

# UBS and Auction Rate Securities (A)

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# BONDS/Fixed Income Securities

- Bond is an instrument of indebtedness of the bond issuer to the holders
- a debt security, under which the issuer owes the holders a debt and, depending on the terms of the bond, is obliged to pay them interest and/or to repay the principal at a later date, termed the maturity
- Interest is usually payable at fixed intervals

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Bonds and stocks are both securities, but the major difference between the two is that (partial) stockholders have an equity stake in the company, whereas bondholders have a creditor stake in the company. Another difference is that bonds usually have a defined term, or maturity, after which the bond is redeemed, whereas stocks are typically outstanding indefinitely.

**Face value**  
Bonds are issued in units of \$1,000, which are called the face value or par value. The issuer guarantees to pay the face value at the maturity date.

## Coupon

The coupon is the interest rate that the issuer pays to the holder. Usually this rate is fixed throughout the life of the bond.

**Yield**  
The yield is the rate of return received from investing in the bond.

## Market Price

The market price of a bond is the price at which the bond is currently trading. The market price is determined by the supply and demand for the bond. The market price can be higher or lower than the face value of the bond.

## Types of Bonds

- Fixed rate bonds
- Floating rate notes
- Zero-coupon bonds
- High-yield bonds
- Subordinated bonds
- Covered bonds
- Perpetual bonds
- Serial bonds

## Principal

Nominal, principal, par or face amount is the amount on which the issuer pays interest, and which, most commonly, has to be repaid at the end of the term.

## Maturity

The issuer has to repay the nominal amount on the maturity date. As long as all due payments have been made, the issuer has no further obligations to the bondholder after the maturity date.

## Fixed Income Securities

- Fixed income refers to any type of investment under which the borrower/issuer is obliged to make payments of a fixed amount on a fixed schedule
- The term "fixed" in "fixed income" refers to both the schedule of obligatory payments and the amount.

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### Terminologies

- The issuer is the entity (company or government) who borrows the money by issuing the bond, and is due to pay interest and repay capital in due course.
- The principal of a bond – also known as maturity value, face value, par value – is the amount that the issuer borrows which must be repaid to the lender.
- The coupon (of a bond) is the annual interest that the issuer must pay expressed as a percentage of the principal.
- The maturity is the end of the bond, the date that the issuer must return the principal.
- The issue is another term for the bond itself.
- The indenture, in some cases, is the contract that states all of the terms of the bond.

### Risks

- inflation risk
- interest rate risk
- currency risk
- default risk
- liquidity risk
- political risk
- market risk
- event risk

# Bond Value General Formula

$$B = I \times \left[ \frac{1 - \frac{1}{(1+k_b)^n}}{k_b} \right] + F \times \frac{1}{(1+k_b)^n}$$

Where:

I = interest (or coupon ) payments

$k_b$  = the bond discount rate (or market rate)

n = the term to maturity

F = Face (or par) value of the bond

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Bond Valuation: Example



# Bond Valuation: Semi-Annual Coupons

-To adjust for semi-annual coupons, we must make three changes:

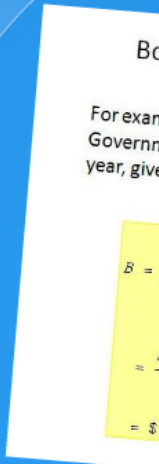
1.Size of the coupon payment (divide the annual coupon payment by 2 to get the cash flow paid each 6 months )

2.Number of periods (multiply number of years to maturity by 2 to get number of semi-annual periods)

3.Yield-to-maturity (divide by 2 to get the semi-annual yield)

4.Once you solve for the semi-annual yield, you will want to convert it back to an annualized rate of return (YTM).

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# Interest Rate Determinants

Interest is the “price” of money

- Interest rate changes are often measured in Basis points – 1/100 of 1%

Interest rates go:

- Up – when the demand for loanable funds rises
- Down – when the demand for loanable funds falls

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# Risk-free Interest Rate

The risk-free rate is comprised of two components:

- Real rate – compensation for deferring consumption

- Expected inflation – compensation for the expected loss in purchasing power

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# Term Structure of Interest Rates

- Is that set of rates (YTM) for a given risk-class of debt securities (for example, Government of Canada Bonds) at a given point in time.
- When plotted on a graph, the line is called a Yield Curve
- The Yield Curve is the graph created by putting term to maturity on the X axis, YTM on the Y axis and then plotting the yield at each maturity.
- The four typical shapes of yield curves:
  - 1.Upward sloping (the most common and persistent shape historically when short-term interest rates and inflation are low)
  - 2.Downward sloping (occurs at peaks in the short-term interest rate cycle, when inflation is expected to decrease in the future)
  - 3.Flat (occurs when rates are transitioning)
  - 4.Humped (occurs when rates are transitioning or perhaps market participants are attracted in large numbers to particular maturity segment of the market)

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