

Bonds

A bond is a debt instrument that, in simple terms, is nothing more than a loan from one party to the other. The amount borrowed is known as the face value or par value.

The party that sells the bond is called the issuer.

As in most forms of loans, the issuer of the bond must pay the buyer of the bond or the holder interest for the privilege of using the buyer's money at a predetermined rate and schedule.

The interest rate is referred to as the coupon. Bonds pay interest generally every six months but this can be monthly, quarterly or annually. The coupon is expressed as a percentage of the par value. For example, if a bond has a par value of €5000 and offers a coupon value of 10%, it will pay €500 annually.

The coupon can be fixed as in the example above or can float by being tied to market rates through an index.

Upon the issuance of a bond, all its future payout are calculated and are fixed; the par value may vary however according to conditions in the market.

The date on which the issuer must repay the funds borrowed is called the maturity date.

Bonds are mostly fixed income instruments because one knows exactly the amount that will be received if one holds the bond until the maturity date.

Bonds are debt and the holder of a bond becomes the creditor of the issuer. This is important because if the issuer goes bankrupt creditors, according to the law, have preferential treatment over others such as stock holders.

Please note that the bond does not confer to the holder any right of ownership over the issuer of the bond. A bond simply states that its holder is the creditor of the issuer and nothing more.

In general, bonds return less profit than stocks but bonds are much more stable and therefore, less risky. This is exactly what makes them an attractive proposition for many investors who wish to mitigate the risks involved in other activities such as stock trading.

Generally, investors will hold part of their portfolio in bonds to offset the risk involved in other activities.

The issuer determines the quality of a bond

Probably the most important factor in deciding the quality of a specific bond is the issuer or the entity that has issued the bond. The issuer's stability is the most important assurance that an investor will be paid when the maturity date arrives.

To provide investor's with information on the health of company's or governments that issue bonds, several financial services are providing information on the quality of bond issuers. Services such as Standard & Poor's, Moody's Financial Service and Fitch Investor Service provide a rating system that classifies all bond issuers according to the probability of defaulting on the payment of a bond according to their financial health and profit potential.

Ratings usually begin with at "AAA" for the highest quality bonds and end at "D" for the lowest quality bonds. In Table 1 below you can see the ratings system of the main ratings financial service providers.

Table 1: Bond rating systems

STANDARD & POOR'S	MOODY'S / FITCH	GRADE	QUALITY
Aaa	AAA	Investment	Highest quality
Aa	AA	Investment	High quality
A	A	Investment	Strong
Baa	BBB	Investment	Medium Grade
Ba, B	BB, B	Junk	Speculative
Caa / Ca / C	CCC / CC / C	Junk	Highly speculative
C	D	Junk	In default

These rating systems have come to reflect the financial state of a company and great importance is attached to the rating assigned to a company by one of the major rating service providers.

In addition to the ratings provided by financial service providers such as the ones named above, many large banks and financial institutions have their own internal rating systems that they apply to their customers or potential customers.

Yield & Yield to maturity

Investors need to calculate the return on an investment in bonds. Two concepts can be applied on such a calculation.

The first concept is the yield of a bond.

The calculation of the yield is rather straightforward and is done according to the following formula:

$$\frac{\text{Coupon Amount}}{\text{Price}}$$

To demonstrate the concept above with an example, think of a bond with a par value of €5000 with a coupon of 12%. The yield of the bond in question would also be 12%. If the price of the bond decreased, the yield would increase and vice versa.

The problem with this concept is that it is rather theoretical and simplistic.

Traders are using another concept instead that is more complex and accurate: the yield to maturity. The yield to maturity shows the total return the investor will receive if the bond is held until maturity. The yield to maturity equals all the interest payments that the investor will receive plus any gain or loss.

The calculation of the yield to maturity is a lot less straightforward than the previous theoretical calculation and is done according to the formula below:

$$C(1+r)^{-1} + C(1+r)^{-2} + \dots + C(1+r)^{-n} + B(1+r)^{-n} = P$$

In the formula above, P is the purchase price of the bond, B is the par value, n is the number of years to maturity and C the annual coupon payment. The unknown quantity in the formula is the yield to maturity.

Types of bonds

Bonds are categorized according to the issuer of the bond. As we have mentioned above, the issuer of the bond is the factor that is the most important in determining the quality of the bond.

The first type of bonds is bonds issued by sovereign governments and are called government bonds. These bonds are generally the most secure bonds since countries do not easily go bankrupt. This does not mean that countries never go bankrupt: in the last three decades it has happened several times that a sovereign state has defaulted on payments.

Government bonds generally have a maturity date that lies between two and thirty years from the issuance date. Bonds for longer periods have been issued by are very uncommon.

The issuer of the bond is once again the determining quality in rating a bond.

Third world and developing countries carry a significant risk, developed countries are much more stable and the risk is negligible.

For example, the United States, Germany and France are countries with stable economies that will not easily go bankrupt. Bonds issued by such countries are referred to as risk-free assets. To the contrary, bonds issued by a country such as Afghanistan or Somalia are rather risky propositions since no-one is certain that these states will be in a position to repay their debts.

The second type of bonds are the bonds issued by local governments and are called municipal bonds. These bonds are the second most stable type of bond in existence, after the government bonds.

This does not mean however that these bonds are risk free; many local governments go bankrupt and default on their payments. This is not a problem unique to Third world and developing countries only; several US local governments have gone bankrupt in the last three decades.

In a large number of cases, there are significant tax incentives offered to investors for government and municipal bonds.

The third type of bonds are the bonds issued by private companies and corporations and are called corporate bonds.

Any private company can issue bonds. These bonds are the ones involving the most substantial risk since it does happen quite often that companies that have issued bonds go bankrupt and cannot repay their debts. Valuable information regarding the quality of a bond can be gained through the investor services that we mentioned above and their respective rating systems.

Corporate bonds that have a maturity date that lies within five years are called short term bonds. Corporate bonds with a maturity date between five and twelve years are called intermediate bonds. Long-term bonds are the bonds with a maturity date after twelve years.

Another important type of bonds are the bonds that offer no coupon payments but are issued at a discount against their par value; these bonds are called the zero coupon bonds.

In this case, the investor buys a bond for less than its par value. For example, a bond worth €5000 is sold at €4000. In other words, the investor pays €4000 today for a bond worth €5000 when the maturity date arrives.