Scientific Research Publishing

Journal of Financial Risk Management, 2023, 12, 79-86
https://www.scirp.org/journal/jfrm
ISSN Online: 2167-9541
ISSN Print: 2167-9533

The Layman's Guide to Bonds and Municipal Bonds

Daniel J. Ramos

Colorado State University Global Campus, Pueblo, USA
Email: djr469@hotmail.com

How to cite this paper: Ramos, D. J. (2023). The Layman's Guide to Bonds and Municipal Bonds. *Journal of Financial Risk Management, 12,* 79-86.
https://doi.org/10.4236/jfrm.2023.121005

Received: November 16, 2022
Accepted: March 24, 2023
Published: March 27, 2023

Abstract

According to the Wall Street Journal (Pellajaro, 2021), "Investors in search of higher returns and lower taxes are scooping up debt sold by state and local governments…" Municipal bonds (munis) total 39 billion dollars in 2021. Your investment portfolio should contain a basket of investments that include stocks and bonds. These are known as equity and fixed income instruments. A well-diversified portfolio minimizes your risk level and maximizes your growth potential over time. Such a portfolio should include the added protection of municipal bonds. That protection comes in the form of federal (and potentially state) tax exemptions. Municipal bonds offer fixed income opportunities that generate growth without federal tax burdens. This article aims to educate the layman on bonds and municipal bonds; specifically, how they work, how they are priced and how to add them to an investment and retirement portfolio.

Keywords

Municipal Bonds, Debt Financing, Rating Bonds

1. Debt Financing

When new infrastructure projects ramp up, municipal bonds are increasingly used to finance those projects locally and nationally. According to Cohen & Yosef (2020), "Local authorities compete to attract new residents, enabling these residents to influence the services and finances that the local government supplies." Cities and municipalities use bonds to finance these services and finances. Municipal bonds offer a great fixed income revenue stream that includes federal tax exemption. There are two ways that businesses and governments finance their operations; equity and/or debt. Bonds are a form of debt that businesses and governments use to raise the necessary funds for their projects.

For many companies and government entities, debt financing is a feasible way to fund their projects. According to Spiceland et al. (2020), "… some of the necessary funding must be provided by external sources". Some of these external sources come in the form of bonds and bonds are a form of debt. As an investor, you can purchase bonds and issue debt to the company or government. We are accustomed to receiving loans from a bank and repaying the loan in installment payments. This is precisely what happens when we purchase bonds except that the scenario is reversed. We, as investors, are loaning money to the company or government and they will need to repay us in installment payments. As the investment market becomes more fragmented, finding the gems in the municipal bond market becomes more challenging. According to SIFMA, the U.S. has the largest concentration of fixed income markets totaling 119 trillion dollars in securities outstanding.

2. How Bonds Work

There are only two ways that companies can finance their operations; through equity and or debt. Equity comes in the form of profits and the sale of stock. Debt comes in the form of bank loans or bonds. Bonds are a form of debt which requires the payment of periodic interest and the face amount upon maturity. This is a great tool many use to subsidize their investment and retirement portfolios. An investment is an asset that performs over time; that is, gains interest over time. By investing now, your money will grow over time using a concept known as the time value of money. Consumers are used to going to a bank and making loans at a specific or varied interest rate. Bonds work in the reverse in that you, the consumer, are lending to a business or Government instead. It is a loan that pays interest over time; known as the coupon or stated rate and pays you the full amount of the face value of the bond at maturity. For example, if your objective is to provide a stable balance in your portfolio, you can do that plus generate a tax-free level of gains by incorporating municipal bonds. Municipal bonds, also known as munis, are loans issued by government entities to finance projects such as bridges and roads. By purchasing a municipal bond, you are lending money to the government entity and are expected to receive interest payments (usually semi-annually) for duration of the bond. If it is a 5-year bond, you will receive equal interest payments, semi-annually for five years. Additionally, you will receive the full amount of your original investment at the end of the five-year term; also known as the maturity date. It is important to note that municipal bonds come in both taxable and tax-exempt forms. Many municipal bonds are also state tax exempt.

3. Types of Bonds

There are many types of bonds that perform in different ways. It is important to take several important considerations when purchasing a bond. For example, what is the level of risk you are willing to take on? The saying goes: "The higher

the risk, the higher the rate of return"! Risk and return are directly correlated; that is, the higher the risk of an instrument such as a bond, the higher the required rate of return (RRR).

- **Corporate bonds** are bonds that are issued by corporations to finance their operations.
- **Government bonds** are bonds that the Federal Government issues to finance the national debt.
- **Municipal bonds** are bonds that are issued by state and local governments to finance their projects.
- **International bonds** are bonds that are issued by foreign governments to finance their national debts.

Maturity of Bonds

In addition to the types of bonds as seen above, there are also time limits to consider; for example:

- **Short-term bonds** are bonds with a short-term maturity such as 3-month to 3-year maturities and are known as T-bills.
- **Medium-term bonds** usually have maturities of 3 - 10 years and are known as T-notes.
- **Long-term bonds** have maturities over 10 years and are known as bonds.

4. How Bonds Are Priced

Two rates determine the price of a bond; a stated or coupon rate and a market rate. The numerator of this ratio is the stated value or coupon rate which never changes during the life of the bond; for example, a bond that has a coupon rate of 10% will pay 10% throughout the life of the bond. The market rate is the rate of similar bonds; they can be higher (premium) or lower (discount) than the coupon rate. These rates form a ratio that determines the price of a bond. The coupon or stated rate is the numerator and the market rate is the denominator. There are three simple rules to remember about pricing bonds:

1) If the numerator and denominator are the same at the time of sale, the bond will sell at par or face value. For example, if you purchase a 1000-dollar bond with a coupon rate of 5 percent and a market rate, at the time of sale, is 5 percent, then the bond will sell at face value or 1000 dollars.

2) If the numerator is less than the denominator, the bond will sell at a discount or less than face value; a bond with a coupon rate of 3% and a market rate of 5% will sell at a discount.

3) If the numerator is greater than the denominator, the bond will sell at a premium of more than the face value; a bond with a coupon rate of 8% and a market rate of 5% will sell at a premium.

5. What Is Par, Discount and Premium

We have seen that prices for bonds differ depending on the ratio of the coupon rate and the market rate. If the coupon rate is equal to the market rate, the bond

will sell at par or face value. If the coupon rate is higher than the market rate, it will sell at a premium or more than its face value and if the coupon rate is lower than the market rate, it will sell at a discount or lower than the face value. The reason for these price fluctuations is that in a capitalist market, supply and demand are the forces that dictate prices. If similar bonds sell for less than the bond under consideration, market pressures will force the price below par and vice versa. When a governing body dictates the prices of assets, there is a poor distribution of goods and services which leads to shortages and surpluses.

6. Municipal Bonds

A municipal bond (also known as munis) is a bond that is issued by local or state government to finance their projects. Municipal bonds are a form of fixed income. For example, a city government may need money to build a bridge or a city jail. This is in essence, a loan that the city receives from an investor. When you go to your local bank to make a loan, the bank issues a check for a specific amount and the terms for which you are to pay back that amount plus interest. This becomes a liability to you and a receivable to the bank. This is what takes place when you purchase a municipal bond except the roles are reversed. You make a loan to the city and it must repay the principal or face amount of the bond plus interest which is known as the coupon payment. The city must make regular interest payments throughout the life of the bond which is equal to the coupon rate and when the bond reaches maturity, it must pay the face amount of the bond also known as the par value which is the original amount of the bond value.

Investors choose municipal bonds because of their tax benefits. Interest payments from munis are usually exempt from Federal taxes and many are also exempt from state and local taxes. Although interest from munis is usually lower than corporate bond interest rates, they offer tax free benefits which can make them more profitable than other types of bonds. Factors that determine the such profitability include your tax bracket and your location. For example, let's say that you are comparing a corporate bond with a yield of 3% against a municipal bond that has a yield of 2% that is tax free. And, let's say you are in a 35% tax bracket. Your effective tax yield on a 2% muni is 3.08%. If you live in a state that does not have a state tax, your yield will be even higher.

Your investment portfolio should include a good mix of investment instruments such as stocks, bonds and municipal bonds. A well-balanced portfolio avails a steady and upward moving portfolio. You've heard the saying "Don't put all your eggs in one basket" because they become enslaved to the destiny of the basket. A diversity of investment instruments provides the balance needed to grow your wealth exponentially using the time value of money (TVM). The time value of money uses compound interest to grow your portfolio exponentially over time because you not only reinvest your principal but your interest as well. This is the secret to the time value of money.

7. Bond Yield

In a capitalist system, supply and demand dictate the price of goods and services. Likewise, for bonds, the price is based on supply and demand. When the demand is high compared to the supply of bonds, the prices increase. Conversely, when the demand is low compared to the supply, prices go down. Bonds are sold at par or face value, at a discount or a premium. The price of a bond depends on a ratio of two rates; the coupon rate and the market rate. The coupon (also known as the contract rate) is the interest rate you receive periodically; usually semi-annually. The market rate is the average interest rate on a bundle of similar bonds. It's important to note that the coupon rate never changes while the market rate constantly changes. The bond indenture is the terms of the contract; for example, the terms of a bond state the following: 1000 dollar face value, 5-year bond with a coupon rate of 5% annually and a market rate of 5%, with interest paid semi-annually. The terms of the bond are defined as the bond indenture. So, let's break this down. First, since the coupon rate of 5% is the same as the market rate of 5%, this bond will sell at par or face value of 1000 dollars. Notice also, that this bond is a 5-year bond; however, since it pays semi-annual interest payments, we need to divided the 5% by 2 which equals 2.5% semi-annually. We can deduce that the annual interest on this bond is 50 dollars which is paid in two installments of $25 every six months. At the end of 5 years, you receive your last 25-dollar interest payment plus your face amount of 1000 dollars. Your total investment is, therefore, 1250 dollars for a five-year bond.

Using the same numbers as above, consider that the 1000-dollar bond sells for $1100 instead. In this case, demand is greater than the supply of similar bonds hence the higher price. In this case, the coupon rate or the numerator of our pricing equation is greater than the denominator or the market rate. Using the same parameters as the previous example, note that at maturity or 5 years, you will receive a lump sum of $1000 plus interest payments of 50 dollars per year or 25 dollars every six months. The 100 dollars over the 1000-dollar bond, called the premium, will be amortized over the life of the bond.

If at the time of purchase, the bond's coupon rate is lower than the market rate, the bond will sell at a discount. Once again, supply and demand dictate the pricing of a discounted bond. For example, using the same assumptions as above, let's say that the 1000-dollar bond sells for 950 dollars. All other factors remain the same; you will still receive 50 dollars in interest per year or 25 dollars semi-annually. Five years later, at the maturity of the bond, you will receive 1000-dollar lump sum and the final interest payment of 25 dollars. The discount of 50 dollars ($1000 − $950 = $50) will be amortized or expensed during the life of the bond.

8. Yield to Maturity vs. Rate of Return

Yield to maturity and rate of return are a form of ration analysis. If you were to hold this $1000 bond until maturity or five years in this example, your yield to maturity is simply the coupon divided by the investment (Brealy, Myers, &

Marcus, 2004):

$$\text{Yield to Maturity} = \$50 \text{ coupon}/\$1000 \text{ investment} = 0.05 \text{ or } 5\%$$

If you decide to sell this bond a year from the purchase date, for example, you would then calculate a rate of return on your investment. Let's say that a year from now, the bond is worth 1070 dollars. The formula for calculating the rate of return is (Brealy, Myers, & Marcus, 2004):

$$\text{Rate of Return} = \text{Coupon} + \text{Price Change}/\text{Total Investment} = \$50 + 30\ (1100 - 1070)/\$1100 = 0.073 \text{ or } 7.3\%$$

You can see that holding the bond until maturity yields less of a return that selling it one year after purchase. Yield to maturity is a calculation for the yield of an instrument that is held to maturity while the rate of return is the calculation for instruments that are sold before maturity. Of course, this is a hypothetical scenario and you must calculate these ratios on your own investments to determine whether to sell early or hold to maturity.

9. Rating Bonds

One important consideration when choosing a municipal bond is its credit rating. Just as you and I have a certain credit score, so too do municipal bonds. The highest credit rating is AAA and then falls according to predetermined increments such as AA+, AA, AA− on down to the lowest rating of D. Rating agencies like Standard & Poor, Fitch and Moody's rate bonds on the basis of their credit worthiness. According to https://www.governing.com/, 69 municipalities in the U.S. have declared bankruptcy since 2010. Cities and municipalities are beholden to the same accounting principles as you and I and companies. Your investments should only consider investment grade municipal bonds that fall between AAA and BBB ratings. There is an understanding that the higher the risk, the higher the required rate of return. It is important that you choose your investments in municipal bonds according to your risk tolerance. A younger investor can assume an increased level of risk tolerance than an older investor. DRL Group (DRLGROUP.NET) lists some of the top choices for municipal bonds including:

- **Frisco TX ISD (35880CBJ2):** Guaranteed by the Texas Permanent School Fund and one of the fastest-growing school districts in the country.
- **Missouri St Highways & Transit Commission (60636WJH9):** 2016 debt service coverage exceeded 8× on senior lien bonds.
- **Texas State Water Development Board (882854VX7):** Debt service coverage is projected at 3.72× in 2017 and rising each year thereafter.

All of these munis have AAA rating. Other criteria you should follow include the types of municipal bonds available. General obligation bonds are unsecured bonds that are issued by governments and therefore, carry a higher risk and a higher yield. Revenue bonds are secured bonds that are also issued by govern-

ments and are funded by taxes like sales taxes, property taxes etc. They are considered a safer investment although their yield is directly correlated to their revenues.

10. Sources of Municipal Bonds

Many sources contain lists of municipal bonds. You can purchase municipal bonds from any state or territory in the U.S. A main repository of municipal bonds is EMMA or Electronic Municipal Market Access (https://emma.msrb.org/) which is a service of the MSRB. The EMMA site provides a map of all states in the U. S. under the tab "Browse Issuers". Clicking on any state lists all the municipal bonds offered in that state including their ratings and types. This is a great tool for conducting your research on the different types of bonds. This site also offers great resources such as graphs of yield curves, comparable bonds and new issues calendars.

11. Pros and Cons

Let's begin with the pros of investing in municipal bonds.

First, they are a great way to diversify your portfolio. Remember that including several different investment instruments such as stocks, bonds and currencies, for example, will strengthen your portfolio.

Second, municipal bonds offer tax benefits that no other bonds offer. No Federal tax and no state tax.

Third, low beta and therefore, low volatility. The bond market is quite stable among other trading platforms like the stock market.

Fourth, munis are highly liquid. Municipal bonds can be cashed in quite readily and easily.

Fifth, munis have low default risks. With the exceptions of the 69 municipalities listed above that have suffered bankruptcies, compared to other markets, municipal bonds have low default risks.

Here are some cons to consider:

First, default risk. Although bonds are historically of low default risk, default risk is nevertheless ever-present.

Second, market interest rate volatility. In times of recessionary pressures, market risk can be volatile.

Third, munis may not be able to beat inflation. During high inflationary periods, returns on munis may not be an optimal hedging fund.

Fourth, munis are subject to call risks. Be sure to determine if your munis are susceptible to being called. This can happen when a government is able to secure financing for their project at a lower rate than the issued bonds, they may call the bonds and force you to sell them.

12. Final Word

This article has served to inform the investor on bonds and municipal bonds.

We have discussed their function, purpose and place within an investment portfolio. It pays to be informed and this article expects that it serves as an introduction to municipal bonds and a launching pad for further education on munis.

Happy Investing!

Acknowledgements

I wish to thank Colorado State University for the funding of this article.

Conflicts of Interest

The author declares no conflicts of interest regarding the publication of this paper.

References

Brealy, R. A., Myers, S. C., & Marcus, A. J. (2004). *Fundamentals of Corporate Finance* (4th ed.). McGraw Hill.

Cohen, S. S., & Yosef, R. (2020). Municipal Bonds as Leverage for Negotiation and Improving Operational Efficiency. *Journal of Service Science and Management, 13,* 261-280. https://doi.org/10.4236/jssm.2020.132017

Pellajaro, S. (2021). Investors Flock into Market for Munis. *Wall Street Journal.*

Spiceland, J. D., Nelson, M. W., & Thomas, M. W. (2020). *Intermediate Accounting* (10th ed.). McGraw Hill.