

Overview On Bonds and Its Different Types

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Abstract: Stocks, Mutual Funds, Exchange-Traded Funds (ETFs), Certificate of Deposits (CDs), Commodities, Options, Futures, Annuities or Fixed Income Products like Bonds; there are various options available to invest, each offering different levels of risk, return potential, liquidity, and other characteristics. Where and when to invest depends on the risk appetite, potential return, current economic conditions, and most importantly individual or corporation's financial goals. For the scope of this paper, we will focus on one of the Fixed Income Securities known as the Bonds. Investing in bonds can offer a range of benefits like income generation, diversification of portfolio, or capital preservation. In this paper we will study different types of Bonds and understand their distinct characteristics.

Keywords: Fixed Income Securities, Bonds, Types of Bonds, Bond Trading, Investment Banking, Yield, Face Value of Bond, Coupon Rate

1. Introduction

Stocks have been a popular asset class in the financial world, but fixed income securities like bonds also play a critical role in the portfolios of individual and institutional investors. Fixed income securities refer to investments that pay a fixed or predictable income to investors over time. Prior to the 1980s, fixed income securities were simple investment products, where investors knew how long the interest would be received and when the principal invested would be repaid. Post 1980s, fixed income world changed and became more complex. Now, there are securities that have a coupon rate that increases over time, called the step-up notes and there are securities which consider inflation, called the inflation linked bonds. Likewise, there are a number of variations depending on the demand of the financial world. To add to this, institutional investors are now trading fixed income securities more actively in the secondary market, resulting in complex Bond Valuation. Bonds are traded at premium and at discount to the par value depending on the interest rate changes and other factors that influence pricing of fixed income securities, like bonds. The

scope of this paper is to understand fixed income securities like Bonds, study different types of Bonds, and their unique characteristics.

2. Overview On Bonds

A debt security, or a Bond, is issued by governments entities or corporations when they want to raise capital. When buying a Bond, you are lending money to the corporation or government entity that issued the bond. In return you receive interest payments on the bond. These payments are based on the original value of the bond, called the Face value or the par value of the Bond, and the interest rate decided on the Bond. The interest rate is called coupon rate, which existed when the Bond was issued [1]. The bond's face value called Principal is returned to the investor at the time of maturity.

For example, a US Treasury bond with coupon 5%, maturity date 11/15/2028 and issued amount of \$21.2 billion pays a semi-annual interest of \$530 million ($\$21.2 \text{ billion} * 5\%/2$) every 6 months until 11/15/2028 included, as well as \$21.2 billion on the maturity date.

U.S. BOND MARKET SIZE AND COMPOSITION



Source: SIFMA 2015

Bonds are issued in the Primary Market and traded in the Secondary Market [2]. Some bonds are traded publicly through exchanges, most trade over-the-counter (OTC) between large broker-dealers acting on their client's or their own behalf. Because bonds can be traded in secondary markets after they are issued, the price of bonds and the

yield they earn can be different from the face value and the coupon rate of the bond. Thus, the price one pays for the bond may be different from its face value, and will change over the life of the bond, depending on factors like the bond's time to maturity and the interest rate environment. But the face value or the par value does not change [3].

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Bonds can be bought at a higher price than the face value of the bond, then the Bond is said to be trading at Premium to Par. If a Bond is bought at a price lower than the face value

of the bond, then the Bond is said to be trading at a Discount to the Par.

Face Value	Quoted Price	Market Price	Bond Trading at
\$1,000	100	\$1,000	Par
\$1,000	103	\$1,030	Premium to Par
\$1,000	98	\$980	Discount to Par

Coupon Payments for Bonds are generally annually, semi-annually or quarterly. Institutional Investors trading on Bonds in secondary market may miss out on coupon payments if Bonds are not bought or sold on the Coupon payment dates. Thus, if an investor sells a bond between coupon payments and buyer holds it until the next coupon payment, then the entire coupon interest earned for the period will be paid to the buyer of the bond. The Seller of the Bond gives up the interest from the time of the last coupon payment to the time until the bond is sold. The amount of interest over this period that will be received by the buyer even though it was earned by the seller is called as the accrued interest. Bond Buyer may pay the bond seller the accrued interest depending on the bond contract. The agreed upon bond price including the interest is referred to as Dirty Price [4].

$$\text{Dirty Price} = \text{Clean Price} + \text{Accrued Interest}$$

Overall, Bonds provide regular interest income, making them attractive for investors seeking predictable cash flow. Even though Bonds are becoming complex financial product, but still Investors choose bonds based on their financial goals, risk tolerance, and market conditions.

3. Different Types of Bonds

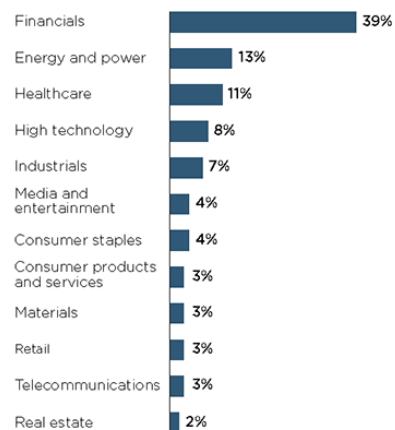
Depending on the institutions that issued the bonds to raise capital like governments, municipalities, corporations, and other entities, bonds can be classified as Government Bonds, Corporate Bonds, Municipal Bonds (Munis), Agency Bonds, and Supranational Bonds. Bonds are also classified into Asset-Backed Securities (ABS), Convertible Bonds, Floating Rate Notes, Zero-Coupon Bonds and Inflation-linked Bonds.

Government Bonds: A government bond is a type of debt-based investment, where you loan money to a government in return for an agreed rate of interest. Governments use them to raise funds that can be spent on new projects or infrastructure, and investors can use them to get a set return paid at regular intervals [5]. Treasury bonds also known as T-bonds, are also government debt securities that are issued by the U.S. Federal government and sold by the U.S. Treasury Department [6]. Treasury Bonds are considered risk-free assets and are liquid instruments that can easily be bought or sold in the secondary market.

Corporate Bonds: Corporate bonds are also debt securities that are issued by a corporation. For investors there is usually more risk with corporate bonds, Corporation tend to

pay a higher interest rate than the Treasury or Government securities [7].

CORPORATE BOND ISSUANCE BY SECTOR



Source: Thomson Reuters 2015

Corporate Bonds are said to be affected by default or credit risk. Their yields contain a default premium over Treasury bonds, accounting for total default or credit risk [1].

Municipal Bonds: Municipal bonds also known as “Munis” are debt securities issued by states, their political subdivisions (such as cities, towns, counties, and school districts), their agencies and instrumentalities (such as housing, health care, airport, port, and economic development authorities and agencies) and U.S. territories (such as the U.S. Virgin Islands, Guam, and Puerto Rico) [8].

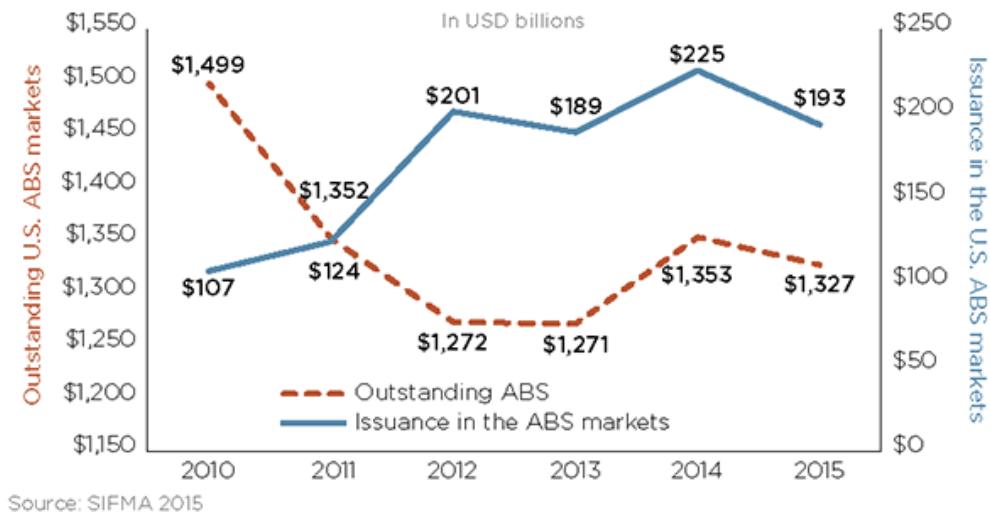
There are primarily 2 types of municipal bonds: General Obligation bonds and Revenue Bonds. General Obligation Bonds or the G.O. Bonds are types of Munis for which issuers guarantee the repayment of the bond by any means necessary with full faith and credit. This usually means that the issuers will use their taxation power to raise the revenue to pay back the bond under any circumstances. Revenue bonds are a type of munis that are repaid using the revenues from the projects the bonds helped fund. Investors need to be aware that with revenue bonds there is a greater chance that an issuer could default on the bond [9].

Agency Bonds: Agency bond is a security issued by a government-sponsored enterprise or by a federal government department other than the U.S. Treasury. Agency Bonds are less secure than the U.S. Treasury and the municipal bonds [10].

Supranational Bonds: Supranational agencies issue bonds that are often highly rated in terms of credit quality because of the big institutions like the World Bank, the International Monetary Fund (IMF), the European Investment Bank (EIB), and the African Development Bank (ADB) backing them. Supranational bonds are generally plain vanilla bonds that pay period coupons payments and principal at maturity [11].

Asset-Backed Securities: Asset-backed securities (ABS) are securities derived from a pool of underlying assets. To create asset-backed securities, financial institutions pool multiple loans into a single security that is then sold to investors [12].

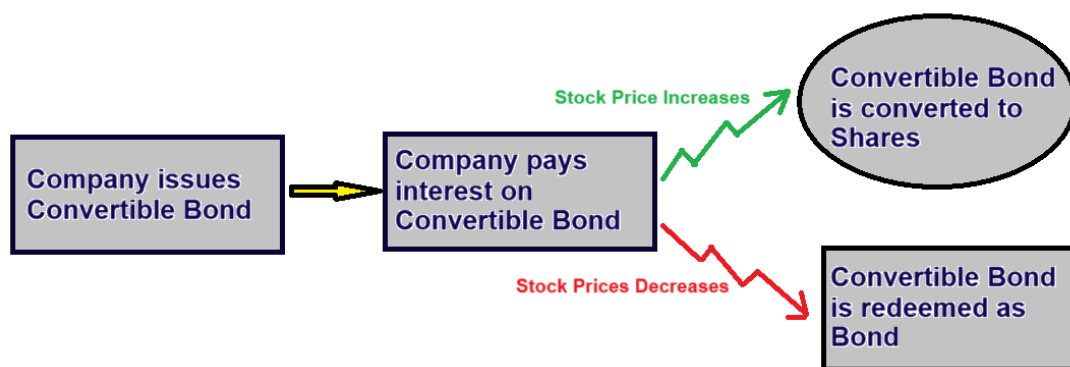
ASSET-BACKED SECURITIES



Convertible Bonds: A convertible bond is a type of debt security that provides an investor with a right or an obligation to exchange the bond for a predetermined number of shares in the issuing company at certain times of a bond’s lifetime. It is a hybrid security that possesses features of both

debt and equity [13]. Convertible securities usually have a lower coupon payout than comparable securities that do not have the conversion feature. This is to compensate for the advantage of converting to a Stock when the need arises.

Lifetime of Convertible Bond



Floating Rate Notes: A floating rate note, often known as a floater or FRNs, is a debt security that offers interest payments which reset on predetermined dates based on a reference rate. The reference rate is the interest rate or index used in the coupon formula to determine the amount of interest that accrues on the security. The most common indices used for floaters include the London Interbank Offered Rate (LIBOR), Prime rate, Fed Funds Effective rate, and U.S. Treasury Bill rate (T-Bill). Other short-term indices such as Constant Maturity Treasury (CMT), Cost of Funds Index (COFI), and Federal Reserve Commercial Paper Composite (CP) are also be used as the reference rate. Thus, the coupon rate on a floating rate note is variable.

The coupon rate for FRNs is calculated as below:

$$\text{Coupon rate} = \text{Reference rate} + \text{Spread}$$

Spread is the margin that an issuer adjusts to the reference rate and is generally expressed in basis points [14].

Zero-Coupon Bonds: Zero-coupon bonds do not pay interest during the life of the bond. Instead, investors buy zero coupon bonds at a deep discount from their face value, and when the bond matures then face value is returned to the investor. So, discount at the time of buying is the profit to the investor. Because zero coupon bonds pay no interest

until maturity, their prices fluctuate more than other types of bonds in the secondary market [15].

Price of Zero-Coupon Bond can be calculated using below formula:

Price of Zero-Coupon Bond = Face Value / $(1 + \text{interest rate})^{\text{years of maturity}}$

To calculate the present value of a zero-coupon bond with a face value of \$1000 maturing in 3 years and current interest rate is 5%, above formula can be used.

Price of Zero-Coupon Bond = $1000 / [1 + (5/100)]^3 = \863.84

Inflation-linked Bonds: Inflation-linked Bonds are most typically debts issued by sovereign nations whose nominal interest rate is adjusted, either up or down, by an inflation measure [16]. They are designed to eliminate the risk of unexpected inflation to the holders of the bonds [17]. The main risk of trading on an inflation-linked bond is volatility generated around inflation measures announcements and illiquidity.

Example: An inflation bond of \$1,000 is issued that offers a coupon rate of 3%. In the first year, the bondholder would receive an income of \$30 in the form of coupon payments. Assuming a 2 percent inflation rate, the value of the bond's principal would rise to \$1,020 in the second year, and the bondholder would receive an income or the coupon payment of \$30.60 in that year. This \$30.60 reflects the 2-percent inflation adjustment. In the subsequent years, inflation would continue to add to the principal value and to future income. At maturity, the principal, now larger by the amount of inflation during the life of the bond, would be returned [18].

Each type of bond offers unique features, risks, and potential returns. Investors choose bonds based on their investment objectives, risk tolerance, and market conditions to build diversified portfolios and achieve specific financial goals.

4. Conclusion

Understanding Bonds is a vast topic, and everything cannot be covered on a single paper. In this paper a few different types of Bonds have been explained, but there are many more types of Bonds that are even more complex. Bond investors can choose from many different investment strategies, depending on the role or roles that bonds will play in their investment portfolios.

References

- [1] Martellini, Lionel, Philippe Priaulet, and Stéphane Priaulet. Fixed-income securities: valuation, risk management and portfolio strategies. Vol. 237. John Wiley & Sons, 2003.
- [2] "Primary vs Secondary Share Markets", adityabirlacapital.com. Available at: <https://www.adityabirlacapital.com/abc-of-money/primary-vs-secondary-share-markets>
- [3] R. Cautero. "What Is the Face Value of a Bond?", finance.yahoo.com. Available at: <https://finance.yahoo.com/news/face-value-bond-151314119.html>
- [4] Babson, Roger Ward. Bonds and stocks: the elements of successful investing. Babson's statistical organization (incorporated), 1914.
- [5] B. Reed. "What are government bonds?", theguardian.com. Available at: <https://www.theguardian.com/world/2016/aug/13/what-are-government-bonds>
- [6] E. Chang. "6 Things to Know About Government Bond Investing", usnews.com. Available at: <https://money.usnews.com/investing/bonds/slideshows/t-hings-to-know-about-government-bond-investing?onepage>
- [7] M. Kazi. "Corporate Bonds", fe.training. Available at: <https://www.fe.training/free-resources/financial-markets/corporate-bonds/>
- [8] "Investor Bulletin: Municipal Bonds – An Overview", sec.gov. Available at: https://www.sec.gov/oiea/investor-alerts-and-bulletins/ib_munibondsoverview
- [9] J. Cummins. "How do Municipal Bonds Work?", municipalbonds.com. Available at: <https://www.municipalbonds.com/education/the-basics-of-municipal-bonds/>
- [10] J. Chen. "Agency Bond: Definition, Types, and Tax Rules", investopedia.com. Available at: <https://www.investopedia.com/terms/a/agencybonds.asp#:~:text=What%20Is%20an%20Agency%20Bond,also%20known%20as%20agency%20debt.>
- [11] "Non-sovereign Governments, Quasi-government Entities, and Supranational Agencies", analystprep.com. Available at: <https://analystprep.com/cfa-level-1-exam/finance/non-sovereign-bonds/#:~:text=Supranational%20Bonds&text=Some%20examples%20include%20the%20World,coupons%20and%20principal%20at%20maturity.>
- [12] A. Abourjeili, J. Straker. "The Role of Asset-Backed Securities in Short-Term Portfolios", westernasset.com. Available at: <https://www.westernasset.com/us/en/research/whitepapers/asset-backed-securities-2019-11.cfm>
- [13] A. Sparks. "Are convertible bonds more like equities?", msci.com. Available at: <https://www.msci.com/www/blog-posts/are-convertible-bonds-more-like/0598317061>
- [14] "A Primer on Floating-Rate Notes", fanniemae.com. Available at: <https://capitalmarkets.fanniemae.com/media/1456/display>
- [15] M. Kazi. "Zero Coupon Bonds", fe.training. Available at: <https://www.fe.training/free-resources/financial-markets/zero-coupon-bonds/>
- [16] J. Voss. "Global Inflation-Linked Bonds: A Primer", cfainstitute.org. Available at: <https://blogs.cfainstitute.org/investor/2016/11/04/global-inflation-linked-bonds-a-primer/>
- [17] "Risks and Rewards of Inflation-Linked Bonds", nbim.no. Available at: <https://www.nbim.no/en/publications/discussion-notes/2012/risks-and-rewards-of-inflation-linked-bonds/>
- [18] Hammond, P. Brett. "Understanding and using inflation bonds." TIAA-CREF Research Dialogue 73 (2002).