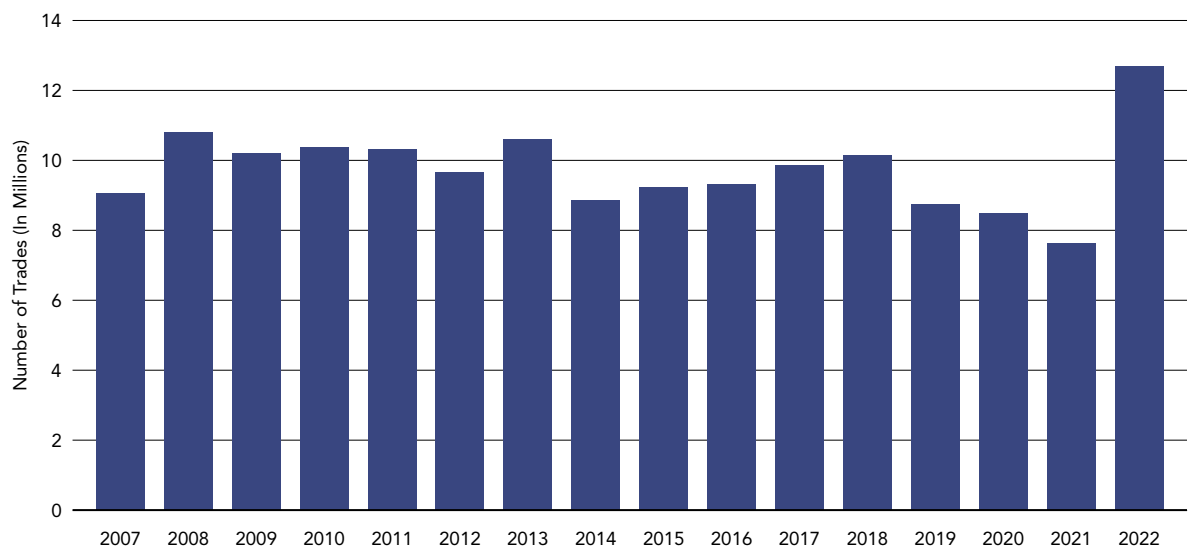
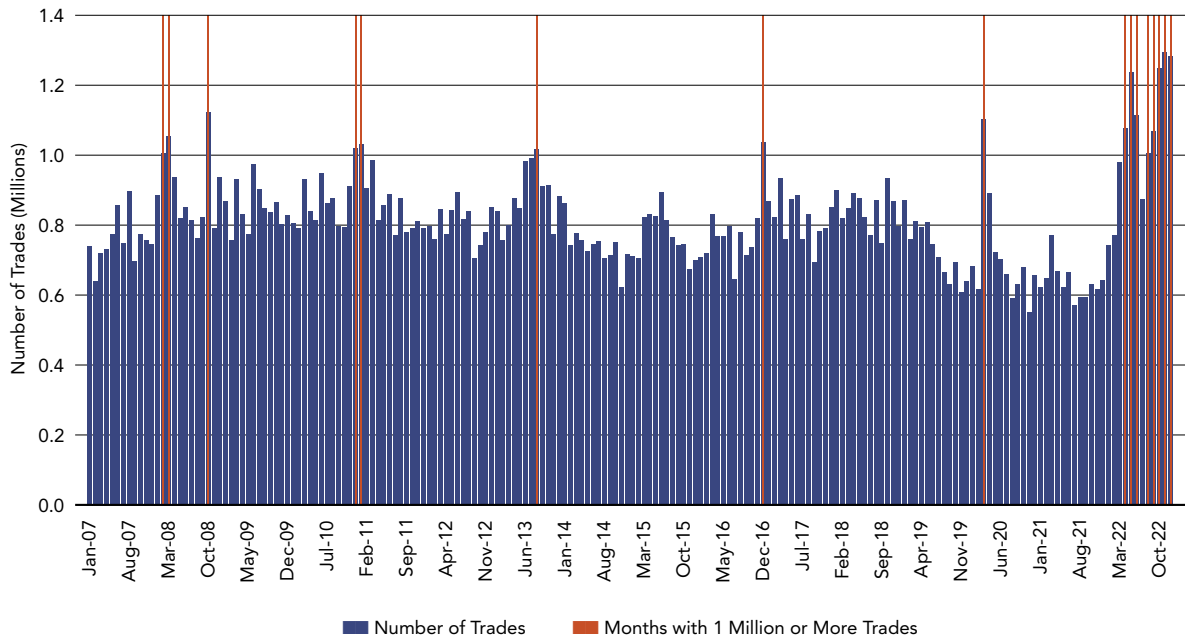


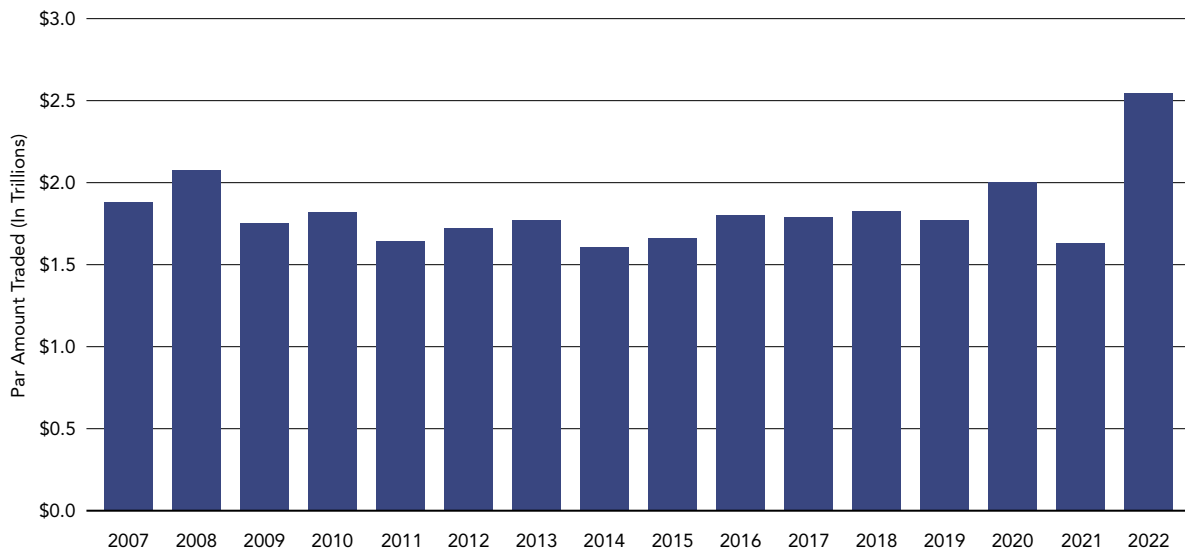
Figure 2 shows monthly trade count from 2007 through December 2022. Previous MSRB research report [Municipal Securities Market, Trade Activity 2007–2021](#) showed a total of eight months with 1 million trades or more in the 15 years from 2007 through 2021. In 2022, more than 1 million trades were reported to the MSRB in eight of the last nine months of the year. This extraordinary increase in trade count supports previous MSRB research that showed trade count rises significantly during periods of increasing interest rates.

Figure 2. Monthly Municipal Market Activity, January 2007–December 2022



When looking at par amount traded, 2022 will not surpass 2007 or 2008 largely because of the significant volume of trading in variable-rate products in 2007 and 2008. The par amount of variable-rate products traded was \$4.5 billion in 2007 and \$2.8 billion in 2008 but dropped below \$500 million billion in 2021 before rising to \$850 million in 2022. Because the credit crisis in 2007 and 2008 had a dramatic impact on the short-term municipal bond market, and trading levels are a fraction of what they were prior to the crisis, it is important to also look at trading patterns in fixed-rate bonds when comparing trading volumes in recent years with 2007 and 2008. Figure 3 shows the par amount traded since 2007 in fixed-rate securities only.² Par amount traded in 2022 was 22% higher than the previous record in 2008 and 56% higher than in 2021.

² Excluding variable rate securities and municipal commercial paper.

Figure 3. Annual Municipal Market Activity, Fixed-Rate Securities, 2007–2022

This surge in trading volume, especially in the number of trades, was driven by the significant rise in tax-exempt yields in 2022. With the significant rise in interest rates in 2022, there has also been a dramatic rise, especially in smaller-size trades, in customer purchases of bonds at a significant discount. The Internal Revenue Service (IRS) Market Discount Rule imposes potentially significant tax implications for bonds purchased at a substantial discount in the secondary market. With yields moving higher, more bonds were priced and purchased at a large discount. The MSRB issued an [issue brief](#) in March 2022 alerting investors to potential tax implications of buying bonds at a significant discount to par.³ The MSRB previously issued [interpretive guidance](#) in November 2016 reminding dealers of their obligation to disclose to a customer, at or prior to the time of trade, all material information known about a transaction, as well as material information about the municipal security that is reasonably accessible to the market. The guidance also specified that the fact that a municipal security bears a market discount is material information that must be disclosed to a customer under [MSRB Rule G-47](#), on time of trade disclosures.⁴

Although the significant increase to record level trade counts has been well documented, there are other trends that emerged last year, as well. Rising interest rates and mutual fund redemptions had a dramatic impact on the amount of larger institutional customer sales (block size). The par amount⁵ sold in blocks of \$1 million or more increased 124% from \$266 billion in 2021 to \$599 billion in 2022. Although the overall number of trades increased 66%, the number of customer sales of \$1 million bonds or more nearly doubled from 75,194 trades in 2021 to 146,752 in 2022.

³ See "[Tax and Liquidity Considerations for Buying Discount Bonds](#)," Municipal Securities Rulemaking Board, March 2022.

⁴ See "[Time of Trade Disclosure-Disclosure of Market Discount](#)," Municipal Securities Rulemaking Board, November 2016.

⁵ Fixed-rate bonds only.

The par amount of customer sales of \$100,000 or less, a proxy for individual investor trades, was up by 55%, a significant increase from 2021 but less than the increase in institutional selling.

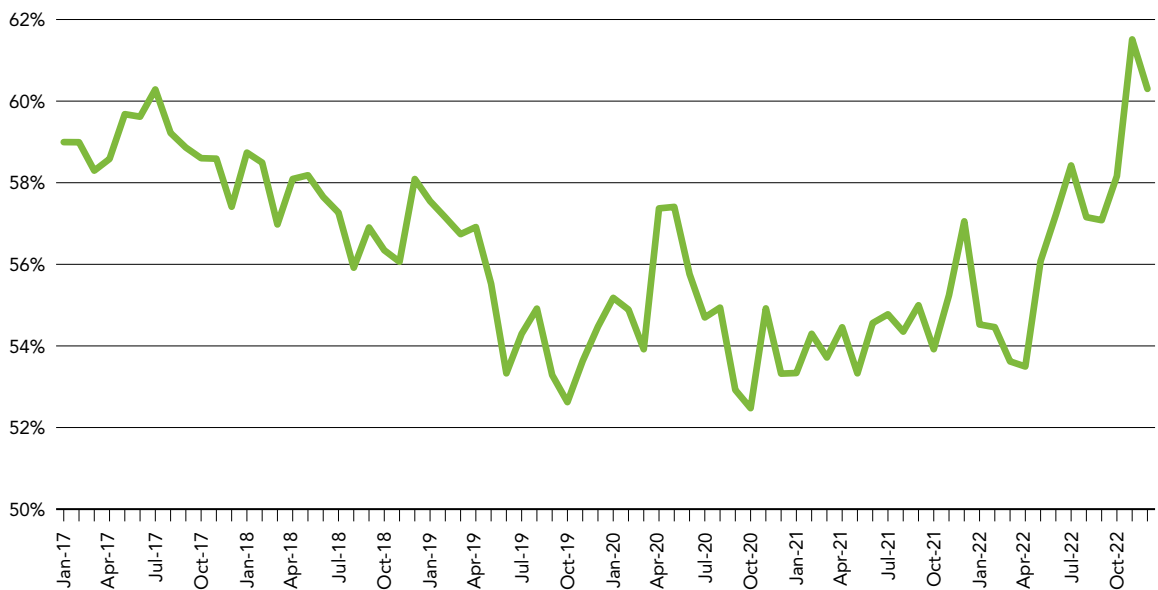
When looking at customer purchases of fixed-rate municipal bonds, we can see the dramatic increase in demand from individual investors. Par amount purchased by customers in amounts of \$100,000 or less increased from \$64 billion to \$120 billion in 2022, while the number of trades rose from 2.1 million to 3.6 million, up 86% and 80%, respectively. Customer purchases in institutional block sizes also increased 36% in 2022.

Although mutual fund redemptions likely increased the number of customers selling in block sizes, the increase in customer purchases and sales in all sizes likely signals an increase in tax-loss swaps as investors sold bonds to realize losses for tax purposes while buying similar bonds at or near the same time.

Trading on Alternative Trading Systems (ATSs)

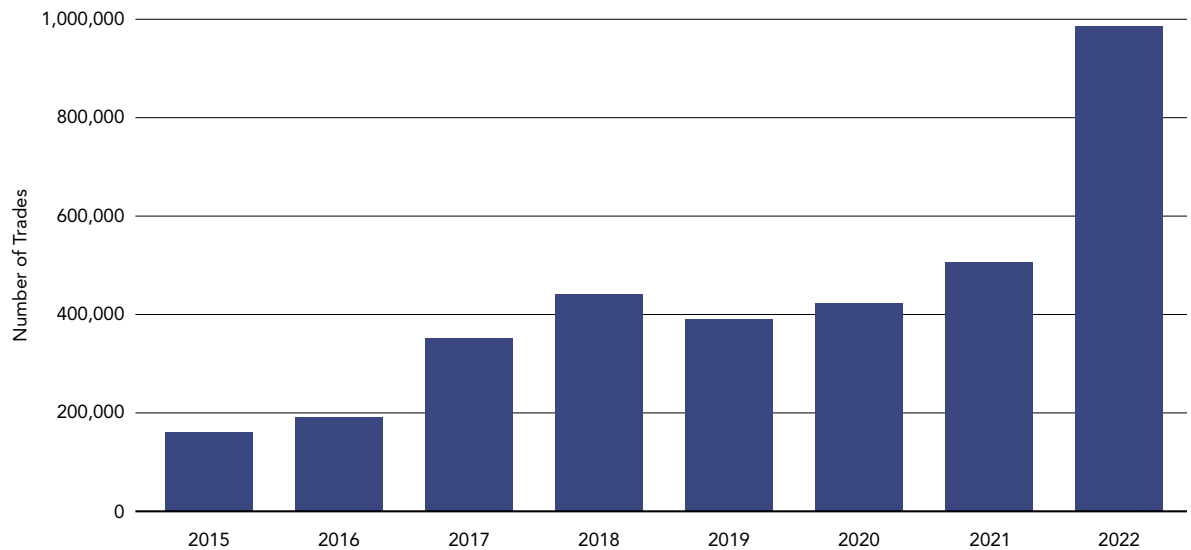
The MSRB tracks the volume of municipal bond trading on ATSs and has published a number of research papers on trading on ATSs. ATSs aggregate liquidity efficiently and effectively with a focus on smaller size trades. In 2022, the median trade size on ATSs was \$25,000. With the significant increase in demand from individual investors, there has been a significant increase in trading over ATSs. Figure 4 shows the percentage of inter-dealer trades that are executed over an ATS compared to all inter-dealer trades. The chart shows that after declining in the past few years, the percentage of inter-dealer trades executed over ATSs was higher than ever in November and December 2022.

Figure 4. ATS Trades as Percentage of Inter-dealer Trades, January 2017–December 2022



At the same time that ATSS have increased their share of the inter-dealer market, we have also seen a dramatic increase in the number of trades being executed with institutional investors through the dealer of an ATS. The MSRB published a [report](#) in August 2022 that looked at this trading pattern through June 2022.⁶ Figure 5 below shows the number of trades with customers through the dealer of an ATS. In 2022, the number of customer transactions with the dealer of an ATS was nearly one million trades, up 95% from 2021. In 2022, 13% of customer trades were executed with the dealer of an ATS compared to 9% in 2021. So, one in every eight customer trades were between institutional investors and the dealer of an ATS.

Figure 5. Institutional Customer Transactions Executed on ATS



⁶ See "[Customer Trading with Alternative Trading Systems](#)," Municipal Securities Rulemaking Board, August 2022.

Yields

The year 2021 ended with tax-exempt yields near all-time lows, but yields started to rise immediately when the calendar turned to 2022. The year was dominated by concerns about inflation and significantly tighter monetary policy impacting rates. Figure 6 shows the dramatic increase in tax-exempt municipal benchmark and Treasury bond yields. Tax-exempt yields rose 159–263 basis points, while Treasury yields increased 207–434 basis points since the end of 2021. The table below also shows how the municipal to Treasury ratio, which compares tax-exempt benchmark yields to Treasury yields, has also increased from the historically low levels we saw at the end of 2021, indicating tax-exempt municipal bonds are more attractive now relative to Treasury bonds than they were at the end of 2021.

Figure 6. Municipal and Treasury Yields

Year	Bloomberg BVAL 11/30	Treasury 11/30	Muni/Treasury Ratio	Muni/Treasury Ratio 12/31/21	Bloomberg BVAL YTD Change in BPS	Treasury YTD Change in BPS	Bloomberg BVAL 12/31/21	Treasury 12/31/21
1	2.801	4.73	59%	43%	263	434	0.168	0.39
2	2.655	4.41	60%	31%	243	368	0.225	0.73
3	2.561	4.22	61%	33%	224	325	0.318	0.97
5	2.534	3.99	64%	45%	196	273	0.573	1.26
10	2.624	3.88	68%	68%	159	236	1.036	1.52
20	3.256	4.14	79%	67%	195	220	1.304	1.94
30	3.565	3.97	90%	78%	208	207	1.485	1.90

Sources: Bloomberg Finance L.P., U.S. Department of the Treasury

Figure 7 shows tax-exempt 10-year benchmark yields from 2011 through 2022. With a few noticeable exceptions, the market has seen interest rates remain historically low for the past 11 years. In 2022, yields rose fairly consistently and peaked at levels not seen since early 2011. From the end of October through the end of the year, the market rallied, and rates declined by 30-75 basis points by year end. In fact, although 2022 was the worst performing year since at least 1980, November was the best performing month since 1981. For investors, yields available in the latter part of 2022 were higher than they had been in more than 10 years. This could certainly help to explain the explosion in trading volume, especially in the last three quarters of the year. The graph clearly shows rates rising from 1% at the beginning of 2022 to 3% in May. Rates then declined slightly in late May and again in July but rose steadily from August through October before declining at the end of the year.

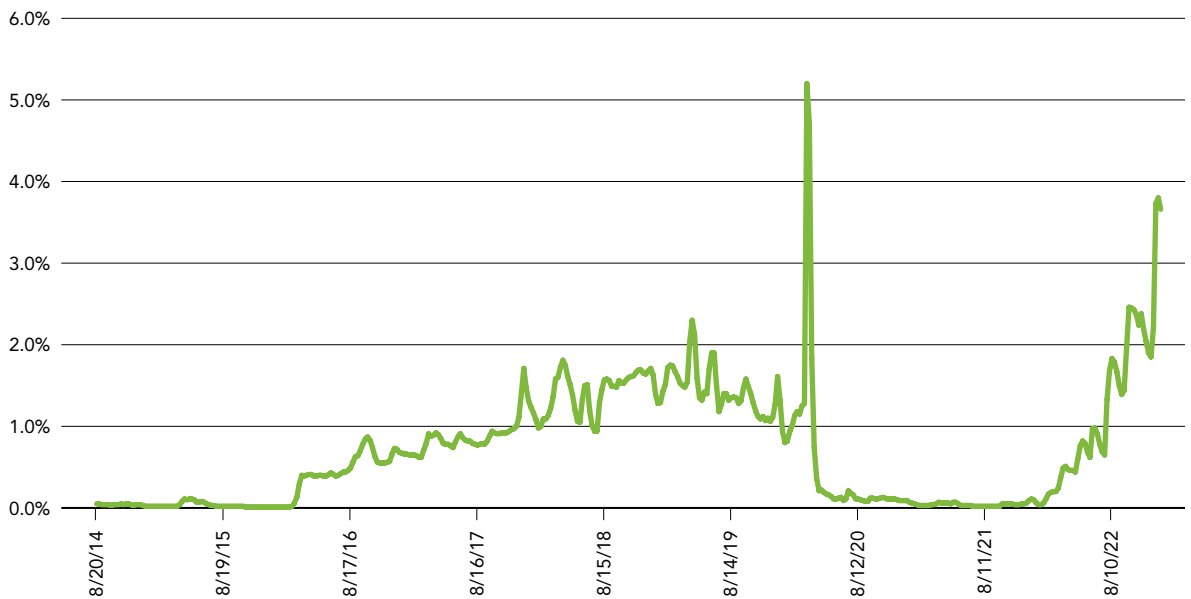
Figure 7. Bloomberg BVAL AAA 10-Year Callable Yields, 2011–2022



Source: Bloomberg Finance L.P.

Figure 8 below also shows the substantial change in short-term rates in 2022. Shortly after the beginning of the pandemic in the Spring of 2020, the Securities Industry and Financial Markets Association (SIFMA) Municipal Swap Index⁷ hovered at yields close to zero. However, these yields rose quickly and consistently for much of 2022 as tighter monetary policy impacted short-term tax-exempt interest rates.

Figure 8. SIFMA Municipal Swap Index, 2014–2022



Source: SIFMA

Mutual Fund and Exchange Traded Fund Flows

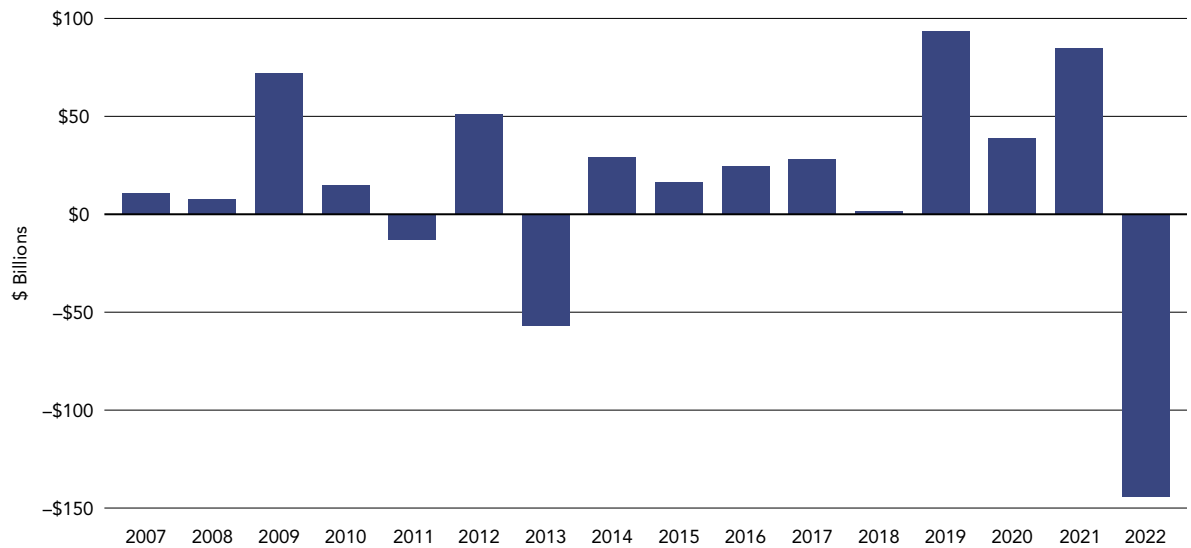
Figure 9 shows annual tax-exempt mutual fund flows from 2007 through 2022. From 2019 through 2021, mutual funds experienced inflows in excess of \$216 billion.⁸ The recent historically low interest rates were likely a catalyst for these significant inflows into mutual funds, as some investors looked to investing in funds instead of individual bonds. During these three years, the municipal bond market became more and more dependent on demand from tax-exempt mutual funds, especially in the long end of the market. The chart also shows that, with the exception of 2013, the municipal bond market saw consistent inflows into mutual funds, inflows that increased significantly in the three years starting in 2019 through 2021. In 2022, however, tax-exempt mutual funds saw outflows of approximately \$144 billion, which is dramatically higher than the outflows seen in 2013, the highest outflow year prior to 2022. These unprecedented redemptions forced mutual funds

⁷ The Securities Industry and Financial Markets Association Municipal Swap Index is a 7-day high-grade market index comprised of tax-exempt Variable Rate Demand Obligations (VRDOs).

⁸ Source Investment Company Institute (ICI).

to sell bonds in the secondary market at a time when market participants were concerned about inflation, monetary policy and rising rates in all domestic fixed income markets. Increased selling by mutual funds likely drove yields to rise faster in order to help dealers distribute bonds to other investors. In the latter part of 2020 and all of 2021, mutual fund inflows and subsequent demand for bonds caused demand to exceed supply and likely pushed yields on tax-exempt municipal bonds lower relative to other fixed income products. In 2022, selling by mutual funds could be part of the reason municipal bonds returned to historical municipal to Treasury ratios from record or near-record lows at the end of 2021.

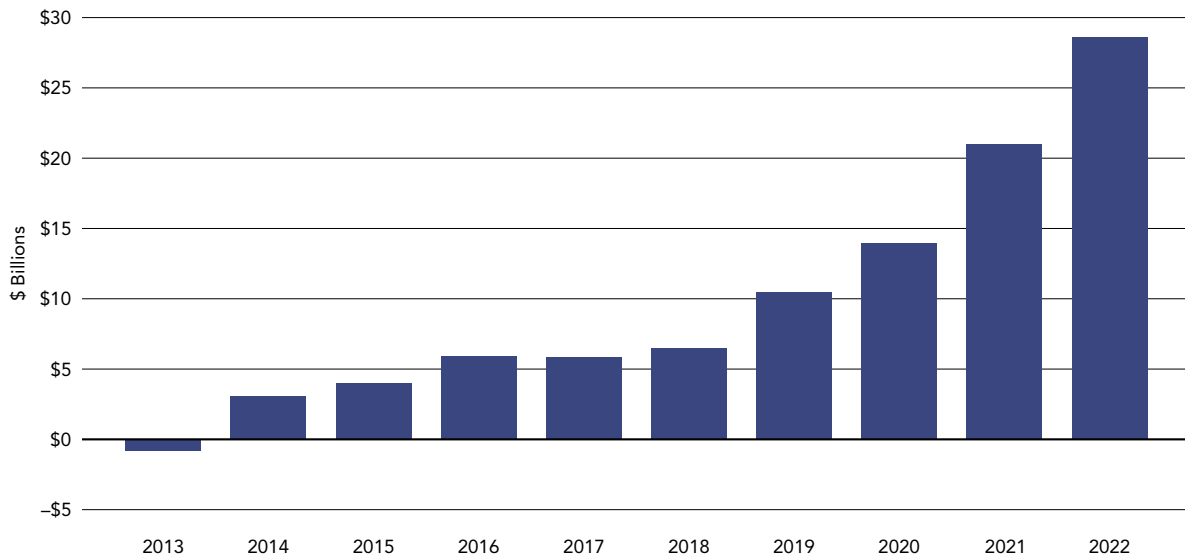
Figure 9. Municipal Tax-Exempt Mutual Fund Flows, 2007–2022



Source: Investment Company Institute (ICI)

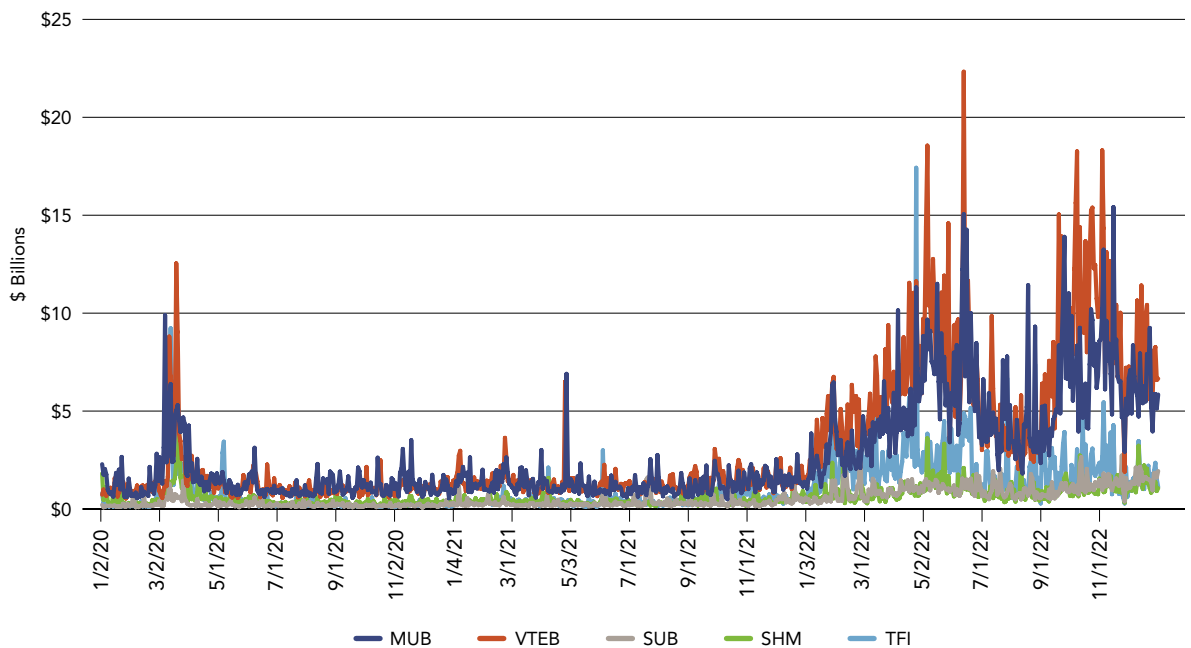
One other significant development in 2022 was the disconnect between flows for tax-exempt mutual funds and tax-exempt ETFs. Figure 10 shows the record inflows into municipal bond ETFs in 2022 and the tremendous growth in this asset class. Through 12/28/2022, tax-exempt ETFs saw inflows of more than \$29 billion, about 41% higher than the previous record in 2021. Some market participants have told the MSRB that some of the inflows into ETFs were a result of investors redeeming their mutual funds to realize losses for tax purposes and simultaneously buying municipal bond ETFs to replace the mutual funds. Although the inflows into ETFs were dramatically smaller than the outflows from mutual funds, ETFs continue to increase in importance to the municipal bond market and certainly warrant further analysis in the coming years. Figure 11 demonstrates the increasing presence of municipal bond ETFs by showing the amount of trading in the five largest tax-exempt ETFs. In 2022, on several occasions trading levels exceeded even what we saw in March of 2020 at the onset of the pandemic. In 2022, trading volume for these ETF was up 330% compared to 2021.

Figure 10. Municipal Tax-Exempt ETF Flows, 2013–2022



Source: Investment Company Institute (ICI)

Figure 11. Trading Volume of Five Largest Municipal ETFs, 2020–2022

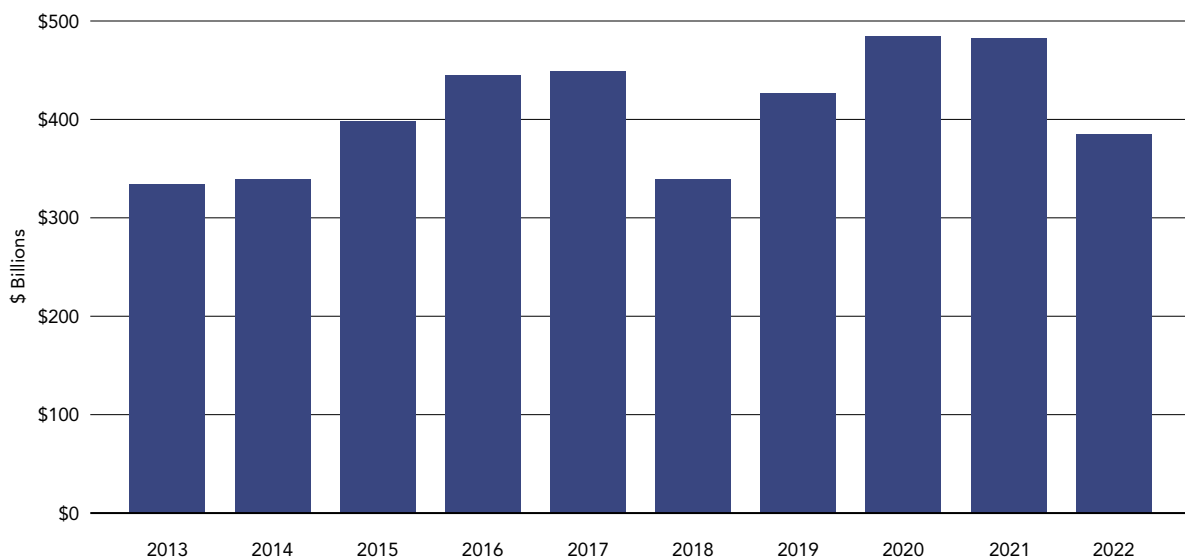


Sources: VettaFI ETF Database and Yahoo Finance

New Issue Volume

Rising interest rates fundamentally changed the type of deals pricing in the new issue market. As rates rose in 2022, we saw new issue volume decline. Total new issue volume in 2022 was down 20% compared to 2021 (See figure 12). A decrease in new issue volume can often help the market to find stability since there are fewer bonds that need to be distributed. However, analyzing new issue statistics by tax status shows limited relief for the tax-exempt market. Although total volume was down 20%, volume for tax-exempt bonds and bonds subject to the Alternative Minimum Tax (AMT) was only down 11%. Taxable volume on the other hand was down 57%. This dramatic drop in taxable issuance is linked directly to increasing interest rates and the subsequent significant reduction in advance refunding deals. In the latter part of 2020 and all of 2021, issuers used taxable bonds to advance refund tax-exempt debt, often in order to recognize savings up front. Increasing interest rates greatly reduced and often eliminated savings from advance refundings, so significantly less taxable new issuance was needed. From 2010 to 2018, taxable municipal bond issuance averaged 8% of total issuance. This percentage increased to 25%–30% or higher in the latter portion of 2020 and all of 2021. However, in 2022, taxable issuance was only 14% of total issuance. To further illustrate the impact of rising rates, for 2022, new money issuance was down only 3% compared to 2021, but refunding deals were down 65%.

Figure 12. Municipal Market Issuance, 2013–2022



Source: Refinitiv

Conclusion

2022 was an unprecedented year in the municipal bond market, with dramatic changes in yields, record trade count volume, increases in par amount traded, mutual fund outflows and a dramatic reduction in taxable and advance refunding new issue volume. Although market participants faced significant challenges in 2022, there was no period of dislocation similar to the short-lived dislocation at the beginning of the pandemic in March 2020. The municipal bond market continued to operate efficiently despite the challenges, and a surge in demand for municipal bonds by individual investors helped the market to recover in the last quarter of 2022. In 2022, individual investors once again showed how important they are to the municipal bond market. As we move into 2023, the market is faced with significantly more uncertainty, especially related to inflation and monetary policy, than we saw entering 2022. However, yields are much higher than they were at the beginning of 2022 and demand has remained strong. The MSRB will continue to monitor changes and trends in the marketplace and report significant findings.

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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.



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