

# Primer on Municipal Bonds



## 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.

- |   |                 |
|---|-----------------|
| <b>Philip Fischer</b><br>Municipal Research Strategist<br>MLPF&S<br>philip.j.fischer@baml.com | +1 646 743 1446 |
| <b>Martin Mauro</b><br>Fixed Income Strategist<br>MLPF&S<br>martin.mauro@baml.com             | +1 646 855 2998 |
| <b>Ian Rogow</b><br>Municipal Research Strategist<br>MLPF&S<br>ian.rogow@baml.com             | +1 646 743 1460 |
| <b>Celena Chan</b><br>Municipal Research Strategist<br>MLPF&S<br>celena.chan@baml.com         | +1 646 743 1435 |
| <b>Sophie Yan</b><br>Municipal Research Strategist<br>MLPF&S<br>sophie.yan@baml.com           | +1 646 556 0059 |



Source: Getty Images.

## Contents

---

Highlights	3
Historical perspective	4
Features of a Municipal Bond	5
Overview of the Market	7
Bonds: Maturities of more than 13 months	7
Notes: Maturities of less than 13 Months	8
Industry segments	9
Build America Bonds	11
High Yield Municipals	11
Munis by the numbers	12
Tax categories	14
Municipal bond ratings	15
Bond insurance	17
The tax-exempt appeal of munis	18
Tax-free income	18
Alternative Minimum Tax (AMT)	18
Par, Premium, and Market Discount Bonds	19

## 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 \$3.7tn. Households are the largest category of investors and directly own about 42% of outstanding municipal securities. Including mutual funds, which are largely held by households, the ownership is about 60% 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, electric power, health care, housing, transportation, and utilities.
- 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. The firms review a number of factors to determine an issuer's rating.
- Though the number of defaults has risen since the financial crisis, there were seven Moody's-rated defaults in 2013, which brings to 30 the number of defaults since the recession began in early 2008. The overall default rate remains low in relation to the roughly 80,000 issuers in the market.
- Interest on private purpose munis, a small share of the market, is 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.
- For investors, the chief appeal of municipal securities is that they are generally of very high 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 U.S. Constitution, which gave to the central government the exclusive right to issue currency or as it was often called, script. The colonial script was worth what you got for it, which in some cases was not much.

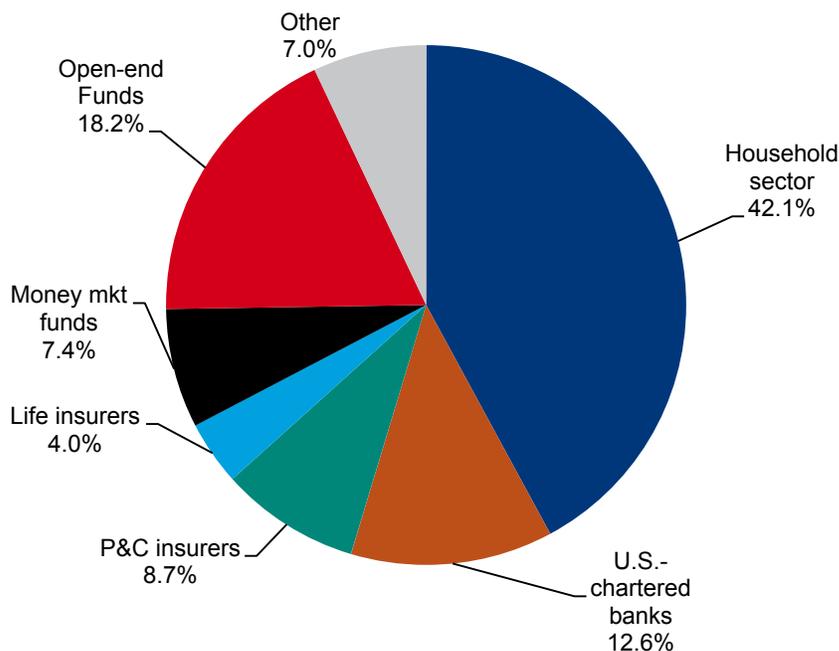
The muni market dates back at least as far as the early 1800s.

Later, the use of script was out but the need to borrow was 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 used municipal bonds to finance the Erie Canal. Bonds were then used 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 \$3.7tn. As Chart 1 shows, households are the largest category of investors (unlike the corporate and government markets). Households directly own about 42% of outstanding municipal securities. Including mutual funds, which are largely held by households, the ownership is about 60% of the market.

Chart 1: Who owns munis? (\$3.7tn outstanding: As of 31 March 2015)



Source: Federal Reserve Board Flow of Funds

## 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, munis don't have prospectuses. Instead, the Official Statement (OS) is 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. In addition, the trustee will represent the bondholders in legal proceedings, such as a default. The issuer defaults when it 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.

No more "coupon clipping."

### The coupon

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.

Bondholders get both principal and coupon payments.

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

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

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

## The principal

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.

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.

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 in a sinking fund. The details of the sinking fund will generally be spelled out in the OS. Sinking funds are generally mandatory both as to timing and amount. The municipal issuer is not allowed to vary the scheduled sinking fund amount, as a corporate issuer might.

Municipal bonds are generally of high quality (see pages 15-16), so credit concerns are usually smaller than for 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 increases with the maturity of the bond. Table 1 below shows how total returns (price plus income) vary with different 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**

Maturity	Initial Yield	Change in 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%

\* 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.

Source: BofA Merrill Lynch Global Research

## 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

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*.

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. Or 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** 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.

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 go to pay off the bonds. Should the tolls prove inadequate to meet the debt service on the bond, the state is not obliged to pay.

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.

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 **Certificates of Participation (COPs)**. COPs are marketable securities. 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.

GOs are supported by the taxing power of the issuer.

Limited bonds come from tax sources that are limited in amount.

Tax increment bonds are repaid from tax revenues from new improvements over an existing base.

Payments from revenue bonds come from the earnings of a project.

Double-barreled bonds have two sources of funds.

COPs are repaid from appropriations made by a municipality to a third party.

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

Issuers can pre-refund some bonds when yields decline.

BANS are repaid out of the proceeds of a bond.

TANs are paid out of future tax revenues.

RANS are paid out of future cash flows.

**Moral Obligation (MO) Bonds** are an example of a security where the issuer is not legally bound but is expected to make a payment given some overarching duty. 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

Most municipal bonds can also be pre-refunded. An issuer would typically pre-refund an existing bond when interest rates have declined. The municipality would issue a new bond at the lower market rates, 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-re) issue would then have a security that will be called at the next call date, and whose payments are backed by the securities held in escrow. The refunded bonds are considered to be legally defeased.

### 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 called a bond. The convention is not always strictly followed, however.

Tax-exempt notes come in denominations ranging from \$5,000 to \$100 million 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

The issuer of a Bond Anticipation Note (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 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 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.

The concept of TAN and RAN are combined in Tax and Revenue Anticipation Notes, TRANs, where 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 date in the future or over a series of years. The governmental entity can benefit immediately from the grant by issuing a GAN which is payable from the grant. Garvees are grant anticipation revenue vehicles. These are notes which are funded by multi-year federal transportation grants.

VRDOs pay short-term floating rates.

The short-term market also includes long-term bonds with floating rates. These variable rate demand notes (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. These securities are usually used in the institutional market, because of the large denominations involved.

## 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, however, 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.

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

### Economic development

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 specified number of people in the jurisdiction of an economic development authority. 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 that 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 bonds usually fund the building and repair of schools.

### Education

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

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

### Electric power

When private power generation has either been unavailable or has not been cost effective, the state and local governments have generated supply for themselves. Public power utilities build generating and transmission facilities at the state and local level. 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 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 include incineration, recycling plants, and pollution facilities.

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

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

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

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

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

## Environmental facilities

This category of bonds is usually sold to ameliorate some potential harm to the environment. Some of this category of bonds are sold to finance waste disposal such as dumps or incineration, as well as recycling plants and various types of resource recovery. In the case of a pollution control bond, the proceeds of the issue 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 and health systems are financed in the municipal bond market. Bonds to finance public hospitals can be sold directly by the state, a unit of local government or through a special purpose authority. Private hospitals, nursing homes, and life-care communities frequently are the beneficiaries of conduit financing in which a state authority issues on behalf of bonds.

## Housing

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 the housing authorities. The bonds may be passthroughs, 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 like 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 Sinks have short maturities.

## Public buildings

State and local governments build public buildings great and small. These include fire and police stations, jails of all sorts, prisons, convention centers, museums, libraries, cultural facilities, convention centers and a long list of other projects. These are public in that they are owned or leased by the state or local government and used for public purposes.

## Transportation

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

## Tobacco

In 1998, 46 states and the largest tobacco companies in the US entered into the "Master Settlement Agreement" (MSA). In 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, however, depends upon the amount of tobacco use in the country, which has been declining rapidly over the years.

## Utilities

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

## Build America Bonds

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

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 7.3% for 2015, to 32.4%.

Nearly \$180bn BABs were issued from the introduction of the program in April 2009 until the end of the program in December 2010.

The BAB buyers generally have not been the traditional muni buyers. Institutional investors such as pension funds and insurance companies have been the main buyers of BABs. Some taxable mutual funds, including international bond funds have also dipped into 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 happened under the budget and sequester in March 2013. Some issuers have redeemed BABs, but frequently issuers find that it does not make economic sense to do so.

## High Yield Municipals

As the name suggests, the yields in the municipal high yield (HY) market, but default rates are higher as well.

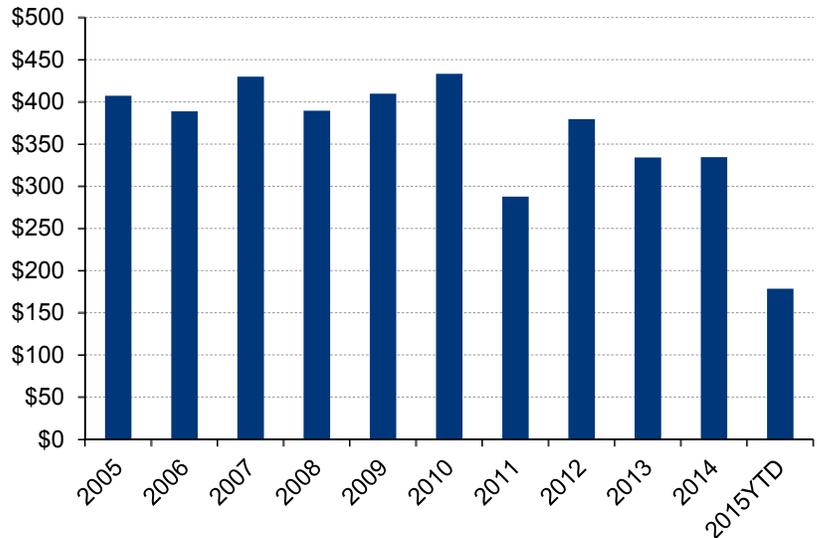
The definition of high yield (HY) in the municipal market is broader than in the taxable market. About 5% of the muni market is rated below investment grade, the traditional definition of high yield. Based on the BofAML high yield muni index, UOHY, obligations from Puerto Rico account for about 44% of the market, and tobacco bonds are another 22%. The largest categories in the remainder of the market are Local GO, tax-backed, and industrial development bonds. Because of the small size limited diversity of the below investment grade munis market, some BBB rated issues also trade in what is considered the muni HY market.

## Munis by the numbers

Issuance tends to vary with interest rates.

During the past decade, municipal bond issuance has varied between \$288bn and \$433bn per year (see Chart 2). Issuance is strongly affected by the level of interest rates. Issuance 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.

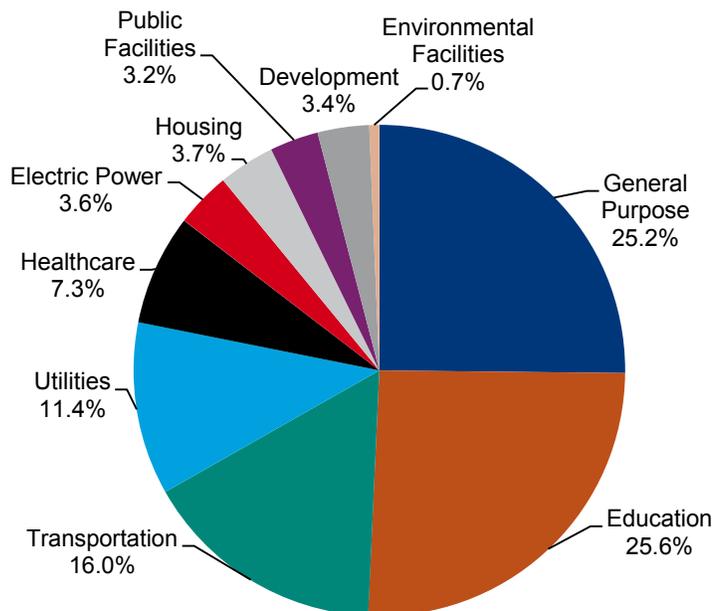
Chart 2: Annual muni issuance (\$bn) (As of May 2015)



Source: The Bond Buyer

Total issuance in 2014 in the muni bond market was \$334bn. The largest single purpose was education, with \$86bn in issuance. General purpose bonds, were the second largest group, at 25%, or \$84bn issued. The proceeds of these issues were used for the myriad of various governmental purposes. As we can see in Chart 3, transportation, utilities, and healthcare were the next largest sectors, with \$54bn, \$38bn and \$24bn in issuance, respectively.

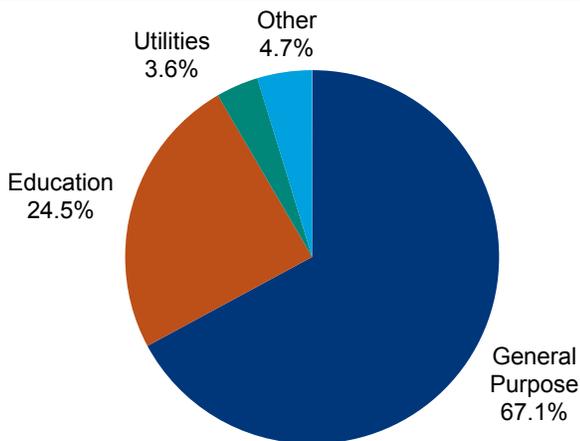
**Chart 3: Types of muni bonds in 2014 (\$334bn total issuance)**



Source: The Bond Buyer

Chart 4 shows the recent breakdown in overall note issuance (e.g. 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 4: Breakdown of muni note issuance in 2014 (\$42bn 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. As one would expect, 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.

In the IRS classification scheme, bonds are either governmental or non-governmental. 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 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.

The Treasury limits the allowable private purpose bonds.

### State Private Purpose Caps

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 private purpose bonds overall, and the types that can be sold as tax exempt. The Treasury has established a state-by-state volume cap for all private purpose issues. The states are allowed to allocate the cap among the various types of private purpose issues and unused amounts of the cap can be carried forward to future years. For 2015, the state volume cap is the greater of the product of \$100 and the state's population, or \$301.52mn.

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

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 what private purpose bonds can be tax exempt.

The IRS allows all public purpose bond issues to be sold as tax-exempt bonds. On the other hand, it allows only certain "qualified" private purpose bonds to be tax-exempt<sup>1</sup>. The IRS places many restrictions on the issuance of qualified private purpose bonds. The most important ones are that the bond be one of the allowed 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 \$30mn per issuer per year.

---

<sup>1</sup> Qualified private activity bonds include: exempt facility bonds, qualified mortgage bonds, qualified veterans mortgage bonds, small issue bonds, student loan bonds, and redevelopment bonds.

## Municipal bond ratings

### Agencies assess the quality of the issuer's debt

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. The firms review a number of factors to determine an issuer's rating. These factors include 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
<b>Investment Grade</b>		
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.
<b>Below Investment Grade</b>		
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

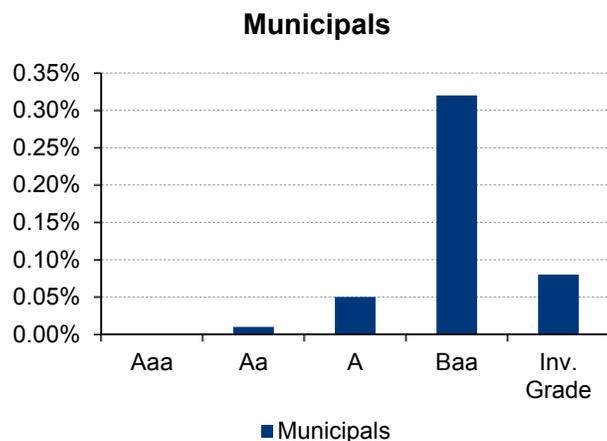
The highest quality issuers are rated Aaa or AAA by Moody's, S&P, and Fitch. The quality of the issue declines as you move further down the alphabet (see Table 2). Anything below BBB- from Fitch and S&P or Baa3 from Moody's is considered below investment grade.

In April 2010, Moody's and Fitch recalibrated municipal ratings to a global rating scale—that is, on the same basis as corporate bonds. To do this, the agencies map the estimated default and recovery probability for municipal bonds against the credit ratings that apply for corporate bonds. S&P has traditionally rated municipals according to a global scale.

### Defaults are rare

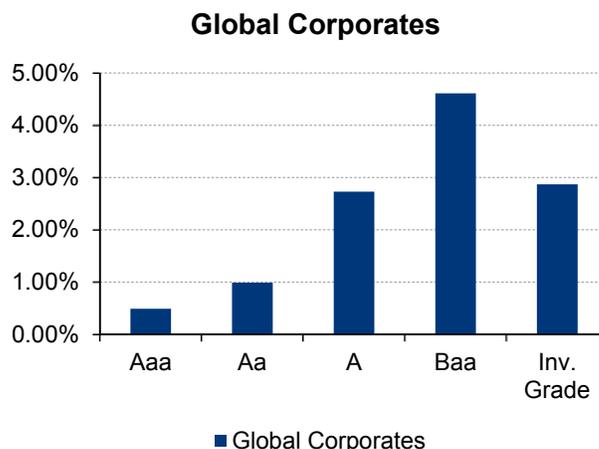
Higher-rated municipal bonds rarely default. A study by Moody's found that there were only 80 defaults of Moody's-rated municipal issuers over the period 1970-2013, with 65% of the defaults occurring in the healthcare and housing sectors, and 88% occurring in non-general obligation debt. Over the same 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 0.3% average cumulative default rate. Chart 5 shows Moody's 10 year average cumulative default rates for municipals. Chart 6 shows that the prevalence of defaults for corporate bonds was considerably higher over the same period.

**Chart 5: 10-year average cumulative default rates for Moody's-rated global municipals (1970-2013)**



Source: Moody's Investor Service

**Chart 6: 10-year average cumulative default rates for Moody's-rated global corporates (1970-2013)**



Source: Moody's Investor Service

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

**Table 3: S&P Rating Distribution (As of 31 December 2014)**

	Appropriation	Health care	Higher Ed	Housing Tax secured	Transportation	Utilities
AAA	1.5%	0.0%	4.9%	7.4%	5.2%	6.9%
AA	46.9%	16.1%	26.0%	77.1%	40.7%	42.2%
A	42.7%	45.5%	45.6%	11.6%	47.7%	47.3%
BBB	5.3%	30.1%	20.2%	1.8%	5.9%	3.3%
BB	3.3%	6.6%	2.7%	1.2%	0.3%	0.2%
B	0.3%	1.2%	0.4%	0.6%	0.2%	0.0%
CCC/C	0.2%	0.5%	0.3%	0.4%	0.1%	0.1%

Source: Standard and Poor's

Although the frequency of defaults has risen since the financial crisis, with a total of 30 since 2008, the overall default rate remains low. From 1970-2007, there was an average of 1.3 defaults per year, compared to 5.0 defaults between 2008-2013. In 2013, there were seven defaults in the Moody's-rated universe.

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 defaults and technical defaults. A monetary default happens when the issuer fails to pay principal, interest, or both, when due. A technical default happens when a covenant under the indenture is broken, such as a failure to raise rates to maintain coverage levels, or a failure 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 insurance market has undergone a vast transformation since the financial crisis. At one time, nearly half of all municipal bonds were insured. The bond insurer promised to make investors whole with respect to interest and principal payments in the event that the issuer failed to do so. The percentage of new issues insured has significantly decreased from 2008 to 2012, although it has increased since 2013. See Chart 7.

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 though, several of the bond insurers ran up against financial problems stemming from investments in other markets. Now, none of the active bond insurers are rated AAA.

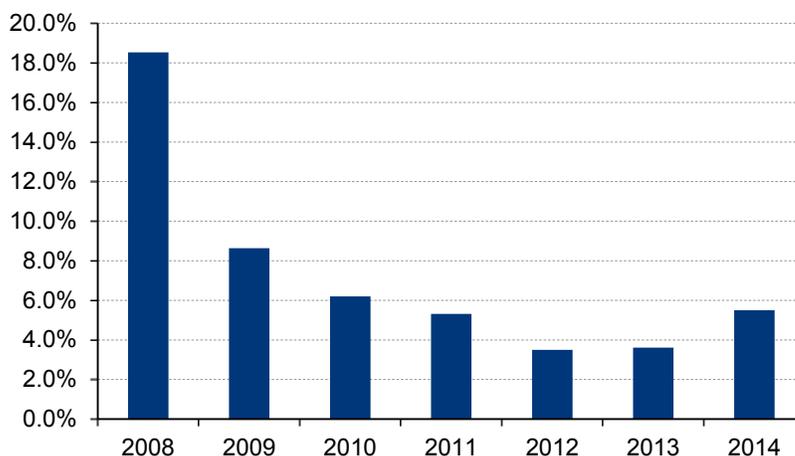
**Table 4: Bond Insurer Ratings (As of 13 April 2015)**

Bond insurer	Moody's rating/outlook	S&P rating/outlook
Assured Guaranty Municipal Corporation	A2/Stable	AA/Stable
Assured Guaranty Corporation	A3/Negative	AA/Stable
Berkshire Hathaway Assurance Corporation	Aa1/Stable	AA+/Stable
National Public Finance Guarantee Corporation	A3/Negative	AA-/Stable

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 investors, however, to look past the insurer's rating to the rating of the underlying bond as a true indicator of creditworthiness.

**Chart 7: Percentage of new issues insured by principal amount**



Source: Thompson Financial

Interest income on most munis is exempt from federal taxation.

Please see our [Tax treatment of municipal bonds](#) report for further information on state & local taxation of municipal bonds

**Table 5: Taxable Equivalent Yields**

Federal Marginal Tax Bracket	Municipal yield		
	2%	3%	5%
28%	2.78%	4.17%	6.94%
33%	2.99%	4.48%	7.46%
35%	3.08%	4.62%	7.69%
39.6%	3.31%	4.97%	8.28%
43.4%	3.53%	5.30%	8.83%

Source: BofA Merrill Lynch

**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.

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

## The tax-exempt appeal of munis

The main appeal of municipal securities is that their interest income is usually exempt from federal taxation. 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, but none have gained significant political support.

## 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 yields on municipal and taxable securities is through 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 the muni (see Table 5 in the margin). 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 39.6% federal tax bracket is 8.28% ( $5.00\% / (1 - 39.6\%)$ ). In other words, to be able to match the yield on the muni after taxes, the taxable security would need to yield 8.28%. When comparing municipal and Treasury securities, investors should also keep in mind differences in call protection, credit quality, and liquidity.

Another way to examine the appeal of munis is through an after-tax yield comparison. Suppose that an investor in the 43.4% federal tax bracket (the 39.6% bracket plus the 3.8% Medicare surtax) 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 2.83% ( $5.00\% \times (1 - 43.4\%)$ ). So the after-tax yield advantage of the municipal security is 2.17% ( $5.00\% - 2.83\%$ ).

## 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.

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." Preference items include 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 \$182,500 and 28% of AMT income in excess of \$182,500. 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. But 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 39.6% 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.

## 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, as with 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 (gain), however, if the bond were sold prior to maturity at a price below (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 remaining 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 the difference between the sales price and the amortized value of 104.4 (using the constant yield method).

### Market discount bonds

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.

Market discount bonds have special tax consequences.

- 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) in order 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.

### 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 a bit less than lower priced bonds, because more of the return comes from coupon income.

*Note to readers:*

*This information is not intended to provide tax advice or to be used by any person to give tax advice. Taxpayers may not use this information to avoid taxes or penalties on taxes that may be imposed on such persons or taxpayers.*

*This information was provided to support the analysis of financial instruments or transactions discussed in the report and clients are urged to seek tax advice based on their particular circumstances from an independent and professional tax advisor.*

## Important Disclosures

BofA Merrill Lynch Research personnel (including the analyst(s) responsible for this report) receive compensation based upon, among other factors, the overall profitability of Bank of America Corporation, including profits derived from investment banking revenues.

BofA Merrill Lynch Global Credit Research analysts regularly interact with sales and trading desk personnel in connection with their research, including to ascertain pricing and liquidity in the fixed income markets.

## Other Important Disclosures

This report may refer to fixed income securities that may not be offered or sold in one or more states or jurisdictions. Readers of this report are advised that any discussion, recommendation or other mention of such securities is not a solicitation or offer to transact in such securities. Investors should contact their BofA Merrill Lynch representative or Merrill Lynch Financial Global Wealth Management financial advisor for information relating to fixed income securities

Rule 144A securities may be offered or sold only to persons in the U.S. who are Qualified Institutional Buyers within the meaning of Rule 144A under the Securities Act of 1933, as amended.

**SECURITIES DISCUSSED HEREIN MAY BE RATED BELOW INVESTMENT GRADE AND SHOULD THEREFORE ONLY BE CONSIDERED FOR INCLUSION IN ACCOUNTS QUALIFIED FOR SPECULATIVE INVESTMENT.**

Recipients who are not institutional investors or market professionals should seek the advice of their independent financial advisor before considering information in this report in connection with any investment decision, or for a necessary explanation of its contents.

The securities discussed in this report may be traded over-the-counter. Retail sales and/or distribution of this report may be made only in states where these securities are exempt from registration or have been qualified for sale.

Officers of MLPF&S or one or more of its affiliates (other than research analysts) may have a financial interest in securities of the issuer(s) or in related investments.

This report, and the securities discussed herein, may not be eligible for distribution or sale in all countries or to certain categories of investors.

**BofA Merrill Lynch Global Research policies relating to conflicts of interest are described at <http://www.ml.com/media/43347.pdf>.**

**"BofA Merrill Lynch" includes Merrill Lynch, Pierce, Fenner & Smith Incorporated ("MLPF&S") and its affiliates. Investors should contact their BofA Merrill Lynch representative or Merrill Lynch Global Wealth Management financial advisor if they have questions concerning this report.**

**"BofA Merrill Lynch" and "Merrill Lynch" are each global brands for BofA Merrill Lynch Global Research.**

**Information relating to Non-US affiliates of BofA Merrill Lynch and Distribution of Affiliate Research Reports:**

MLPF&S distributes, or may in the future distribute, research reports of the following non-US affiliates in the US (short name: legal name): Merrill Lynch (France): Merrill Lynch Capital Markets (France) SAS; Merrill Lynch (Frankfurt): Merrill Lynch International Bank Ltd., Frankfurt Branch; Merrill Lynch (South Africa): Merrill Lynch South Africa (Pty) Ltd.; Merrill Lynch (Milan): Merrill Lynch International Bank Limited; MLI (UK): Merrill Lynch International; Merrill Lynch (Australia): Merrill Lynch Equities (Australia) Limited; Merrill Lynch (Hong Kong): Merrill Lynch (Asia Pacific) Limited; Merrill Lynch (Singapore): Merrill Lynch (Singapore) Pte Ltd.; Merrill Lynch (Canada): Merrill Lynch Canada Inc; Merrill Lynch (Mexico): Merrill Lynch Mexico, SA de CV, Casa de Bolsa; Merrill Lynch (Argentina): Merrill Lynch Argentina SA; Merrill Lynch (Japan): Merrill Lynch Japan Securities Co., Ltd.; Merrill Lynch (Seoul): Merrill Lynch International Incorporated (Seoul Branch); Merrill Lynch (Taiwan): Merrill Lynch Securities (Taiwan) Ltd.; DSP Merrill Lynch (India): DSP Merrill Lynch Limited; PT Merrill Lynch (Indonesia): PT Merrill Lynch Indonesia; Merrill Lynch (Israel): Merrill Lynch Israel Limited; Merrill Lynch (Russia): OOO Merrill Lynch Securities, Moscow; Merrill Lynch (Turkey I.B.): Merrill Lynch Yatirim Bank A.S.; Merrill Lynch (Turkey Broker): Merrill Lynch Menkul Değerler A.Ş.; Merrill Lynch (Dubai): Merrill Lynch International, Dubai Branch; MLPF&S (Zurich rep. office): MLPF&S Incorporated Zurich representative office; Merrill Lynch (Spain): Merrill Lynch Capital Markets Espana, S.A.S.V.; Merrill Lynch (Brazil): Bank of America Merrill Lynch Banco Multiplo S.A.; Merrill Lynch KSA Company, Merrill Lynch Kingdom of Saudi Arabia Company.

This research report has been approved for publication and is distributed in the United Kingdom to professional clients and eligible counterparties (as each is defined in the rules of the Financial Conduct Authority and the Prudential Regulation Authority) by Merrill Lynch International and Bank of America Merrill Lynch International Limited, which are authorized by the Prudential Regulation Authority and regulated by the Financial Conduct Authority and the Prudential Regulation Authority, and is distributed in the United Kingdom to retail clients (as defined in the rules of the Financial Conduct Authority and the Prudential Regulation Authority) by Merrill Lynch International Bank Limited, London Branch, which is authorised by the Central Bank of Ireland and subject to limited regulation by the Financial Conduct Authority and Prudential Regulation Authority - details about the extent of our regulation by the Financial Conduct Authority and Prudential Regulation Authority are available from us on request; has been considered and distributed in Japan by Merrill Lynch Japan Securities Co., Ltd., a registered securities dealer under the Financial Instruments and Exchange Act in Japan; is distributed in Hong Kong by Merrill Lynch (Asia Pacific) Limited, which is regulated by the Hong Kong SFC and the Hong Kong Monetary Authority is issued and distributed in Taiwan by Merrill Lynch Securities (Taiwan) Ltd.; is issued and distributed in India by DSP Merrill Lynch Limited; and is issued and distributed in Singapore to institutional investors and/or accredited investors (each as defined under the Financial Advisers Regulations) by Merrill Lynch International Bank Limited (Merchant Bank) and Merrill Lynch (Singapore) Pte Ltd. (Company Registration No.'s F 06872E and 198602883D respectively). Merrill Lynch International Bank Limited (Merchant Bank) and Merrill Lynch (Singapore) Pte Ltd. are regulated by the Monetary Authority of Singapore. Bank of America N.A., Australian Branch (ARBN 064 874 531), AFS License 412901 (BANA Australia) and Merrill Lynch Equities (Australia) Limited (ABN 65 006 276 795), AFS License 235132 (MLEA) distributes this report in Australia only to 'Wholesale' clients as defined by s.761G of the Corporations Act 2001. With the exception of BANA Australia, neither MLEA nor any of its affiliates involved in preparing this research report is an Authorised Deposit-Taking Institution under the Banking Act 1959 nor regulated by the Australian Prudential Regulation Authority. No approval is required for publication or distribution of this report in Brazil and its local distribution is made by Bank of America Merrill Lynch Banco Multiplo S.A. in accordance with applicable regulations. Merrill Lynch (Dubai) is authorized and regulated by the Dubai Financial Services Authority (DFSA). Research reports prepared and issued by Merrill Lynch (Dubai) are prepared and issued in accordance with the requirements of the DFSA conduct of business rules.

Merrill Lynch (Frankfurt) distributes this report in Germany. Merrill Lynch (Frankfurt) is regulated by BaFin.

This research report has been prepared and issued by MLPF&S and/or one or more of its non-US affiliates. MLPF&S is the distributor of this research report in the US and accepts full responsibility for research reports of its non-US affiliates distributed to MLPF&S clients in the US. Any US person receiving this research report and wishing to effect any transaction in any security discussed in the report should do so through MLPF&S and not such foreign affiliates. Hong Kong recipients of this research report should contact Merrill Lynch (Asia Pacific) Limited in respect of any matters relating to dealing in securities or provision of specific advice on securities. Singapore recipients of this research report should contact Merrill Lynch International Bank Limited (Merchant Bank) and/or Merrill Lynch (Singapore) Pte Ltd in respect of any matters arising from, or in connection with, this research report.

22 June 2015

**General Investment Related Disclosures:**

Taiwan Readers: Neither the information nor any opinion expressed herein constitutes an offer or a solicitation of an offer to transact in any securities or other financial instrument. No part of this report may be used or reproduced or quoted in any manner whatsoever in Taiwan by the press or any other person without the express written consent of BofA Merrill Lynch.

This research report provides general information only. Neither the information nor any opinion expressed constitutes an offer or an invitation to make an offer, to buy or sell any securities or other financial instrument or any derivative related to such securities or instruments (e.g., options, futures, warrants, and contracts for differences). This report is not intended to provide personal investment advice and it does not take into account the specific investment objectives, financial situation and the particular needs of any specific person. Investors should seek financial advice regarding the appropriateness of investing in financial instruments and implementing investment strategies discussed or recommended in this report and should understand that statements regarding future prospects may not be realized. Any decision to purchase or subscribe for securities in any offering must be based solely on existing public information on such security or the information in the prospectus or other offering document issued in connection with such offering, and not on this report.

Securities and other financial instruments discussed in this report, or recommended, offered or sold by Merrill Lynch, are not insured by the Federal Deposit Insurance Corporation and are not deposits or other obligations of any insured depository institution (including, Bank of America, N.A.). Investments in general and, derivatives, in particular, involve numerous risks, including, among others, market risk, counterparty default risk and liquidity risk. No security, financial instrument or derivative is suitable for all investors. In some cases, securities and other financial instruments may be difficult to value or sell and reliable information about the value or risks related to the security or financial instrument may be difficult to obtain. Investors should note that income from such securities and other financial instruments, if any, may fluctuate and that price or value of such securities and instruments may rise or fall and, in some cases, investors may lose their entire principal investment. Past performance is not necessarily a guide to future performance. Levels and basis for taxation may change.

BofA Merrill Lynch is aware that the implementation of the ideas expressed in this report may depend upon an investor's ability to "short" securities or other financial instruments and that such action may be limited by regulations prohibiting or restricting "shortselling" in many jurisdictions. Investors are urged to seek advice regarding the applicability of such regulations prior to executing any short idea contained in this report.

Foreign currency rates of exchange may adversely affect the value, price or income of any security or financial instrument mentioned in this report. Investors in such securities and instruments effectively assume currency risk.

UK Readers: The protections provided by the U.K. regulatory regime, including the Financial Services Scheme, do not apply in general to business coordinated by BofA Merrill Lynch entities located outside of the United Kingdom. BofA Merrill Lynch Global Research policies relating to conflicts of interest are described at <http://www.ml.com/media/43347.pdf>.

Officers of MLPF&S or one or more of its affiliates (other than research analysts) may have a financial interest in securities of the issuer(s) or in related investments.

MLPF&S or one of its affiliates is a regular issuer of traded financial instruments linked to securities that may have been recommended in this report. MLPF&S or one of its affiliates may, at any time, hold a trading position (long or short) in the securities and financial instruments discussed in this report.

BofA Merrill Lynch, through business units other than BofA Merrill Lynch Global Research, may have issued and may in the future issue trading ideas or recommendations that are inconsistent with, and reach different conclusions from, the information presented in this report. Such ideas or recommendations reflect the different time frames, assumptions, views and analytical methods of the persons who prepared them, and BofA Merrill Lynch is under no obligation to ensure that such other trading ideas or recommendations are brought to the attention of any recipient of this report.

In the event that the recipient received this report pursuant to a contract between the recipient and MLPF&S for the provision of research services for a separate fee, and in connection therewith MLPF&S may be deemed to be acting as an investment adviser, such status relates, if at all, solely to the person with whom MLPF&S has contracted directly and does not extend beyond the delivery of this report (unless otherwise agreed specifically in writing by MLPF&S). MLPF&S is and continues to act solely as a broker-dealer in connection with the execution of any transactions, including transactions in any securities mentioned in this report.

**Copyright and General Information regarding Research Reports:**

Copyright 2015 Merrill Lynch, Pierce, Fenner & Smith Incorporated. All rights reserved. This research report is prepared for the use of BofA Merrill Lynch clients and may not be redistributed, retransmitted or disclosed, in whole or in part, or in any form or manner, without the express written consent of BofA Merrill Lynch. BofA Merrill Lynch research reports are distributed simultaneously to internal and client websites and other portals by BofA Merrill Lynch and are not publicly-available materials. Any unauthorized use or disclosure is prohibited. Receipt and review of this research report constitutes your agreement not to redistribute, retransmit, or disclose to others the contents, opinions, conclusion, or information contained in this report (including any investment recommendations, estimates or price targets) without first obtaining expressed permission from an authorized officer of BofA Merrill Lynch.

Materials prepared by BofA Merrill Lynch Global Research personnel are based on public information. Facts and views presented in this material have not been reviewed by, and may not reflect information known to, professionals in other business areas of BofA Merrill Lynch, including investment banking personnel. BofA Merrill Lynch has established information barriers between BofA Merrill Lynch Global Research and certain business groups. As a result, BofA Merrill Lynch does not disclose certain client relationships with, or compensation received from, such companies in research reports. To the extent this report discusses any legal proceeding or issues, it has not been prepared as nor is it intended to express any legal conclusion, opinion or advice. Investors should consult their own legal advisers as to issues of law relating to the subject matter of this report. BofA Merrill Lynch Global Research personnel's knowledge of legal proceedings in which any BofA Merrill Lynch entity and/or its directors, officers and employees may be plaintiffs, defendants, co-defendants or co-plaintiffs with or involving companies mentioned in this report is based on public information. Facts and views presented in this material that relate to any such proceedings have not been reviewed by, discussed with, and may not reflect information known to, professionals in other business areas of BofA Merrill Lynch in connection with the legal proceedings or matters relevant to such proceedings.

This report has been prepared independently of any issuer of securities mentioned herein and not in connection with any proposed offering of securities or as agent of any issuer of any securities. None of MLPF&S, any of its affiliates or their research analysts has any authority whatsoever to make any representation or warranty on behalf of the issuer(s). BofA Merrill Lynch Global Research policy prohibits research personnel from disclosing a recommendation, investment rating, or investment thesis for review by an issuer prior to the publication of a research report containing such rating, recommendation or investment thesis.

Any information relating to the tax status of financial instruments discussed herein is not intended to provide tax advice or to be used by anyone to provide tax advice. Investors are urged to seek tax advice based on their particular circumstances from an independent tax professional.

The information herein (other than disclosure information relating to BofA Merrill Lynch and its affiliates) was obtained from various sources and we do not guarantee its accuracy. This report may contain links to third-party websites. BofA Merrill Lynch is not responsible for the content of any third-party website or any linked content contained in a third-party website. Content contained on such third-party websites is not part of this report and is not incorporated by reference into this report. The inclusion of a link in this report does not imply any endorsement by or any affiliation with BofA Merrill Lynch. Access to any third-party website is at your own risk, and you should always review the terms and privacy policies at third-party websites before submitting any personal information to them. BofA Merrill Lynch is not responsible for such terms and privacy policies and expressly disclaims any liability for them.

All opinions, projections and estimates constitute the judgment of the author as of the date of the report and are subject to change without notice. Prices also are subject to change without notice. BofA Merrill Lynch is under no obligation to update this report and BofA Merrill Lynch's ability to publish research on the subject company(ies) in the future is subject to applicable quiet periods. You should therefore assume that BofA Merrill Lynch will not update any fact, circumstance or opinion contained in this report.

22 June 2015

Certain outstanding reports may contain discussions and/or investment opinions relating to securities, financial instruments and/or issuers that are no longer current. Always refer to the most recent research report relating to a company or issuer prior to making an investment decision.

In some cases, a company or issuer may be classified as Restricted or may be Under Review or Extended Review. In each case, investors should consider any investment opinion relating to such company or issuer (or its security and/or financial instruments) to be suspended or withdrawn and should not rely on the analyses and investment opinion(s) pertaining to such issuer (or its securities and/or financial instruments) nor should the analyses or opinion(s) be considered a solicitation of any kind. Sales persons and financial advisors affiliated with MLPF&S or any of its affiliates may not solicit purchases of securities or financial instruments that are Restricted or Under Review and may only solicit securities under Extended Review in accordance with firm policies.

Neither BofA Merrill Lynch nor any officer or employee of BofA Merrill Lynch accepts any liability whatsoever for any direct, indirect or consequential damages or losses arising from any use of this report or its contents.