Concepts	Description
	Free cash flow valuation
Free cash flow to firm (FCFF) / Free cash flow to equity (FCFE)	FCFF / FCFE Calculate: Value of firm / Equity value (= Firm value - MV of debt) Discounted rate: WACC / Required return on equity
Ownership perspective of FCF	Ownership perspective : - Control perspectove : acquirer who can change firm's dividend policy; or - Minority shareholders that is in-play Application of FCF : - Firms with low to no cash dividend - Dividend are paid at discretion of BOD → might not align with firm's LT profitability - Firm is viewed as an acquisition target - When FCF is more related to LT profitability than dividends
FCFF formula	1. From NI: FCFF = NI + NCC + i × (1-t) - FCInv - WCInv 2. From CFO: FCFF = (NI + NCC - WCInv) + i × (1-t) - FCInv = CFO + i × (1-t) - FCInv 3. From EBIT: FCFF = EBIT × (1-t) + NCC - FCInv - WCInv 4. From EBITDA: FCFF = EBITDA × (1-t) - Depreciation × t - FCInv - WCInv
FCFE formula	FCFE = FCFF - i × (1-t) + Net borrowing In which : Net borrowing = Total proceed of LT and ST debt - Total payment of LT and ST debt
Approaches to forecast future FCFF / FCFE	1. Approach 1 : Calculate historical FCF, and applied growth rate 2. Approach 2 : Forecast underlying components of FCFm and calculate FCF of each year separately (assume that firm maintain target debt-to-asset ratio)
Impact of dividend, share repurchases, share issues and change in leverage on FCFF / FCFE	- Dividend, share repurchases and share issues : no effect on FCFF anf FCFE - Change in leverage : minor impact on FCFE ; No impact on FCFF
Use of Net income and EBITDA as proxies for FCFF	- NI is a poor proxy for FCFF, because NI includes NCC; and ignore CF that do not appear on PL (FCInv and WCInv) - EBITDA is a poor proxy for FCFF, because EBITDA ignore CF that do not appear on PL (FCInv and WCInv)
Sensitivity analysis in FCFF and FCFE valuations	Sensitivity analysis : how sensitive a valuation results are to changes in each input → to assess the importance of various forecasting errors 2 sources of errors in valuation analysis : - Estimating future growth in FCFF and FCFE : depend on firm's future profitability (which depends on sales growth, change in profit margin, position in the life cycle, competitive strategy and overall profitability of the industry) - The chosen base years for FCFF / FCFE growth forecast
Approaches for calculating terminal value	1. Single stage model 2. Multiple approach (P/E ratio)

Concepts	Description
	Private Company Valuation
Private company factors	1. Company-specific factors - Lifecycle : Less mature than public firms (sometimes mature / bankruptcy near liquidation) - Size : + Less capital, fewer assets, fewer employees than public firms → riskier → value using higher risk premium and required return + Lack of access to public equity markets → contrain growth - Quality and depth of management : may not attract quality management → reduce depth of management, slow growth and higher risk - Management / shareholder overlap : management has substantia ownership position → less control by external shareholders ; firm may be able to take longer-term perspective - Quality of financial and other information : less available information than public firm → higher uncertainty, higher risk, lower value - Tax : More concern with tax than public firms, due to the impact on owners/managers 2. Stock-specific factors - Liquidity : Fewer potential owners, less liquid than public firm → liquidity discount - Restriction on marketability : Often have agreements that prevent selling → reducing marketability - Concentration of control : Control is focused in few shareholders → higher benefits for owners/managers at the expense of minority shareholders
Uses of private business valuation	1. Transaction-related valuations : when selling / financing a firm - Venture capital financing - IPO : performed by investment banks, using similar public firms as benchark - Sales in acquisition : to sell private firm at development / mature stage. Valuation is performed by both buyer and seller - Bankruptcy proceedings : to determine whether the firm should be liquidated or reorganised - Performance-based managerial compensation 2. Compliance-related valuations : performed for legal / regulatory reasons, focus on FR and tax issues - Financial reporting : often related to goodwill impairment tests - Tax purpose : + Firm level : transfer pricing, property taxes, corporate restructuring + Individual equity owners : estates and gift tax issues 3. Litigation-related valuations : Required for shareholder suit, damage claims, lost profit claims, divorce settlements
Different definitions of value	1. Fair market value (use for tax purpose in US) : - Hypothetical willing and able seller sells to willing and able buyer - Arm's length transaction, in a free market - Well-informed buyer and seller 2. Fair value for FR : current price paid to purchase an asset / transfer a liability - Arm's length transaction - Well-informed buyer and seller 3. Fair value for litigation : similar to fair value, but the definition depends on US state statutes an legal precedend in jurisdiction of the litigation 4. Market value : frequently used for appraisals of real estate and other real assets, characterised by: - Willing seller and buyer - Arm's length transaction - An asset that has been marketed - Well-inform and prudent buyer and seller 5. Investment value : value to a particular buyer, may vary for different investors, depending on: - Estimates of future CF - Perceived firm risk - Appropriate discount rates - Individual financing costs - Perceived synergies with existing buyer's assets 6. Intrinsic value
Approaches for private company valuation	1. Income approach : firm value = PV of expected future income. Most appropriate for firm in high growth phase. 2. Market approach : price multiples, based on recent transactions of comparable assets. Most appropriate for mature firm 3. Asset- based approach : firm value = MV of assets - MV of liabilities. Most appropriate for early-life firm, when future CF is subjected to so much uncertainty
Normalised income	Estimate normalised income : - Exclude non-recurring items / unusual items - Firm does business with its owners / other businesses of its owners → Expenses might be inflated → adjustment - Excessively high owner compensation → inflate expenses → adjustment - Firm performs poorly → below market compensation → overstate earnings → adjustment - Use of company-owned assets → inflate expenses → adjustment - Real estates owned by firm are treated separately from firm operations, due to : + Real estates may have different risk characteristics + Real estates may have different growth propects + Depreciation expense of real estates is based on historical costs → understate current cost
Strategic / Financial transactions	Strategic transactions : valuation of firm is based in part of the perceived synergies with acquirer's other assets Financial transactions : assume no synergies
FCF method	1. Capitalised CF method : single-stage FCF model $Value\ of\ firm = \frac{FCFF_1}{WACC - g}$ $\quad$ $Value\ of\ equity = \frac{FCFE_1}{r - g}$ 2. Excess Earnings method : - Excess earnings = Firm earnings - Required return on WC - Required return on FA - Firm value = Sum PV of excess earnings + WC + FA