CAPITAL MARKETS MASTERY PROGRAM - CPE CREDITS: 35

In-Person: NY Wall Street Campus
Duration: 1 Week (Full-time)
Teaching Mode: Live Instructor Classes
View Program

Virtual Live
Duration: 3 Weeks (Part-time)
Teaching Mode: Live Virtual Sessions
View Program

Self-Paced Online
Duration: 35 Hours (Learn at your pace)
Teaching Mode: Recorded Sessions + Q&A with Faculty
View Program

ESTABLISHED 1922
NEW YORK INSTITUTE OF FINANCE

Capital Markets Fundamental

Money-Market Instruments

Treasury Bills

Certificates of Deposit (CD's) · Short-or medium-term deposit in a bank or savings & loan for a stated time period, usually pays fixed rate of interest.

Commercial Paper - Short-term (less than 270 days), unsecured, unregistered, discounted, and negotiable promissory note sold by a company or bank to meet immediate cash needs, usually purchased by investors with short-term idle cash.

Repurchase Agreements (Repos) - Contract in which Investor sells a security, such as Treasury Bills, and agrees to buy them back at a specified time and price, buyer earns interest comparable to money market rates.

Fed Funds - Funds in excess of the reserve requirements that banks deposit in Federal Reserve Banks. The Federal Funds Rate is the interest rate on overnight loans of reserves between banks.

$$\text{Money Market Yield} = \left(\frac{\text{Face Value - Purchase Price}}{\text{Purchase Price}}\right)\left(\frac{360}{\text{\# days to maturity}}\right)$$

$$\text{BondEquivalentYield} = \left(\frac{\text{Face Value - Purchase Price}}{\text{Purchase Price}}\right)\left(\frac{365}{\text{\# days to maturity}}\right)$$

$$\text{DiscountBasisYield} = \left(\frac{\text{Face Value - Purchase Price}}{\text{Purchase Price}}\right)\left(\frac{360}{\text{\# days to maturity}}\right)$$

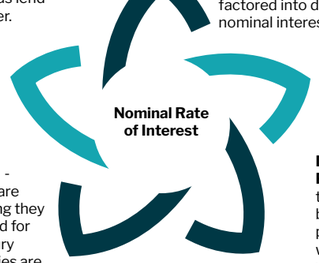
Time Value of Money

Valuing of cash flows received or paid at different points in time using a discount rate

Discount Rate - -Interest rate used to calculate the Present Value of cash flows

Real Risk-Free Rate - This assumes no credit risk or uncertainty and simply reflects differences in the preference to spend now and pay back later versus lend now and collect later.

Expected Inflation - If market expects prices to rise then the currency's purchasing power is reduced by the inflation rate. Inflation makes currency less valuable in the future and is factored into determining the nominal interest rate.



Liquidity Premium - Some investments are highly liquid, meaning they are easily exchanged for cash (i.e. U.S. Treasury debt). Other securities are less liquid and trade infrequently. Holding other factors equal, a less liquid security must compensate the holder by offering a higher interest rate.

Maturity Premium - A bond obligation will be more sensitive to interest rate fluctuations the longer the time to maturity

Default-Risk Premium - What is the chance that the borrower won't make payments on time, or will be unable to pay what is owed? This component will be higher or lower depending on the creditworth

Discounted Cash Flow

The value of an investment is the present value of all the expected future cash flows:

$$V_0 = \frac{CF_1}{1+r_1} + \frac{CF_2}{(1+r_2)^2} + \frac{CF_3}{(1+r_3)^3} + \cdots \qquad V_0 = \sum_{t=1}^{\infty} \frac{CF_t}{(1+r)^t}$$

Terms & Definitions

- **Coupon:** Periodic payment of interest by the bond issuer to the bond owner, usually semi-annual
- **Maturity:** Date of final payment of principal and last payment of interest, when a bond is retired
- **Treasury Yield Curve:** Shows the yields of treasuries of different maturities
- **Call Options:** Gives holder right to buy from the writer
- **Put Options:** Gives holder right to sell to the writer

Bond and Equity Markets

Bond Markets

- World-wide debt market cap is $217 trillion (327% of GDP), the Bond Market is bigger than the Stock Market
- Bonds have a maturity, institutional and over the counter, long term, enforceable contracts, could have collateral and covenants, trades based on trust and reputation, are issued by governments and corporations

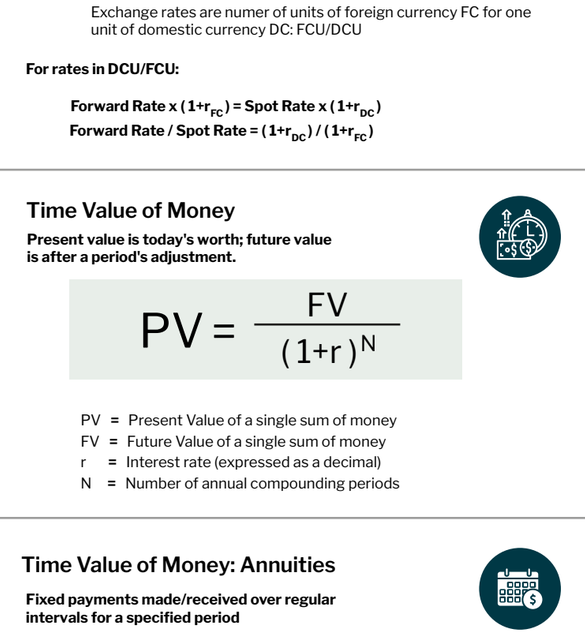
Bond types:
- International Bonds
- Floating Rate Notes
- Plain Vanillas or Straights
- Exotics
- Asset Backed Securities

Bond structures:
- Bullet
- Sinking Fund
- Serial Maturities
- Pass Through

Equity Markets

Primary Market - where new issues of a securities are sold for the first time, IPOs

Secondary Market - has trading of already issued securities



Equity Indexes, Valuations, and Investment Vehicles

Equity Indexes

- Help with benchmarking, analyze performance of market in relation to other equity markets, give a macro view of health of market
- Classifications: Market capitalization of securities (Large Cap, Mid Cap, Small Cap), Style (Growth or Value), Geography (US & other "developed" markets: Emerging Markets)

Equity Valuation

- Hard to assess as equities are forward looking instruments: look at projections of future
- **Valuation models**
- Dividend Discount Model

DDM for one-year holding period

$$V_j = \frac{D_1}{(1+k_e)} + \frac{SP_{j1}}{(1+k_e)}$$

- Where
- V_j = value of common stock j
- D_1 = dividend paid during period t
- SP_{j1} = sale price for stock j at end of year 1
- ke = required rate of return on common stock

DDM for a multi-year holding period

$$V_j = \sum \frac{D_t}{(1+k_e)^t} + \frac{SP_{jn}}{(1+k_e)^n}$$

where:
V_j = value of common stock j
D_t = dividend paid during year t
SP_{jn} = sale price for stock j at end of year n
k_e = required rate of return on common stock

Assumes dividends paid at end of each year
- Gordon Growth Model

Equity Investment Vehicles

Mutual Funds - Investment pools that agglomerate assets from investors so that they may be managed by professional investors, who then buy securities in an effort to profit from upward movement in prices
Exchange Traded Funds (ETFs) - Securities that track an index, a commodity or a basket of securities, but trade on an organized exchange, much like an individual equity
Hedge Funds - Actively managed investment vehicles that use leverage to actively trade multiple types of assets, including equities, fixed income, interest rates and commodities
Other vehicles - Private Equity and Venture Capital

Derivatives, Futures, Swaps, and Options

Derivatives

- A derivative is a contract between two parties involving the purchase or sale of an asset at a given price
- Global derivative market players are banks, corporations, hedge funds, individuals, governments, and institutional investors
- Used to hedge risks, make profit

Options

- Contract between two parties giving one party the right, but not the obligation, to buy or sell something to the other party at a specified price during a specified period of time
- Options protect against unfavorable price movements, but permit the holder to benefit from favorable price movement
- Options terminology: Call, Put, In-the-money, At-the-money, Out-of-the-money, Intrinsic value, Time value)

Credit Derivatives and Equity and Bond IPO

Credit Derivatives

- Off-balance-sheet financial instrument
- Permits one party (the "beneficiary") to transfer the credit risk of a "reference asset" which it may or may not own, to another party (the "guarantor") without actually selling the asset

Equity and Bond IPO Participants

- Primary market is where issuers raise capital. Home of IPOs and creation of new debt securities
- Secondary market is where investors trade previously issued securities.

IPO main participants: Company Management, Board of Directors, Counsel, Independent Accountants, Pre-IPO shareholders, Managing Underwriters, Underwriter's Counsel, Research Analysts, SEC

Supporting participants: Stock Exchange, Financial Industry Regulatory Authority (FINRA), Transfer agent, Depository Trust Company (DTC), CUSIP Service Bureau, Stock certificate supplier, Printer, Road show staff, Investor relations staff

Formulas and Graphs

Foreign Exchange

Spot rate is today's rate; forward rate is set for a future date.
For rates in FCU/DCU:

Forward Rate x (1+r_{DC}) = Spot Rate x (1+r_{FC})
Forward Rate / Spot Rate = (1+r_{FC}) / (1+r_{DC})

$_{DC}$ is the interest rate of domestic currency (DC)
$_{FC}$ is the interest rate of foreign currency (FC) and
Exchange rates are numer of units of foreign currency FC for one unit of domestic currency DC: FCU/DCU

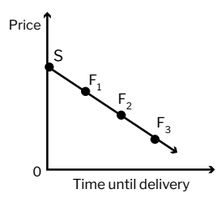
For rates in DCU/FCU:

Forward Rate x (1+r_{FC}) = Spot Rate x (1+r_{DC})
Forward Rate / Spot Rate = (1+r_{DC}) / (1+r_{FC})

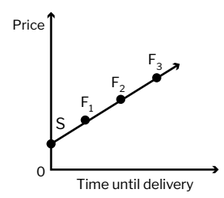
FX Forwards Carry

Gain/loss from interest differentials in forward FX positions.

Positive carry



Negative carry



Calculation of No-Arbitrage Forward FX Rate

Spot rate adjusted by interest differentials to negate risk-free arbitrage opportunities.

Forward Rate x (1+r_{FC}) = Spot Rate x (1+r_{DC})
Spot Rate / Forward Rate = (1+r_{FC}) / (1+r_{DC})

Example:
EUR: 1-Year Euribor Rate = **-0.2371%** Spot FX = 1.1752 USD/EUR
USD: 1-Year Libor Rate = **2.7640%** Forward FX = ???/EUR

Solution:
$ 1.1752/ F (0,1) = 0.997629 / 1.02764, so Forward FX = **1.2105*** USD/EUR

From Tullet Prebon market data F(0,1) = 1.1752 + .0361 = **1.2113*** USD/EUR

* A difference of about 8 pips which is the cross-currency basis (deviation from the rate predited by covered interest rate parity).

Time Value of Money

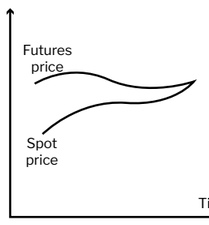
Present value is today's worth; future value is after a period's adjustment.

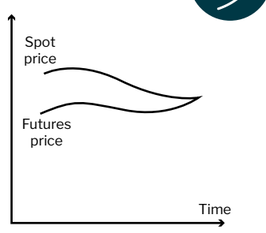
$$PV = \frac{FV}{(1+r)^N}$$

PV = Present Value of a single sum of money
FV = Future Value of a single sum of money
r = Interest rate (expressed as a decimal)
N = Number of annual compounding periods

Convergence

Future and spot prices approach each other as expiry nears.





Expected Return of a Portfolio

Weighted average of the expected returns of its individual assets.

$$E(Rp) = w1 * E(R1) + \ldots + wn * E(Rn)$$

E(Rp) = Expected return of the portfolio
wi = Weight of asset i in the portfolio
E(Ri) = Expected return of asset i
n = Number of different assets in the portfolio

Time Value of Money: Annuities

Fixed payments made/received over regular intervals for a specified period

$$PV = A\left[\frac{1 - \frac{1}{(1+r)^N}}{r}\right]$$

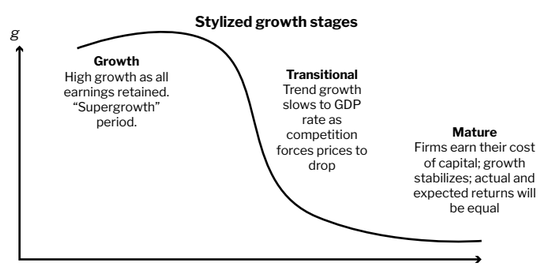
Where:
PV = Present Value of an ordinary annuity (with first payment beginning **next year**)
A = Annuity amount (payment)
r = Annual Interest rate
N = Number of years which annuity payments are made

Market capitalization = market price x number of shares outstanding

$$w_i^M = \frac{Q_i P_i}{\sum_{j=1}^{N} Q_j P_j}$$

w_i = fraction of portfolio allocated to security i (or weight of i)
P_i = share price of security i
Q_i = # of outstanding shares of security i
N = number of securities in index

Stylized growth stages



Weighted Average Cost of Capital (WACC)

Average rate a firm pays to fund assets using equity & debt

$$WACC = \frac{(k_d \times D) + (k_e \times E)}{(D + E)}$$

k_d = Cost of debt after tax
= R_d x (1-t)
D = Market value of target debt amount
k_e = Cost of equity
E = Market value of target equity amount