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# Fixed interest library

Volume one: bonds



This is the first issue in a series of papers that aims to demystify a number of fixed interest concepts. In this issue we will examine bonds – what they are, the different types that exist, how they are traded and why they change in value.

## What is a bond?

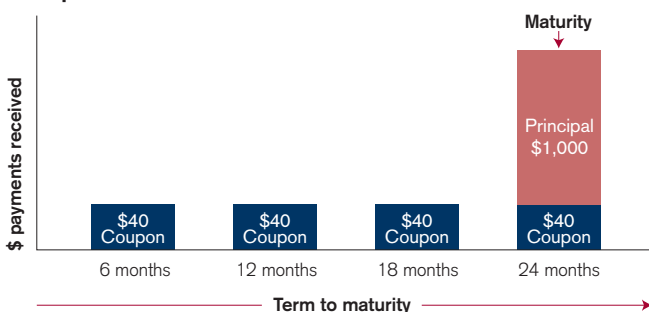
A bond is a security that pays interest, often at a fixed rate. It is a form of lending by the investor to governments, state governments or corporates.

The key components of a bond are as follows

- The coupon (interest) – usually paid half yearly reflecting the cost to the borrower of borrowing money
- The principal (face value) – the repayment of the original sum lent to the borrower
- Term to maturity – the life of the bond, ie. 1 year, 3 years, 10 years etc

For example, a 2 year bond with a face value of \$1,000 paying an 8% coupon (interest rate) will pay an investor \$80 a year, in payments of \$40 every six months. At maturity, in this case 2 years, investors will also receive the principal (face value) of the bond, ie. \$1,000. These components are shown in the diagram below.

## Components of a bond



## What types of bonds are there?

### Government bonds

Government bonds are issued directly by a government. In Australia, the Federal government issues Commonwealth Government Securities (CGS). These bonds are of the highest credit quality as they are fully backed by the federal government. Governments issue bonds in order to raise cash for government spending.

### Semi government bonds

Semi government bonds are issued by state governments and other entities that have a government guarantee (eg. utility companies) and offer yields slightly higher than Commonwealth Government Securities. Funds raised from semi government bond issues will be used for state government spending and to fund major projects (eg. to build a power station).

### Corporate bonds

Corporate bonds are issued by large public companies in order to fund expansion plans or major projects. They differ to government bonds in both yield and credit quality. Because corporates have a higher risk level (hence lower credit rating) than governments and semi governments, they usually offer higher yields to compensate for the additional risk being taken.

### Floating rate notes

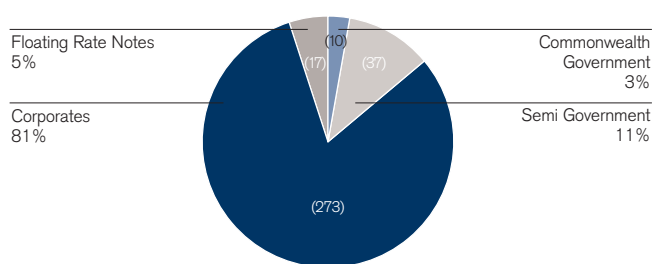
As opposed to many securities that have a predetermined set rate of interest, floating rate notes (FRNs) are bonds whose coupon is periodically adjusted according to the level of some floating index, known as the reference index. These notes generally pay lower yields than fixed rate bonds, but provide protection against rising interest rates (since the floating index will reflect current interest rates).

### Inflation linked bonds

Inflation linked bonds (ILB's) are issued by the federal government, semi governments and corporates. They protect against increases in inflation. This is because the coupon and/or face value is linked to the rate of inflation. They are sometimes referred to as 'Real' bonds while those not indexed for inflation are termed 'Nominal' bonds.

Each type of bond mentioned above makes up a certain percentage of the market as shown in the following diagram:

### Australian bond market by sector and number of securities



Source: UBS.

(xx) = number of securities within sector available for sale to investors

### How are bonds traded?

New bond issues are sold through a tender or auction process run by a number of authorised brokers. Unlike equities, most of the bond market does not trade through a central 'secondary market' system run by the Australian Stock Exchange. In Australia, bonds are traded 'over the counter', ie. sold directly by brokers and banks either by phone or electronically. This is due to the cost benefits of this system over the charges imposed by the stock exchange.

When buying or selling bonds, rather than paying a set 'commission' as with shares, the bond price will include a mark up which incorporates the dealer's costs and profit. Prices for a particular bond can vary between dealers depending on the size of the transaction and the availability of the bond being traded, ie. supply and demand factors will have an effect.

### Why do bonds change in value?

Fixed interest portfolios are valued based on the concept of 'marked to market'. This means that the portfolios must be revalued each day to reflect changes in the value of individual securities.

Changes in the value of individual bonds occur as a result of expectations about future changes in the cash rate or inflation rate. The traded price of a bond reflects the return demanded on a bond, which is also referred to as the 'yield'. Usually, the return demanded is at least the prevailing cash rate (since the investor could earn this by simply investing in cash), and also incorporates some anticipation for future inflation.

### For example.

If the current cash rate is 5.5% and you are seeking a higher return than the cash rate so you decide to buy a new bond that is issued with a face value of \$1,000, paying a 6% coupon and has 2 years to maturity.

Over the course of the first year of owning the bond, the RBA raises the cash rate and it now stands at 6.25%. You decide to sell your bond because you can now earn a 6.25% return on cash, rather than having your money tied up in the bond until it matures in one years time. Any rational investor, given the option of earning 6% on a bond, or 6.25% in cash, will prefer the cash return because of the higher return and lower risk. Therefore in this example, in order to make the bond an attractive investment it must be sold at a 'discount', ie. an amount below the face value of \$1,000. So the price of the bond will fall to a level that results in a 'yield' of more than 6.25%.

The reason the bond's traded price has fallen is because the coupons and principal are fixed – it is only the price that can change. This brings the yield of the bond into line with prevailing interest rates and makes the bond a viable investment again.

When someone talks about the yield on a bond, they are talking about the return demanded on the bond. It is a rule of thumb that when the yield on a bond goes up, the price goes down (and vice versa). It is for this reason that changes in the level of interest rates typically have an immediate (and predictable) effect on bond prices.

The value that is recorded in the portfolio's accounting records must be based on the prevailing market price for that bond. As we have seen above, the price of that bond depends upon the 'value' of that bond in comparison to other interest bearing securities available in the market place. The 'marked to market' principle means we must always value bonds at the price that a rational investor would be prepared to pay for them at a given point in time.

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