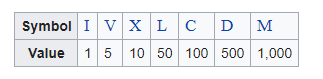
# Symbols

Delta: 0394 alt x

Approximate: 2248

Up arrow: 2191

Down arrwo: 2193

Pi: 03C0

≤ : 2264

≥: 2265

≠: 2260

∑: 2211

β: 03B2

α: 03B1σσ : 03C3

# To complete

-How to make CF statement

\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*

# I\_ General knowledge

## Common-size financial statement

Income statement: % Revenue

Balance sheet: % Total assets

## Types of analyst adjustments to reported financials

* Adjustment to investment (HTM, HFI, AFS) 🡪 Net income, OCI
* Adjustment to inventory (Inventory costing method)
* Adjustment to PPE (capex, depreciation method)
* Adjustment to goodwill
* Off-BS financing: A number of business activities give rise to obligations that, although they are economically liabilities of a company, are not required to be reported on a company’s BS

## Market organization & strucuture

### 3.1. General knowledge

* Practicioners can classify markets by whether the markets trade instruments for immediate delivery or for future delivery. Markets that trade contracts that call for delivery in the future 🡪 forward/future markets. Those that trade for immediately delivery 🡪 spot markets. Options market trade contracts for deliver in the future, but delivery takes place only if the holders of the options choose to exercise them
* When issuers sell securities to investors 🡪 trade in primary market🡪 funds flow to issuer
* When investors sell securities to others 🡪 trade in secondary market 🡪 funds flow between traders
* Money market: Trade debts instruments maturing in 1 year or less (negotiable certificates of deposit, government bills, commercial papers, repo
* Capital market: Trade instrument of longer duration (bonds, equities)
* Traditional investment markets: All publicly trade debts & equities & shares in pooled investment vehicles that hold publicly traded debts/equitites
* Alternative investment markets: Hedge funds, private equity (include venture capital), commodities, real estate securities, real estate properties, securitized debts, operating leases, collectibles… 🡪 hard to trade & hard to value 🡪 different between types of funds
* Reserve currencies: currencies that national central banks and other monetary authorities hold in significant quantities 🡪 primary reserve currencies & secondary reserve currencies
* Currencies trade in FX markets. In spot currency transactions, 1 currency is immediately or almost immediately exchanged for another. Rate of exchange 🡪 spot FX rate
* Contracts: agreement among traders to do something in the future. Include forward, futures, swap, option, insurance contracts

### Forward markets

* Forward contract: An agreement to trade the underlying asset in the future at a price agreed upon today 🡪 used to reduced risk (hedgers).
* Risk:

(+) Counterparty risk: Risk that the other party to a contract will fail to honor the terms of the contract

(+) Liquidity risk:

### Future markets

Future contract: Standardized forward contract for which a clearinghouse guarantees the performance of all traders. Require initial margin, the clearing settle the margin accounts on a daily basis. Margin dropped below maintenance margin 🡪 must replenish accounts. Variation margin payments 🡪 ensure that the liabilities associated with futures contracts do not grow large

Benefits:

(+) No counter-party risk

(+) Can close position by arranging offsetting trade

### Swap contracts

* Swap contract: An agreement to exchange payments of periodic cash flows that depend on future asset prices/ interest rate

### Option contracts

* Option contract: Allow the holder of the option boy buy or sell an underlying instrument at a specified price at or before a specified date in the future
* Call option: Option to buy
* Put option: Option to sell
* Specified price: Strike price
* European-style contract: Can exercise only when they mature
* American-style contract: Can exercise earlier

### Other contracts

* Insurance contracts: Pay their beneficiaries a cash benefit if some event occurs
* Credit default swap (CDS): Insurance contracts that promise payment of principal in the event that a company defaults on its bonds

### Commodities

### Real assets

Characteristics:

(+) Heterogenity

(+) Illiquidity

(+) Substantial cost of managing

## Financial intermediaries

### 4.1. Brokers, exchanges and alternative trading systems

#### 4.1.1. Brokers

\* Brokers: Agents who fill orders for clients. Search for traders who are willing to take the other side of the clients’ orders

\* Block brokers: Provide brokerage service to large traders

\* Investment banks: Provide advices to corporate clients and help them arrange transactions (IPO, seasoned securities offerings), M&A

\* Exchange: Provide places where traders can meet to arrange their trades

#### 4.1.2. Dealers

\* Dealers: Fill their clients’ orders by trading with them 🡪 Provide liquidity (the ability to buy or sell with low transaction costs when you want to trade)

\* Most dealers also broke orders, and many brokers deal to their customers 🡪 broker-dealers 🡪 conflict of interest

### 4.2. Securitizers

Bank & investment companies create new financial products when they buy & repackage securities or other assets

* The process of buying assets, placing them in a pool, and then selling securities that represent ownership of the pool 🡪 securitzation
* MBS: Debt securities with specified cliams on the cash flows of a portfolio of mortgages
* Mortgage-backed securities (MBS): Advantages: Default losses & early repayment are much more predictable for a diversified portfolio of mortgages than they are for individual mortgages.
* They are also attractive to investors who cannot efficiently service mortgages but wish to invest in mortgages. By securitizing mortgage pools, the mortgage banks allow investors who are not large enough to buy hundreds of mortgages to obtain the benefits of diversification and economies of scale in loan servicing
* Securitization 🡪 improve liquidity in the market because it allows investor in the pass-through securities to buy mortgages indirectly that they otherwise would not buy 🡪 easier to value and sell
* When financial intermediaries securitize assets, they often create several classes of securities, called tranches, that have different rights to the cash flows from the asset pool. The tranches are structured so that some produce more predictable cash flows than do others. The senior tranches have first rights to the cash flow from the asset pool. Overall risk of a given asset pool cannot be changed 🡪 the more junior tranches bear a disproportionate share of the risk of the pool
* Investment companies alos create pass-through securities based on investment pools

### 4.3. Depository institutions and other financial corporations

* Depository institutions: Include commercial banks, savings and loan banks, credit unions, and similar institutions that raise funds from depositories and other investors and lend it to borrowers. The banks give their depositors interest and transaction services (check writing, check cashig), in exchange for using their money. They may also raise funds by selling bonds or equity interest in the banks
* Transfer funds from depositors and investors to borrowers

### 4.4. Insurance companies

* Insurance companies help people and companies offet risks that concern them 🡪 create insurance contracts (policies) that provide a payment in the event that some losses occur. The insured buy these contracts to hedge against potential losses
* Credit default swap (CDS) are also insurance contracts, but historically they have not been subject to the same reserve requireement that most government apply to more tranditional insurance contractss. They may be sold by insurance companies or by other financial entities (investment banks or hedge funds)
* Insurance contract transfer risk from those whoy buy the contracts to those who sell them. Insurance companies also often transfer risks that they do not wish to bear by buying reinsurance policies from reinsurers

### 4.5. Arbitrageurs

* Arbitrageurs trade when they can identify opportunities to buy and sell identical or essentially similar instrument at different prices in different market. They profit when they can buy in one market for less than they sell in another market 🡪 provide liquidity to traders
* Dealer: connect buyers & sellers who arrive in the same market at different times whereas the arbitrageur connect buyers and sellers who arrive at the same time in different markets
* Buying risk in one form and selling it another form 🡪 involve a process called replication. Arbitrageurs use various trading strategies to replicate the returns to securities & contract. If they can substantially replicate those returns, they can use the replication trading strategy to offset the risk of buying & selling the actual securities and contracts. The combined effect of their trading is to transform risk from one form to another 🡪 this process allow them to create/eliminate contracts in response to the excess demand for, and suplly of, contracts

### 4.6. Settlement and custodial services

* Financial intermediaries that help customers settle their trades and ensure that the resulting position are not stolen/ pledged more than oce as collaterals
* Clearinghouse: Arrange for final settlement of trades. In future markets, they guarantee contract performance. In other markets, they may act only as escrow agents, transfer money from the buyer to the seller while transferring securities from the seller to the buyer
* The members of a clearinghouse are the only traders for whom the clearinghouse will settle trades. To ensure that their members ettle the trades that they present to the clearinghouse 🡪 members must have adequate capital and post-performance bonds (margins). Clearinghouse also limit the aggregate net (buy minus sell) quantities that their members can settle

## Private placements and other primary markety transactions

* Private placements: Corporations sell securities directly to a small group of qualified investors, usually with the assistance of an investment bank. Qualified investors have sufficient knowledge & experience to the recognize the rirks that they assume, and sufficient wealth to assume those risks responsibly
* Liquid markets: Trader can buy/sell with low transaction cost and small price concessions when they want to trade

# II. Earnings per share

## Basic EPS

## Diluted EPS

# III. Inventory

## Convert LIFO inventory to FIFO inventory

LIFO liquidation: When QSale > QPurchase 🡪 liquidate inventory from prior period

LIFO reserve = FIFO inventory – LIFO inventory

Adjustment:

|  |  |  |
| --- | --- | --- |
| LIFO Inventory | Adjustment | FIFO inventory |
| Inventory | + reserve | (2 year: Average reserve) |
| COGS | -ΔReserve |  |
| Equity | + Reserve \* (1-t) | 2 year: Δreserve \* t |
| Cash | * Reserve \* t |  |

# IV\_ Long-lived assets

## Fixed assets

Gross investment: Original cost of the asset before deducting AD

Net investment = original cost (gross investment) – AD

## Finance vs. operating leases

|  |  |
| --- | --- |
| Finance leases | Operating leases |
| Purchase asset, directly financed by the seller | Use of asset for a period of time |
| Higher CFO | Higher profit in early years |
|  | Higher solvency |

# V. Cash flow statement

## 1. Indicators of CF quality

* Positive OCF
* OCF derived from sustainable sources
* OCF adequate to cover Capex, dividends & debt repayment
* OCF with relatively low volatility

# VI. Integration of FS analysis techniques

# VII. Translation of FS in foreign currencies

Underlying concept: Entire investment in a foreign entity is exposed to translation gain/loss 🡪 all asset/liabilities must be revalued at each BS date

## Translation method

### Current rate method

All Asset & Liabilities – translated @ current FX rate

Equity 🡪 translated @ historical FX rate

Revenue & expenses 🡪 translated @ transaction date FX rate

### Temporal method

All Asset & Liabilities – Historical cost 🡪 translated @ historical FX rate

Current cost 🡪 translated @ current FX rate

More specific:

Monetary A/L 🡪 use current FX rate

Non-monetary A/L measured @ historical cost 🡪 Use historical FX rate

Non-monetary A/L measured @ current value 🡪 Use FX rate @ the date current value was determined

Equity 🡪 use historical FX rate

Revenue & expenses (other than expenses related to non-monetary assets) 🡪 use FX rate @ transaction date

Expenses related to non-monetary assets (COGS, depreciation, amortisation) 🡪 FX rate used to translate these assets

### Both methods

Retained earnings 🡪

Beg balance (b/f)

+ NI (@method used)

* Div (@historical rate)

RE

Common equity 🡪 historical rate

Translation adjustment: Current rate method: Accumulated as a separate component of equity

Temporal method: Included as G/L in NI

# VIII. Industry & company analysis

## Forecast specifics FSLI

### Revenue

Forecast revenue:

* Top-down approach: Overall economy 🡪 sector/industry/market for specific products 🡪 revenue projection
* Bottom-up approach: Individual company 🡪 forecast of individual products/ segments
* Hybrid approach: Combine 2 approach

For top-down approach:

1. Grow relative to GDP growth
2. Market growth & market share approach

* Model revenue

For bottom-up approach:

1. Time-series
2. Return on capital
3. Capacity-based measure

### Operating costs (opex)

Both fixed & variable portion

Economies of scale

### COGS

### Financing costs

Gross interest expenses = Gross debt \* interest rate

Interest income = Cash & ST debt securities \* yield on average cash balances

Net interset expenses = Gross interset expenses – Interest income = Net debt \* Net interest rate

## The 5 competitive forces that shape strategy

### Rivalry among existing competitors

The intensity of rivalry is greatest if:

* Competitors are numerous/roughly equal in size & power
* Industry growth is slow
* Exit barriers are high
* Rivalry are highly committed to the biz & have an aspriation for leadership, especially if they have goals that go beyond economic performance
* Firms cannot read others’ signals well (lack of familiarity, diverse approach to compete, differeing goals)

Price competition is most likely to occur if:

* Product/service nearly identical; few switching cost for buyer
* High FC, low marginal cost
* Capacity must be expanded in large increments to be efficient
* The product is perishable

### Bargaining power of buyers

A customer group has negotiating power if:

* There are few buyers, or each one purchases in volume that are large relative to the size of a single vendor

(high FC & low marginal cost 🡪 amplify the pressure on reivals to keep capacity filled through discounting)

* The industry’s product are standardized/undifferentiated
* Buyer face few switching cost in changing vendor
* Buyer can threat to integrate backward if vendors are too profitable

A buyer group is price-sensitive if:

* The product represent a significant fraction of its cost structure/procurement budget
* The buyer group earn a low profit/under pressure to trim purchasing cost
* The quality of buyers’ products is little affected by the industry’s product. If quality is import 🡪 less price sensitive
* The industry’s product has little effect on the buyers’ other cost
* If buyer perceived value significant 🡪 not sensitive about price

### Bargaining power of suppliers

* It is more conentrated than the industry it sells to
* The supplier group does not depend heavily on the industry for its revenue
* Industry participants face switching cost in changing suppliers
* Suppliers offer product that are differentiated
* There is no substitute for what the supplier group provides
* The supplier group can credibly threaten to integrate forward into the industry

### Threat of substitute products/ services

The threat of substitute is high if:

* If offer an attractive price-performance trade-off to the industry’s products
* The buyer’s cost of switching to the substitute is low

### Threat of new entrants

7 major sources:

1\_ Supply-side economies of scale: Economies of scale -> threat of new entry

2\_ Demand-side benefits of scale: Buyers trust larger companies 🡪 limit the willingness of customers to buy from a newcomer

3\_ Customer switching cost: ex: Switching SAP’s ERP

4\_ Capital requirement: High capital requirement 🡪 discourage entry

5\_ Incumbency advantages of size: brands/ experience…

6\_ Unequal access to distribution channels

7\_ Restricitve government policies

Expected retaliation

### The common factors that affect the 5 forcces (fleeting factors)

* Industry growth rate (g ↑ 🡪 rivalry ↓ but π is not assured)
* Innovation & technology
* Government policies
* Complementary products/ services

## Your strategy needs a strategy

### Assessment of industry

2 critical factors:

* Predictability: How far into the future & how accurately can you confidently forecast demand, corporate performance, competitive dynamics, & market expectations
* Malleability: To what extent can you & your competitors influence those factors

|  |  |
| --- | --- |
| Shaping (more malleable; less predictable) | Visionary (more malleable; more predictable) |
| * When: Best in unpredictable environment that you have the power to change 🡪 Short-term, flexible plan * Influence business environment by: Define new market, technology; build network of customers; suppliers; partners; marketing; partnership; lobbying * Ex: Software | * When: For predictable environment that you have the power to change * Build-in and they will come approach * Influence, alter environment; stick to long-term goals & strategy; commit adequate resources * High-risk; can be disruptive * Ex: Automobiles |
| Adaptive (less malleable; less predictable) | Classical (less malleable; more predictable) |
| * When: More flexible & experimental; work far better in immutable environment that are unpredictable * Must have process that capture signals of change; reduce info loss & time lags * Short-term; flexible plans; goals = maximize flexibility * Willing to change long-term plans * Ex: Fashion | * When: Industry where environment is predictable but hard to change 🡪 achieve most favorable market condition * Industry analysis & long-term forecast; identify unique abilities/resources * Goals = optimize efficiency * Ex: Tobacco; househould products; oil |

Note:

* Adaptive & classical: Take competitive environment as a given & aim to carve out the best place they can within it
* Shaping & visionary: Consider the environment not as given but as something that can be molded to advantage
* 5th style: Survival: Company is in crisis 🡪 survival is threaten 🡪 should:

- Cut expenes

- Shore up capital

- Restructure

# IX. Financial markets

## Money market

Debt instrument maturing ≤ 1 year

## Capital market

## Primary securities market

\* When issuers first sell securities to investors 🡪 trade in primary markets (IPO or seasoned security offering

\* Underwritten offering: the investment bank gurantees the sale of the issue at an offering prices that it negotiate with the issuer. If the issue is undersubsribed 🡪 the bank will buy whatever securities it cannot sell at the offering price. The underswriter usually also promise to make a market in the security for about a month to ensure that the secondary market will be liquid and to provide price support, if necessary.

\* Best effort offering: The investment bank act only as broker. If the offering is undersubsribed, the issuer will not sell as much as it hoped to sell

\* Investment bank: Conflict of interest with respect to the offering price in underwritten offering. As agents for the issuers 🡪 IB supposed to select the offering price that will raise the most money. But as underwriters, they have strong incentives to choose a low price. If the price is low, the bank can allocate valuable shares to benefits their clients and therby indirectly benefit the banks. If the price is too high, the underwriters will have to buy overvalued shares in the offering & the fllowing months ( they they have to support the price in secondary market 🡪 also indirectly cost the banks) 🡪 These considerations tend to lower intial offering price so that prices in the secondary market often rise immediately following an IPO

# X. Securitiziation

# XI. Valuations

## General knowledge

### Present value model (discounted CF model)

* Free CF: CF over capex (FCFF)
* FCFF: CF available for debt & equity capital supplier after all opex (including income taxes) have been paid & necessary investment in wokring capital & fixed capital have been made

FCFF = NI + NCC + int\* (1-T) – FCInv – WCInv

NCC : Non-cash charges (depreciation & amortisation)

FCInv : Capex

WCInv : Working capital investment

OR: FCFF = CFO + Int \* (1-T) –FCInv

* FCFE: CF available

## Free cash flow valuations

### Intrinsic value of security

Intrinsic value of security = ∑PV(Expected future CFs)

If the company capital structure is relatively stable 🡪 FCFE is preferred

FCFF when: 2

* Levered company with negative FCFE
* Levered company with changing capital structure

### Formulas

#### General formulas

Equity value = Firm value – Market value of debt

#### Constant growth FCFF valuation models

Assumption: FCFFt = FCFFt -1 \* (1 + g)

g: constant growth rate

#### Constant growth FCFE valuation models

FCFEt = FCFEt-1 \* (1+g)

#### Finding FCFF & FCFE from EBIT or EBITDA

Notes:

* *NCC = Non-cash decrease – Non-cash increase*
* *Working capital: Exclude cash & Short-term debts*
* *FCInv = Capex – Proceeds from sales of FA*
* *Capex = Ending gross PPE – Beginning gross PPE = Ending net PPE – Beginning net PPE + depreciation*

FCFF = EBIT \* (1-T) + Depreciation – FCInv – WCInv (assume NCC = Depreciation)

FCFF = EBITDA \* (1 –T) + Depreciation \* T – FCInv – WCInv

### Uses of FCFE & FCFF

|  |  |
| --- | --- |
| Increase/(decrease) in cash balances | |
| + | Interest exepenses \* (1-T) (1) |
| + | Repayment of principal in excess of new borrowing (2) |
| + | Cash dividends (3) |
| + | Share repurchases in excess of share issuance (4) |

#### Uses of FCFF

Uses of FCFF ( must equal sources of FCFF) =

Note: (1)+(2): Net payment to debtors

(3) +(4): payment to shareholders

#### 2.3.2. Uses of FCFE (must equal sources of FCFE)

|  |  |
| --- | --- |
| Increase/(decrease) in cash balances | |
| + | Cash dividends (3) |
| + | Share repurchases in excess of share issuance (4) |

Uses of FCFE =

### 2-stage FCF models

Firm value = Equity value + Debt value

### Asset β

* Use β of comparable companies 🡪 estimate asset β (which reflect only business risk)
* Use it for the company
* Steps: Select comparables 🡪 estimate β for the comparables 🡪 unlever the β (asset β) 🡪 lever the β 🡪 Company risk

To\_add 1.1.1

## Market-based valuations

### Price & Enterprise value multiples in valuation

* Method of comparables: Compared with similar assets of other companies
* Method based on forecasted fundamentals: The price multiple of an asset should be related to its future CF

### Price multiples

#### P/E

##### Trailing P/E (trailing 12 month EPS)

1. Forward P/E

Calculate trailing P/E:

Must consider the following:

1. Potential dilution of EPS
2. Transitory, non- recurring components of earnings that are company-specific; component of earnings affect by cyclicality (biz or industry)
3. Differences in accounting methods

##### Forward P/E

* Justified forward P/E
* Justified trailing P/E

g: dividend growth rate

b: retention rate

* If the subject stock has higher than average (median) expected earnings growth 🡪 higher P/E than the benchmakr P/E is justifified
* If the subject stock has higher than average (median) risks 🡪 lower P/E than the benchmakr P/E is justifified

#### P/B

Book value = Equity – preferred stock

* Book value/ # of shares = BVPS

Justified P/B:

#### P/S

#### P/CF

#### P/D

### Enterprises value multiples (apply to both debts & equity holders)

#### EV/EBITDA

* More appropriate for comparing companies with different financial leverage
* More appropriate for capital intensive business (add back depr & amort)

|  |  |  |
| --- | --- | --- |
| EV | = | MV(common equity) |
|  | + | MV(preferred stock) |
|  | + | MV(debt) |
|  | - | Cash & investments (ST investments) |

#### Determine BVPS

Common shareholders’ equity = shareholder’s equity – Value of equity claims that are senior to common stock

BVPS = Common shareholders’ equity / Number of common stock shares outstanding

# XII. Trading

## Positions

1. A position in an asset: The quantity of the instrument that an entity owns or owes
2. Portfolio: Consist of a set of positions
3. Long position: Own asset & contracts 🡪 benefit from appreciation in the prices of the assets/ contract owned
4. Short position: Have sold assets that do not own, or when write & sell contracts 🡪 benefits from a decrease in the prices of the assets/ contracts sold. Short sellers profit by selling @ high prices & repurchasing @ lower prices
5. Contract have long side & short sides. The long side of a forward/ futures contract is the side that will take physical delivery/ cash equivalents. The short side: liable for the delivery. The long side of a futures contract increases in value when the value of the underlying asset increases in value
6. For option contract: The long side of an option contract is the side that hold the right to exercise the option. The short side is the side that must satisfy the obligation 🡪 long side holds the option & short side write the option
7. For put option contract: The holder is long the put contract & has an indirect short position in the underlying instrument 🡪 long exposure to the option contract & short exposure to the underlying instrument
8. For swap contract: The side that benefits from an increase in the quoted price 🡪 long side

# XIII. Returns concept

## HPR:

Return from investing in an asset over a specified period of time

## Expected α

Expected α = Rrequired + (V0 – P0)/P0 = required return + return from convergence of price

Realized α = Actual HPR – Contemporaneous required return

## IRR

Discount rate the equate PV(future CFs) to asset’s prices

## Equity risk premium

Required return on equity = Current expected Rf + Equity risk premium

2 methods:

* Historical estimate: Historical average differences between equity market return & government debt return 🡪 geometric & arithmetic mean
* Forward looking estimate: Estimate the premium directly based on current info & expectations 🡪 ex ante estimates

1. Gordon growth model

GGM equity risk premium estimate= Expected div yield + Consensus LT growth rate – current LT gov bond yield

1. Macroeconomic model estimates

Equity risk premium = Div yield + [1+Expected inflation] \* [1+Greal EPS]\*[1+GP/E] – 1- Rf

1. Survey estimates

## Required return on equity

Required return on share i = Current expected Rf + βi \* Equity risk premium

= Current expected Rf + equity risk premium + other risk premia/discounts

### CAPM

ke = Rf + β \* equity risk premium

beta: Common choice: 5 years of monthly data 🡪 60 observations

Adjusted β = 2/3 \* unadjusted β + 1/3 \* 1.0

### Multifactor model

* Fama-French model
* Pastor-Stambaugh model
* Macroeconomics & statistical multifactor model

### 5.3. Build-up method

Ke = rf + equity risk premium ± premium/discounts

### Bond yield plus risk premium

For company with publicly traded debts

Ke = YTM on long-term debt + Risk premium