

FIXED INCOME EDUCATION SERIES

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# Municipal Bonds Primer

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WASHINGTON CROSSING ADVISORS





# Table of Contents

<b>“THE BASICS” OF MUNICIPAL BONDS</b> .....	<b>1</b>
<b>CHANGING MARKET STRUCTURE AND LIQUIDITY</b> .....	<b>3</b>
<b>WHAT’S THE CREDIT RISK?</b> .....	<b>5</b>
<b>WHY THE HIGH COUPON?</b> .....	<b>7</b>
<b>THE RISK OF CALLABLE MUNIS</b> .....	<b>9</b>
<b>ABOUT WASHINGTON CROSSING ADVISORS</b> .....	<b>10</b>





# “THE BASICS” OF MUNICIPAL BONDS

## MUNICIPAL BONDS EDUCATION SERIES

### “The Basics” of Municipal Bonds

A municipal bond is a bond issued by state and local governments and their agencies. Issuers receive principal from investors with the promise to make annual interest payments and return principal at maturity.

The first officially recorded municipal bond in the U.S. was issued by the City of New York in 1812. In 1895, the U.S. Supreme Court ruled on the doctrine of intergovernmental tax immunity that the federal government had no authority under the Constitution to tax interest payments made by states and, vice versa, that the states had no authority to tax interest payments made by the federal government.

Since then, the municipal bond market has developed to nearly \$4 trillion in size and is the primary source of funding for state and local governments and their agencies. Typically, munis will offer a higher “after-tax” yield due to the fact that, while unlikely, the federal tax exemption can essentially be challenged at any time by the federal government.

The “basics” below are explained more specifically in the following muni education series.

### Tax Exemption

Municipal bonds offer many distinct qualities that differentiate them from other fixed income assets, such as U.S. Treasuries and Corporates, but the primary difference is their tax exemption. The income received by muni investors is exempt from federal income tax. Additionally, should a state or locality

impose an additional income tax, income is exempt from these taxes should an issuer be located within the same state or locality as the investor resides. Therefore, investors residing in “high-tax” states or localities benefit the most from buying munis issued within their state or locality.

### Example:

Issuer ..... WASHINGTON ST  
 Coupon ..... 5.000  
 Call Date ..... 06/01/2028  
 Maturity ..... 06/01/2031

### Issuers

Generally, the two major categories of munis are general obligation bonds and revenue bonds. General obligation bonds are backed by the issuer’s “full faith and credit”; the issuer is legally obligated to use any available means of raising revenue to meet its debt service. Both states and local municipalities issue general obligation bonds.

Revenue bonds, on the other hand, are backed by a dedicated stream of revenues. Unlike general obligation bonds, if the revenues are not sufficient to meet debt service, the issuer is not obligated

to use other means to raise revenue.

Typical issuers of revenue bonds include toll roads, utilities, transit systems, etc. Credit quality in the muni market is strong, with an average rating of AA and a very low default rate (see “What’s the Credit Risk?”).

### Coupon

The majority of municipals are issued at a premium with a high coupon (see “Why the High Coupon?”). Coupon payments are typically made semiannually on the day of maturity and six months after. Municipal issuers typically use serial debt, with maturities every year, because it allows for level debt service, which is easier to match with anticipated revenues. This results in over a million individual securities outstanding, leading to decreased liquidity (see “Changing Market Structure and Liquidity”).

### Maturity/Callability

Most municipals with maturities of longer than 10 years are callable by the issuer after 10 years. This gives issuers the ability to refinance their debt if interest rates fall but adds risks to investors if interest rates rise (see “The Risks of Callable Munis”).

Tax Exemption	Federal Tax	State Tax <sup>1</sup>	Local Tax <sup>1</sup>
U.S. Treasuries	Not Exempt	Exempt	Exempt
Corporate Bonds	Not Exempt	Not Exempt	Not Exempt
Municipal Bonds	Exempt	Exempt	Exempt

1. if applicable Source: WCA



**Muni Series:**

**CHANGING  
MARKET  
STRUCTURE  
AND LIQUIDITY**

# WASHINGTON CROSSING ADVISORS

## MUNI SERIES | Changing Market Structure and Liquidity

TRADITIONALLY KNOWN AS THE QUIET CORNER of the fixed income markets, the muni market is experiencing a shift in market structure and liquidity. Muni bonds are still illiquid compared to their corporate bond counterparts but are becoming more liquid due to advances in trading and portfolio management technology.

### Muni Market vs. Corporate Market

	Muni	Corporate
Market Size	\$4 trillion	\$10 trillion
Individual Securities (approx.)	1,000,000	43,000
Daily Trading Volume	\$9 billion	\$37 billion

Source: MSRB

While the corporate market is about 2.5 times the size of the muni market and has about four times the daily trading volume, the muni market has about 23 times the individual securities outstanding. This segmentation causes municipals to be less efficient and less liquid.

Corporate bonds are typically issued in benchmark size, resulting in fewer issues outstanding, and more frequent trading, typically daily. As a result, corporates are often quoted similarly to equities, with multiple dealers quoting bid and offer sides. Municipals, on the other hand, are issued in smaller sizes, leading to an exponentially larger number of issues outstanding, and may trade only once a quarter or even once a year. The sheer number of individual

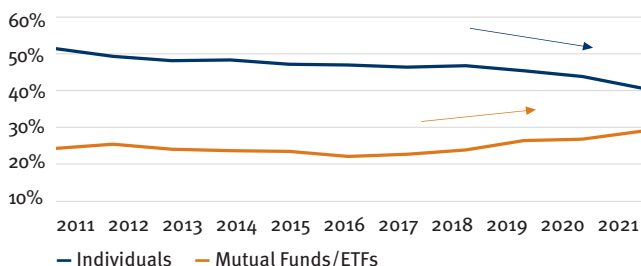
securities make quoted bids and offers virtually impossible. Instead, munis are traded on a true over-the-counter basis. The traditional muni investor would access the market by contacting his or her broker, making broker-dealers integral liquidity providers.

While individuals still own over 40% of outstanding munis, according to SIFMA, the market has shifted more toward institutional investors. At the same time, broker-dealers (the aforementioned integral liquidity providers), have reduced their holdings by more than half over the past five years. This change in market structure has resulted in the need for more sophisticated trading and portfolio management strategies. While broker-dealers remain integral, a number of electronic trading systems have established themselves as alternative liquidity providers. These trading venues match individual and institutional buyers and sellers directly, which lessens the frictions of trading with a single broker-dealer and increases liquidity for both buyer and seller. According to a recent report by TradeWeb Direct, an astounding 20% of municipal trades now occur on their single platform.

Portfolio management systems have also grown more advanced. Systems can now identify investment needs at the individual portfolio level and execute on those needs in real-time by directly connecting with both traditional broker-dealers and electronic trading venues. This provides unprecedented portfolio management efficiency by seamlessly integrating the investment process.

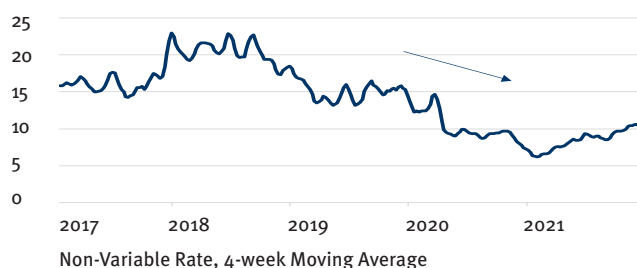
### PERCENTAGE OF OUTSTANDING MUNICIPAL SECURITIES HELD

Source: SIFMA, WCA



### DEALER POSITIONS IN MUNICIPAL SECURITIES (BILLIONS)

Source: Federal Reserve Bank of NY



At WCA, we recognize and embrace the power of changing technology in the muni market. We use an advanced portfolio management platform and operate in every available trading venue to execute efficiently on behalf of our clients. The in-depth market access offered by our active management is necessary to navigate the increasingly complex muni market.



**Muni Series:**

**WHAT'S THE  
CREDIT RISK?**



# WASHINGTON CROSSING ADVISORS

## MUNI SERIES | Municipal Bonds: What's the Credit Risk?

### MUNI VS. CORPORATE CREDIT LANDSCAPE

#### The Majority of Municipal Bonds Are Rated AA and Above

As of December 31, 2020, 98% of muni issuers rated by Moody's were investment grade (Baa and above)<sup>1</sup> and 57% were rated Aa and above. In comparison, 53% of global corporates were investment grade and 6% rated AA and above.

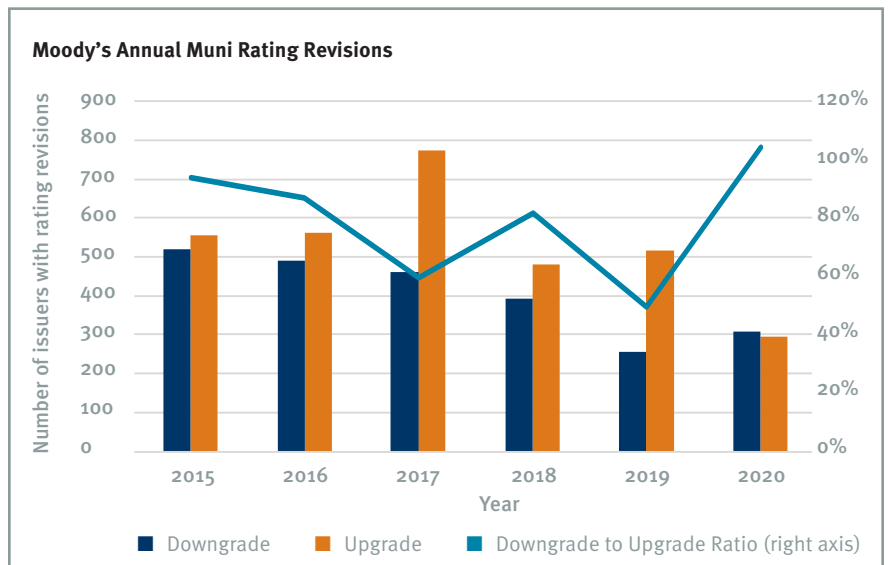
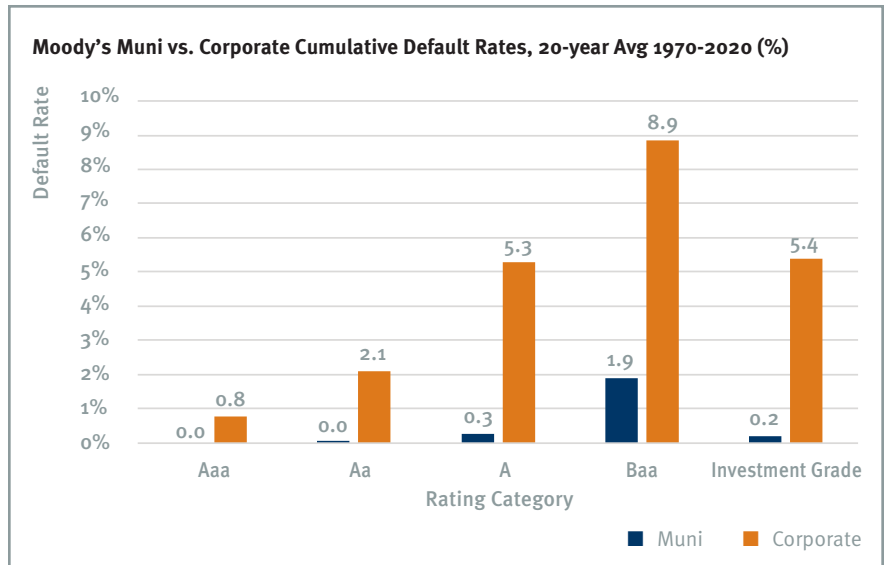
#### Muni Defaults Remain Rare

The 20-year average cumulative default rate since 1970 of all Moody's-rated muni issuers was 0.3% while all Moody's-rated global corporate issuers was nearly 15%. Defaults for investment grade munis are even rarer, with this cumulative default rate for investment grade muni issuers at 0.2% while investment grade global corporate issuers are at 5.4% (graph, top-right).<sup>2</sup>

### DOWNGRADE TO UPGRADE RATIO

#### Muni Issuers Were Resilient to Virus-Related Pressures in 2020 but Challenges Exist

We believe a common measure of the market's overall "health" is the measure of credits downgraded compared to credits upgraded, the downgrade to upgrade ratio. After reaching an 11-year low of 49% in 2019 (the number of downgrades was only 49% of the number of upgrades) and remaining below 100% since 2014, the downgrade to upgrade ratio increased to 104% in 2020, mainly due to virus-related budgetary pressures (graph, bottom-right).<sup>3</sup>



Source: Moody's Investor's Service

**Today's municipal market is characterized by an extremely low default rate. Despite virus-related ratings shifts over the past year, the majority of credits still carry high investment-grade ratings. However, in our view, budgetary challenges still loom for some issuers. At WCA, we carefully evaluate and monitor the credit profile for each holding. We believe the in-depth monitoring offered by our active management is necessary to navigate the increasingly complex muni market while rates remain at historically low levels.**



**Muni Series:**

**WHY THE  
HIGH COUPON?**

# WASHINGTON CROSSING ADVISORS

## MUNI SERIES | Municipal Bonds: Why the High Coupon?

### MARKET CONVENTION FAVORS HIGH COUPONS

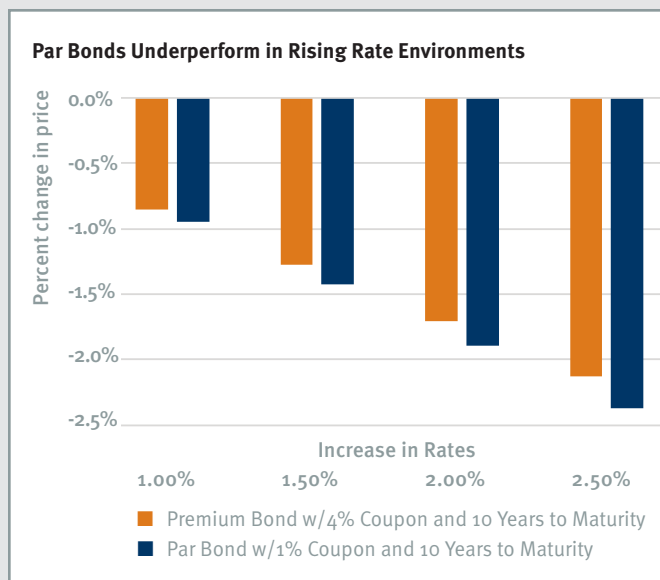
**The Majority of Municipal Bonds Are Issued at a Premium with a High Coupon.** As of June 30, 2021, the average coupon of the Bloomberg U.S. Municipal Index constituents is 4.46% and 88% of the index constituents have a coupon of 4% or higher. In comparison, only 4% of the index constituents have a coupon of 2% or lower.<sup>1</sup>

**High Coupon Bonds Offer Better Price Stability and Increased Cash Flow.** While high coupons mean high prices, the increased interest payments from a higher coupon can deliver returns at a faster pace. Price sensitivity of principal may also dampen high coupons as more total return comes from interest payments. In our view, this is best expressed by measuring a bond's price sensitivity to changes in interest rates, its duration. Duration measures, in years, the amount of time for an investor to be paid a bond's total cash flows. It also measures a bond's price change given a change in underlying interest rates (Illustrative Example 1, below).

### POTENTIAL TAX CONSEQUENCES DECREASE LIQUIDITY

**Low Coupon Bonds Are Potentially Subject to Negative Tax Consequences and Poor Liquidity.** Municipal bonds are subject to the *de minimis* tax rule. This rule, enacted in 1993, states that if a bond is purchased at a discount of more than 1/4 point for each year until maturity, the accretion of the discount to par or sale price is treated as ordinary income instead of a capital gain. Prices of low coupon bonds have the potential to "drop off a cliff," often depreciating drastically as they approach the *de minimis* cutoff as the market recognizes these tax implications (Illustrative Example 2, below).

**But My Muni Portfolio is "Buy and Hold."** Although many municipal bond investors employ a "buy and hold" strategy, a sale could become necessary due to deterioration in an issuer's credit quality or an investor's unforeseen cash need prior to maturity. The *de minimis* rule's potential impact on liquidity and market pricing is an important factor even in buy and hold portfolios.



Source: WCA

#### Illustrative Example 1:

- A par bond with a 1% coupon and 10 years to maturity has a duration of 9.49 years.
- A premium bond with a 4% coupon and 10 years to maturity has a duration of 8.53 years.
- With a 1% rise in interest rates, the par bond will decrease by 9.49% while the premium bond will decrease by only 8.53%, decreases are magnified as changes in rates increase.

#### Illustrative Example 2\*:

- If a bond with 10 years to maturity is purchased below \$97.50, the accretion from the purchase price to par would be subject to the ordinary income tax rate and not the typically lower capital gains tax rate.
- If a bond with 10 years to maturity is purchased between \$97.50 and par, the accretion from the purchase price to par would be *de minimis* and subject to the capital gains tax rate.
- If a bond with 10 years to maturity was purchased at a premium, no accretion and therefore no tax consequences exist.

While investors may be tempted to consider alternative coupon structures to increase yield, at WCA, we carefully evaluate and monitor each holding's liquidity and favor bonds priced at a premium in line with the market's convention. We believe that the in-depth monitoring offered by our active management is necessary to navigate the increasingly complex muni market while rates remain at historically low levels.



**Muni Series:**

**THE RISKS OF  
CALLABLE MUNIS**



# WASHINGTON CROSSING ADVISORS

## MUNI SERIES | Municipal Bonds: The Risks of Callable Munis

### What is a Callable Bond?

A callable bond allows an issuer to pay off the bond, typically at par, prior to maturity. This creates flexibility for the issuer but adds risk for the investor. As compensation for assuming this risk, investors will usually receive a higher yield. Munis with maturities of more than 10 years are typically issued with 10 year calls.

### As Interest Rates Rise, Muni Investors Should be Wary of a Special Risk Associated with Callable Bonds.

Investors use bonds to generate a *known* income stream over the life of the bond. However, the use of callable bonds adds *unknowns*; whether or not the call is exercised has the potential to change the expected maturity date and income stream, which undermines the basis for investment. Typically, a meaningful rise in yields will have a greater effect on the price of a callable bond than a non-callable bond, called *convexity*. Callable bonds are said to have *negative convexity*.

### What is Negative Convexity?

As rates rise, a callable bond will typically “pivot” from being priced to its call to being priced to its maturity as the issuer is less likely to exercise the call. Due to this “pivot,” the price of a callable bond will fall faster as rates rise. *Negative convexity* measures the non-linear relationship between price decrease and rate increase of callable bonds (see Illustrative Example, right).

A good comparison is a typical mortgage. Borrowers (issuers) are less likely to refinance their mortgage when rates rise and they have already locked in a lower rate. Mortgages have *negative convexity*.

### The Good and Bad of Callable Bonds

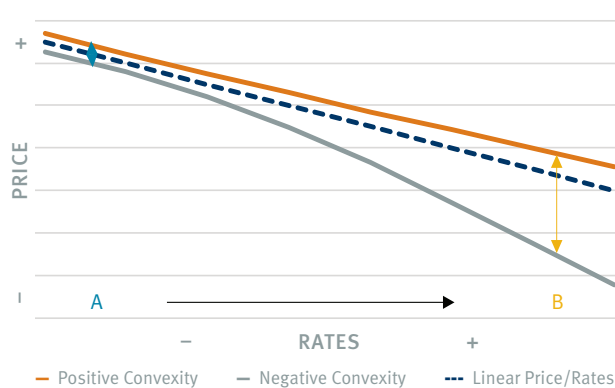
Callable bonds outperform only when rates stay flat

Rate Environment	Impact
<b>Rising Rates (Bad)</b>	<ul style="list-style-type: none"> <li>Call option expires because rates have risen and issuer has no incentive to refinance at higher rates</li> <li>Investor forced to hold bond past call date as price decreases and duration increases</li> </ul>
<b>Flat Rates (Good)</b>	<ul style="list-style-type: none"> <li>Call option may or may not be exercised by issuer</li> <li>Investor earns additional income</li> </ul>
<b>Falling Rates (Bad)</b>	<ul style="list-style-type: none"> <li>Call option exercised because rates have fallen and issuer can refinance at lower rates</li> <li>Investor forced to reinvest proceeds from called position at lower rates</li> </ul>

**ILLUSTRATIVE EXAMPLE:** Consider two investors, Wilbur and Orville. With interest rates near historic lows, both want to buy a 10-year bond issued by the Town of Kitty Hawk. Wilbur buys a non-callable 10-year bond (positive convexity). Orville, wanting to earn some additional income, buys a 20-year bond, callable in 10 years (negative convexity).

After five years, Wilbur and Orville want to buy a new airplane. Interest rates have risen drastically since their bonds were purchased. While Wilbur’s bond has lost value, it has remained priced to its maturity, now in 5 years. Unfortunately, Orville’s bond has “pivoted” and is now priced to its final maturity, now in 15 years, and has lost more value than Wilbur’s.

**Bonds with Positive Convexity Outperform in Rising Rate Environments**



Source: WCA

Negative Convexity Bond				Positive Convexity Bond			
Increase in Rates	Priced to	Price	% Price Change	Increase in Rates	Priced to	Price	% Price Change
0%	Call	111.140	0%	0%	Maturity	113.430	0%
1.00%	Call	106.280	-4%	1.00%	Maturity	108.460	-4%
2.00%	Call	101.660	-9%	2.00%	Maturity	103.730	-9%
3.00%	Maturity	93.310	-16%	3.00%	Maturity	99.245	-13%
4.00%	Maturity	83.738	-25%	4.00%	Maturity	94.983	-16%

Source: Bloomberg, WCA

While investors may be tempted to consider callable structures to increase yield, at WCA, we carefully evaluate and monitor each holding’s unique convexity factor and favor bonds with positive convexity. The in-depth monitoring offered by our active management is necessary to navigate the increasingly complex muni market while rates remain at historically low levels.

# Washington Crossing Advisors

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The team is managed by Kevin R. Caron, CFA, and Chad A. Morganlander, who were among the first founding members of Washington Crossing Advisors.

Washington Crossing Advisors’ views on investing and markets are regularly sought by national media outlets, including *CNBC*, *Bloomberg*, *Fox Business News*, *The Wall Street Journal*, *Forbes*, and *Reuters*.

\* Assets Under Management represents the aggregate fair value of all discretionary and non-discretionary assets, including fee paying and non-fee paying portfolios as of April 22, 2022. Assets Under Advisement represent advisory-only assets for which the firm provides a model portfolio and does not have trading authority over the assets.



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#### **FOR MORE INFORMATION, PLEASE CONTACT US:**

- **Paul B. Clark, CFA**—Senior Portfolio Manager | (415) 364-2635 | [clarkp@stifel.com](mailto:clarkp@stifel.com)
- **Daniel W. Urbanowicz**—Senior Portfolio Manager | (973) 549-4335 | [urbanowiczd@stifel.com](mailto:urbanowiczd@stifel.com)

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18 Columbia Turnpike • Florham Park, New Jersey 07932-2289 • (973) 549-4168 • (800) 342-2325 • [www.washingtoncrossingadvisors.com](http://www.washingtoncrossingadvisors.com)