MSRB
Municipal Securities Rulemaking Board

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2020 Municipal Bond Market in Review

MARKET COMMENTARY

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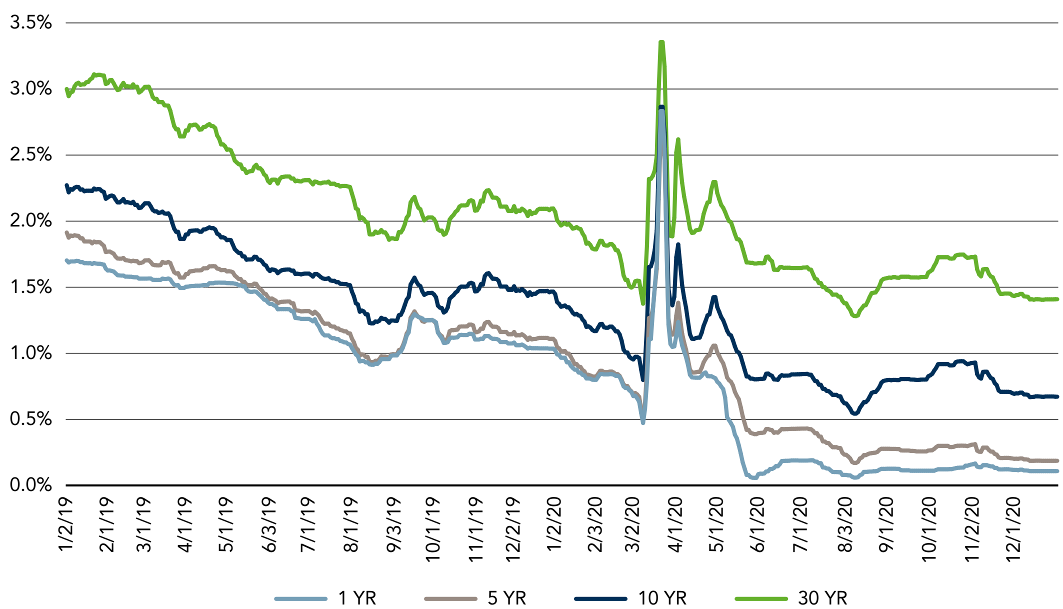
Introduction[1]

Starting in late February 2020, worldwide financial markets experienced unprecedented volatility as a result of the COVID-19 pandemic and the large-scale economic shutdown in many nations, including the United States. This market commentary from the Municipal Securities Rulemaking Board (MSRB) analyzes notable trends and insights from a volatile year.

As Chart 1 shows, tax-exempt benchmark rates had steadily declined from January 2019 through February 2020, similar to other market benchmark rates. The municipal bond market benefited from increased demand from institutional customers, including mutual funds. According to the Investment Company Institute (ICI), municipal mutual funds saw 60 consecutive weeks of inflows from late 2018 through early March 2020. In 2019 alone, mutual funds saw inflows of $94 billion, more than 30% greater than the inflows of the previous four years combined.

Chart 1. BVAL Municipal AAA Callable Yields



Source: Bloomberg

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.

As mutual fund holdings of municipal securities have been climbing, dealers have been steadily reducing their municipal securities inventories for a number of reasons, such as capital requirements and decreasing spreads. It is also important to note that the difficulty and expense of hedging tax-exempt municipal bonds can impact the willingness of dealers to hold inventory, especially during times of market disruption. From Q1 2018 to Q3 2020, dealer inventories decreased 62%, from $26 billion to $10 billion.[2] During the same time frame, holdings for mutual funds, exchange-traded funds (ETFs) and closed-end funds have increased from $810 billion to more than $1 trillion.

Spring Market Dislocation

On March 10, 2020, the market began to see an increased level of selling from institutional investors. At the same time, individual investors began redeeming mutual fund shares amid concerns of the potential impact of the COVID-19 pandemic on state and local government issuers. In each of the final two weeks of March, mutual fund companies saw outflows of about $19 billion. This movement shattered the previous three record weeks of mutual fund outflows, which were $7.7 billion[3], $5.6 billion[4], and $4.9 billion.[5] It is important to note that the market dislocation in March was a liquidity issue, not a credit issue. Although the full impact of the pandemic on state and local government was unknown in March 2020 and remains uncertain for many issuers today, the potential impact concerned investors who, as a result, redeemed municipal bond mutual fund shares, among other asset classes.

Trade data reported to the MSRB also showed a significant increase in customer sales of more than $1 million.[6] For the month of March 2019, as well as January through February 2020, the par value of customer sales of more than $1 million averaged $1.5 billion per day.[7] The week of March 16, 2020 saw the average daily volume soar to $5.6 billion, and the following week, the week of March 23, saw an average of $5.1 billion. On three consecutive trading days, March 20, 23 and 24, customer sale volume of more than $1 million was $6.5 billion or more (See Chart 2). Selling from these institutional investors overwhelmed demand and benchmark interest rates rose dramatically. At the same time, the new issue market came to a near halt as issuers postponed deals due to uncertainty in the primary market.

2 Board of Governors of the Federal Reserve System, "Financial Accounts of the United States," December 10, 2020 (2020:Q3 Release).

3 Week ending June 26, 2013.

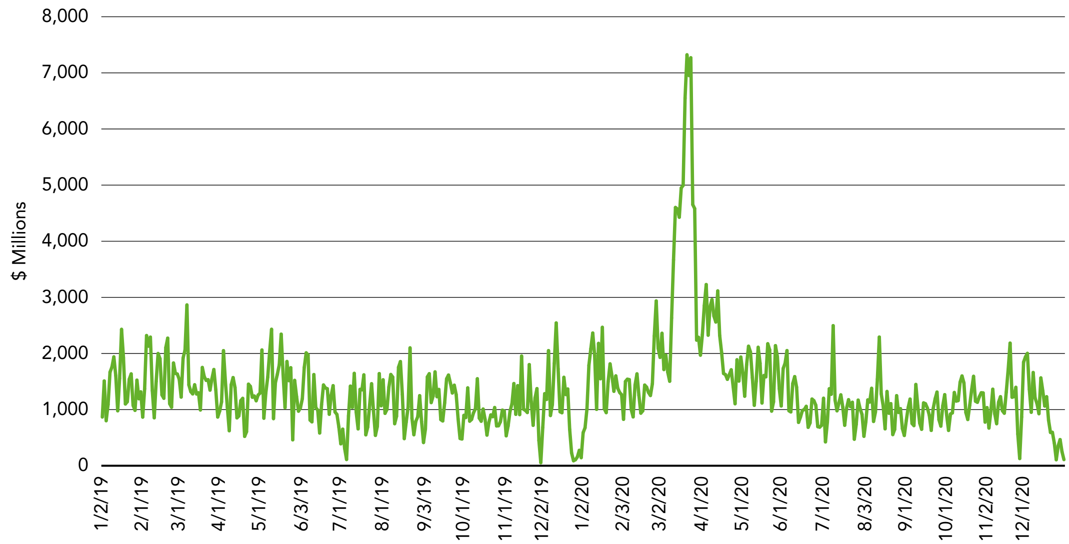
4 Week ending January 19, 2011.

5 Week ending December 15, 2010.

6 Trades of more than $1 million are often used as a proxy for institutional trading.

7 All trade data in this report is for fixed-rate and zero-coupon bonds and customer transactions only.

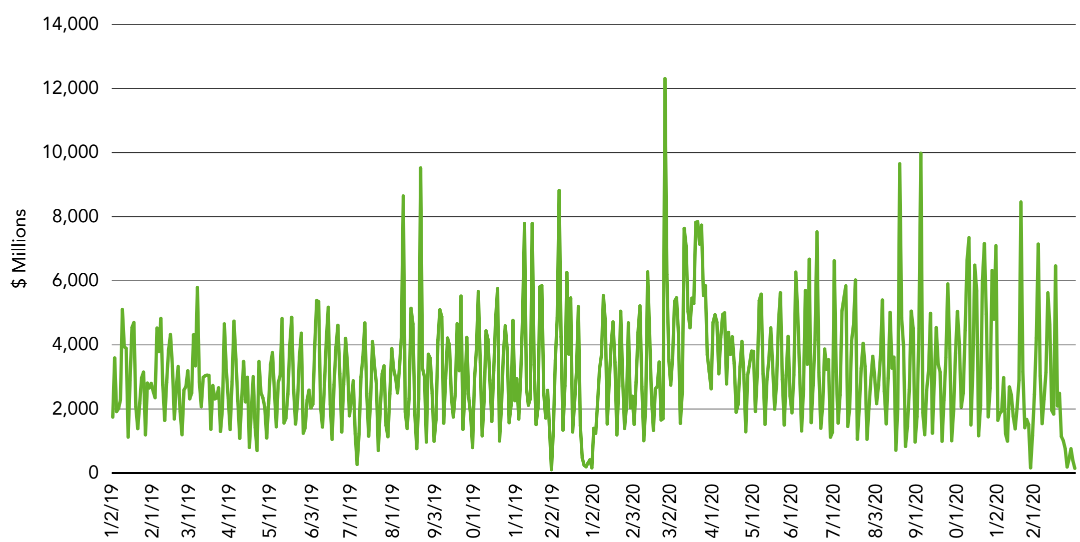
Chart 2. Customer Sales of More than $1 Million (Par Volume Traded)



Source: MSRB

Fortunately for the market, significantly higher yields attracted additional institutional buyers as municipal bonds were now considered to be "cheap" compared to some fixed-income asset classes. During March 2019, client purchases of more than $1 million averaged $2.9 billion per day. For January through February 2020, the par value of customer purchases of more than $1 million averaged $3.3 billion per day. The weeks of March 16 and 23, 2020 saw the average daily volume increase to over $6 billion (See Chart 3). This dramatic increase in customer purchases occurred primarily in the secondary market as the new issue market ground to a near halt.

Chart 3. Customer Purchases of More than $1 Million (Par Volume Traded)

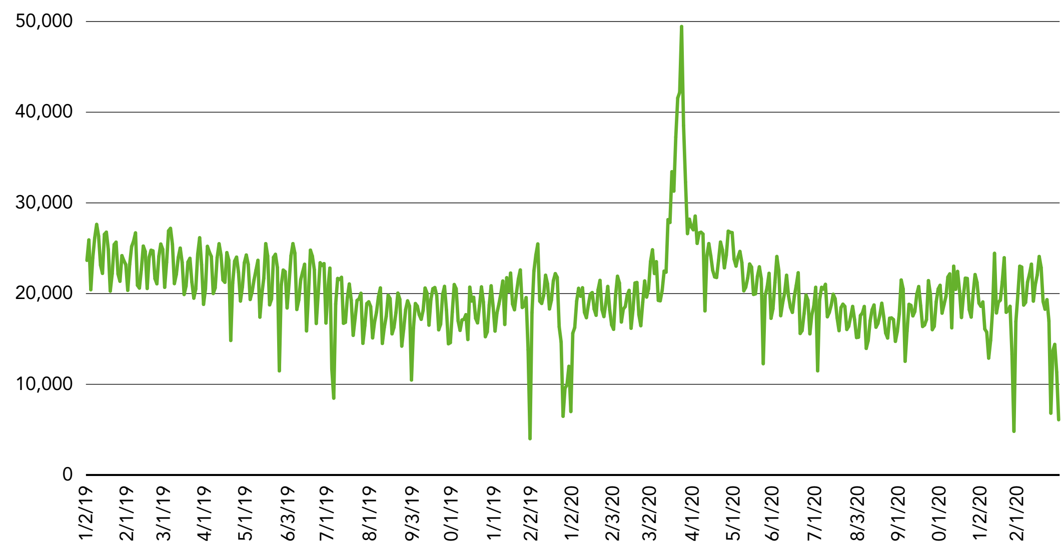


Source: MSRB

Similarly, individual investors significantly increased their purchases of municipal bonds as yields rose. For January through February 2020, the average number of customer purchases of 100 bonds or less,[8] was about 8,500 trades per day. In March 2020, that number increased to nearly 13,000 customer purchases per day. During the three trading days from March 20 to 24, 2020, the average number of customer purchases of 100 bonds or less was 23,000 per day, with a high of almost 26,000 on March 24. On March 24, this surge in individual investor demand fueled a record of nearly 50,000 fixed-rate customer trades reported to the MSRB (See Chart 4).

Although households and mutual funds are the two largest holders of municipal bond debt, banks are a key investor as well. [9] The Tax Cuts and Jobs Act of 2017, which took effect in 2018, made municipal bonds less attractive to banks as it lowered the top corporate income tax rate from 35% to 21%. From the end of 2017 through the end of 2019, banks collectively reduced their municipal bond holdings by 18%. This trend reversed in 2020 as bank demand increased and bank holdings rose by 7% through the third quarter.

Chart 4. Number of Trades of All Customer Transactions



Source: MSRB

Table 1 shows closing yields for the Bloomberg's BVAL AAA Muni Callable Curve for various dates that demonstrate the severity and speed of the market dislocation and recovery. This yield curve, as well as many other daily and historical yield curves and indices from third-party providers, is available for free on the MSRB's Electronic Municipal Market Access (EMMA®) website.[10]

[8] Customer purchases of 100 bonds or less is often used as a proxy for individual investor purchases; however, it is possible that some of these executions were from institutions.

[9] Board of Governors of the Federal Reserve System, "Financial Accounts of the United States," December 10, 2020 (2020:Q3 Release).

[10] "Municipal Yield Curves and Indices" on the EMMA Website (https://emma.msrb.org/ToolsAndResources/MarketIndicators).

Table 1. Bloomberg BVAL AAA Muni Callable Curve

Date	1-Year Yield	2-Year Yield	3-Year Yield	5-Year Yield	10-Year Yield	30-Year Yield
12/31/19	1.04%	1.04%	1.05%	1.11%	1.47%	2.10%
03/02/20	0.68%	0.68%	0.68%	0.69%	0.95%	1.51%
03/10/20	0.58%	0.59%	0.60%	0.62%	0.93%	1.54%
03/12/20	1.11%	1.15%	1.19%	1.27%	1.65%	2.32%
03/18/20	1.68%	1.66%	1.65%	1.64%	1.93%	2.49%
03/23/20[11]	2.83%	2.78%	2.73%	2.66%	2.87%	3.36%
03/27/20	1.07%	1.09%	1.12%	1.16%	1.39%	1.89%
05/29/20	0.06%	0.12%	0.19%	0.39%	0.80%	1.68%
08/10/20[12]	0.06%	0.07%	0.07%	0.17%	0.54%	1.28%
10/30/20	0.16%	0.18%	0.19%	0.31%	0.93%	1.73%
12/31/20	0.11%	0.12%	0.13%	0.19%	0.67%	1.41%

The dislocation in the market in March 2020 was severe and short-lived. From March 10 to March 23, ten trading days, benchmark yields in 3-, 10- and 30-year bonds were higher by 213, 193 and 182 basis points (bps), respectively. There were multiple days when yields rose by 50 bps or more. Like the dislocation, the recovery was swift for high-grade municipal bonds. From March 24 to March 27, four trading days, benchmark yields in 3-, 10- and 30-year municipal bonds were lower by 176, 207 and 198 bps, respectively. Although the severe dislocation did not last long, at the time, market participants did not know when it would end. Anytime the capital markets seize up to such a degree, it is a significant concern for issuers and other market participants.

The Municipal to Treasury (Muni/TSY) ratio also demonstrates the extent of the dislocation and recovery in the market in 2020. Since tax-exempt municipal bonds are exempt from federal income taxes and U.S. Treasury bonds are not, high-quality municipal bonds normally trade at yields lower than corresponding Treasury bonds of the same maturity. Table 2 below shows the ratio for various maturities at different times in the past year.

Table 2. Muni/TSY Ratio

Year	12/31/19	2/28/20	3/9/20	3/20/20	5/29/20	8/10/20	10/30/20	12/31/20
1	65%	73%	152%	1889%	34%	45%	122%	108%
2	66%	82%	126%	752%	75%	48%	127%	92%
3	65%	83%	122%	666%	98%	47%	99%	74%
5	66%	80%	110%	511%	129%	71%	81%	52%
10	76%	85%	148%	311%	124%	92%	105%	72%
30	88%	91%	139%	216%	119%	102%	105%	85%

[11] March 23, 2020 saw the peak in yields during the Spring volatility.

[12] August 10, 2020 saw record low yields in many maturities.

As Table 2 shows, prior to the market dislocation, the Muni/TSY ratio looked fairly typical. It began to widen out in late February and early March 2020, and exploded on March 20, the height of the dislocation. The market continued to move to more normal ratios thereafter, and by year-end, the ratios were lower for maturities of three or more years than they had been prior to the market dislocation.

On April 9, 2020, the Federal Reserve Board (FRB) announced the establishment of its emergency lending facility, called the Municipal Liquidity Facility (MLF). The purpose of the MLF was to enhance the liquidity of the primary short-term municipal securities market through the purchase of up to $500 billion at issuance from eligible issuers of various types of short-term notes that mature within three years.[13] The MLF was designed as a backstop for the municipal bond market by offering eligible issuers funding at rates above historically normal rates, but well below rates reached during the peak of the market dislocation. This was the first time the FRB had committed to purchasing municipal bonds directly from issuers.

Although the MLF only purchased four separate short-term notes between its inception and conclusion on December 31, 2020, it was viewed by issuers and market participants as an effective backstop that helped restore liquidity and confidence in the municipal market. Separately from the MLF, the FRB announced multiple facilities to calm the markets including a new issue and secondary facility for corporate bonds, and the ability of the FRB's Money Market Mutual Fund Liquidity Facility to purchase variable rate demand obligation securities (VRDOs). The announcement of the facilities and accompanying accommodative monetary policy bolstered investor and issuer confidence in the markets.

As seen in Table 1, benchmark yields continued to move lower after the market recovery in late March and April 2020. According to Bloomberg's BVAL AAA Muni Callable Curve, which has data since 2011, all maturities, except for the 1-year maturity, moved to all-time low rates in August. That said, lower-rated state and local government issuers and sectors most impacted by the pandemic did not recover so quickly and, in some cases, still have not recovered to pricing levels seen pre-pandemic.

Market Resiliency

As mentioned earlier, the dislocation in the market in March 2020 was mainly a liquidity issue, not a credit issue. The rise in rates in March 2020 was historic and had a larger impact on the short end of the market. On March 20 and 23, 1-,2-,3- and 5-year BVAL AAA muni callable rates hit all-time highs. The 10-year BVAL AAA muni callable rates were the highest since early 2014 and the 30-year rates were the highest since late 2018.

However, the municipal bond market showed tremendous resiliency as demonstrated by the snap back to, and consistent move towards, lower rates. As mentioned above, benchmark yields dropped 170 to 200 bps from the monthly highs in just a few days. However, AAA rates remained above pre-pandemic levels at March month-end. From April to August, rates continued to decline to not only pre-pandemic levels, but also all-time low rates, on the short end of the yield curve. In early August, BVAL AAA muni callable rates reached an all-time low in almost all maturities. Although tax-exempt rates moved up slightly by year-end,

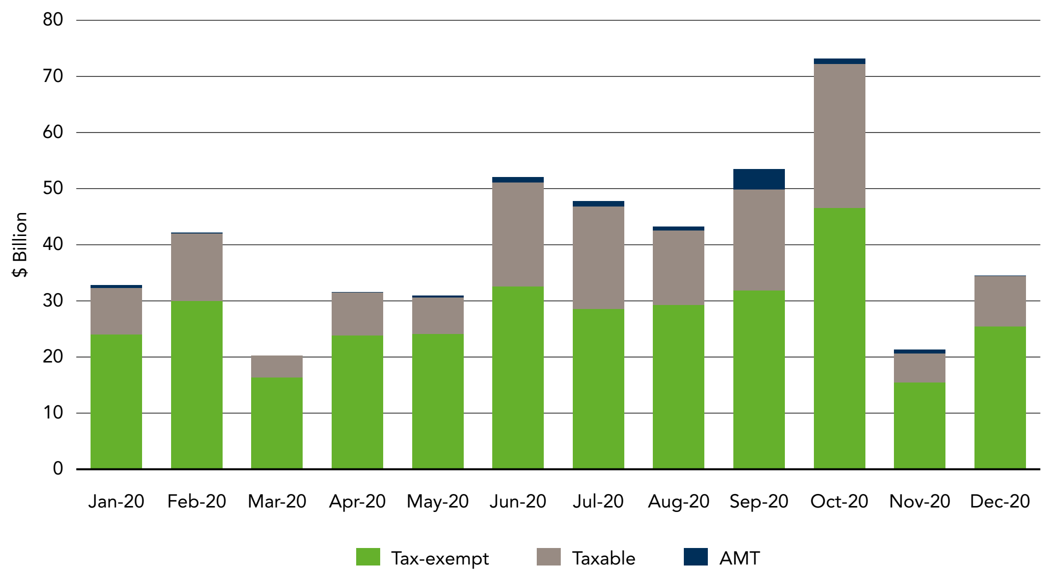
[13] The MLF was initally set up to purchase notes of up to two years, but that was extended to three years on April 27, 2020.

AAA rates at the end of 2020 were lower by more than 90 bps on the short end of the yield curve, 80 bps in 10-years and 70 bps on the long end of the yield curve, compared to year-end 2019.

Record New Issuance

In March 2020, the new issue market came to a virtual halt as a result of the market dislocation. As Chart 5 shows, overall new issue volume in March was $20.2 billion, down 28% compared to March 2019 and less than half of the new issue volume just a month earlier, in February 2020.

Chart 5. Municipal Bond Issuance by Tax Status



Source: Refinitiv

Despite this significant issuance slowdown in March and another slowdown in November, which was widely attributed to potential market uncertainty around the U.S. election, the municipal bond market saw record supply of $483 billion in 2020, according to Refinitiv.[14] New issue volume was up 13% compared to overall volume in 2019. This increase in volume was driven by a huge increase in taxable issuance, with municipalities issuing $146 billion in taxable municipal debt, more than double the amount of taxable municipal debt issued in 2019.

Tax-exempt new issue volume for March 2020 was $16.4 billion, down 31% from the tax-exempt debt issued in March 2019 and down 45% from February 2020. Even as the dislocation started to reverse, few market participants believed that tax-exempt new issue volume would rival volume in 2019, which was the third largest year since 2011. However,

[14] All municipal bond new issue volume numbers cited in this report are from Refinitiv as of 01/22/2021. New Issue volume does not include note transactions. $483 billion in total issuance is comprised of tax-exempt, taxable and AMT issuance.

as rates moved down, issuers returned to the market. Initially, the new issue market mostly opened for higher rated issuers, but over the summer, lower-rated issuers had market access as well. New issue volumes were elevated from June through August, but volumes really exploded in the fall, with tax-exempt issuance of $31.9 billion in September and $46.5 billion in October. This was 16% higher than the volume issued in the same two months of 2019. By year-end, tax-exempt issuance for 2020 was $328 billion, 98.7% of the tax-exempt issuance in 2019.

Taxable debt represented 30% of market issuance in 2020, up from 17% in 2019. The spike in taxable issuance was driven in part by issuers taking advantage of the low interest rate environment to refund outstanding tax-exempt debt with taxable debt. Some municipalities advance refunded debt to realize upfront savings to help them manage their budgets, which had been negatively impacted by the pandemic. Compared to 2019, refunding volume was up 37% in 2020, while new money issuance rose by only 4%.

The $146 billion of taxable issuance actually underestimates how much taxable debt was issued by municipalities. In 2020, many higher education institutions and hospitals opted to issue debt directly through the corporate bond market. This is because most hospital and higher education institution issuers can either access the municipal market through a conduit issuer or access the corporate bond market directly. In 2020, these issuers raised about $40 billion in the corporate bond market, in addition to the $146 billion of taxable municipal debt issued.

The significant increase in taxable issuance in both the municipal and corporate markets attracted interest from foreign investors, especially for large, well-known issuers. Foreign investors are attracted to taxable debt in the municipal market because of the historical safety of the asset class and the unappealing zero or sub-zero rates available on much of the high-quality sovereign debt across the world.

The amount of refunding volume was a significant factor in market supply. Refunding volume was $149 billion, up 37% from 2019. This refunding volume pre-refunded a substantial amount of longer dated tax-exempt bonds, reducing the amount of tax-exempt bonds in the longer end of the market. The amount of refundings and ordinary redemptions, coupled with the relatively flat new issue volume for tax-exempt debt and significant tax-exempt mutual fund inflows, caused a scarcity of product in the latter part of the year.

Historically, institutional buyers on the long end of the tax-exempt muni market have shown a strong preference for 5% coupon bonds rather than lower coupon bonds. Buying bonds with a large premium offers investors protection from potentially significant tax implications should rates rise and bonds start trading at a market discount. Lower coupon bonds can often trade at a 50 bps, or more, higher yield-to-worst than 5% coupon bonds on the long end. In the second half of 2020, with tax-exempt rates historically low and a widespread expectation for continued accommodative monetary policy, more buyers were willing to pick up yield from lower coupon bonds compared to 5% coupon bonds than was observed in 2019 and the first half of 2020.

Use of bond insurance rose dramatically in 2020. Insured bonds accounted for more than $34 billion in issuance, or 7% of new issue volume. This volume was 35% higher than any year since 2011 and was up 44% from 2019.

Credit Changes

As mentioned previously, the potential impact of the COVID-19 pandemic on issuers and sectors was uncertain in March 2020, and in many ways, remains so today. There were, however, some significant changes in credit actions by rating agencies. Prior to the pandemic, S&P Global Ratings had three sectors, higher education, ports and mass transit, on negative credit watch. By April 1, S&P had placed all sectors in public finance on negative credit watch due to declining revenues and uncertainty caused by the pandemic. By September, 80% of S&P's rating actions had been outlook changes. Also, the ratio of upgrades to downgrades stood at .27. The last time downgrades outpaced upgrades in public finance was 2011.[15]

Similarly, Fitch Ratings downgraded 181 public finance issuer ratings and upgraded 100 in 2020. In 2019, upgrades outpaced downgrades 173 and 105. 2020 was the first time Fitch Ratings downgrades exceeded upgrades since 2013.[16]

The impact of the pandemic varied for different issuers and some sectors were impacted much more significantly than others. The impact of the pandemic on any issuer could have been dependent on where they are located, population density and the issuer's sector. Many states and municipalities have been helped by federal aid and large reserves built up during the recent prolonged economic expansion.

COVID-19-Related Disclosures

As issuers realized that the COVID-19 pandemic was having a material impact on their financial position, the MSRB began receiving COVID-19-related disclosures for primary offerings and continuing disclosures. The first of these COVID-19-related disclosures were submitted to the MSRB's EMMA website as early as February 2020. In total, the MSRB received over 38,000 COVID-19-related disclosures between February and December 2020, which accounted for 21% of all primary market and continuing disclosure submissions submitted to the EMMA website. Ten states, New York, Texas, California, Pennsylvania, Florida, Minnesota, Wisconsin, Illinois, New Jersey and Ohio, contributed nearly 58% of these disclosures, with the top three states, New York, Texas and California, accounting for 27%.

For the primary market, 64% of all disclosures received by the MSRB referenced COVID-19 or related terms as defined in the COVID-19-Related Disclosure Summary Report methodology.[17] Official statements and preliminary official statements accounted for 99.6% of all COVID-19-related primary market disclosures, with less than 0.5% relating to

[15] S&P Global Ratings, "U.S. Public Finance 2020 Year in Review: One Like No Other," December 10, 2020 (https://www.spglobal.com/ratings/en/research/articles/201210-u-s-public-finance-2020-year-in-review-one-like-no-other-11773177).

[16] Fitch Ratings, "U.S. Public Finance Rating Actions Report and Sector Updates: 2020 Annual," January 11, 2021 (https://www.fitchratings.com/research/us-public-finance/us-public-finance-rating-actions-report-sector-updates-2020-annual-11-01-2021).

[17] "Municipal Securities Market COVID-19-Related Disclosure Summary" published by the MSRB (http://www.msrb.org/msrb1/pdfs/Municipal-Securities-Market-COVID-19-Related-Disclosure-Summary.pdf).

supplemental official statements and advance refunding disclosures. In total, primary market submissions accounted for 31% of COVID-19-related disclosures.

More than 26,000 COVID-19-related continuing disclosures were received, which represented 16% of all continuing disclosures submitted to the EMMA website between February and December. 84% of COVID-19-related continuing disclosures fell under the annual financial disclosure category, while event-based disclosures accounted for the remaining 16%. In total, continuing disclosure submissions accounted for 69% of COVID-19-related disclosures.

Summary

2020 was an extraordinary year in the municipal market. Despite unprecedented mutual fund outflows in March, including over $38 billion in just two weeks, municipal mutual funds actually ended the year with net inflows of $39 billion. Even with the significant market dislocation and swift move higher in yields, the market showed how resilient it can be as benchmark yields reached record lows in August and ultimately ended the year with yields significantly lower than year-end 2019. The market was able to absorb record new issue volume of $483 billion, driven by a surge in taxable financings including taxable refunding deals. The FRB operationalized the MLF, which was able to purchase up to $500 billion in short-term notes directly from eligible issuers. Finally, issuer disclosures to the MSRB's EMMA website demonstrated the breadth of the pandemic's financial impact, with the MSRB receiving more than 38,000 disclosures referencing the COVID-19 pandemic.

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®) website, the official repository for information on all municipal bonds. The MSRB also serves as an objective resource on the municipal market and conducts extensive education and outreach to market stakeholders. 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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