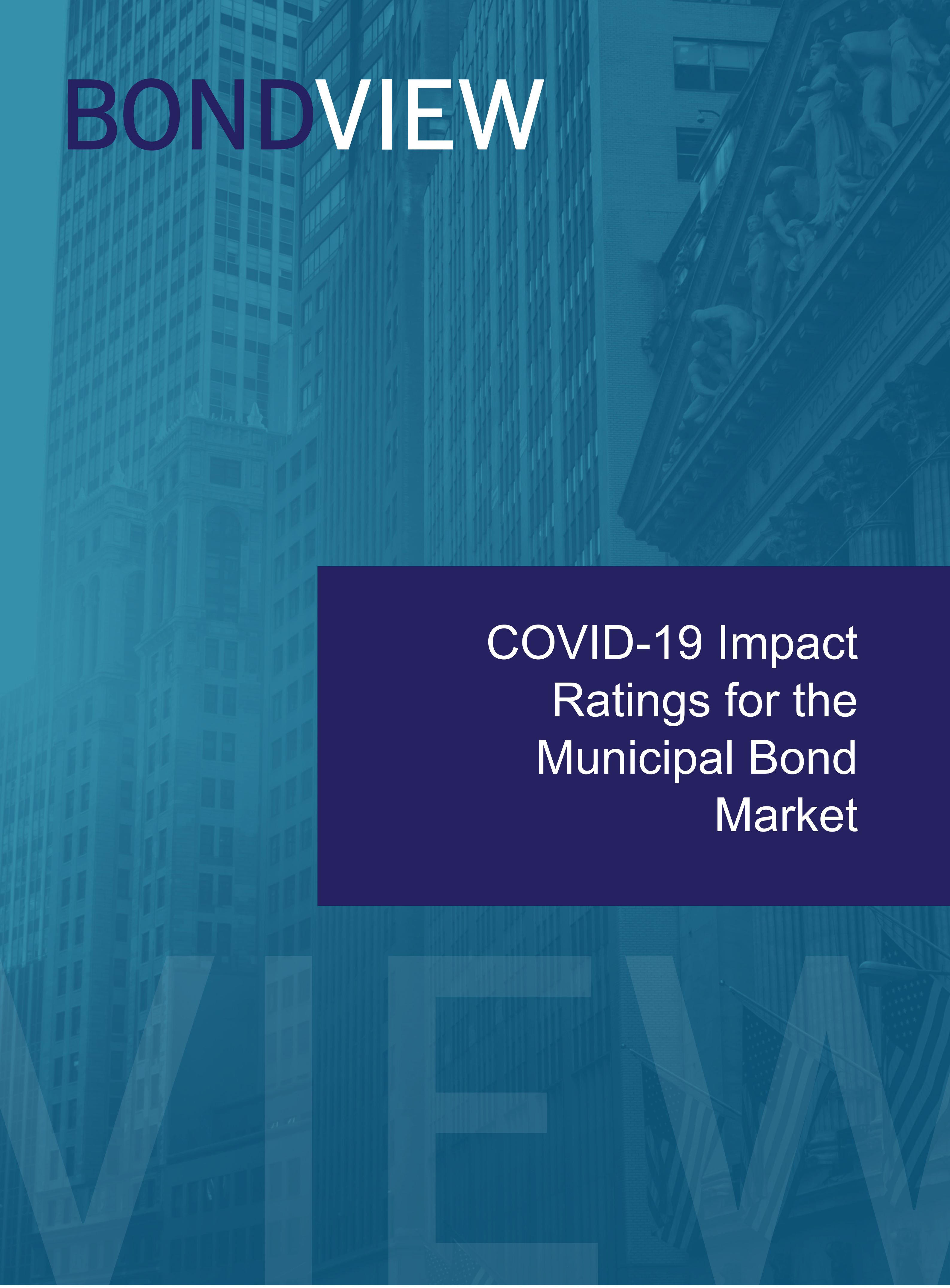

COVID-19 Impact Ratings for the Municipal Bond Market

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The COVID-19 pandemic is having a significant impact on the municipal bond market ...

INTRODUCTION

The COVID-19 pandemic is having a significant impact on the municipal bond market, and these effects will likely continue for a considerable time even when the economy begins to recover.

The initial market sell-off on Q2 2020, where yields on muni bonds rose around 200 basis points across the yield curve over three weeks, was the biggest market rout since 1984. The wave of investors converting securities into cash resulted in huge outflows from the bond markets and traditional sources of liquidity from broker dealers all but dried up. Muni spreads against Treasuries rose to historic highs during this time.

SECTOR AND ISSUER EXPOSURE

A wholesale credit crisis in the municipal bond market seems to have been avoided, and now that some kind of equilibrium has been restored, thoughts are turning to the likely winners and losers in the post-COVID ‘new normal’. While many issuers of municipal bonds are relatively well placed to weather the storm, others in more exposed sectors will face ongoing difficulties in the new environment.

Financially sound municipalities, with strong reserves, can be reckoned to have resilience to the long term economic effects of the public health crisis. They can also benefit from the financial support of federal programs such as the Municipal Liquidity Facility (MLF) designed to ease the economic shock. Similarly, issuers who provide essential public services such as power, water and sewerage are expected to be durable enough to withstand the dislocation.

However, issuers whose income derives from discretionary spending may potentially struggle, especially if the crisis and its impact are drawn out. States and localities whose revenues come from sales or income taxes, or from oil production, may see a shock from lower consumer spending and gas prices.

The education sector is currently in a state of flux, with many courses being cancelled or repurposed for online delivery, so these will merit continued scrutiny. Obligors from travel, tourism, sport and leisure activities, such as hotels, convention centers, toll roads and stadiums, are extremely vulnerable to a continued lockdown on large gatherings. Given its direct exposure to the pandemic, the healthcare sector is also under financial pressure.

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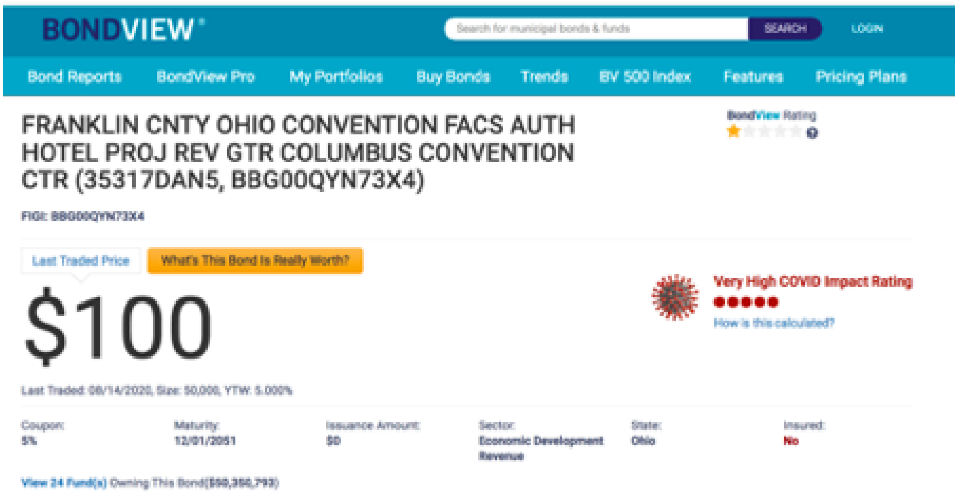
Credit ratings tend to be a lagging indicator ...

TRACKING THE MARKET IMPACT

In short, the impact of the COVID-19 pandemic may hit state and local governments in a variety of ways and each of the 50,000 different issuer's financial conditions are unique. With over 1.5 million outstanding issues in the municipal bond market, how are investors to assess which of these bonds will be impacted, and to what kind of degree?

In time, as the impact on sectors and individual issuers are established and reported it can be assumed that credit ratings will reflect the changes in default risk. However, credit ratings tend to be a lagging indicator and the market will almost certainly have reacted to these developments before any official adjustments are announced. Investors and traders relying on credit ratings changes to give advance warning on any virus-related challenges are likely to miss the boat.

In response, BondView® has created an automated ratings analyst tool to help muni investors and traders to monitor the market and stay on top of these developments. ***BondView® COVID Impact Ratings*** focus on five key factors that help identify COVID risk for each municipal bond: sector of issuance, material events, geography, marketplace perspective, and bond liquidity.



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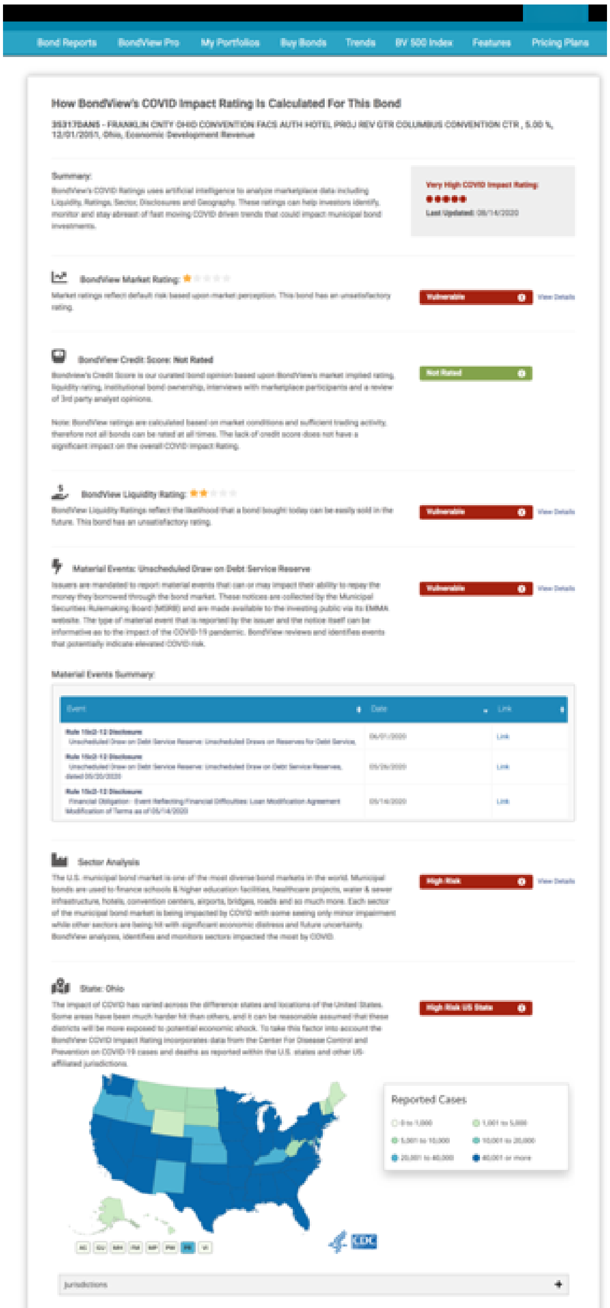

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BONDVIEW

Five factors are combined and then weighted to create a single COVID Impact Rating for each bond issue.

METHODOLOGY

The BondView® COVID Impact Rating combines these five factors equally by assigning an appropriate weight to each.

1. SECTOR

The U.S. municipal bond market is one of the most diverse bond markets in the world. Municipal bonds are used to finance schools & higher education facilities, healthcare projects, water & sewer infrastructure, hotels, convention centers, airports, bridges, roads and so much more. As previously mentioned, each sector of the municipal bond market is being impacted by COVID with some seeing only minor impairment while other sectors are being hit with significant economic distress and future uncertainty.

BondView has preliminarily identified sectors impacted the most by COVID as:

Entertainment

- Amusement Parks
- Casinos
- Convention Centers
- Cruise Lines
- Lodging (hotels/motels)
- Malls
- Museums
- Stadiums
- Theater

Healthcare

- Assisted Living
- Continuing Care Retirement Communities
- Elderly Housing
- Group Housing/Housing for the mentally impaired
- Hospital
- Nursing Home

Housing

- Student Housing/Dormitories

Transportation

- Airlines
- Airports
- Bridges
- Mass Transportation
- Toll Road
- Train/Light Rail Projects

2. MATERIAL EVENTS

Issuers are mandated to report material events that can or may impact their ability to repay the money they borrowed through the bond market. These notices are collected by the Municipal Securities Rulemaking Board (MSRB) and are made available to the investing public via its EMMA website. The type of material event that is reported by the issuer and the notice itself can be informative as to the impact of the COVID-19 pandemic.

Material events BondView has identified as potentially indicating elevated COVID risk include:

- Specific COVID notices
- Ratings downgrades
- Unscheduled draw on credit enhancement
- Unscheduled draw of debt service reserve funds
- Partial or complete default on debt service

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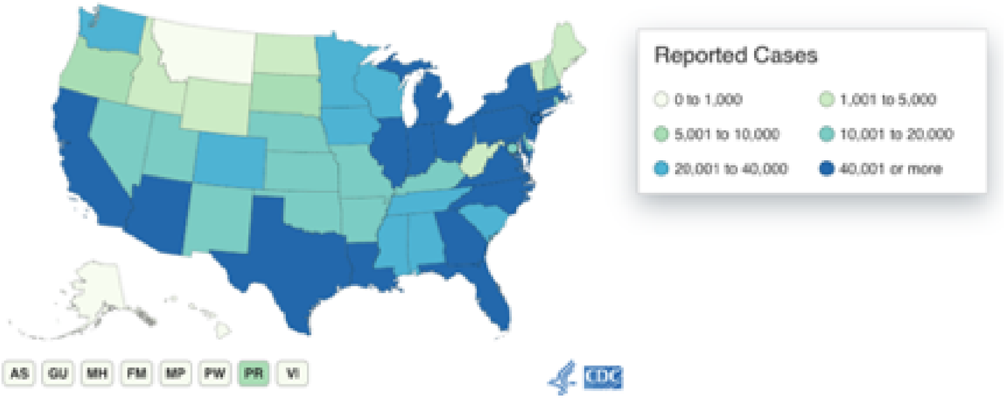
3. GEOGRAPHY

The impact of the virus has varied across the different states and localities of the United States. Some areas have been much harder hit than others, and it can be reasonably assumed that these districts will be more exposed to the economic shock.

To take this factor into account the BondView COVID Impact Rating incorporates data from the Center for Disease Control and Prevention on COVID-19 cases and deaths reported by U.S. states, the District of Columbia, New York City, and other U.S.-affiliated jurisdictions.



4. MARKETPLACE PERSPECTIVE

Among other inputs, the market determines the yield of an individual bond based on its term structure and the market's perspective on the issuers ability to repay its debt. This creates a spread over the "risk free" U.S. treasury bond market. The larger the spread, the higher the perceived risk regardless of how the Nationally Recognized Statistical Ratings Organizations (NRSRO's) such as Moody's, S&P or Fitch have rated the bond.

The BondView COVID Impact Rating uses BondView's Market Implied Rating as the factor for marketplace perspective. The Implied Rating is computed daily based on the bond's return, or yield, relative to the yield of a treasury bond of equivalent maturity. A Treasury bond, which is backed by the U.S. government, is viewed as having no risk. So, the larger the spread (difference) between a bond's yield and its equivalent Treasury yield, the more default risk the market perceives for that bond. Another way of saying this is that the market is requiring a higher yield to compensate for the higher default risk. Bonds rated from five stars (best) to none. Bonds with lower spreads (less risk) are given more stars than bonds with higher spreads (more risk). Ratings are calculated frequently to ensure they reflect the most current market factors.

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BondView Market Implied Rating

Market Rating	Explanation
Treasury Bonds	Considered risk free. Backed by the full faith and credit of the U.S. Government
5 Stars	Best quality and stable borrowers.
4 Stars	Also high quality borrowers, with slightly more risk than 5 star borrowers.
3 Stars	More sensitive to changes in the economy that can affect price and yield.
2 Stars	Increasing economic volatility can lead to even wider swings in price and yield.
1 Star	Borrowers are vulnerable to changes in the economy which can impact ability to meet commitments.
0 Stars	Very vulnerable to changes in the economy and considered speculative.

5. BOND LIQUIDITY

There are well over 1.5 million bond issues outstanding in the municipal bond market. Deal size, issuer recognition, term structure, sector and quality are just some of the drivers for liquidity. BondView's Liquidity Ratings gauge liquidity by tracking both the individual bond's actual trading activity along with the number of institutional holders. Computed daily as a ratio based on the number of trades in a given bond compared to the average number of trades of all the bonds in a similar class. The higher the ratio, the more frequently the bond is traded relative to similar bonds. The range covers the last 45 days.

Liquidity is considered a reliable investment factor because it helps indicate if a bond purchased today is likely to have a liquid market available to be sold into at some future date. For example, if an investor's financial situation changes and needs to convert bonds to cash, or if an investor rebalances a portfolio and there is a need to replace an asset with another one that better meets the objectives.

- Bonds are rated from one to five stars based on how their liquidity ratios compare to the ratios of bonds in the same equivalency class. The higher the ratio of a bond relative to other bonds in the same class, the more stars it receives.
- The liquidity rating, along with BondView's additional ratings criteria, provide a compass to help investors come to their own conclusions prior to making bond investments.

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BondView Liquidity Rating

Liquidity Rating	Explanation
5 Stars	Highest liquidity group in Equivalency Class 80% to 100%. Excellent opportunity.
4 Stars	Next highest liquidity group in Equivalency Class 60% to 80%. Good opportunity.
3 Stars	Third highest yield group in Equivalency Class 40% to 60%. Neutral opportunity.
2 Star	Fourth highest liquidity group in Equivalency Class 20% to 40%. Poor opportunity.
1 Star	Lowest liquidity group in Equivalency Class 0% to 20%.

BONDVIEW COVID IMPACT RATINGS

These five factors are combined and then weighted to create a single COVID Impact Rating for each bond issue.

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There are a number of ways in which the BondView® COVID Impact Ratings can help municipal bond investors and traders

USE CASES

There are a number of ways in which the BondView® COVID Impact Ratings can help municipal bond investors and traders:

- **Funds** - mutual and other funds who hold a portfolio of municipal securities can identify those bonds in the portfolio that might be most impacted by the COVID fallout and assess the scale of this impact. COVID Impact Ratings can be used as a pure monitoring exercise or help with portfolio rebalancing to reduce the risks.

- **Broker/Dealers** - active muni traders can use the COVID Impact Ratings to identify potential opportunities in the market due to apparent mispricing of the risks. Bonds with a likely high exposure, but not reflected in the price, offers some interesting trade scenarios.

- **Analysts** - investment and credit analysts can get an advance view of the likely impact of COVID as a supplement to their traditional fundamental analysis of municipal bonds. COVID Impact Ratings can also be used as a prioritization tool to identify bonds or issuers that merit attention.

- **Financial Advisors** – often lacking the sophisticated tools available to institutional investors, financial advisors can use COVID Impact Ratings to monitor their client portfolios and suggest trade ideas and investment strategies to mitigate impact.

- **Retail Investors** - retail investors and traders are able to use COVID Impact Ratings (along with other BondView capabilities) for similar purposes and to stay ahead of the game.

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BondView® COVID Impact Ratings offer a market determined measure of which bonds will be most impacted and on what scale.

SUMMARY

The consequences of the current pandemic are likely to have a significant impact on many issuers in the municipal bond market. The nature and extent of this exposure will vary enormously between states, localities, sectors and individual issuers.

With over 1.5 million issues outstanding in the municipal market, tracking this variable impact is a major challenge for investors. Credit ratings can eventually be expected to pick up the effects, but this will lag the market consequences.

BondView® COVID Impact Ratings offer a market determined measure of which bonds will be most impacted and on what scale. This allows funds, broker/dealers, analysts, financial advisors and retail investors to monitor the impact on their portfolios, rebalance their investments as required and identify fruitful trading opportunities.

For more information see: https://cms.bondview.com/landing-page-ratings

ABOUT BONDVIEW

BondView is a leading provider of municipal bond market information. We offer comprehensive information on municipal bonds, fund liquidity as well as coverage on 3 million municipal bonds from over 50,000 issuers including evaluated prices, ratings, financial disclosures, stress testing and more. BondView clients include professional and retail investors.

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