Primer on Municipal Bonds

Bank of America Merrill Lynch

Primer

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Municipals
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The basics of municipal bonds

We discuss the basics of municipal bonds: how the market began, the composition of the market, the different kinds of short-term instruments, the size of the market, the changing nature of bond insurance and the importance of the tax treatment of municipal bonds.

A quick review of Washington's impact on the muni market:

On 22 December 2017, President Trump signed the Tax Cuts and Jobs Act of 2017 into law. A few key provisions of the bill include:

- Top individual tax rate decreased slightly to 37.0% from 39.6%
- Obamacare surtax of 3.8% on investment income remains
- State and local tax deduction (SALT) was capped at $10,000
- Individual AMT was significantly relaxed
- Tax-exemption on newly-issued advance refundings was eliminated; tax-exemption on advanced refunding bonds issued prior to 31 December 2017 was grandfathered
- For full details of the impact of the bill on the municipal bond market, see our Municipals Weekly publications of 15 December 2017, 5 January 2018 and 19 January 2018

Finally, we note that the market is awaiting the release of the Trump Administration's infrastructure plan, which is currently pending.

Highlights

- A municipal bond is a loan made to a unit of state or local government. The bond is a legally binding agreement between the governmental borrower and a lender who is usually a private entity.

- In return for the investor's purchase of the bond, the issuer agrees to a series of payments, usually the coupon and principal payments. Coupons are typically paid semi-annually.

- The size of the municipal market has grown to $3.8tn as of 3Q17. Households are the largest category of investors, and directly own about 41% of outstanding municipal securities. Including mutual funds, which are largely held by households, this ownership is about 59% of the market.

- For tax-backed bonds, the only source for the payments on the bond is the tax receipts of the issuer. Revenue bonds are bonds issued by municipalities to finance specific public works projects, and are secured by the revenue generated by the particular project financed.

- The municipal bond market is divided into industry segments based on how the borrowed funds are used. Industry segments include: education, healthcare, electric power, transportation, housing, utilities and general purpose.

- A number of companies rate the ability of an issuer to repay its debt. The biggest rating agencies are Moody's, S&P and Fitch. These firms review a number of factors to determine an issuer's rating.

- There were four Moody's-rated defaults in 2016, which brings the total number of defaults since 2007 to 45. The overall default rate remains low in relation to the roughly 80,000 issuers in the market.

- Interest on private activity bonds (PABs) may be subject to the Alternative Minimum Tax (AMT). AMT is a parallel tax system that adds certain tax-preference items back into adjusted gross income. Individuals must pay the higher of the tax calculated under the regular system and under the AMT. Note that the Tax Cuts and Jobs Act significantly relaxed the individual AMT, which should markedly decrease the number of tax filers subject to its provisions.

- For investors, the chief appeal of municipal securities is that they are generally of very high credit quality, and their interest income is usually exempt from federal taxation. In addition, most states do not tax the interest income from their own bonds, which can make such bonds more attractive for residents than out-of-state bonds.

Historical perspective

The municipal bond market is the primary credit market for state and local governments in the United States. It has a long and venerable history. In the days before the formation of the Republic, the colonies, which would eventually become the first states, had the same significant capital needs as any government. In order to raise funds, the states issued the best kind of debt, at least from a government's perspective: currency. Currency gives the government an interest-free loan. That was before the existence of the US Constitution, which gave to the central government the exclusive right to issue currency, or as it was often called, scrip. The colonial scrip was worth what you received for it, which in some cases was not much.

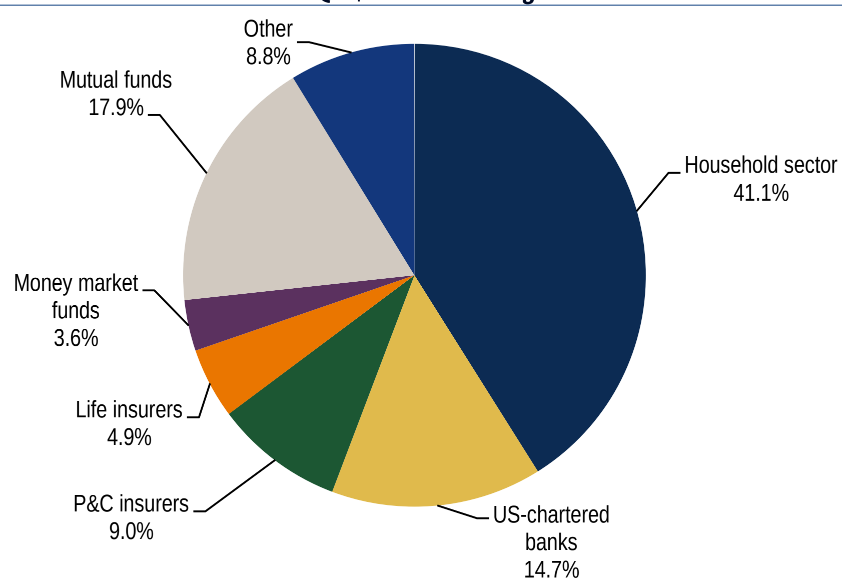
The muni market dates back at least as far as the early 1800s.

Later, the use of scrip fell out of favor but the need to borrow did not. The first use of state and local debt was to finance infrastructure development. This continues to be an important use for municipal bonds, even though we have an evolving notion of what constitutes infrastructure. In the early 19th century, New York Governor DeWitt Clinton financed the Erie Canal with municipal bonds. Then, bonds were utilized to finance private entities such as railroads and banks, something that is generally not allowed today. But the use of the debt market to improve the social welfare of the population was well established – even in the earliest days of this country.

Munis are held largely by individuals.

The size of the municipal market has since grown to $3.8tn. As Chart 1 shows, households are the largest category of investors, unlike the corporate and government markets. Households directly own about 41% of outstanding municipal securities. Including mutual funds, which are largely held by households, their ownership is about 59% of the market.

Chart 1: Who owns munis? As of 2017 Q3: $3.8tn outstanding:



Source: Federal Reserve Board Flow of Funds." Other" includes: Rest of the world, closed-end funds, nonfinancial corporate business, exchange-traded funds, security brokers and dealers, state and local governments, government-sponsored enterprises, credit unions, nonfinancial non-corporate business, state and local government employee defined benefit funds, banks in US- affiliated areas, foreign banking offices in the US, etc.

Features of a municipal bond

The basics

A municipal bond is a loan made to a unit of state or local government. The bond is a legally binding agreement between the governmental borrower and a lender who is usually a private entity. The agreement itself is detailed in the bond indenture. The indenture describes the rights and obligations of the parties.

The OS describes the provisions of the security.

Muni bonds are not registered with the Securities and Exchange Commission (SEC) like corporate bonds. As a result, a muni does not need a prospectus. Instead, the Official Statement (OS) serves as the basic disclosure document. The OS is created when the securities are first sold. It describes the provisions of the securities, explains the legal authority for their issuance, and presents the most recent financial statements of the issuer, as well as other relevant information needed to properly value the securities.

The trustee manages the flows to investors and represents bondholders in the event of default.

Since the bond issue is often purchased by more than one lender, a trustee is designated to manage the flow of monies to the investors. Additionally, the trustee will represent the bondholders in legal proceedings, such as in a default when the issuer fails to meet the terms of the indenture. The default is material when it affects the amount or timing of the cash flows paid on the bond. In other cases, the default is said to be technical, since the breach of contract is a violation of covenant that does not immediately affect the payments to the bondholder.

The amount of money the issuer receives on a bond is referred to as the proceeds of the issue. How that money is spent is called the *bond's use of proceeds*. Not every unit of state government is eligible to borrow funds. Each state provides enabling legislation that identifies exactly which entity can borrow, for how long, and how it may use the money. For example, the state legislature may provide that certain cities may borrow up to a fixed percentage of the assessed valuation of the real estate in the city. Unless the state provides the authorization, the local governmental units have no authority to borrow.

The coupon

No more "coupon clipping."

In return for the investors' purchase of the bond, the issuer agrees to a series of payments, usually the coupon and principal payments. Coupons are typically paid semi-annually. For example, a bond with a 4% coupon would have two semi-annual payments of 2% of the face value of the bond. The term coupon refers to the early practice of attaching a sheet of coupons or small printed squares to a physical bond. These coupons would define the amount of money and the timing of its payment on presentation to the paying agent of the issuer. Thus the coupon might have entitled the holder to get $20 on July 1, 1950 when presenting the coupon to Bank XYZ. These types of bonds were called *bearer bonds* because ownership was evidenced by physically carrying the bond. The practice of cutting the coupons and seeking payment was called *coupon clipping*.

Now muni bonds are typically registered electronically, and computer records keep track of who is the current owner of the bond. This is the job of the transfer agent. In fact, the IRS requires that the bonds now be in registered form in order to be given tax-exempt status. The convention of paying the coupons semiannually still survives, but bearer bonds do not.

The principal

Bondholders get both principal and coupon payments.

The issuer also agrees to pay the principal value back to the bondholder. The principal, or face amount, of the bond is generally payable in a single lump sum at the maturity of the issue. The smallest face amount that an investor could buy is called the *minimum denomination* of the bond. Muni bonds are typically sold in $1,000 or $5,000 minimum denominations. A bond with a 5% coupon and $1,000 face amount would have two payments of $25 per year. Any failure to meet the coupon and principal payments would be a monetary default.

Bonds are typically identified by the issuer's name, the coupon rate, and the maturity. So a NYC 5 1/2% of 2/1/20 would be a bond issued by New York City, with a 5 1/2% coupon that matures on February 1, 2020.

Debt service reserve fund: a reserve where moneys are placed to pay debt service if pledged revenues are insufficient

The sum of all the payments due on the bond is referred to as the *debt service*. In order to protect against difficult times, the issuer often creates reserve funds. For example, the issuer may need to borrow funds well ahead of when the project begins to produce income. A capitalized interest fund would then be established out of the bond proceeds in order to generate the income to pay coupon interest on the bond until the project can support itself. Debt service reserve funds of different sorts are a common feature of municipal bonds.

Through most of the life of the loan, the issuer's payments are relatively small, consisting of only the coupon payments. Then as maturity approaches, the issuer must pay the face amount, which is many times larger than the coupon payments. In fact, in the case of zero-coupon bonds, the issuer pays no coupon interest.

The issuer may pay a portion of the principal before maturity through a sinking fund.

In order to ensure that there is no crisis at maturity as the issuer seeks to come up with the face amount of the bond, part of the principal may be prepaid into a sinking fund. Typically, the sinking fund's details are outlined in the OS. Sinking funds are generally mandatory both as to timing and amount. Unlike a corporate issuer, a municipal issuer cannot vary the scheduled sinking fund amount.

Municipal bonds are of high quality, but be aware of interest rate risk.

Municipal bonds are generally of high quality (see pages 14-15), and have fewer credit concerns than corporate bonds. However, as with all bonds, investors do face interest rate risk. If market yields rise, the price of the security will decline. Conversely, if yields decline, the price of the security will rise. The degree of sensitivity to interest rate changes generally increases with the bond's maturity. Table 1 shows how total returns (price plus income) vary with changes in yield. Price movements as market yields change are of less concern to investors who plan to hold to maturity.

Table 1: Sensitivity of Total Returns to Interest Rate Changes – One-Year Horizon

	Initial	Change in yield (%)				
Maturity	Yield	-2%	-1%	0	1%	2%
2-Year	1.0%	NA-	2.0%	1.0%	0.0%	-1.0%
5-Year	2.0%	10.0%	5.9%	2.0%	-1.7%	-5.3%
10-Year	3.0%	20.2%	11.2%	3.0%	-4.5%	-11.4%
30-Year	4.0%	47.8%	23.3%	4.0%	-11.2%	-23.3%

Source: BofA Merrill Lynch Global Research. *Approximate total return (income plus price change) over a one-year horizon, for the given change in yields. Does not include the effects of rolling down the yield curve. The first column shows hypothetical values.

Overview of the market

The issuer's payments on the bond can come from a variety of sources. If the only source for the payments is the tax receipts of the issuer, the bond is referred to as *tax-backed*. Revenue bonds are bonds issued by municipalities to finance specific public works projects, and are secured by the revenue generated by the particular project financed.

Bonds: maturities of more than 13 months

General Obligation Bonds

GOs are supported by the taxing power of the issuer.
Where tax-backed bonds are supported by the full resources of the issuer, they are called **General Obligation Bonds,** or GOs. The full faith and credit of the issuer backs these bonds. In the event that the issuer of the GO fails to pay the bondholder as agreed, the trustee has the right to sue in court to compel the issuer to increase taxes in order to meet the obligation. This action is often termed obtaining a *writ of mandamus*.

Limited Tax Bonds

Limited bonds come from tax sources that are limited in amount.
The issuer may also agree to repay the bond from tax sources that are limited in type or amount. As the name implies, these bonds are called **Limited Tax Bonds**. For example, a city might sell bonds to be repaid from a special tax assessment on certain properties. These bonds are called special assessment bonds. Otherwise, the bonds may be payable from a discrete tax source, as in the case of sales tax bonds. There are many variations on this theme.

Tax Increment Bonds

Tax increment bonds are repaid from tax revenues from new improvements over an existing base.
Tax Increment Bonds are those that may be repaid from taxes on improvements in excess of a given tax base. This may occur where the bonds improve the value of real estate in a redevelopment district, often raw land. Proceeds of the issue are dedicated to improving infrastructure to attract development. The taxes on the incremental new development go towards repaying the bonds.

Revenue Bonds

Payments from revenue bonds come from the earnings of a project.
When the payments come from the earnings of an enterprise or a project and not taxes, the bond is a **Revenue Bond**. For example, a state or a local governmental authority may sell a bond to build a toll road. Since the state is the issuer, the interest income on the bond is federally tax-exempt. The tolls on the road, not the tax receipts of the state, pay off the bonds. Should the tolls prove inadequate to meet the debt service on the bond, the state is not obliged to pay.

Double-barrel Bonds

Double-barreled bonds have two sources of funds.
Many combinations and permutations of revenue sources on a bond are used. The **Double-barreled Bond** is one example. Here two sources of funds are used. For example, both the GO of the issuer and a specific revenue source could be pledged as a source of repayment. In another case of a revenue bond, the state may create a single entity, a bond bank, which sells municipal bonds to obtain funds, and then lends those funds to various other entities in the state. The payments by participants on the loans from the bond bank are the sources of revenue on the bond bank's bond.

Certificates of Participation (COPs)

COPs are repaid from appropriations made by a municipality to a third party.
State law frequently requires that the voters agree to the issuance of new bonds, particularly tax-supported bonds, in an election or referendum. Obtaining approval via an election or referendum may be expensive and time-consuming, without a guaranteed outcome. So instead of selling a new bond and building a facility, for example, the city can lease the building from a third party. In this case, the entity sells marketable securities called **Certificates of Participation** (COPs). The money from the sale is used to build the structure, which is leased to the city. The authority passes along the

annual payment on the lease to the COPs holders. These payments have the same tax treatment as they would if they were made on any other municipal bond. With COPs, the bonds are repaid from annual appropriations made by the issuer.

Moral Obligation Bonds

For moral obligation bonds, the issuer is morally - not contractually - obligated to make payments.

Moral Obligation Bonds are an example of a security where the issuer is expected to make a payment given some overarching duty to, but is not legally bound. Moral obligation bonds have multiple potential sources of funds. Here the issuer commits to seek appropriations to make up any shortfalls in the debt-service reserve funds from unobligated funds on hand.

Pre-refunding

Issuers can pre-refund some bonds when yields decline.

Prior to the Tax Cuts and Jobs Act's provisions coming into effect, most municipal bonds could be pre-refunded. In a pre-refunding, a municipality would issue a new bond at a lower market rate, and use the proceeds from the new bond to purchase Treasury securities whose maturity and amounts match the first call date and the coupon payment dates on the existing, higher rate issue. The holder of the existing (now pre-refunded, or pre-res) issue would then have a security that would be called at the next call date, with the payments backed by the securities held in the escrow account.

However, the Tax Cuts and Jobs Act repealed the tax-exemption on advance refunded bonds issued after 31 December 2017, which will all but eliminate advance refundings going forward. Advance refunding bonds issued prior to 31 December 2017 will maintain their tax exemption, and should trade with scarcity value.

Notes: maturities of less than 13 months

A state or local government may borrow money for a shorter period of time by selling a note. The convention is that a security whose initial maturity is less than 13 months is called a *note*, and one with a maturity of 13 months or longer is a bond, though this convention is not strictly followed.

Tax-exempt notes come in denominations from $5,000 to $100mn or more. The coupons can be either fixed or variable. Fixed-rate notes are typically issued at a premium.

Since these are fixed-income instruments, their price is a function of the level of yields. Because of the short maturities, however, note prices move by a much smaller amount than long-term bond prices for the same change in interest rates.

Most muni notes are sold at a discount and mature at par. There are a variety of different types of note financings. The most common are:

BANs – Bond Anticipation Notes

BANS are repaid out of the proceeds of a bond.

The issuer of a BAN sells a short-term issue that will be repaid from the proceeds of a long-term issue. BANs can be sold, for example, to fund a project during the construction phase. A long-term bond will be sold once the project is completed, the proceeds of which repay the notes.

TANs – Tax Anticipation Notes

TANs are paid out of future tax revenues.

TANs are short-term loans that are repaid from taxes that will be collected in the future. Real estate taxes, for example, are typically paid once a year. A city may need working capital before it receives the taxes, and can issue a TAN to receive that capital.

RANs – Revenue Anticipation Notes

RANS are paid out of future cash flows.

RANs are another type of short-term borrowing that is to be repaid from a future cash flow. Payment on RANs will be made from future revenues of the issuer. The revenue source may be specific or simply the general revenues of the issuer.

Tax and Revenue Anticipation Notes, TRANs, combine the concept of TAN and RAN and the repayment of the debt can be from tax or revenue sources.

GANs – Grant Anticipation Notes

Intergovernmental grants are a common source of financing at the state and local level. Often the grant is scheduled to be paid at some future date or over a series of years. The governmental entity can benefit immediately from the grant by issuing a GAN that is payable from the grant. GARVEEs are grant anticipation revenue vehicles. These are notes funded by multi-year federal transportation grants.

Variable rate demand obligations (VRDOs)

VRDOs pay short-term floating rates.

The short-term market also includes long-term bonds with floating rates. These variable rate demand obligations (VRDOs) are sold for a variety of purposes. The issuer in this case pays a short-term rate, which typically can change at specific intervals. In some cases the issuer will use an interest rate swap in order to convert the floating rate liability to a synthetic fixed rate bond.

P-FLOATs are puttable floaters.

Another type of instrument in the short-term muni market is a puttable floating rate security (P-FLOATs). P-FLOATs provide funds to municipal bond investors who secure the financing with the bonds purchased.

Industry segments

The municipal bond market is divided into industry segments based on how the borrowed funds are used. The money borrowed may be for general governmental use, much like a debenture for a corporation. In many cases, there is a specific use for the funds.

Looking at the different categories for which bonds are used can help us understand the scope of the muni market.

Economic development

IDBs are usually sold by a state entity on behalf of a corporation.

Economic development bonds usually refer to bonds that are sold for economic improvements, industrial development bonds (IDBs) or pollution control bonds (PCRs). These are generally sold by a state entity on behalf of a private corporation. The corporation might have agreed to build a plant or hire a certain number of people in the economic development authority's jurisdiction. In return, the company benefits by being able to take advantage of the lower cost tax-exempt financing on the bonds. These are typically revenue bonds which are essentially corporate bonds but are sold in the municipal market. There are frequently limitations on the size of these issues and the amount that can be sold.

Education

Education bonds usually fund the building and repair of schools.

Education from kindergarten through university is a traditional priority for state and local governments. Municipal bonds finance all aspects of education, particularly the building, expansion, and renovation of schools.

Electric power

Public power utilities build generation and transmission facilities at the state and local level.

When private power generation has either been unavailable or not cost-effective, the state and local governments have generated supply for themselves, building generation and transmission facilities. These authorities grew significantly in the past, as the sheer size of the Salt River Authority and the Los Angeles Department of Water and Power can attest. Public power issuers can generally raise rates, have solid cost recovery frameworks, and largely function as monopolies in their respective service areas.

Environmental facilities

Environmental facilities include recycling plants, incineration and pollution facilities.

This category of bonds is usually sold to ameliorate some potential environmental harm. Some in this category are sold to finance waste disposal, such as dumps, incineration, recycling plants and various types of resource recovery. In the case of a pollution control bond, the issue's proceeds will be used for pollution abatement at public or private facilities as permitted under law.

Health care

Both public and private not-for-profit hospitals are financed in the municipal market.

Both public and private not-for-profit hospitals and health systems are financed in the municipal bond market. Bonds to finance public hospitals can be sold directly through a special purpose authority, by a unit of local government, or the state. Private hospitals, nursing homes, and life-care communities frequently are the beneficiaries of conduit financing, in which a state authority issues on behalf of the borrower.

Housing

Housing authorities sell bonds repaid from the proceeds of mortgage loans.

State and local housing authorities sell bonds to finance mortgage lending for single-family and multifamily housing units. These authorities sell bonds that are repaid from the proceeds of loans made to homeowners. Lower and moderate income buyers, as well as first-time buyers, are generally the target audience of housing authorities. The bonds may be pass-throughs, in which case payments on a pool of mortgages are passed on to the bondholders as they occur. Some of the deals are structured into tranches similar to those in the mortgage-backed securities market. Those tranches redistribute the prepayments made by the borrower at different rates to different buyers. Planned Amortization Classes have very stable maturity profiles, while Super Sinkers have short maturities.

Public buildings

Muni bonds finance police and fire stations, convention centers, jails, etc.

State and local governments build various public buildings, including fire and police stations, jails, convention centers, prisons, museums, libraries, cultural facilities, convention centers and many more. All are either owned or leased by the state or local governments and used for public purposes.

Transportation

Transportation bonds finance airports, seaports, and various roads and bridges.

A core mission of providing infrastructure development must include the broad category of transportation, including airports, seaports, and various types of roads and bridges.

Tobacco

In 1998, 46 states, Puerto Rico and the largest tobacco companies in the US entered into the "Master Settlement Agreement" (MSA). Under the MSA, the tobacco companies agreed to compensate the states for the medical costs caused by tobacco use. The payments are annual, and many states have chosen to sell bonds that rely upon these payments to pay interest and principal. The size of the payments to the states, however, depends upon the amount of tobacco use in the country, which has been declining rapidly and steadily over the years.

Utilities

Water, sewer, sanitation facilities, are all financed by muni bonds.

Municipal bonds finance the work of water and sewer utilities across the country. Bonds are also sold to provide sanitation facilities, flood control, as well as many other enterprises. Often, these traditional government services require long-term financing over several generations. Municipal bonds help spread the cost of these facilities over the lives of the assets primarily through the issuance of long-term bonds.

Build America Bonds

The IRS allows public purpose municipal bond issues to be sold as tax-exempt bonds, meaning the bonds' interest income is not subject to federal income taxes. Under the American Recovery and Reinvestment Act (ARRA) during 2009-2010, Congress authorized a special type of municipal bond – Build America Bonds (BABs) – intended to provide subsidized funding for qualified municipal borrowers for infrastructure spending and other essential municipal purposes.

BABs have the following key characteristics:

- Unlike most municipal bonds, the interest income is fully taxable at the federal level for investors.
- The tax benefit goes to the issuers, who receive a subsidy from the federal government of 35% of the coupon payment. Under the federal sequester implemented in 2013, the subsidy was cut by 6.9% for FY2017, to 32.6%.

From the introduction of the program in April 2009 until the end of the program in December 2010, nearly $180bn of BABs were issued.

Generally, BAB buyers have not been the "traditional" muni buyers. Rather, institutional investors such as pension funds and insurance companies have been the primary BAB buyers. Some taxable mutual funds, including international bond funds, also entered the BAB market.

Some BABs have extraordinary redemption provisions (ERPs) which enable issuers to redeem the bonds in light of an "extraordinary event," such as a cut in the federal subsidy, as what happed under the budget and sequester in March 2013. Some issuers have redeemed BABs, but under IRS rules, doing so risks losing the subsidy.

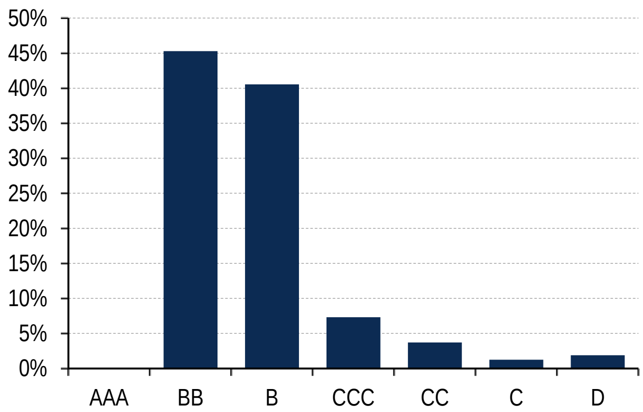
High Yield municipals

As the name suggests, yields in the municipal high yield (HY) market are higher, but default rates are as well. The definition of high yield (HY) in the municipal market is broader than in the taxable market. Roughly around 4.5% of the muni market is rated below investment grade, the traditional definition of high yield.

Tobacco accounts for the largest portion of municipal high yield by sector, at 27%. The other major categories include Local GOs, industrial development, health and tax-backed sectors. By state, obligations from Illinois and Puerto Rico account for the largest share of municipal high yield, at 17% and 14% of the market, respectively. See Chart 2 to Chart 5 for the ICE BofAML high yield muni index (U0HY) distribution.

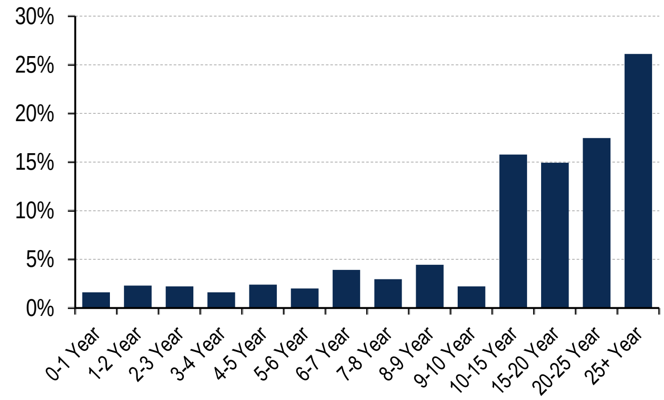
Because of the small size and limited diversity of the below-investment grade municipal market, some BBB rated issues also trade in what is considered the muni HY market. We note that the index excludes securities in default.

Chart 2: Rating distribution of U0HY (As of 24 January 2018), % full market value



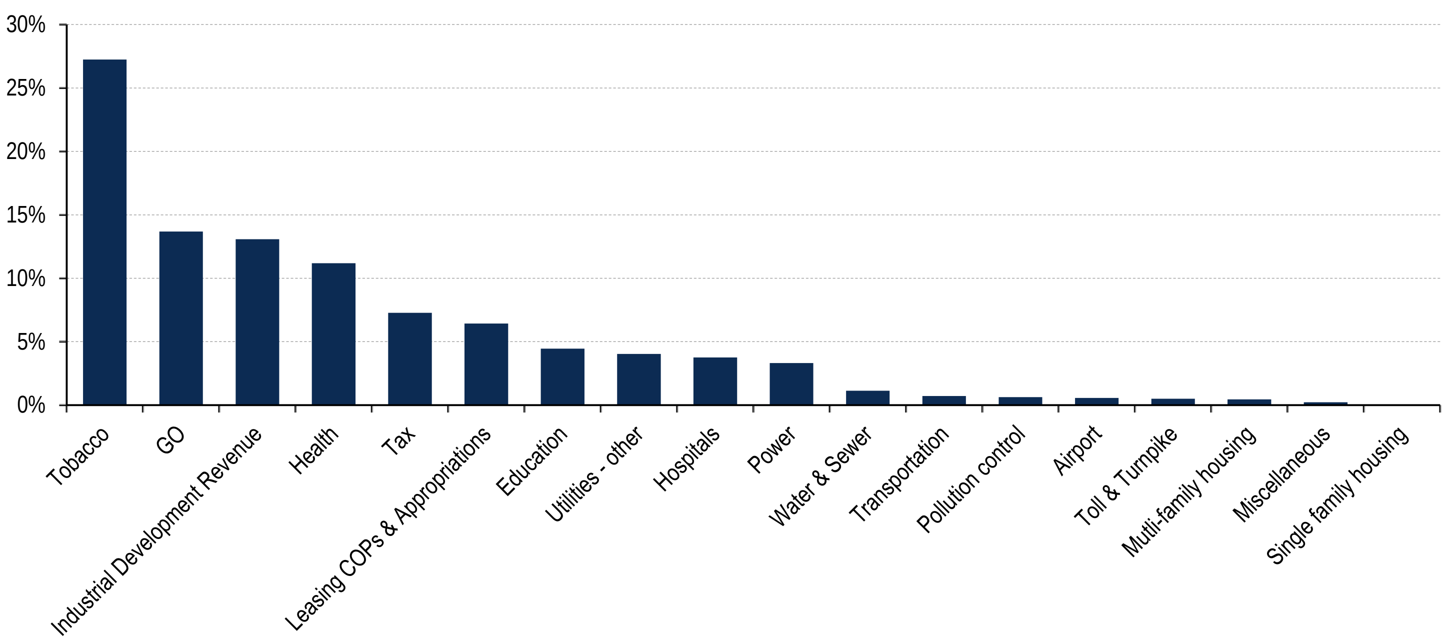
Source: ICE Data Indices, LLC; BofA Merrill Lynch Global Research

Chart 3: Maturity distribution of U0HY (As of 24 January 2018), % full market value



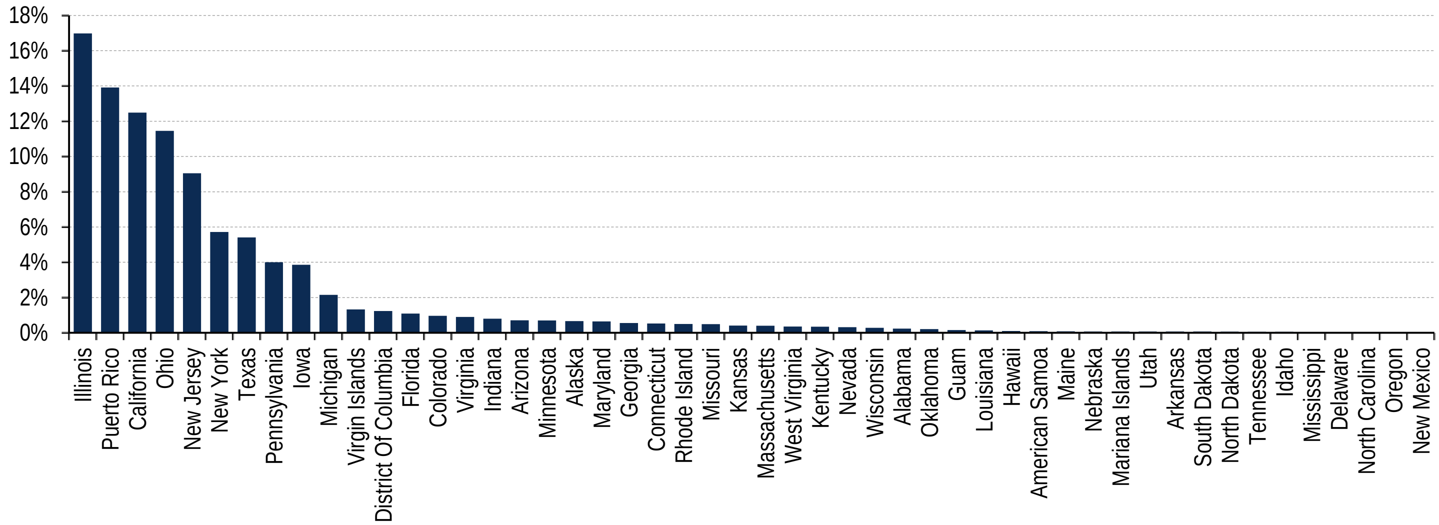
Source: ICE Data Indices, LLC; BofA Merrill Lynch Global Research

Chart 4: Sector distribution of U0HY (As of 24 January 2018), % full market value



Source: ICE Data Indices, LLC; BofA Merrill Lynch Global Research

Chart 5: State distribution of U0HY (As of January 24 2018), % full market value



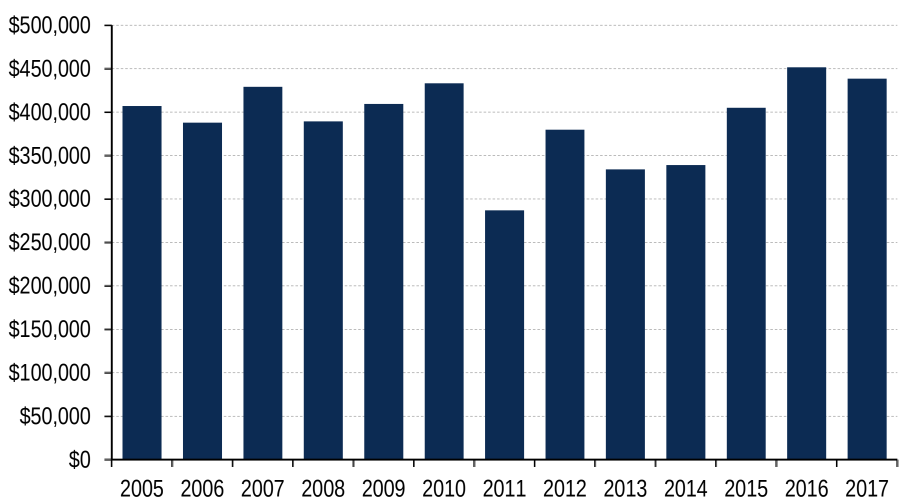
Source: ICE Data Indices, LLC; BofA Merrill Lynch Global Research

Muni issuance

Issuance tends to vary with interest rates.

During the past decade, municipal bond issuance has varied between $287bn and $451bn per year (see Chart 6). Issuance is strongly affected by the level of interest rates, and tends to rise when interest rates are relatively low, as state and local issuers attempt to lock in low financing costs. This increase in new money issuance is often accompanied by an increase in refunding activity, as new bonds are sold to refinance older, higher coupon issues. Historically, this refunding activity has been dominated by advance refundings, but, after the Tax Cuts and Jobs Act of 2017 came into effect, our expectation going forward is that current refundings will dominate.

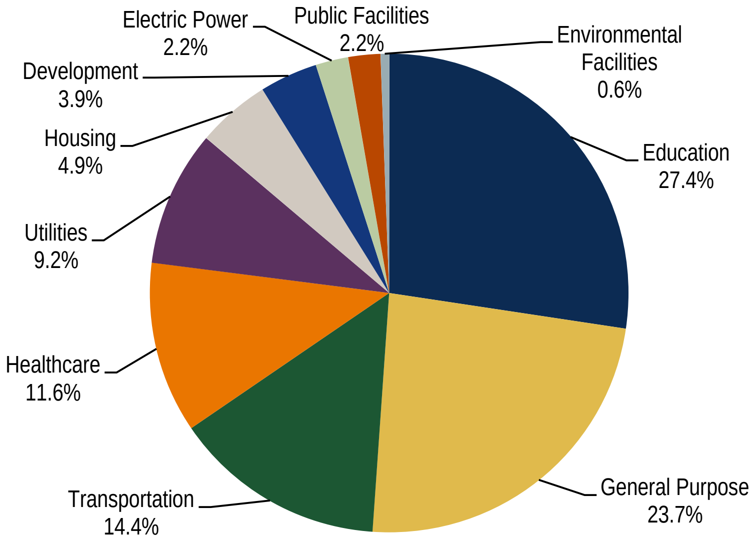
Chart 6: Annual muni issuance ($mn)



Source: Thomson Reuters

In 2017, total municipal bond issuance was $439bn. The largest sector was education, with $120.5bn in issuance, or 27.4% of total issuance. General purpose was the second largest sector at $104.4bn, or 23.7% of munis issued. The proceeds of these issues were used for a myriad of governmental purposes. As Chart 7 shows, transportation, healthcare and utilities were the other largest sectors, with 14.4%, 11.6% and 9.2% of total issuance, respectively.

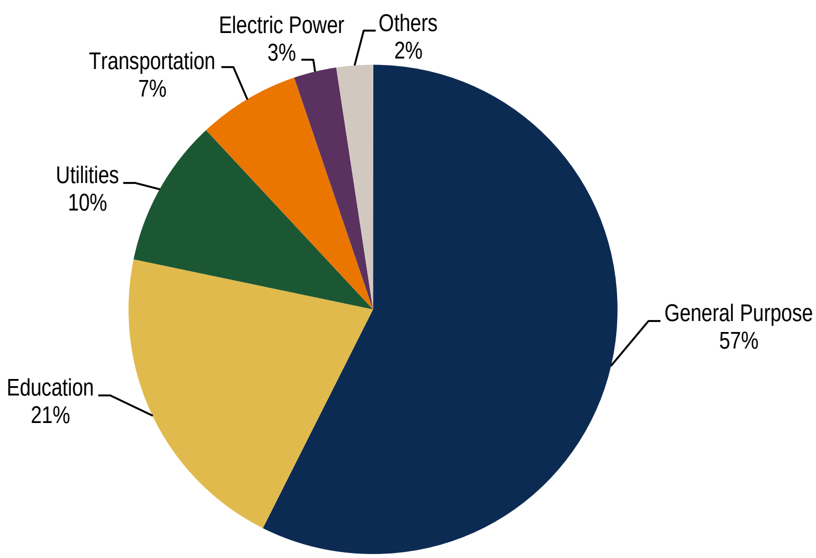
Chart 7: Types of muni bonds in 2017 ($439bn total issuance)



Source: Thomson Reuters; BofA Merrill Lynch Global Research

Chart 8 shows the recent breakdown in overall note issuance, including TANs and BANS, but not P-FLOATs or VRDOs (which are long-term bonds). Generally, issuers tend to sell more notes during periods of economic weakness to offset temporary shortfalls in tax revenue. Note issuance is highly seasonal because the largest single use of the market is by educational facilities. Education is usually financed by property taxes, which are typically levied once a year, often in June.

Chart 8: Breakdown of muni note issuance in 2017 | $46.6bn total



Source: The Bond Buyer

Tax categories

The IRS classifies muni bonds as either governmental or non-governmental.
There are other important ways in which to categorize muni bonds besides the functional definitions given above. The Internal Revenue Service has created one important classification scheme, and how a muni bond is categorized under this system directly affects its taxation. Under section 501(c)(3), certain healthcare and higher education issuers are granted tax-exempt status.

Governmental bonds are sold to finance activities that are owned and operated by a state or local government. Governmental bonds are also referred to as *essential purpose bonds* and are normally tax-exempt bonds. Non-governmental bonds are also called *private activity bonds* (PABs) and only a limited number of these are tax-exempt. There is a volume cap per state per year of private activity bonds that is calculated and distributed at the federal level.

State Private Activity Bond (PAB) volume caps

The US Treasury limits the type and volume of PABs.

A bond is generally governmental if no more than 10% of the proceeds are used for private business or secured by a private business.

The Treasury's regulation of the muni market includes many limits on the volume of tax-exempt municipal bonds. The Treasury limits both the amount of PABs overall, and the types that can be sold as tax-exempt. The Treasury has established a state-by-state volume cap for most categories of PABs[1]. The states are allowed to allocate the cap among the various types of PAB issues, and unused amounts of the cap can be carried forward to future years. For 2018, the state volume cap is the greater of the product of $105 and the state's population or $311.38mn.

Under IRS rules, a bond is governmental if it passes the private use test. Under this test, no more than 10% of the proceeds are typically used for a private business or secured by a private business. A bond that was issued as a governmental issue can become taxable if a private party later makes substantial use of the facility created by the bond proceeds.

The IRS places stiff restrictions on which PABs can be tax exempt.

The IRS allows only certain "qualified" PABs to be sold as tax-exempt bonds[2] and places many restrictions on qualified PABs issuance. The most important constraints are that the bond be one of the permitted types and that a portion of the state volume cap be allotted for the issue.

However, the restrictions do not end there. Long-term bonds must be registered. Bonds with a maturity of less than a year at issuance are not required to be registered. Bonds cannot be tax-exempt if the federal government or one of its agencies guarantees the interest or principal of the issue.

Banks can deduct a portion of funds used to purchase some muni bonds.

The IRS also provides for "Bank Eligible" municipal bonds to be issued. Generally, a person is not allowed to deduct the interest on a loan used to purchase a tax-exempt bond. In certain cases, however, the IRS does allow a bank to deduct a portion of the interest on funds borrowed to purchase a muni bond. In order to qualify for this treatment, the bond must be a governmental purpose issue that is designated by the issuer as bank qualified. Bank-qualified issues are limited in size to $10mn per issuer per year.

Municipal bond ratings

Rating agencies assess the quality of an issuer's debt

A number of companies rate the ability of an issuer to repay its debt, or the issuer's "creditworthiness." The main rating agencies are Moody's, S&P and Fitch. These firms review a number of factors to determine an issuer's rating. Factors include, but are not

[1] Notable types of PABs that are not subject to the state volume cap include PABs issued for airports, docks and wharves, qualified veterans mortgage bonds and qualified 501(c)(3) bonds.

[2] Qualified private activity bonds include: exempt facility bonds, qualified mortgage bonds, qualified veterans mortgage bonds, small issue bonds, student loan bonds, and redevelopment bonds.

limited to the issuer's general financial condition and the amount of outstanding debt compared to the revenues that it can expect to receive either in taxes or fees.

Table 2: Credit ratings and what they mean

Moody's	Standard & Poor's	Description
Investment Grade		
Aaa	AAA	Gilt edged. Principal and interest payments are considered supported by an exceptionally wide margin.
Aa	AA	Very high quality by all standards.
A	A	Upper – medium grade.
Baa	BBB	Lowest investment grade rating; satisfactory; but certain protective elements may be lacking or unreliable.
Below Investment Grade		
Ba	BB	Somewhat speculative.
B	B	Very speculative.
Caa	CCC	Even more speculative.
Ca	CC	Speculative. May be in default.
C	C	Poor prospect of attaining investment standing. Usually in default.

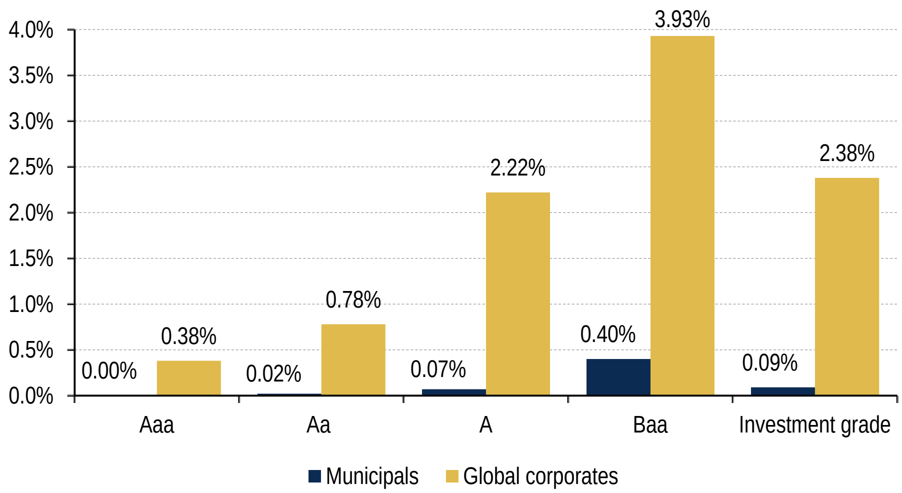
Source: Moody's Investor Service, Standard and Poor's

The highest quality issuers are rated Aaa or AAA by Moody's, S&P and Fitch. As Table 2 shows, the quality of the issue declines alphabetically. Anything below BBB- from Fitch and S&P or Baa3 from Moody's is considered below investment grade.

Defaults are rare

Higher-rated municipal bonds rarely default. A study by Moody's found that there were only 103 defaults of Moody's-rated municipal issuers over the period 1970-2016, with 66.0% of the defaults occurring in the healthcare and housing sectors, and 90.3% occurring in non-general obligation debt (cities, counties and school districts have combined to 10 GO defaults over that time frame). Puerto Rico adds to that total. Over the same period, Moody's found that virtually no AAA rated bonds defaulted over rolling 10-year horizons, and that even Baa rated bonds had only a 0.4% average cumulative default rate. Chart 9 shows Moody's 10-year average cumulative default rates for municipals and global corporates, demonstrating that the prevalence of defaults for corporate bonds was considerably higher over the same period.

Chart 9: 10-year average cumulative default rates for Moody's-rated municipals and global corporates (1970-2016)



Source: Moody's Investor Service

Table 3 shows S&P's ratings distribution among the various sectors.

Table 3: S&P Rating Distribution (As of 30 September 2016)

	Tax secured	Appropriation	Utilities	Health care	Higher Ed	Transportation	Housing
AAA	5.45%	1.13%	7.14%	0.00%	5.17%	0.69%	9.45%
AA	40.51%	47.17%	41.07%	20.58%	25.73%	21.53%	76.37%
A	48.19%	42.89%	47.94%	46.99%	43.24%	56.94%	9.03%
BBB	5.24%	4.67%	3.46%	24.85%	21.09%	19.44%	3.69%
BB	0.36%	3.21%	0.26%	6.21%	3.98%	1.39%	0.76%
B	0.12%	0.63%	0.09%	0.78%	0.53%	0.00%	0.61%
CCC/C	0.12%	0.30%	0.04%	0.58%	0.27%	0.00%	0.09%

Source: Standard & Poor's

The overall default rate remains low. From 1970-2007, there was an average of 1.3 defaults per year, compared to 4.3 defaults between 2008-2015. In 2016, there were four defaults in the Moody's-rated universe, all related to Puerto Rico.

The Federal Reserve Bank of New York released a publication that cited 2,521 defaults from 1970 to 2011, in comparison to Moody's 71 listed defaults during the same period. The discrepancy can be explained by the Federal Reserve Bank's inclusion of unrated issuers. Issuers will often not seek ratings if they believe their bonds may not receive an investment grade rating, thereby self-selecting themselves out of the market. Unrated issuers represent only a very small portion of the muni market.

Continuing disclosure

The Municipal Securities Rulemaking Board's (MSRB) Electronic Municipal Market Access (EMMA) system collects continuing disclosure information from issuers as it becomes available. In the event of a default, an issuer must file an event notice on EMMA. There are two types of defaults: monetary and technical. A monetary default happens when the issuer fails to pay principal, interest, or both, when due. A technical default occurs when a covenant under the indenture is broken, such as a failure to raise rates to maintain coverage levels or to fund reserves. In some cases, there may be a default filing due to a missed payment caused by a clerical error or an uncontrollable environmental event, which is quickly addressed. In these situations, though a covenant may have been broken, principal, interest, or both may have still been paid. In the event of a default notification, it is important to identify which type it is and how bondholders may be affected moving forward.

Bond insurance

The bond insurer promises to make investors whole with respect to interest and principal payments in the event that the issuer fails to do so. At one time, nearly half of all municipal bonds were insured. The bond insurance market has undergone a vast transformation since the Great Recession. The percentage of new issues insured significantly decreased from 2008 to 2012, although it has increased since 2013. See Table 4.

Insured bonds provide an added degree of protection for coupon and principal payments.

Until the financial crisis, most bond insurers had financial strength ratings of AAA., and that rating carried over to the insured municipal bond, since it had the insurer's backing. For example, a bond that might have been rated single-A on its own would be given a AAA rating based upon the financial strength of the insurer.

Beginning in the second half of 2007, however, several of the bond insurers ran up against financial problems from investments in other markets. Now, no active bond insurer is rated AAA.

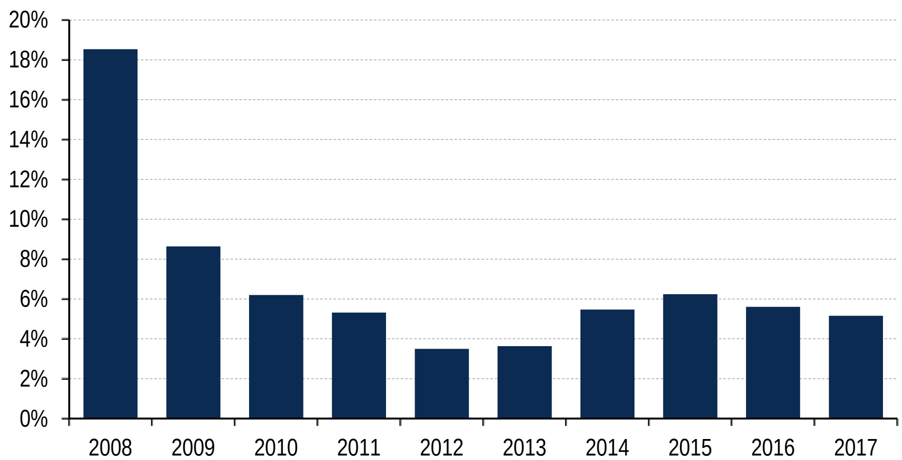
Table 4: Bond Insurer ratings (As of 23 January 2018)

Bond insurer	Moody's rating/outlook	S&P rating/outlook
Assured Guaranty Municipal Corporation (AGM)	A2/Stable	AA/Stable
Assured Guaranty Corporation (AGC)	A3/Stable	AA/Stable
Berkshire Hathaway Assurance Corporation (BHAC)	Aa1/Stable	AA+/Negative
National Public Finance Guarantee Corporation (NPFG)	Baa2/Stable	Not rated
Build America Mutual Assurance Company (BAM)	Not rated	AA/Stable
Ambac Assurance Corporation (Ambac)	Not rated	Not rated
Financial Guaranty Insurance Corporation (FGIC)	Not rated	Not rated
Municipal Assurance Corporation (MAC)	Not rated	AA/Stable
ACA Financial Guaranty Corporation (ACA)	Not rated	Not rated
Syncora Guarantee (XLCA)	Not rated	Not rated

Source: Moody's Investor Service, Standard and Poor's

The credit ratings of municipal bonds that are insured are based upon the higher of the rating of the underlying bond or the rating that applies to the insurance. Recently, insurer credit ratings have been improving, and it is likely that in some cases, the rating on the bonds is based upon the insurer's rating. It behooves an investor, however, to look past the insurer's rating to the rating of the underlying bond as a true indicator of creditworthiness.

Chart 10: Percentage of new municipal issues that are insured, by principal amount



Source: Thomson Reuters

The tax-exempt appeal of munis

Interest income on most munis is exempt from federal taxation.

Municipal securities' main appeal is the federal tax exemption on their interest income. Also, most states do not tax interest on their own bonds. Most states that have income taxes impose a tax on interest on municipal bonds from other states, providing a reason for most investors to buy bonds issued by their home state. But for the sake of diversification, investors might prefer to hold some bonds from other states, despite the tax disadvantage.

Capital gains from municipal bonds are subject to federal taxation. Most states tax capital gains income as well, although about a dozen states have a favorable tax treatment for capital gains from their own bonds.

There have been several attempts in recent years to diminish or eliminate the federal tax exemption of municipal interest income, yet none gained significant political support. However, under the Tax Cuts and Jobs Act of 2017, the tax-exemption on newly-issued advanced refunding bonds (those issued after December 31, 2017) was eliminated. Advanced refundings made up 29% of new issuance in 2017. The tax-exemption on private activity bonds (discussed above) narrowly survived tax reform.

Table 5: Taxable Equivalent Yields

Federal Marginal Tax Bracket	Municipal Yield		
	2%	3%	5%
10%	2.22%	3.33%	5.56%
12%	2.27%	3.41%	5.68%
22%	2.56%	3.85%	6.41%
24%	2.63%	3.95%	6.58%
32%	2.94%	4.41%	7.35%
33%	2.99%	4.48%	7.46%
35%	3.08%	4.62%	7.69%
37%	3.17%	4.76%	7.94%
40.8%	3.38%	5.07%	8.45%

Source: BofA Merrill Lynch Global Research

Tax-free income

The exemption from taxation makes municipal bonds attractive for high-income investors, even though yields on municipal securities are generally lower than for taxable securities.

One way to compare municipal and taxable securities' yields is by taxable equivalent yields (TEY). The TEY is what a taxable security would need to yield in order to provide the same after-tax yield as a municipal bond. See Chart 5 above. The TEY is the municipal yield divided by 1 minus the investor's marginal tax rate. For example, if the municipal security yields 5.00%, its taxable equivalent yield for an investor in the federal tax bracket 40.8% (37% bracket plus the 3.8% Medicare surtax) is 8.45% (5.00%/(1-40.8%)). In other words, to match the yield on the muni after taxes, the taxable security would need to yield 8.45%. When comparing municipal and Treasury securities, investors should also keep in mind differences in call protection, credit quality and liquidity.

Taxable Equivalent Yield: What you would need to get on a taxable security to wind up with the same after-tax yield as on a muni.

Another way to examine the appeal of munis is through an after-tax yield comparison. Suppose that an investor in the 40.8% federal tax bracket is comparing a Treasury security that yields 5.00% with a municipal security that yields 4.00%. The after-tax yield on the Treasury security is 2.96% (5.00% x (1-40.8%)). So the after-tax yield advantage of the municipal security is 1.04% (4.00% - 2.96%).

Alternative Minimum Tax (AMT)

The Federal AMT is designed to prevent individuals or corporations from reducing their tax liability by taking an “excessive” amount of deductions. Individuals must pay the higher of the tax calculated under the normal system and under the AMT.

The AMT Income base is broader than under the regular system.

AMT Income is broader than taxable income. It differs from taxable income in its treatment of personal exemptions and itemized deductions and also in its inclusion of income from “preference items,” including state and local taxes, accelerated depreciation, and interest on private-purpose municipal bonds.

Airport bonds are often private-purpose bonds, so the interest income on these bonds could be subject to the AMT. However, under the fiscal stimulus package passed in 2009, AMT treatment does not apply to any bonds issued in 2009 and 2010 for the entire life of the bonds.

Taxpayers must calculate their tax under the regular system and the AMT, and pay the higher amount. The tax rate under the AMT is 26% of AMT income up to $191,500 and 28% of AMT income in excess of $191,500 for tax year 2018. But in the income range where the AMT exemptions are phased out, the top effective marginal tax rate could be higher than 28%.

Municipal buyers tend to have above-average incomes, so they are disproportionately subject to the AMT. The tax treatment of bonds that fall under the AMT has three consequences for municipal investors:

- Bonds subject to the AMT generally have a higher yield than comparable munis that are not subject to the AMT. Yet a few years of being taxed under the AMT could erase the yield advantage from these bonds.

- Many taxpayers who pay the AMT face a 28% top statutory marginal rate, compared to the top rate of 37.0% under the regular system. When comparing munis with taxable instruments, the investor who faces the AMT should consider the AMT tax rate, rather than the higher rate that might apply under the regular system. Still, even in the 28% tax bracket, yields on AAA rated munis have been higher than the after-tax yield on Treasuries.

- The AMT disallows state and local tax deductions, making out-of-state munis less attractive for most investors who fall under its reach. That's because most states tax the interest income on out-of-state bonds but not on in-state bonds. Under the regular federal tax structure, the deductibility of state taxes reduces the effective "tax bite" on out-of-state bonds.

Increased AMT exemption amounts (for 2018, $109,400 for married filing jointly from $84,500 in 2017) and phase-out thresholds (for 2018, $1,000,000 for married filing jointly from $160,900 in 2017) should act to significantly lower the number of taxpayers subject to the AMT. Indeed, Tax Policy Center estimates that as few as 200,000 tax filers will be subject to the AMT in 2018, down from an estimated 5.25 million subject to it in 2017.

Par, premium, and market discount bonds

Federal tax treatment also differs according to whether the bond is priced at par, at a premium or at a discount.

Par bonds

A bond purchased at par value will not have any capital gain at maturity. If the bond is sold prior to maturity, any change in its value is taxable as a capital gain or loss, similar to any other investment. If a bond is called, however, the call premium, if any, is a capital gain.

Premium bonds

The amortization of the premium on a bond priced above par is not considered a capital loss. There would be a capital loss or gain, however, if the bond were sold prior to maturity at a price below (or above) its amortized value. The amortized value is the price that would prevail if the yield remained unchanged since the bond was issued.

For example, consider a bond with 10 years to maturity, a 6% coupon, priced at 107.8 to yield 5%. If the bond is held to maturity, there is neither a capital gain nor a capital loss. If the bond is sold after five years, the capital gain or loss would be (using the constant yield method) the difference between the sales price and the amortized value of 104.4.

Market discount bonds

Market discount bonds have special tax consequences.

A market discount bond is one that is selling at a significant discount to its accreted price. A market discount may arise because the yield on the bond has risen since the bond was issued.

- For an original issue discount bond (OID), a bond which was sold below par when issued, the market discount would be the excess of the accreted price over the amortized price.

- For a non-OID coupon bond, the market discount would be the excess of par over the amortized market price.

For a market discount bond purchased in the secondary market, the investor is taxed on the accretion of the market discount. The accrued market discount is the price change that would occur as the bond approached maturity if the yield stayed the same as when the bond was purchased. For an OID, the accrued market discount is the total accrued discount less the accrued OID. For a bond that is held to maturity, the entire market discount accrues, so the investor is taxed on the full market discount. The tax on the accrued market discount applies when the bond is disposed of either through a sale, redemption or call maturity, unless the taxpayer has elected to pay tax on the accrual of the market discount on a current basis.

Accrued market discount is taxable as ordinary income if certain criteria are met.

For bonds purchased after April 30, 1993, the accrued market discount is taxable as ordinary income, provided the discount at purchase exceeds the *de minimis* criteria: the discount must be at least one quarter point for each full year remaining to maturity on the bond. So, for example, a bond with 10 years remaining to maturity would have to be priced at below 97.5 (100 minus 10 times 0.25) for the *de minimis* criteria to be exceeded. If the *de minimis* criteria is not exceeded, or if the bond was purchased before April 30, 1993, the accrued discount is taxed as a capital gain.

If the *de minimis* criteria is exceeded, then:

- If the bond is held to maturity, the entire market discount is taxable as ordinary income at the tax rate that applies at that time.

- If the bond is sold prior to maturity, the tax liability may involve a combination of ordinary income and capital gain or loss depending upon the selling price and how much of the discount was accrued.

Consult your tax advisor for details concerning market discount and other tax issues.

See our special report on Market discount bonds [Municipals Special Report: An introduction to market discount taxes for more information.]

Why favor premium bonds?

The unfavorable tax treatment of market discount bonds gives municipal investors a reason to prefer bonds priced at a premium.

In the municipal market, the holder of a bond whose price declines into discount territory suffers because the market price generally declines enough to compensate the potential buyer for the unfavorable tax treatment. In other words, when a municipal bond falls into market discount territory, its price usually declines by more than what would be suggested by the rise in market yields, in order to compensate the potential buyer for the market discount tax liability.

Since premium-priced bonds are less likely to fall into market discount territory than discount bonds are, investors do not need to be as concerned about the possible tax-related drop in price.

Also, when yields rise, prices of premium bonds decline slightly less than lower-priced bonds, because premium bonds are generally callable, and the price to worst mechanism causes the premium bond to have a lower duration.

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