

Reading 44: Market Organisation & Structure

* Function of financial system

- Fin system includes mkt's & fin. intermediaries that help transfer financial assets, real assets & risk.

- People use fin. sys. for

- ↳ To save money for future

- ↳ To borrow money

- ↳ To raise equity capital

- ↳ To manage risk

- ↳ To exchange assets for immediate & future decise.

- ↳ To trade on info.

- Fin. sys. facilitate:

- ↳ Achievement of purposes for which ppl use fin sys

- ↳ Discovery of rate of ret. to equate agg. savings with agg. borrowing.

- ↳ Allocatn of capital to best uses.

- Best at fulfilling these roles when mkt's are liquid, trans cost ↓, info readily available

- Saving:

- ↳ Moving money from present to future

- ↳ Instruments like BANK DEPOSITS, BONDS, STOCKS

- Borrowing

- ↳ Entities often want to spend but don't have money
- ↳ Facilitates borrowing from savers.

- Raising Equity Capital

- ↳ Investment banks help companies issue equities, analyst value the securities that comp sell, regulators ensure meaningful financial disclosure.

- Managing risk

- ↳ Can hedge the risk using derivatives

- Exchanging assets for "immediate" delivery (spot market trading)

- ↳ Fin sys. facilitates asset exchanges when liquid spot mkt exist.

- Information-motivated trading

- ↳ Traders trade to profit from information they believe allows them to predict future prices
- ↳ Eg. active invest. mngt.

* Determining Rates of Return

- Saving, borrowing & selling equity are means of moving money through time
- Money can travel forward in time if equal amt of money travels backward
- If exp rate of return $\uparrow \Rightarrow$ Savers will move more money to future
- Equilibrium rate $\leftarrow$ Main functⁿ of fin. sys.
 - $\hookrightarrow$ Rate at which aggregate supply of funds = aggregate demand for funds.
- Diff. eq. rates for diff. securities (eg. short term T-bills, long term equity, corporate bonds etc) due to risk, liquidity & maturity

* Capital Allocⁿ Efficiency

- Primary capital markets are the mkt's in which companies & governments raise capital

- Economies are allocationally efficient when fin. syst. allocate capital funds to uses/projects that are most productive (i.e. Higher NPV/IRR)

* Classification of Assets & Markets

- Spot Markets
 - ↳ Trading quickly

- Forward Markets

• Primary Markets

- ↳ Issuer issues stocks to investors

• Secondary Markets

- ↳ Investors buy & sell shares with each other

• Money Market

- ↳ Short term liquid inst. are traded

• Capital Markets

- ↳ Bonds & equities are traded.

Real assets → Ill. Characterized by illiquidity

- Traditional invest mkt's
↳ Bonds, stocks
- Alternative Invest. mkt's
↳ Commodities, real estate, hedge funds
- Publicly traded securities
↳ Traded on public mkt
- Private securities
↳ Bought & sold among private equities

* Securities

- Fixed Inc. Sec [Bond: long term, Comm. paper: Short term, notes: Interm]
↳ Contractually include predetermined payment schedule that usually include interest & principal payments
↳ Government issue bills & banks issue certificates of security deposits
- Equities
↳ Represent ownership rights in companies
↳ Preferred shares vs common shares
↳ Warrants (Long call optⁿ)

← Scheduled dividends

Asset-backed securities

ETF: Trade like close-end funds. aka. Depository receipts

• Pooled investments

↳ Mutual funds, trust, ETF's, hedge funds

↳ Mutual Fund: Investors can either purchase from fund (open end) or in secondary mkt (closed-end)

• Contracts

↳ Agreement among traders to do something in the future

↳ Also called derivative contracts

↳ Physical vs Cash Settlement

↳ Physical vs Financial contracts

↳ All contracts for difference are cash settled

↳ Major types of contracts

↳ Forward contract

↳ Not traded on exchanges or dealer mkt

↳ Future contracts

↳ Standardized

↳ Clearinghouse guarantees perf. of all traders

↳ Liquid

↳ Traded on exchange

↳ Swap contracts

↳ Agreement to exchange payments of periodic CF that depend on future asset prices or interest rates

↳ Currency Swap :- Loan in one curr for loan in another curr

↳ Commodity Swap :- Fixed paym. in exch. for pay. that depend on future price of an commod

↳ Equity Swap :- Parties exch. fixed cash payments for pay. that depend on return on stock or stk index.

↳ Options Contract

↳ Traded on exchange

↳ Customized opt^r available on OTC mkt

↳ Insurance contracts

↳ Pays a cash amt if future event occurs.

↳ Have tax-advantaged payouts

↳ Credit default swaps

↳ Similar to insurance

• Currencies

↳ Issued by gov's central bank.

↳ Reserve currencies :- Those held by gov & central banks

↳ In spot currency mkts, currencies are traded for immediate delivery.

- Commodities

- ↳ Trade in spot, futures & forwards market

- ↳ In futures & forwards,

- No need to deliver or store physical commodities.

- Real Assets

- ↳ Increasingly being held by investors both directly & indirectly → (REIT or master limited partnership)

- ↳ Benefits: Income & tax benefit

- ↳ Entail substantial mgmt cost

- ↳ Illiquid.

- ↳ Indirect more liquid than direct

- X Financial Intermediaries

- Stand b/w buyers & sellers. They provide products & services which help connect buyers to sellers.

- Brokers

- ↳ Agents who fill orders for their clients.

- ↳ They do not trade with their clients, but search for traders who are willing to take the other side of their client's orders.

- ↳ Block Brokers - Provide brokerage service to large traders

- Invest. banks provide advice & help companies raise capital by issuing securities & M&A

- Exchanges

- ↳ Place where traders can meet to arrange their trades
- ↳ Regulate their members → Permission by gov. or member agreement.

↳

- Alternative Trading Systems

- ↳ Like exchanges but not regulatory authority
- ↳ Also called Electronic Comm. Netwk (ECN) & Multilateral Trading Fac. (MTF).

- ↳ Dark Pool:- ATS who do not report any current client trade

- Dealers

- ↳ Fill their clients orders by trading with them.
- ↳ Have their own inventory.
- ↳ Provide Liquidity
- ↳ Profit from bid-ask spread.
- ↳ Broker-Dealers

- ↳ Dealers who also act as brokers

- ↳ Creates potential conflict of interest

- ↳ Primary Dealers:- dealers trading w/ banks, gov.

Securitizers

↳ Process of buying assets, placing them in a pool & then selling assets that represent ownership of pool is called securitization.

Eg. A comp. buys lends out loan in the form of mortgages like 30 ypr. The comp. then pools every all the loan & creates a Mortgage backed security so that now the loans have become asset for the firm. The investors then lend their money through MBS. This process of pooling buying assets (ie. lending loans), pooling & selling (MBS) is called securitization.

↳ Improves liquidity as it allows investors to buy mortgages indirectly

↳ Reduces cost of borrowing for homeowners.

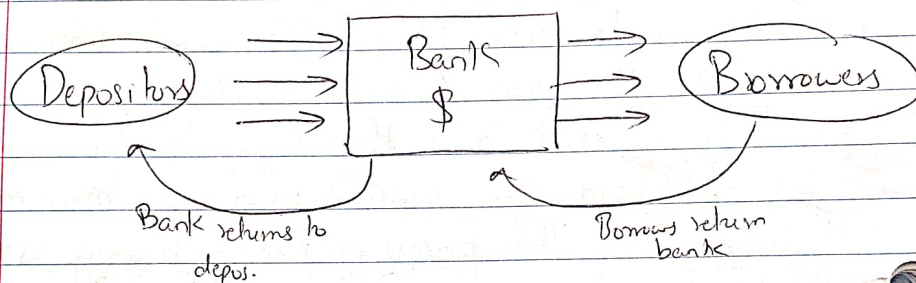
↳ Decreases funding cost for assets in the pool. firm may setup Special Purpose Vehicle (SPV) or Special Vehicle Purpose Entity (SPV)

↳ Diff risk categories are called tranches

↳ Junior tranche → Most risk

- Depository Institutions

- ↳ Include commercial banks, savings & loan banks, credit unions that raise funds from depositors & other investors & lend it to borrowers



- ↳ Borrowers' return rate $>$ Bank's return rate
 - ↳ Security brokers that provide loans to hedge funds are called 'prime brokers'.

↳ On next page

- Insurance Companies

- ↳ Transfer risk from those who buy the contracts to those who sell them.

- ↳ ^{Collect} Provide risk premium $\Rightarrow$ In return of providing protect from risk

- ↳ Provides protection to diversified pool of policyholders whose risks of loss are uncorrelated.

- Stockholders of banks, brokers & other intermediaries to absorb any loan losses before anyone else

- ↳ Diff. types of hazards that occur:

↳ Moral hazard :-

↳ Insured may take more risks once he is protected ^{against} by losses.

↳ Adverse Selection

↳ Those most likely to experience losses are the predominant buyers of insurance

↳ Fraud

↳ Insured purposely causes damage so he can collect on his insurance policy.

- Arbitrageurs

↳ Provide liquidity to other traders

↳ Connects buyers & sellers who arrive at same time but in diff. mkt

- Clearing house

↳ Help clients settle their trade.

↳ Guarantee contract performance & ^{eliminates} eliminates

counterparty risk

↳ May act as escrow agents

- Custodians
↳ Hold securities on behalf of their clients.

* Positions

Long & Short Positions

- Hedgers
↳ Short in one asset to hedge an existing risk from a long position in another asset that has returns that correlated with the returns of asset shorted.
- In swaps and currencies
Each party is long one asset & short the other, so the designation of long & short side is arbitrary.
- For short side

SHORT SALES & POSITIONS

- The short seller
↳ Simultaneously borrows & sells securities thru broker
↳ Must return security to lender afterwards
↳ Must keep portⁿ of proceeds of short sale on deposit w/ broker.

- Covering the short positⁿ
↳ Repayment of borrowed security
- Payments-in-lieu
↳ Short seller paying all dividends/interest that the lender would have received from security
- Short seller must also deposit the proceeds of short sale as collateral to guarantee repurchase of security
- Short rebate rate
↳ Rate at which broker returns part of his interest to short seller.
- Return to lender = Interest earned on proceeds - short rebate paid.

Leveraged Position

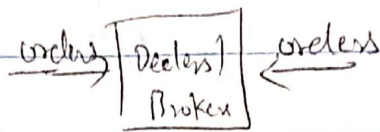
- Use of borrowed funds to purchase an asset
- Investors who use lever. to buy securities are said to buy on margin
- Margin loan: Borrowed funds
- Money rate: Interest rate paid on funds.

- Initial margin requirement
↳ Minimum amt of equity (part of stock) that they need to contribute.
- Maintenance Margin requirement
↳ Minimum equity % an investor must maintain to ensure that the loan is covered by value of asset.
- Leverage ratio
↳ Value of asset divided by value of equity position.
- Margin Call
↳ If % of equity in a margin acc falls below maintenance margin requirement, the investor will receive a margin call to bring it back up to maint margin %.

$$\text{Margin Call Price} = P_0 \left(\frac{1 - \text{initial margin}}{1 - \text{maintenance marg.}} \right)$$

Initial purchase price

Orders



- Buyers & sellers communicate with entities that arrange their trades by issuing orders.
- All orders specify
 - ↳ What instr. to trade
 - ↳ How much to trade
 - ↳ Whether to buy/sell.
- Most orders have additional information
 - ↳ Execution instruct: How to fill the order
 - ↳ Validity instruct: When orders may be filled
 - ↳ Clearing instruct: How to arrange final settle
- In many mkt's dealers are willing to buy/sell from traders.
 - ↳ Bid/ask price
 - ↳ Bid/ask size/qty.
- Quotations in markets: Highest dealer bid & lowest dealer ask
- Make a market → Traders who post bids & asks
- Take the market → Those who trade with the trader

Execution Instructions

Market Order

- Buy or Sell
- Obtain best prices immed. when filling the order
- Appropriate to execute when trader has some info & wants to trade quickly
- Disadv: They may execute at unfavorable prices.

Limit Order

- Limit Buy or Limit Sell
- Obtain best
... available but do not accept price higher than limit price while buying & lower than limit price while selling
- Disadv: It might not be filled.

- Marketable or Aggressively priced
↳ If limit buy order above best ask & limit sell below best bid

- Making a new market / Inside the market
↳ If the limit price is btr best bid & best ask price

- Standing limit orders

↳ Orders waiting to be executed.

- Make the mkt

↳ Limit buy order at best bid &

Limit sell order at best ask.

- Bids Offers.

\$50,200 (A)

← Behind the mkt

\$49,300 (B)

\$48,100 (C) → Best offer at mkt

↕ Marketable limit orders

(D) \$45,250 → Best bid

(E) \$44,350

← Behind the mkt

- All-or-nothing orders (Volume based)

↳ Execute only if whole order can be filled

- Orders can specify the minimum size of trade

↳ Beneficial when trading costs depend on no. of executed trades rather than size of the order

- Hidden order (Visibility based)
 - ↳ Only broker / exch. trader knows the size.
 - ↳ Display size
 - ↳ Some of the trade is visible to mkt but rest is not.
- Iceberg Order (Visibility based)
 - ↳ Part of order is hidden.
 - ↳ Helps estimate liquidity

Validity Instructⁿ (Answers WHEN)

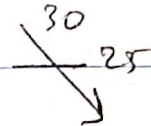
- Day orders
 - ↳ Expire if unfilled by end of trading day
- Good til canceled orders
 - ↳ Last until fulfilled
- Immediate or cancel orders (Fill or Kill)
 - ↳ Canceled unless they can be filled immediately
- Good-on-close order
 - ↳ Filled only after the end of trading day

Stop orders (Stop loss orders)

↳ Stop-sell

↳ Execute only after a trade occurs at or below stop price

↳ Execute when mkt is falling



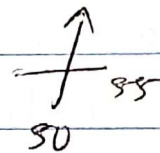
↳ Stop-buy

↳ Execute only after a trade occurs at or above stop price

↳ Reasons:

↳ Trader with short position to avoid losses

↳ Execute when mkt is rising.



Clearing Instruct

↳ Tells trader how to clear & settle the trade

↳ Standing instr

↳ Retail trades

↳ Cleared & settled by brokers

↳ Custodian trades Institutional trades

↳ Cleared & settled by custodian or using

2 brokers. (Keeping one for margin & custodial serv. & other for spec. exe)

↳ Whether short sale or long sale

broker must confirm that security can be borrowed

↓
..... can be delivered.

* Primary Market

- Refer to sale of newly issued securities.
- Seasoned or secondary offering
 - ↳ Issuer sells additional units of previously issued stocks
- IPO
 - ↳ Issuer sells securities to public for the 1st time
 - ↳ Could be over or under subscribed
 - ↳ Invest banks have conflict of interest

Public Offerings

- ↳ Indication of interest
 - ↳ Invest bank finds investors who agree to buy part of issue
 - ↳ These are not orders but referred to indic. of interest
- ↳ Book building
 - ↳ The process of gathering indicatⁿ of interest.
 - ↳ In England, aka book runner
- ↳ Underwritten offering
 - ↳ Most common way an invest bank assist

with the security issuance.

↳ Here, bank agrees to purchase the entire issue at a price. That is:

↳ If issue undersubscribed, bank will purchase the remaining

↳ Best effort basis

↳ The bank is not obligated to buy unsold securities.

↳ Invest banks have a conflict of interest

Private Placements & Other Transacts

• Private Placement

↳ Securities are sold directly to qualified investors.

↳ Do not require issuer to disclose as much info as they must

↳ Issuance cost are low

↳ Offer price is low

• Shelf registration

↳ Issues securities over time

- Dividend reinvestment plan

- ↳ Allows existing shareholders to purchase new shares w/ their dividends at a discount

- Rights offering

- ↳ Existing shareholders are given the right to buy new shares at a discount to curr. mkt price

* Secondary Markets

- Securities trade after their initial issuance

- Provide liquidity & price/val. info.

* Market Structure

- Trading in securities can take place in variety of structures.

Trading Session

- Call Market:

- ↳ Trade can be arranged only when the mkt is called at a particular time.

- ↳ Very liquid when mkt is called.
- ↳ Usually organized once per day.
- Continuous trading mkt
 - ↳ Trades can be arranged & executed anytime the market is open
 - ↳ Many start their trading w/ call mkt auctn

Quote-driven Market (Use dealers)

- Investors trade with dealers.
- Dealers maintain inventories
- Eg. Dealer Mkt, over-the-counter mkt, price driven mkt
- Trading takes place electronically

Order-driven Market (Use trading rules)

- Executed using trading rules as traders are anonymous
- Eg. exchanges, automated trading sys.
- Order Matching Rule establish precedence hierarchy.
 - ↳ Price priority :- Priority to highest bid & lowest ask
 - ↳ Secondary precedence rule :- Priority to non holders & earliest arriving orders
- ↳ Improve liquidity

- Trade pricing rule

- ↳ Used to determine price
- ↳ Uniform pricing :- All orders trade at the same price
- ↳ Discriminatory pricing :- Uses limit price of order that arrived first as trade price

Brokered MKTs

- Brokers arrange trade among clients
- Used for instr where finding buyers & sellers is not easy
- Pre-trade transparent
 - ↳ Info abt quotes & orders
- Post-trade transparent
 - ↳ Info abt trade prices & size

* Characteristics of well functioning system

- Complete mkts
 - ↳ Existence of well-developed mkts that trade inst. that help ppl solve their fin. prob.

* ~~Liquid~~ MKTs

- Operationally effi. mkts
 - ↳ Liquid mkts w/ low cost of trading.

- Informationally efficient mkts
 - ↳ Prices that reflect fundamental vals

* Market Regulation Objectives

- Prevent fraud
- Control agency problems
- Promote fairness
- Set mutually beneficial stds
- Prevent undercapitalized firms exploiting their investors by making excess risky invest
- Ensure long term liabilities are funded

Reading 45: Security market indices

• Security mkt index

↳ Measure value of different target mkt. (security mkt, mkt segment, asset classes).

↳ Index value is calculated on a regular basis using actual or estimated constituent securities.

↳ Price return Index

↳ Only ~~price~~ considers change in price

↳ Total return Index

↳ Considers change in price & income.

• Calculatⁿ of single period return

$$\frac{110}{100} - 1 = 10\%$$

$$\text{Return} = \frac{110 + 5 - 100}{100} = 15\%$$

• Calculatⁿ of return over K periods

$$R_p = (1 + R_1) \cdot (1 + R_2) \cdot (1 + R_3) \dots (1 + R_K) - 1$$

* Index constructⁿ & management

Which target mkt should index represent?

↳ Which securities to select from target mkt?

↳ How much wt. to allocate to each security

↳ When shd index be rebalanced?

↳ When shd security selectⁿ &

weighted decision be re-examined?

• Target Market & Security Selectⁿ

↳ Target MKT can be defined

↳ Broadly (stocks in US)

↳ Narrowly (small-cap val. stks in US)

↳ Geographic region

↳ Economic sector

↳ Constituent securities of index are selected from the target mkt using objective rule or subjectively by the committee

• Index weighting Methods

↳ Price Weighting

↳ Wt on each security is determined by dividing its price by sum of all prices.

	Beg. O Price	EOP	Div/Share	BOP wt
A	4	2	0	$\frac{4}{4+6+10} = 20\%$
B	6	6	1	$\frac{6}{4+6+10} = 30\%$
C	10	14	2	50%

Using a divisor of 3,

$$\text{Index Value} = \frac{4+6+10}{3} = \underline{6.67}$$

$$\text{Price Return} = \frac{\frac{2+6+14}{3}}{\frac{4+6+10}{3}} - 1 = \frac{7.73}{6.67} - 1 = \underline{9.9\%}$$

$$\text{Total Return} = \frac{(2+0) + (6+1) + (14+2)}{3} = \underline{24.9\%}$$
$$\frac{4+6+10}{3}$$

↳ Change in composition of index will ^{like adding/deleting} not affect index value but will affect its wt. & the divisor

↳ Breg. in prev. example if Stock C has 2-to-1 split then, the index val of 7.73 will be same, the total will now be $2+6+14/2$ for EOP ie 15

$$\frac{15}{d} = 7.73$$

$$d = 2.05$$

↳ Disadv. Wts not reliable
Downward bias

↳ A portfolio that has equal no. of shares in each of constituent stocks will have price return that will match price weighted index.

↳ Eg. Dow Jones & Nikkei Dow

↳ Equal Weighted Index

↳ Assign equal wt to each constituent security at inception.

	BoP Price	EOP Price	Div/Share
A	4	2	0
B	6	6	1
C	10	14	2

Price return

$$\text{Return on A} = \frac{\text{EOP} - \text{BoP}}{\text{BoP}} = -50\%$$

$$\text{Ret. of B} = 0$$

$$\text{Ret of C} = 40\%$$

$$\text{Price return} = \text{avg return} = \frac{-50 + 0 + 40}{3} = \underline{\underline{-3.3\%}}$$

Total Return

$$\text{Ret. on A} = \frac{\text{EOP} + \text{Div} - \text{BoP}}{\text{BoP}} = -50\%$$

$$\text{Ret on B, C} = 16\%, 60\% \quad \underline{\underline{\text{Total Ret} = \text{Avg} = 8.6\%}}$$

How to create eq. wt. portfolio?

Ans: By investing equal money

\$180,000

	A	B	C
	\$60,000	\$60,000	\$60,000
Shares	15,000	10,000	6,000
ATEOP Price	30,000	10,000	4285

So now you have to decrease stK A & ↑ PC

Disadv: Rebalancing required

Might have high transactn cost

Wts on smaller cap → ↑ than it shd be
larger ↓

Eg: Value line Composite Avg, Fin. Times Ord. Share Index

↳ Market Capitalization Wt. index

↳ Wt of each security is determined by dividing its mkt capitalization with total mkt capitalization

	# of Shares	BOP Price	EOP Price	Div/ Share
A	500	4	2	0
B	100	6	6	1
C	100	10	14	2

What divisor to use for ^{initial} index to be 1000?

→ MKT cap of A = $500 \times 4 = 2000$

B = 600

C = 1000

$$\therefore \frac{2000 + 600 + 1000}{?} = 1000$$

$$? = 3.6$$

Final Index value

$$\frac{(2 \times 500) + (6 \times 100) + (14 \times 100)}{3.6} = 833.3$$

$$\text{Price return} = \frac{833.3}{1000} - 1 = -16.677\%$$

Total return :

$$\text{for index val} = \frac{(2+0 \times 500) + ((1+6) \times 100) + ((2+14) \times 100)}{3.6} = 916$$

$$\text{return} = \frac{916}{1000} - 1 = 8.3\%$$

→ Momentum effect

Market float for C is 40% $\Rightarrow$ Instead of 100 shares, 40 shares are trading

Adv.: No need to rebalance

Disadv.: Overpriced securities $\Rightarrow$ $\uparrow$ mkt cap $\Rightarrow$ bias

↳ Fundamental Weighting

↳ Uses measures such as book value, cash flow, revenue, earnings & dividends to cal. wt of each security.

↳ Unaffected by share price

↳ Rep. rebalancing

Constraining effect

↳ Portfolio wt shift away from securities that have $\uparrow$ in relative value

Pros / Cons of Index Weighting Methods

Method	Pros	Cons
- Price - Equal	Simple Simple	Arbitrary wt Rep. <u>rebalancing</u> High mkt cap underrepresented
- Mkt cap - Fundamental	Sec. held in prop. to their val. <u>Value tilt</u>	Infl. by overpriced securities Does not consider mkt val <u>Rep. rebalancing</u>

* Index Management

• Rebalancing

- ↳ Adjusting wt. of constituent securities.
- ↳ Important for equal wt. index
- ↳ Necessary so that portfolio return = index return.
- ↳ Done on periodic basis, usually quarterly
- ↳ ↑ transact cost if done oftenly

• Reconstitution

- ↳ Periodically adding & deleting securities
- ↳ Help reflect corporate events like bankruptcy, etc
- ↳ Price of security added increases
- ↳ Price of security deleted falls.

* Use of Security Index

• Reflectⁿ of mkt sentiment

- ↳ Reflects investor confidence

• Benchmark of manager perf.

- ↳ Index stocks should be those that manager will actually choose from.

- Measure of mkt return & risk
↳ Used in asset allocation models i.e. CAPM etc
- Measure of beta & risk-adjusted return
↳ Proxy for returns on mkt portfolio
↳ E.g. ret can be compared to actual stk return to determine risk-adjusted return.
- Model portfolio for index funds
↳ Investors who wish to invest passively can invest in an index fund which replicates mkt perf.

* Types of Equity Indexes :-

- Broad mkt index
↳ Mkt's overall perf. & contains more than 90% of mkt's total val.
↳ E.g. Wilshire 5000
- Multi-market index
↳ Constructed from mkt's indexes of mkt's in several countries & used to measure equity returns of
↳ geographical loc (Latin Am index)

- ↳ Economic development (emerging mKts)
- ↳ Entire world (MSCI)

- Multi-mkt index w/ fundamental weighting

- ↳ Uses mkt-cap for country indexes wting but then weights the country index returns by fundamental factor i.e. GDP.

- Sector index

- ↳ Measures industry specific sectors index
 - ↳ Can be used in cyclical analysis.

- Style index

- ↳ Measures returns for an industry to market cap & value or growth stat.

- ↳ Some indexes use combination

- ↳ No definitions for large, mid & small cap

- ↳ P/E ratio, dividend yields used to identify value/growth

- ↳ High turnover of constituent than broad mkt

* Types of fixed income indexes

- Vary widely wrt coupon rates, ratings, maturities,

- The Indexes can be constructed based on type of issuer,

- Coupon maturity etc
- Broad mkt, sector, style & other specialized indexes are available
- Iss. Issues with const of index
 - ↳ Large universe of securities
 - ↳ Dealer mkt & infreq trading
 - ↳ Illiquidity
 - ↳ Transact cost
 - ↳ High turnover

* Types of alternative invest. Indexes

- Commodity indexes
 - ↳ Represent futures contracts
 - ↳ Eg. Commodity Research Bureau Index, S&P GSCI
- * * * ↳ Issues
 - ↳ Different weighting method
 - ↳ Perf of index & underlying com. diff.
- Real estate indexes
 - ↳ Can be based on
 - ↳ REIT
 - ↳ Repeat property sales
 - ↳ Appraisal.

- Hedge fund indexes

↳ Equally wt. returns of hedge funds included in index

\$\$\$ ↳ Issues

↳ Perf. vary substantially

↳ Upward bias (If profit then report)

Reading 46: Market Efficiency

- Concerns the extent to which mkt prices incorporate available information
- Informationally Efficient Mkt
 - ↳ Asset prices reflect new info quickly & rationally
 - ↳ 'Quick' is relative to time a trader takes to execute an order
 - ↳ Prices shd only react to unexpected info
 - ↳ Passive invest strategy preferred over active invest strategy.
- Market Value vs Intrinsic Value
 - ↳ Intrinsic val. is the value based on complete information
 - ↳ In efficient mkt, mkt val = intrinsic val
- Factors that affect market efficiency
 - ↳ Market participants $\uparrow \Rightarrow$ Efficiency $\uparrow$
 - ↳ Info availability & fin. disclosure $\uparrow \Rightarrow$ Eff. $\uparrow$
 - ↳ Limits to trading: More limits, $\downarrow$ Eff.
 - ↳ Transact & info cost
 - ↳ If trans. cost $>$ potential profit from trading misvalued securities $\rightarrow$ market inefficient

* Forms of mkt efficiency

1. Weak-form mkt efficiency

- ↳ Prices fully reflect past mkt data
- ↳ Thus price & volume info will have no predictive power (no use of technical analysis) abt future directⁿ of price
- ↳ Investor cannot receive +ve risk-adjusted returns by using technical analysis.

2. Semi-strong mkt efficiency

- ↳ Prices reflect all publicly known & available informatⁿ
- ↳ Prices adjust quickly & accurately to new informatⁿ
- ↳ Efforts to analyze public info is futile
- ↳ Encompasses weak form.
- ↳ Researches test for when mkt are semi-strong using event studies.
- ↳ Inv. cannot receive +ve risk-adjusted returns by using fundamental analysis.

3. Strong Form

- ↳ Prices reflect all public & private info.
- ↳ Encompasses weak form & semi-strong form.
- ↳ No investors can earn abnormal profits on non-public info
- ↳ Most research indicates mkt's are not strong.

Implications of Efficient Mkt Hypothesis

• Securities mkt's are weak-form efficient

- ↳ Investors cannot earn abnormal returns by trading on the basis of past trends in price
- ↳ Technical analyst assist mkt in maintaining weak-form efficiency.

• Securities mkt's are semi-strong efficient

- ↳ Analyst must consider whether public info is already reflected in security prices & how any new information affects security's value
- ↳ Fundamental analyst assist mkt in maintaining semi-strong eff.

- Securities mkt's are NOT strong-form efficient
 - ↳ Investors trading on private info can make abnormal profits.
 - ↳ Regulatⁿ try to prevent insider trading

- Role of portfolio managers is (not) to beat the mkt but to establish & manage portfolio consistent with client's objectives & constraints.

* Market Anomalies

- Something that would lead us to reject the hypothesis of efficient mkt.

• Time Series Anomalies

↳ Calendar Anomalies

- ↳ January effect or turn-of-the-yr effect
 - ↳ Stock returns are higher during first 5 days of Jan., as comp. to rest of the yr

↳ Possible explanatⁿ

- ↳ Tax-loss selling: Selling losing post in dec. & repurchase in Jan.
- ↳ Window dressing: Same but for portfolio mgrs

↳ Turn-of-the-month effect (returns ↑ during month end)

↳ Day-of-the-week effect (-ve retu. on Monday)

↳ Weekend effect (+ve Friday & -ve Mond. returns)

↳ Holiday effect (pre-holiday return ↑)

↳ Overreaction & momentum anomalies

↳ They violate weak-form of mkt efficiency.

• Gross Sectional Anomalies

↳ Size Effect

↳ Small cap stocks outperform large-cap stocks.

↳ could not be confirmed in later studies.

↳ Value Effect

↳ Value stocks (↓ P/E, ↓ MKT to book, ↑ div yield) have outperformed growth stocks.

↳ They violate semi-strong form.

• Other Anomalies

↳ Closed-end inst fund

trade @ premium if secur undervalued

↳ Shares of closed-end invest fund trade at a discounted NAV if portfolio secur. are overvalued

↳ Explanation for this anomaly

↳ Mngmt fee

↳ Tax on future gains

↳ Share illiquidity

↳ Earnings announcements

↳ Earning surprise :- That part of earnings not expected by market

↳ Anomaly :- Adj process does not occur entirely on announcement day

↳ Exploited :- By buying +ve earnings surprise & selling -ve

↳ Initial Public Offerings

↳ Do well on first day of trading & then do not perform well

↳ Economic Fundamentals

↳ Research has found that stock return are related to factors like div yields, stock volatility

↳ Many anomalies might simply be result of data mining

- Reported anomalies are not violatⁿ of mkt eff but are result of research methodologies.
- Portfolio management based on previously identified anomalies will likely be unprofitable

* Behavioral Finance

↳ MKT efficiency does not req. an assumptⁿ that every investor acts rationally in accordance with traditional fin. theory.

↳ Loss Aversion (Dispositⁿ effect) → Inverse of loss aversion

↳ Investors dislike a loss more than they like a gain of equal amount. (Observed overreactⁿ)

↳ Investor overconfidence

↳ Herding : Act on same side of mkt

↳ Info cascade

↳ When inv mimic decisions of others.

↳ Gambler's fallacy (Representativeness)

↳ Recent outcomes affect inv. estimates of future probab.

↳ Conservatism → Slow to react to changes

↳ Narrow framing → Focus on issues in isolatⁿ

Reading 47: Overview of Equity Securities

Common Shares

- ↳ Most common form of equity
- ↳ Have residual claim
- ↳ Firm has no obligation to pay dividends
- ↳ Able to vote for board of directors
- ↳ Shareholders can vote by:
 - ↳ Proxy Voting
 - ↳ Statutory & cumulative voting

Callable common shares

- ↳ Firm has the right to repurchase the stock at a pre-specified call price
 - ↳ Investors receive fixed amt
 - ↳ Allows firm to reduce dividend payments without changing per-share dividend.

Putable common shares

- ↳ Shareholders have the right to sell the shares back to firm at a specific price
 - ↳ Raises more capital
 - ↳ Expensive than non-putable shares.

- ↳ A firm may have different classes of comm. stk. One class may have greater voting power & seniority.
 - ↳ Mentioned in the filings

• Preference shares (Preferred Stock)

- ↳ Features of both : common stock & debt
 - ↳ Fixed periodic payments to investors
 - ↳ Do not having voting rights.
- ↳ Cumulative preference shares
 - ↳ Promised fixed dividends & any dividends that are not paid must be paid before common shareholders receive dividends.
- ↳ Non-cumulative preference shares
 - ↳ Dividends do not accumulate over time
- ↳ Participating preference shares
 - ↳ Receive extra dividends if firm profits exceed a predetermined level.
 - ↳ May receive value greater than par-value
- ↳ Non-participating preference shares
 - ↳ Claim equal to par value
 - ↳ Do not share in firm's profit
- ↳ Convertible preference shares
 - ↳ Can be exchanged for common stock at a conversion ratio determined when shares are originally issued
- ↳ Advantages
 - ↳ Pref. dividend ↑ than common dividend

↳ If firm profits, investor can convert his shares to stk.

↳ Preferred shares ↓ risk than common shares

↳ Often used to finance venture capital & private equity firm.

• Private Equity

↳ Usually issued to institutional investors via private placements

↳ Smaller than public markets

↳ Less liquidity

↳ Share price is negotiated & not determined in a mkt

↳ More limited firm financial disclosure

↳ Lower reporting costs because of less onerous rep.

↳ Weaker corporate governance

↳ Greater ability to focus on long-term prospects as no public pressure

↳ Greater return once firm goes public

↳ 3 main types of private equity investments

↳ Venture Capital } In alt. invest

↳ Leveraged buyout }

↳ Private invest in public equity

* Investing in Non-domestic equity securities

- Markets are said to be integrated when capital flows freely across borders.
- Barriers still exist
 - ↳ Restrict foreign ownership to prevent foreign control of domestic companies.
 - ↳ Reduce variability of capital flows.
- Reducing barriers, ↑ equity mkt performance
- Listing on foreign stock exchange, ↑ publicity & liquidity

Direct Investing

↳ Buying foreign firm's securities in foreign mkt.

↳ Obstacles

↳ Invest & return in foreign currency

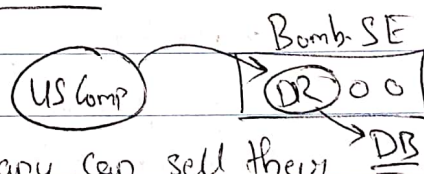
↳ Illiquid.

↳ Reporting req maybe less strict

Depository receipts

↳ Where a US based company can sell their shares on Indian Stock Market in Rupees. with the help of an intermediary

↳ That intermediary is called depository bank.



- ↳ Value of DR is affected by
 - ↳ Exch. rate changes
 - ↳ Firm fundamentals
 - ↳ Eo event etc

↳ Sponsored DR

- ↳ If firm is involved in the issue.
- ↳ Inv. has voting rights.

↳ Un-sponsored DR

- ↳ Firm not involved
- ↳ ~~No~~ voting rights
- ↳ Depository bank retains voting rights

↳ Global Depository Receipts (GDR)

- ↳ Issued outside US and issuer's home country.

- ↳ Denominated in US Dollars & can be sold to US inst. inv.

- ↳ No capital flow restriction

- ↳ Greater opportunities for foreign invest

↳ American Depository Receipt (ADR)

- ↳ Denominated in US Dollars & traded on US Exch.

- ↳ Allows firm to raise cap. in USA or use shares to acquire other firm

	Level 1 (Unlisted)	Level 2 (Listed)	Level 3 (Listed)	Rule 144A (Unlisted)
Objectives	Broaden US inv base	→	→ New inv	Inst. inv.
Raising Cap.	NO	→	Yes	→
SEC Reg.	Yes	→	→	No
Trading	OTC	Exchange	→	Private
Listing Fees	Low	High	→	Low
Size & Earning	None	Yes	→	No

- Global registered shares (GRS)
↳ Traded in diff. currencies on stock exchanges around the world.

- Basket of listed depository receipts (BLDR)
↳ An exchange-traded fund that is collected of DR

Return Characteristics

- ↳ Consists of price changes, dividend payments, gains or losses from exchange rates.
- ↳ Gains from dividends & reinvestments of div. have been an imp. part of eq. inv.

Risk of Equity Securities

- ↳ Measured as std dev
- ↳ Pref stK less risky than common because
 - ↳ pays known & fixed div
 - ↳ Receive dist before common shareholders
- ↳ Pref stK has lower avg. return.
- ↳ Cumulative preferred shares less risky than non-cumulative preferred.
- ↳ Putable shares less risky & Callable more risky
- ↳ Putable shares pay low dividend yield than non-putable.

Role of equity in financing company assets

- ↳ Used for purchase of long-term assets, equipment, research & dev.
- ↳ Used for expansion into new business or geographic areas
- ↳ Provides liquidity.

Book Value vs Market Value

- ↳ Book Val: Value of firm's assets on bal. sheet - liab.
- ↳ MKT val: Total val of firm's outstanding equity shares based on mkt prices & reflects expected of investors.

Accounting Return on Equity

- Ratio used to determine management efficiency

$$\text{ROE}_t = \frac{\text{Net Inc}_t}{\text{avg. BK val}_t} = \frac{\text{Net Inc}_t}{(BV_t + BV_{t-1})/2} \quad (1)$$
$$\text{ROE}_t = \frac{\text{Net Inc}_t}{BV_{t-1}} \quad (2)$$

Use

① → Industry comparison
↳ Book val. is volatile

② → Examining ROE for no. of years
↳ Book val is stable

- ROE increases if inc. increases at a faster rate than equity.
- Increasing ROE not ALWAYS good.

Price-to-book ratio (MKT-to-book ratio)

- $\frac{\text{MKT val of firms equity}}{\text{Book val. of equity}}$

- Value stocks - Low price-to-book ratio
- Growth stocks - High price-to-book ratio

Cost of Equity & Inv. Rep. rate of return

- Cost of equity (Difficult to calculate)
 - ↳ Minimum expected rate of return that a company must offer its investors to purchase its shares
 - ↳ Cost of eq. might be diff. from investors exp rate of return
 - ↳ Because companies try to raise capital at lowest possible cost, cost of eq. is often used as proxy for minimum inv. rep rate of return.
 - ↳ If expected rate of return is not maintained, share price falls
 - ↳ Can be estimated using
 - ↳ DDM
 - ↳ CAPM.

- Arbitrage will most likely be higher in mkt where short selling is ~~not~~ allowed

Reading 48: Introduction to Industry & Company Analysis.

* Uses of Industry Analysis

- Understanding a company's business & business environment
- In active management strategy, can help identify industries that are undervalued or overvalued.
- Helpful in industry rotation, which is overweighting & or underweighting industries based on current phase of business cycle
- Industry representation within a portfolio is often significant component of portfolio attribution analysis.

* Approaches for Identifying Similar Companies

- Companies grouped based on products / or services.
- Companies grouped based on their relative sensitivity to the business cycle.
 - ↳ Cyclical company: Whose profits are correlated with the strength of overall economy.
 - ↳ Non-cyclical company: Performance independent of business cycle

↳ Non-cyclical companies are at times referred as 'growth' or 'defensive'

↳ Cyclical / Non-cyclical is not binary but a spectrum.

↳ Different regions might be at different stages of business cycle

- Companies grouped on statistical similarities

↳ Companies w/ high correlatⁿ are grouped together

↳ High correlation might be because of chance

* Industry Classification Systems

- A well-designed classificatⁿ system is a useful starting point for industry analysis.

Commercial Industry Classificatⁿ System

- Most index providers classify companies into industry groups

- Global Industry Classification System (GICS)
 - ↳ Developed by S&P and MSCI Barra
 - ↳ Sectors (10) → Industry Group (24) → Industry (68) → Sub-Industry (154)

↳ Classifies companies on the basis of company's primary business activity as measured primarily by revenue.

- Russell Global Sectors (RGS) uses 3-tier structure
 - Industry Classification Benchmark (ICB) uses 4-tier structure
- < Example 2 & 3 from curriculum >

Governmental Industry Classification System

- Various governmental agencies organize statistical data according to type of industrial or economic activity.
- Common goal is to facilitate comparison of data over time & across countries which use same system.
- Continuity of data is critical to measurement of & evaluation of perf over time

Examples:

- ↳ ISIC → adopted by UN
- ↳ Stat. Class for European Act
- ↳ Aust. & NZ Std. Industrial Classification
- ↳ NAICS → by US, Canada, Mexico

Commercial Classification

- Generally disclose info abt a specific company

- Reviewed & adj. freq.

- Distinguish bt large & small business

- Only cover for profit & publicly traded

- Companies in narrowest subdivision unit might not represent peer group.

Governmental Classification

- Do not disclose info.

- Infrequently

- Do not distinguish

* Constructing a Peer Group

- A group of companies engaged in similar business activities whose economics & valuatⁿ are influenced by closely related factors.

Use a commercial classification system as a starting pt

↳ Study subject company's annual report to understand competitive environment

↳ Study competitor's annual reports

↳ Review industry trade publications to identify comparable companies

↳ Confirm that each company derives a significant % of revenue from a business activity similar to primary business of subject company

- A company can belong to more than one peer group
<Example 4 & 5 from curriculum>

* Factors affecting sensitivity of business cycle

- Cyclical firm

↳ Earnings highly dependent on stage of business cycle

↳ High earnings volatility & high operating leverage

↳ Expensive products

- Non-cyclical firm

- ↳ Demands are stable over the business cycle

- ↳ Defensive industries

- ↳ Least affected by the stage of business cycle (Stable)

- ↳ Growth industries

- ↳ Have demand so strong they are largely unaffected by stage of business cycle

- * Elements to be covered during industry analysis

- Evaluate relationship b/w macroeconomic variables & industry trends

- Estimate industry variables

- Compare with other analysts forecasts of industry variables & find industries that are misvalued

- Comp value of industries across time to determine volatility of their performance over the long run.

- Analyze indust prospects based on strategic groups, groups of comp sharing diff. business models like small airlines & big airlines are diff. but within airlines

- Classify by lifecycle, embryonic, growth, shakeout, mature or declining
- Positⁿ industry on experience curve, i.e. cost per unit relative to o/p. slopes downward

* Industry Analysis Frameworks (Porter's Five Forces)

New Entrants Threat More, good

Barriers to Entry

Supplier Bargaining Forces

More, not good for ind.

Internal Competitive Forces

- ↳ Ind. Concentration
- ↳ Ind. Capacity & MKT Share
- ↳ Stability, Price Competⁿ
- ↳ Industry lifecycle

Customer Bargaining Forces

More, not good

Prod / Service Substⁿ threat

More, not good

* Barriers to Entry

Simple high level view:

High barriers to entry $\Rightarrow$ Discourage new entrants $\Rightarrow$ High pricing power.

- Do not confuse barriers to entry w/ barriers to success. Entering a cliff ind. will not guarantee success.
- High barriers do not automatically lead to high pricing power. For eg. when
 - $\hookrightarrow$ Price is a large percentage of customers decision
 - $\hookrightarrow$ Industry has high barriers to exit

* Industry Concentration

- In concentrated (less no. of comp^{ts}) ind., each player has a high pricing power
 - $\hookrightarrow$ More to gain by keeping prices high even though cutting prices might $\uparrow$ mkt share

- In segmented, player has low pricing power
 ↳ More to gain by undercutting competitor in an effort to gain mkt share.

- Do not assume high concentratⁿ → high pricing power

★		<u>Strong Pricing Power</u>	<u>Weak Pricing Power</u>
	<u>Concentrated</u> →	Soft drinks (Coke, Pepsi) (Tobacco, alcohol, confection)	Capital intensive comp. who sell commodities like prods (Airlines) (Automobiles, oil)
	<u>Segmented</u> →	Asset mgmt comp Home improvement	Consumer pkged goods.

- Industries w/ great product differentiatⁿ in features, reliability & service will have greater pricing power.

★ Industry Capacity

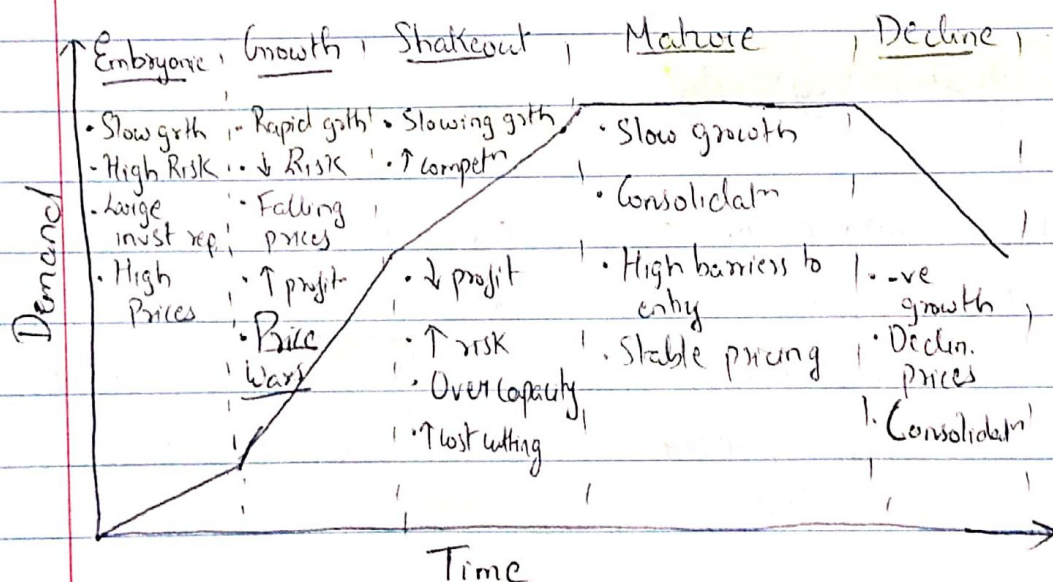
- Clear impact on pricing power
- Under capacity
 - ↳ Demand > Supply
 - ↳ ↑ pricing power
- Over capacity
 - ↳ Demand < Supply
 - ↳ ↓ pricing power

- Capacity is fixed in short run & variable in long term
- Analyst can look for signs that the planned capacity increases of all producers sum to more o/p than ind. demand will support
- Capacity not necessarily physical
 - ↳ Physical → Takes long time to establish
 - ↳ Financial & human capital → quicker to shift

* Market Share Stability

- ↑ barriers to entry ↑ MKT ↑
 ↑ switching cost ⇒ share ⇒ pricing
 ↓ new prod. innovatn stability power.
- ↑ ease of exit ⇒ ↓ cost of exit ⇒ ↑ power

* Industry Life Cycle Model



- Analyst shd check if company is "aging its age".
- New ind. tend to be more competitive
- Limitatⁿ
 - ↳ Life cycle might not be short or long as expected

* External influences on ind. growth, profit & risk

- Macroeconomic
 - ↳ Can be cyclical or long term trends
 - ↳ GDP
 - ↳ Interest rates affect fin. cost
 - ↳ Credit availability affects consumer & bus. exp.
 - ↳ Inflatⁿ affects costs, prices etc
- Technology
- Demographic factors
 - ↳ Age distrⁿ
 - ↳ Popⁿ Size
- Governments
 - ↳ Taxes & regulatⁿ
- Social influences

* Elements to be covered in company analysis

- Analysing firm's financial condⁿ, products and services, and competitive strategy.

- Competitive strategy

- ↳ How a firm responds to opportunities & threats of external env.

- ↳ Can be offensive or defensive

- ↳ Cost leadership (Low cost) Strategy

- ↳ Firm seeks to have lowest cost of productⁿ in industry

- ↳ Offer lowest prices & generate enough vol. for superior return.

- ↳ Can be used defensively to protect mkt share or offensively to gain mkt share

- ↳ Predatory pricing

- ↳ Firm hopes to drive out competitors & later increase pricing.

- ↳ Differentiatⁿ Strategy

- ↳ Products & services shd be distinctive in terms of type, quality or delivery.

- ↳ Firms cost of diff. < price premium buyers place on product diffⁿ, for success.

Managed
incentive
promote
operatⁿ
efficiency

- Elements

- ↳ Firm Overview
- ↳ Industry Characteristics
- ↳ Prod. demand
- ↳ Prod. cost
- ↳ Pricing env
- ↳ Fin. ratio
- ↳ Projected fin. stats & val.

- Firm's ROE is a functⁿ of profitability, total asset turnover, financial leverage (debt)

- Spreadsheet modeling

- ↳ Forecast comp. fundamentals
- ↳ Estimⁿ is performed w/ error compounded over time
- ↳ To check the o/p, analyst must consider what can go wrong moving fwd.

Kaplan

- Increase competⁿ w/ eg ↓ barr. to entry, ↓ concentratⁿ, Unused capacity

Reading 49: Equity Valuation: Concepts & Tools

- Intrinsic value is based on fundamentals & characteristic
- When estimating intrinsic val., you are implicitly guessn mkt price

$\text{Mkt price} > \text{Intrinsic val} \rightarrow \text{Overpriced}$
 $\quad \quad \quad < \quad \quad \quad \rightarrow \text{Underpriced}$
 $\quad \quad \quad = \quad \quad \quad \rightarrow \text{Fair value}$

- If mkt price $\neq$ intrinsic value; consider
 - ↳ % diff
 - ↳ Confidence in your model
 - ↳ Model sensitivity to assumption
 - ↳ No. of analysts ($\uparrow$ analyst following it, then shd not be mis price)
 - ↳ Will mkt price move towards intrinsic value

* Major categories of Equity Valuation

- Present Value Models (DCF)
 - ↳ Estimate intrinsic value as present value of expected future benefit

- Multiplier Models

- ↳ Estimate intrinsic value by calculating ratio of stock price / estimate value to fundamental variable eg. P/E ratio etc

- Asset-based models

- ↳ Estimate intrinsic value based on estimated value of assets & liabilities.

- Choice of model depends on availability of information & analyst's confidence in the appropriateness of the model

- Analyst will use more than one model

* Dividends

- Distⁿ paid to shareholders based on no. of shares owned

- Not a legal ~~authorized~~ obligation

- Stock dividends

- ↳ Dividends paid in the form of new stock instead of cash

- ↳ Eg. 20% stock dividend means each shareholder gets 20% more shares

- Stock splits

- ↳ Divide each existing share into ^{multiple} more shares creating more shares but price of the share will drop correspondingly

- ↳ In 3-for-1 split, each old share is split into 3 new shares.

- Cash dividends

- ↳ Regular dividends

- ↳ Company pays out part of profit at a consistent schedule

- ↳ Special dividends

- ↳ When favorable circumstances allow the firm to make one-time cash payment to shareholders.

- ↳ Many cyclical firm do that to share profits when business is good

- Share Repurchase

- ↳ Company buys outstanding shares of its own stock

- ↳ Reasons for repurchase

- ↳ Signal belief that shares are underpriced

- ↳ Flexibility in amt & timing of distⁿ

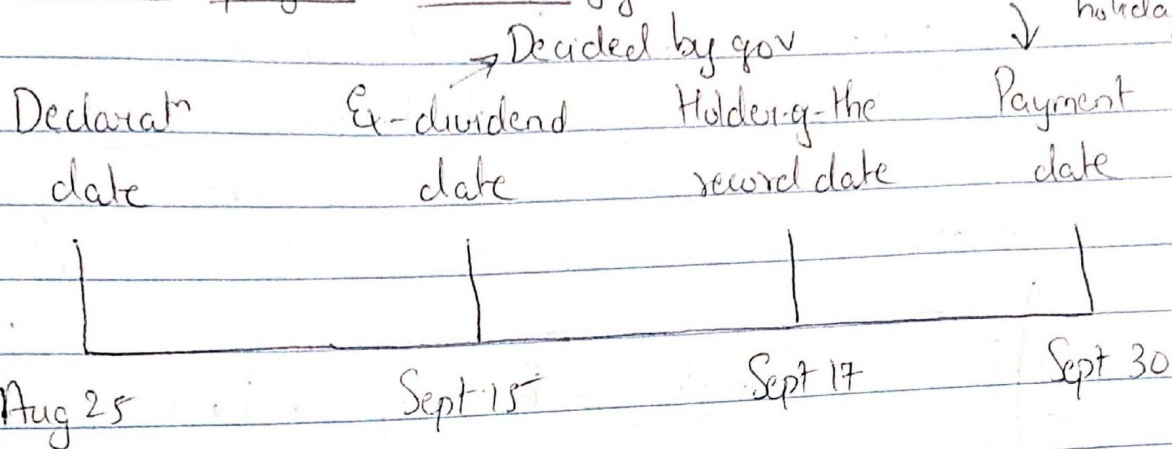
- ↳ Tax efficiency

- ↳ Absorb increase in outstanding shares

- (To offset ↑ in outstanding shares when employee exercises stock optⁿ).

• Dividend payment chronology

Can be on weekend,
↓ holiday



↳ Declaration date: Date the board of directors approves payment of dividend

↳ Ex-dividend date: The first day that stock trades without dividends

↳ Holder-of-record date: Typically 1-2 days after ex-div
Shareholder listed in company records will be deemed to have a ownership of shares for purpose of rec. upcoming div

↳ Payment date

The stck

price will

↓ from prev

day closing

price by

approx div

amt

* Dividend Discount Model

• It is the simplest present value model

$$\text{Price} = \text{PV of future dividends} + \text{PV of terminal val}$$

- Free cash flow to equity (FCFE)

- ↳ Often used in discounted cash flow model
- ↳ Reflects firm's capacity to pay dividends
- ↳ It is the cash available to firm's equity holders after the firm meets all of its other obligations

$$FCFE = \text{Cash flow}_{op^s} - \text{Fixed cap. invst} + \text{Net borrowing}$$

PV(Future FCFE):

- ↳ Net borrowing: Amt borrowed - amt repaid
Assumed to be available to shareholders

- ↳ FCI_{invst} must be subtr. cos. firm must invest to sustain.

↳ We use FCFE over DDM's when

- ↳ company doesn't pay dividends
- ↳ company pays very less dividends
- ↳ dividends being paid are not an indicator of company's ability to pay dividends

- ↳ To calculate the discount rate (cost of eq) we can use CAPM.

$$R_e = R_f + \beta(R_m - R_f)$$

* Preferred Stock Valuation

- For non-callable, non-convertible perpetual preferred share paying a level dividend D & assuming a constant ~~rate~~ required rate of return

$$\text{Value} = \frac{\text{Div}_0}{r} = \frac{D_0}{r}$$

- Other types of pref. shares to consider:

- ① Shares which mature on given date (Val is pv (future CF))
- ② Callable (redeemable) shares (Val is < ①)
- ③ Puttable shares (Val > ②)

* Gordon Growth Model (Const. growth divi. model)

$$D_1 = \text{Earnings} \times (1 - \text{Retention rate})$$

- Model assumes dividends grow indefinitely at a const. rate

$$V_0 = \frac{D_0}{(r-g)}$$

where $g =$ growth rate
 $=$ retention rate $\times$ ROE
 $= (1 - \text{payout ratio}) \times \text{ROE}$

- This model can be used when
 - ↳ Dividends are correct metric for valuation purposes
 - ↳ Dividend growth rate is perpetual
 - ↳ Req rate of return is constant
 - ↳ Dividend growth rate < req rate of return.

- $\uparrow$ in dividend DOES NOT NECESSARILY mean $\uparrow$ value because
 $\hookrightarrow$ As div $\uparrow$ means company is paying out $\uparrow$
means retent rate is $\downarrow \Rightarrow g \downarrow$ which increases denominator

* Multistage Dividend Growth Models

- Two stage models : good for companies transitioning from growth to mature stage
- Three stage models : good for companies just entering growth stage
(growth $\rightarrow$ transit $\rightarrow$ maturity)

* When to use which model

Gordon Growth Model

$\hookrightarrow$ Valuing Stable, mature, non-cyclical, dividend paying firm.

Multistage GGM

$\hookrightarrow$ For firms exp. to grow rapidly, slowly or erratically followed by constant divid. growth

P/E can be -ve

- Future CF to Equity
 - ↳ Future dividends cannot be estimated with much confidence

X Multiplier Models

- Price multiple
 - ↳ A ratio that compares a company's share price w/ some monetary flow/value for evaluation purposes.
 - ↳ Price multiples based on fundamentals
 - ↳ Not dependent on mkt price
 - ↳ Based on a valuation model
 - ↳ Price multiples based on comparables
 - ↳ Dependent on mkt price
 - ↳ Price-to-earnings ratio (P/E)
 - ↳ Trailing
 - ↳ Forward / Leading / Estimated
 - ↳ Price-to-book ratio (P/B)
 - ↳ Price-to-sales ratio (P/S) → Always +ve
 - ↳ Price-to-cash-flow (P/CF) → Can be operating CF or free CF

- Usually firms w/ lower multiple ratio have higher returns

- Multiples based on Fundamentals

$$\frac{P_0}{E_1} = \frac{D_1/E_1}{r-g} = \frac{\text{Div payout ratio}}{r-g}$$

↳ Also called justified P/E

↳ Justified - cos it's based on fundamentals (PV of future CF)

↳ Does a higher dividend payout increase the P/E?

↳ Not necessary

↳ $\uparrow$ payout ratio $\rightarrow \downarrow g \rightarrow \uparrow$ denominator

This is called 'dividend displacement error'.

↳ Sensitive to small changes in assumptions

★ Watch for "other things equal" or "other variable unchanged" ★

$\frac{P}{E} = 50$ means you are paying \$50 for \$1 earning

• Multiples based on Comparables

↳ This method compares relative values using multiples. It is based on law of one price ~~###~~.

↳ Evaluate whether asset is under or over priced.

↳ P/E for cyclical $\rightarrow$ sensitive so use P/S

Given following P/S

Company	P/S
GM	0.01
Ford	0.14
Daimler	0.27
Honda	0.49
Toyota	0.66

GM seems to be undervalued

"Lowest P/E" not always a

good idea

* Enterprise Value (Multiplier Models)

• Total company value

Enterprise Value (EV) = MKT val. of equity + MKT val of debt + MKT val of pref. shares - Cash & cash eq.

• Appropriate when comparing values of firms w/ significant difference in capital struct.

- Common multiple used

$$\frac{EV}{EBITDA}$$

✓
Earnings before interest, tax, depreciaⁿ & amortizaⁿ
Operating inc can also be used in denominator

Adv. of using EBITDA over income

↳ EBITDA ~~is~~ is proxy for CFO

Disadv

↳ Includes non-cash revenues

* Asset Based Valuation (Assets - Liab)

- This valuatⁿ method uses estimates of mkt/fair value of an entity's assets & liabilities & is generally suitable for companies that have low proportⁿ of intangible assets

* Commonly used for valuing private enterprises

• Other factors to consider

- ↳ Book values might be very different from mkt values
- ↳ Some intangible assets are not reported
- ↳ Asset based value can be used as "floor" value
- * ↳ Hard to estimate during hyper inflationary env.

Adv.

* Discounted Cash Flow (Adv/Disadv)

Advantage

- Based on fundamental concept
- Widely accepted

Disadvantage

- I/p must be estimated
- Sensitive to i/p values.

* Price Multiples (Comparables) (Adv/Disadv)

Advantage

- Predict future return
- Widely used
- Readily available.
- Can be used in time series & cross sectional

Disadvantage

- Lagging no. tell about the past
- Not always comparable
- Impacted by econ. conditⁿ
- Might conflict w/ fundamental method
- Sensitive to diff. acc. methods
- -ve denominator problem.

* Price Multiples (Fundamentals) (Adv/Disadv)

Advantages

- Based on sound valuation model
- Widely accepted

Disadv.

- Sensitive

* Asset-based models (Adv/Disadv)

Advantages

- Floor values
- Very reliable when tangible short term assets or liqui.
- Useful for public firms

Disadv.

- Difficult to obtain
- Diff. than book val.
- Inaccurate when T intangible
- Diff. to val during hyper-inflatⁿ