Chapter 6 Summary – Fixed Income Securities Valuation

Bonds: debt-securities, issued by corporations, governments and other organizations. A bond promises to pay the holder a series of periodic interest payments (coupons), in addition to returning the principal at maturity.

Coupon: stated interest pmt made on a bond

Face Value: The principal amt of a bond that is repaid at maturity, aka par value.

$$\text{coupon rate} = \frac{coupon}{FaceValue}$$

Maturity: specified date on which the principal amt of a bond is paid.

Yield to Maturity (YTM): the rate required in the market on a bond. Note that YTM is reported as an APR, as well as the coupon rate.

- If a bond's price is above its face value, it is said to be selling at a premium. (the YTM is lower than bond's coupon rate)
- If a bond's price is below its face value, it is said to be selling at a discount bond. (the YTM is higher than bond's coupon rate.)
- If a bond's price is equal to its face value, it is selling at par.

Interest rate risk: fluctuations in the price of a bond, due to changing market interest rates.

- Ceteris paribus, the longer the time to maturity of a bond, the more sensitive is its price to interest rate changes.
- Ceteris paribus, the lower the coupon rate of a bond, the more sensitive is its price to interest rate changes.

Debt v. Equity

1. Debt is not ownership. Creditors of a company/organization do not have voting power.
2. Interest on debt is an expense and is tax deductible. Dividends are not tax deductible.
3. Unpaid debt is a liability. It can lead to liquidation or reorganization, which are consequences of bankruptcy/insolvency.

Asset Backed Securities v. Debenture

The payment on an asset-backed "bond" is "secured" by a pledged asset, such as real estate, equipment, financial assets, etc. A debenture is a general obligation "bond." Indenture: the agreement between the debt issuer and the creditors, which details the terms of the bond. Also called a deed of trust. It is a loan contract for publicly placed debt.

There is usually a trustee (generally, a financial institution). The trustee acts in the best interest of creditors. Trustees are usually responsible for managing sinking funds, enforcing covenants and other terms of the indenture.

Features of a Bond

registered v. bearer bonds (refer to book)

note: unsecured debt with maturity of less than 10 years.

collateral v. mortgage securities: A collateral, strictly speaking, is a pledged financial asset, such as Treasury notes, common stock or other marketable securities. Mortgage securities are backed by tangible assets.

Seniority of a bond:
Junior v. senior debt; subordinated debenture (refer to book)

Sinking fund: an account managed by bond trustee for early bond redemption. The fund, paid by the debt issuer, can be used for the specified purpose only.

Call provision: Some bonds may be called back by the issuer at a predetermined price, or at a price that can be calculated using a formula set in the indenture. These bonds are called callable bonds.

Call premium= call price – face value

Deferred call provision: The bonds can be called back by the issuer only after a certain amt of time has passed since the issue date. During this initial period, bonds are said to be "call protected."

Convertible bonds: can be converted to common or preferred stock at a predetermined rate (conversion rate), at the request of the bondholder.

Protective covenants: part of the indenture that limits certain actions that might be taken during the term of the loan, in order to protect the creditors. Refer to book for examples of covenants.

After-tax v. before-tax yields

If interest pmts on bonds are not taxed at the same rate, then they should be compared with respect to their after-tax yields.

After-tax yield = YTM X (1-t) , where t=marginal tax rate

Zero-coupon bond (deep discount bond): A bond that makes no coupon payments, and only returns the face value at end of maturity. It is initially priced at a deep discount.

Trading in the Bond Market

Bonds are traded over the counter. The secondary market for U.S. Government bonds is the one of the largest markets in the world, in terms of volume, far surpassing trading volume in NASDAQ and NYSE, combined.

The 30-year U.S. Gov. bond is known as the bellwether bond and its price and yield is considered a very important indicator of cost of long-term debt.

Refer to book for definitions of bid and ask prices, the spread and financial reporting of bond trading.

Real v. Nominal Rates

Real rate is nominal rate adjusted for inflation.
R=nominal rate
i=inflation rate
r=real rate

$$(1+r) = \frac{(1+R)}{(1+i)}$$

this can also be approximated as:
r = R – i

Term Structure of Interest Rates (Yield Curve)

How interest rates (yields) change on bonds with different maturities.

Three components of term structure are:

1. Real interest rate: investors demand a minimum real return from all investments in bonds.
2. Interest rate risk premium: as maturity increases, interest rate risk goes up, and investors demand a higher yield (a premium) as compensation for taking more risk.
3. Inflation premium: According to market expectations, investors demand a premium for inflation for bonds of different maturities, such that their real return will not fall below a certain minimum. The inflation premium determines the shape of the yield curve (humped, upward-sloping, downward-sloping, etc.)

The yield curve reported in the WSJ shows yields for US Gov. bonds with different maturities. The yield curve therefore has both coupon-paying government bonds as well as Treasury-bills (T-bills) which are zero-coupon bonds. The theoretical term structure is concerned with zero-coupon bonds of different maturities.

In addition to above-mentioned components of term structure, a bond's yield may contain:

1. default risk premium
2. taxability premium
3. liquidity premium

Refer to your class notes and the textbook for definitions.