

CFA® Level I

One-Page Learning Module Summaries

Corporate Issuers

7 learning modules · one page each · built from CFA Program Level I curriculum, Volume 3

How each page works

■ Module banner	Exact module title, exam relevance (High/Medium/Low-yield) and whether it is calculation- or concept-heavy.
■ The big picture	Two or three sentences of intuition: why the module exists.
■ Learning outcomes	Every LOS of the module, in book order, rewritten as what you must know or do.
■ Key formulas / key facts	Formulas in curriculum notation with every variable defined; fact tables for concept modules.
■ Worked example	One numerical example (or a short Ethics case). Tagged [CFA curriculum] when taken from the curriculum, [Illustrative] when made up by RBei.
■ What examiners like to test	Traps, key distinctions and typical question angles.

Notes. (1) The curriculum lists LOS without letters; “LOS 1, 2, 3” follows the order in the book. (2) Exam relevance is RBei’s judgement from the number of LOS, the calculation LOS and the weight of worked examples and practice problems in each module; the curriculum does not rate modules. (3) [India context, not curriculum] marks Indian examples added for context; they are not curriculum. (4) [Note: ...] marks places where the curriculum is inconsistent or offers two framings.

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Module 1 — Organizational Forms, Corporate Issuer Features, and Ownership

Topic: Corporate Issuers · Exam relevance: **Low-yield** · **Concept-heavy**

The big picture

A business can be owned by one person, a few partners or thousands of shareholders. The legal form decides who **controls** the business, who is **liable** for its debts, how its profits are **taxed** and how much **financing** it can raise. The corporation (public limited company) wins on liability, transferability and access to capital, at the price of possible **double taxation** and more disclosure — which is why nearly every issuer an analyst covers is a corporation.

Learning outcomes in plain language

- LOS 1 Compare the organizational forms of businesses.** Compare the sole proprietorship, general partnership, limited partnership (at least one GP with unlimited liability; LPs liable only up to their investment), limited liability partnership and limited company (private and public) on five attributes: legal identity, owner–manager relationship, owner liability, taxation (pass-through vs entity level) and access to financing.
- LOS 2 Describe key features of corporate issuers.** A corporation is a separate legal entity; shareholders elect a board that appoints management (owner–manager separation); shareholder liability is limited to the investment; it raises external equity and debt most easily; profits are taxed at the company level and again when paid out as dividends.
- LOS 3 Compare publicly and privately owned corporate issuers.** Public (listed) vs private (unlisted) on exchange listing, liquidity and price transparency, share issuance, and registration and disclosure; how private companies go public (IPO, direct listing, acquisition incl. SPAC) and public companies go private (take-private, often debt-financed); the variety of owners (individuals, institutions, corporations, governments, non-profits).

Key facts

	Sole proprietor	General partnership	Limited partnership	Corporation
Legal identity	Extension of owner	Extension of partners	Extension of partners	Separate legal entity
Operated by	Owner	Partners	GP	Board and management
Liability	Sole, unlimited	Shared, unlimited	GP unlimited; LPs limited	Limited
Taxation	Pass-through	Pass-through	Pass-through	Company taxed; dividends taxed again
Financing	Owner's capital	Partners' capital	GP/LP capital	Broadest access

Going public: **IPO** (underwriter; *new* shares, capital raised) · **direct listing** (no underwriter, no new shares, existing holders sell; usually large, known brands) · **acquisition** by a listed company or by a **SPAC** (“blank check” shell that IPOs first, holds cash in trust, must buy a target within a set period, e.g. 18 months, or return the money). **Going private:** investors buy all listed shares at a **premium**, often with debt (e.g. leveraged buyout), and delist. **Free float** = shares freely traded, not held by insiders, strategic investors or sponsors.

[India context, not curriculum] Indian “Private Limited” and “Limited” companies and LLPs map to these forms; a public limited company need not be listed on NSE or BSE.

Worked example (CFA curriculum)

Double taxation (Auchan Holding). Pre-tax income EUR838m; corporate tax EUR264m (31.5%); all after-tax income paid out; French investors pay 30% on dividends.

After-tax income = $838 - 264 = \text{EUR}574\text{m}$; dividend tax = $574 \times 0.30 = \text{EUR}172.2\text{m}$; total tax = $264 + 172.2 = \text{EUR}436.2\text{m}$, a **total tax rate** of $436.2/838 = 52.1\%$.

As a pass-through limited partnership only personal tax applies: $838 \times 0.30 = \text{EUR}251.4\text{m}$, i.e. **EUR184.8m less** — and due whether or not profit is distributed.

Look-through ownership (DAG, practice problem). The Dee family owns 30% of listed DAG Inc., which owns 80% of DAG LP (the asset owner): effective ownership = $0.30 \times 0.80 = 24\%$, yet the family controls the assets through DAG Inc. as general partner while shareholders keep limited liability.

What examiners like to test

- **“Public” has two meanings:** a *public limited company* is a legal form; a *public (listed)* company trades on an exchange. Public limited companies need not list, and “public” never means government owned.
- **Double taxation matters least** when the company reinvests all profits (no dividends); partnerships are taxed on profits whether or not distributed.
- **IPO vs direct listing:** only the IPO uses an underwriter and raises new capital. Accredited investors buy *private* placements. A private firm bought by a public one becomes part of a public company.

Module 2 — Investors and Other Stakeholders

Topic: Corporate Issuers · Exam relevance: **Medium-yield** · Calculation + concept

The big picture

Lenders and shareholders fund the same assets and are paid from the same cash flows, but on very different terms: debt is a **fixed, priority, finite** claim; equity is a **residual, permanent** claim with votes. That difference drives their conflicts. Around them sit other stakeholders — board, managers, employees, customers, suppliers, governments — whose interests, together with ESG factors, analysts must weigh when judging an issuer's risk and value.

Learning outcomes in plain language

- LOS 1 Compare the financial claims and motivations of lenders and shareholders.** Debt: contractual interest and principal, priority, capped return, tax-deductible interest, no votes. Equity: residual, discretionary dividends, unlimited upside, votes. Debt is cheaper but riskier for the *issuer*; equity is riskier for the *investor*. Show how leverage magnifies ROE, and why shareholders favour risk and leverage while lenders impose covenants.
- LOS 2 Describe stakeholder groups and compare their interests.** Investors (private lenders vs bondholders), board of directors (inside vs independent; one-tier vs two-tier; staggered boards), managers, employees, customers, suppliers and governments; shareholder theory vs stakeholder theory of corporate governance and the challenges of the latter.
- LOS 3 Describe ESG factors considered by investors.** Environmental (climate: physical vs transition risk, stranded assets; pollution), social (human capital, data privacy, communities) and governance factors; why ESG has become more material and more quantifiable; how adverse ESG events hit equity first and hardest, and debt mainly via credit risk and maturity.

Key formulas

$$\text{ROE} = \frac{\text{Net income}}{\text{Total equity}}, \quad \text{Net income} = \text{Revenue} - \text{Operating expenses} - \text{Interest expense (taxes ignored)}$$

Payoffs (book Exhibits 3–4): if firm value V exceeds debt D (solvent), shareholders get $V - D$ (upside unlimited) and debtholders get their promised payments (capped); if $V < D$ (insolvent), shareholders get nothing and debtholders take control and recover what they can from the assets. **Leverage** raises ROE only when the return on assets exceeds the interest rate on debt, and it always widens the range of ROE outcomes.

	Tenor	Return potential	Maximum loss	Investment risk	Desired outcome
Equity	Indefinite	Unlimited	Initial investment	Higher	Maximize firm value
Debt	Fixed term	Capped	Initial investment	Lower	Timely repayment

Worked example (CFA curriculum)

Leverage and ROE. Two identical firms, assets 100, revenue 100, operating expenses 70, no taxes. Firm U: all equity (100). Firm L: debt 75, equity 25, interest 15 (i.e. 20%).

Base case: U: NI = 30, ROE = **30%**; L: NI = 100 – 70 – 15 = 15, ROE = 15/25 = **60%** (ROA 30% > cost of debt 20%).

Revenue +20% (120): U: 50/100 = 50%; L: 35/25 = **140%**. Revenue –20% (80): U: 10/100 = 10%; L: –5/25 = **–20%** (a loss that threatens debt service).

Financing a new investment of 20 (return 30%, new debt at 20%). Revenue becomes 106. Issue shares: NI 36, equity 120, ROE = 30% (dilution); borrow: NI = 36 – 4 = 32, equity 100, ROE = 32%; use cash on hand: NI 36, equity 100, ROE = **36%** (highest).

What examiners like to test

- **Same maximum loss:** both lenders and shareholders can lose at most their initial investment (limited liability); both payoffs are *asymmetric*. Equity is more sensitive to changes in firm value.
- **Private lenders vs bondholders:** private lenders (banks, lessors) have non-public information, more influence and are *more* willing to amend terms. A higher corporate tax rate makes debt relatively more attractive.
- **Board traps:** a majority-inside, staggered board most limits shareholders' ability to force change; ESG is an explicit objective of the *stakeholder* theory; stranded assets are a *transition* risk; governance is historically the easiest ESG factor to evaluate.

Module 3 — Corporate Governance: Conflicts, Mechanisms, Risks, and Benefits

Topic: Corporate Issuers · Exam relevance: **Medium-yield** · **Concept-heavy**

The big picture

Shareholders (principals) hand their money to directors and managers (agents) who know far more about the business than they do. Whenever the agents' interests differ, value leaks away as **agency costs**. Corporate governance is the system of checks, balances and incentives — reporting, votes, board committees, contracts, laws — that keeps each stakeholder group's interests in balance. Good governance lowers risk and the cost of capital; poor governance ends in fraud, fines and collapse.

Learning outcomes in plain language

- LOS 1 Describe the principal-agent relationship and stakeholder conflicts.** Agents are expected to act in the principal's interest but have more information. Conflicts: shareholders vs managers/directors (insufficient effort, inappropriate risk appetite, empire building, entrenchment, self-dealing); controlling vs minority shareholders (dual-class shares); shareholders vs creditors (leverage, payouts). Agency costs are direct (e.g. auditors) or indirect (lost opportunities).
- LOS 2 Describe governance mechanisms that manage stakeholder relationships.** Reporting and transparency; shareholder mechanisms (AGM/EGM, proxy voting, activism, derivative lawsuits, proxy contests, tender offers, hostile takeovers) and anti-takeover defences; creditor mechanisms (bond indenture, collateral, creditor and ad hoc committees); board committees; employee, customer/supplier and government mechanisms.
- LOS 3 Describe risks of poor governance and benefits of effective governance.** Operational (fraud, weak controls), legal, regulatory and reputational, and financial risks (higher default risk and cost of capital); benefits: efficiency, better controls, investor confidence, lower cost of debt and equity. Key questions analysts should ask.

Key facts

Audit committee	Most widely required; ideally <i>all</i> independent with at least one financial expert. Oversees financial reporting and accounting policies, internal audit; recommends the external auditor and its pay.
Nominating (governance)	Independent members; selects director candidates, runs board elections; sets and enforces governance code, board charter, code of ethics, conflicts-of-interest policy.
Compensation (remuneration)	All independent (management should not assess itself). Designs pay; long-term plans with shares vesting over years curb short-termism; non-binding "say on pay" at the AGM.
AGM vs EGM	AGM: board elections, auditor, accounts, dividends, equity plans, say on pay. EGM: special board elections, bylaw amendments, M&A and asset sales, capital increases, voluntary liquidation. Proxy voting is the most common form of participation.
Takeover tools	Proxy contest (win board votes); tender offer (buy shares directly); hostile takeover (without management consent). Defences: staggered board, poison pill (holders buy discounted shares if a bidder crosses a threshold).
Creditors	Bond indenture (actions required or prohibited), pledged assets, trustee; official creditor committee in bankruptcy; ad hoc committee of bondholders proposing restructuring.
Government	Laws and regulation; governance codes on a "comply or explain" basis; the USA uses securities laws, exchange listing rules and state (Delaware) law.

Worked example (CFA curriculum)

Dual-class control (Magna International). Class A shares carried 1 vote and Class B shares **500 votes**. By holding Class B, the founder and his family controlled **75% of the votes with only 3% of the shares**, and collected large fees and pay despite a weak share price. Shareholders collapsed the structure at an EGM, with the founder leaving after a payout of **CAD870 million over five years** — showing how hard and costly dual-class structures are to unwind (CFA Institute advocates against them).

Leverage and other stakeholders (KLD Marine). A debt-free boat maker, the main employer in a remote town, borrows heavily to pay a one-time dividend. Most harmed: its **specialized welders**, who would struggle to find local work if the firm became distressed; dealers could switch brands, and the large aluminum supplier would barely notice. No group benefits.

What examiners like to test

- **Match the conflict:** all-cash (excessive) pay ⇒ too little risk; heavy options ⇒ too much risk; pay tied to size ⇒ empire building; outside political or charitable roles ⇒ insufficient effort; a 55% holder ⇒ controlling vs minority conflict.
- **Who wants what:** debtholders prefer more equity and lower payouts; shareholders prefer leverage and distributions. Greater information asymmetry makes shareholders and lenders demand higher returns.
- **Benefit wording:** good governance *mitigates* (does not eliminate) fraud risk and lowers the cost of debt and equity; staggered boards and poison pills weaken shareholder rights.

Module 4 — Working Capital and Liquidity

Topic: Corporate Issuers · Exam relevance: **High-yield** · Calculation + concept

The big picture

Cash leaves the firm when suppliers are paid and comes back only when customers pay. The **cash conversion cycle** measures that gap in days; the longer it is, the more financing the firm needs. **Liquidity** is the ability to meet short-term obligations from short-term assets and cash flow. Managing working capital means shrinking the gap, keeping enough (but not idle) liquidity and choosing how much to fund short term versus long term.

Learning outcomes in plain language

- LOS 1 Explain and compare cash conversion cycles.** Compute $CCC = DOH + DSO - DPO$; interpret long, short and negative cycles and a lengthening trend; ways to shorten it; total vs net working capital and its ratio to sales; the effective annual cost of forgoing a supplier's prompt-payment discount.
- LOS 2 Explain and compare liquidity levels.** Primary sources (cash and marketable securities, borrowings, cash flow from the business) vs costly secondary sources (cut dividends or capex, issue equity, renegotiate, sell assets, bankruptcy); drags (slower inflows) vs pulls (faster outflows); current, quick and cash ratios; net proceeds after liquidation costs.
- LOS 3 Describe objectives and compare methods for managing working capital and liquidity.** Permanent vs variable current assets; conservative, moderate ("matched") and aggressive approaches and their pros and cons; objectives of a short-term financing strategy and how size, creditworthiness, legal and regulatory factors and assets shape it.

Key formulas

Cash conversion cycle = Days of inventory on hand + Days sales outstanding – Days payable outstanding

$$\text{EAR of supplier financing} = \left(1 + \frac{\text{Discount \%}}{100\% - \text{Discount \%}} \right)^{\frac{\text{Days in year}}{\text{Payment period} - \text{Discount period}}} - 1$$

$$\text{Current ratio} = \frac{\text{Current assets}}{\text{Current liabilities}}, \quad \text{Cash ratio} = \frac{\text{Cash} + \text{ST marketable instruments}}{\text{Current liabilities}}$$

$$\text{Quick ratio} = \frac{\text{Cash} + \text{ST marketable instruments} + \text{Receivables}}{\text{Current liabilities}}$$

Total working capital = current assets – current liabilities. **Net working capital** = current assets excluding cash and marketable securities – current liabilities excluding short-term and current debt (often shown as % of sales). **Cash flow from operations** = cash from customers + interest and dividends received – cash paid to employees and suppliers – taxes – interest paid; **free cash flow** = CFO – investments in long-term assets. The book uses 365 days in a year for the EAR.

Worked example (CFA curriculum)

Trade credit vs bank loan (Keown). Terms 2/10, net 30; bank loan at EAR 7.7%. Forgoing the discount borrows for $30 - 10 = 20$ days: $\text{EAR} = (1 + 0.02/0.98)^{365/20} - 1 = 44.6\% \gg 7.7\%$, so borrow from the bank and take the discount.

Liquidity ratios (Licht Vernieuwend, EUR m). Current liabilities (payables + accruals + ST bank loan): $20 \times 140 + 15 + 70 = 225$; $20 \times 2130 + 30 + 60 = 220$.

Cash ratio: $(45 + 90)/225 = 0.60 \rightarrow (40 + 70)/220 = 0.50$. Quick ratio: $(45 + 90 + 90)/225 = 1.00 \rightarrow (40 + 70 + 85)/220 = 0.89$. Current ratio: $306/225 = 1.36 \rightarrow 335/220 = 1.52$. The current ratio rose only because inventory jumped (66 to 130); on the most conservative measure (cash ratio) liquidity fell. Net working capital rose from 16 to 65.

CCC comparison. Walmart $5 + 48 - 47 = 6$ days; Target $2 + 68 - 75 = -5$ (shortest); TJX $7 + 63 - 47 = 23$ (longest). Inditex: $11 + 93 - 190 = -86$ days, with net working capital of -8.4% of sales.

What examiners like to test

- **Direction of effects:** higher DPO *shortens* the CCC; forgoing a discount raises DPO (shorter CCC, more liquidity, at a cost). Cash and marketable securities do not enter the CCC.
- **Drag vs pull:** uncollected receivables, obsolete inventory, borrowing constraints = drags (inflows); early payments, cut credit limits or lines, low liquidity = pulls (outflows). A higher credit limit *adds* liquidity.
- **Approaches:** conservative = more current assets, long-term funding, costliest but flexible; aggressive = fewer current assets, short-term funding, cheapest but rollover risk. Lowest EAR among terms: compare cost per extra day ($1/10$, net 50 = 9.6% vs $2/15$, net 40 = 34.3%).

Module 5 — Capital Investments and Capital Allocation

Topic: Corporate Issuers · Exam relevance: High-yield · Calculation-heavy

The big picture

A company creates value only when its long-term investments earn more than investors could earn elsewhere at similar risk. Managers judge individual projects with **NPV** and **IRR** on after-tax, incremental cash flows; outside analysts, who cannot see projects, judge the whole firm with **ROIC**. Flexibility to delay, expand, abandon or adapt a project (**real options**) can turn a rejected project into an accepted one.

Learning outcomes in plain language

- LOS 1 Describe types of capital investments.** Going concern (maintenance; often estimated by depreciation and amortization), regulatory/compliance (may go ahead even with negative NPV), expansion of existing business, and new lines of business and other (riskiest).
- LOS 2 Describe the capital allocation process; calculate NPV, IRR and ROIC and contrast them.** Steps: idea generation, investment analysis, planning and prioritization, monitoring and post-investment review. Project vs firm-wide, cash vs accounting, reinvestment assumptions, multiple IRRs, mutually exclusive projects.
- LOS 3 Describe principles and common pitfalls.** Principles: after-tax cash flows, incremental cash flows only (ignore sunk costs; include effects on the rest of the firm), timing of cash flows. Cognitive errors: forecasting errors, treating internal funds as free, inconsistent inflation treatment. Behavioural biases: inertia, focus on EPS, pet projects, no alternatives or scenarios.
- LOS 4 Describe types of real options.** Timing, sizing (abandonment; growth/expansion), flexibility (price-setting; production flexibility) and fundamental options; value by NPV – option cost + option value, or by decision trees and option pricing models.

Key formulas

$$NPV = \sum_{t=0}^T \frac{CF_t}{(1+r)^t} \quad \sum_{t=0}^T \frac{CF_t}{(1+IRR)^t} = 0 \quad ROIC = \frac{(1 - \text{Tax rate}) \times \text{Operating profit}_t}{\text{Average total LT liabilities and equity}_{t-1,t}}$$

where CF_t = after-tax cash flow at time t ; r = required rate of return (what investors could earn on a similarly risky investment; the hurdle rate). Invest if $NPV \geq 0$ or $IRR \geq r$. IRR assumes reinvestment at the IRR; NPV at r . **ROIC** = (after-tax operating profit/sales) $\times$ (sales/average invested capital), i.e. margin $\times$ turnover; compare it with a blended required return of debt and equity. **Real options:** Project NPV = NPV (without options) – Option cost + Option value.

[Note: The book says working capital is “not included” in invested capital, yet $LT \text{ liabilities} + \text{equity} = LT \text{ assets} + \text{current assets} - \text{current liabilities}$. Use the book's formula.]

Worked example (CFA curriculum)

NPV and IRR (Gerhardt). Invest EUR50m; after-tax inflows 16 in years 1–4 and 20 in year 5; $r = 10\%$. PV of inflows = 63.136, so $NPV = -50 + 63.136 = \text{EUR}13.136\text{m}$; $IRR = 19.52\% > 10\%$: accept.

ROIC. After-tax operating profit 24,395; invested capital (LT debt + share capital + retained earnings) = 112,257 + 15,688 + 148,442 = 276,387 (Y1) and 106,597 + 15,688 + 159,995 = 282,280 (Y2). $ROIC = 24,395 / 279,333.5 = 8.73\%$, below a 10% required return.

Real options (decision tree). Outlay EUR500m; 60% chance of 750 at $t = 1$. On failure (40%) the plant is used for an alternative product (30%: 600 at $t = 2$), sold (30%: 400 at $t = 2$) or abandoned (40%: 0). Without options: $-500 + 0.6(750)/1.10 = -90.91$ (reject). With options (conditional probability $0.4 \times 0.3 = 0.12$ each): $-500 + 409.09 + (0.12 \times 600 + 0.12 \times 400)/1.10^2 = +8.26$ (accept).

What examiners like to test

- **NPV vs IRR:** for mutually exclusive projects choose the *higher NPV*. With more than one sign change there can be several IRRs (–1,000, +5,000, –6,000 gives 100% and 200%); use NPV. Spreadsheet NPV() treats the first value as $t = 1$: add CF_0 separately.
- **Cash-flow principles:** depreciation matters only through its tax saving; sunk costs (e.g. completed market research) are ignored but lost sales of existing products are included; internal funds carry the equity opportunity cost; discount nominal with nominal, real with real.
- **Bias spotting:** capex flat or rising while segment ROIC falls = inertia; EPS-linked pay can make managers reject high-NPV projects. ROIC is observable and firm-wide but backward-looking, accounting-based, volatile and can mask weak segments.

Module 6 — Capital Structure

Topic: Corporate Issuers · Exam relevance: **High-yield** · **Calculation-heavy**

The big picture

Capital structure is the mix of long-term debt and equity. Managers aim for the mix with the lowest **WACC**, matched to the life of the assets. Modigliani and Miller show that in a perfect world the mix does not matter — cheaper debt is exactly offset by costlier equity — so value comes from **cash flows**, not financing. Add taxes and debt helps; add financial distress costs and there is an optimal (target) amount of debt.

Learning outcomes in plain language

- LOS 1 Calculate and interpret WACC.** Blend the after-tax cost of debt and the cost of equity using market-value (or management's target) weights; WACC, adjusted for project risk, is r in NPV and the IRR hurdle rate.
- LOS 2 Explain factors affecting capital structure and WACC.** Amount and type of financing: business model (capital-intensive vs capital-light) and life cycle (startup: equity, leases, convertibles; growth: secured debt; mature: unsecured debt). Costs of debt and equity: top-down (market, economic, industry conditions) and issuer-specific (sales risk, operating leverage, financial leverage and interest coverage, collateral).
- LOS 3 Explain the Modigliani–Miller propositions.** Assumptions; Proposition I and II without taxes (value and WACC unchanged; cost of equity rises linearly with D/E); with corporate taxes (value rises by tD , WACC falls; 100% debt at the extreme); direct and indirect costs of financial distress.
- LOS 4 Describe optimal and target capital structures.** Static trade-off theory (optimum where the marginal tax benefit equals the marginal distress cost); target ranges, usually in book values; estimating target weights; pecking order theory (internal funds, then debt, equity last) and signalling; agency costs and the free cash flow hypothesis.

Key formulas

$\text{WACC} = (\text{Cost of debt} \times \text{Weighting of debt}) + (\text{Cost of equity} \times \text{Weighting of equity})$, After-tax $r_d = \text{Before-tax } r_d \times (1 - t)$

MM II (no taxes): $r_e = r_0 + (r_0 - r_d) \frac{D}{E}$ MM I with taxes: $V_L = V_U + tD$ MM II with taxes: $r_e = r_0 + (r_0 - r_d)(1 - t) \frac{D}{E}$

Static trade-off: $V_L = V_U + tD - \text{PV}(\text{Costs of financial distress})$ Weight of debt = $\frac{D/E}{1 + D/E}$

where r_e = cost of equity; r_0 = cost of capital of an all-equity company; r_d = cost of debt; D, E = market values of debt and equity; t = marginal tax rate; V_L, V_U = values of levered and unlevered company. Without taxes (MM I) $V_L = V_U$. Also: operating leverage = Fixed costs/Total costs; interest coverage = Profit before interest and taxes/Interest expense.

Worked example (CFA curriculum)

WACC (ABC). 40% debt at 4% pre-tax, 60% equity at 10%, tax 23%: $\text{WACC} = 0.04(1 - 0.23)(0.40) + 0.10(0.60) = 7.23\%$.

MM without taxes (Gerhardt). All equity, perpetual cash flow EUR5,000, $r_0 = 10\%$: $V = 5,000/0.10 = \text{EUR}50,000$. Issue EUR15,000 of 5% debt to buy back equity: $r_e = 0.10 + (0.10 - 0.05)(15,000/35,000) = 12.143\%$; $\text{WACC} = (15/50)(5\%) + (35/50)(12.143\%) = 10\%$, so value stays EUR50,000.

MM with 25% tax. $V_U = 5,000(0.75)/0.10 = \text{EUR}37,500$; $V_L = 37,500 + 0.25(15,000) = \text{EUR}41,250$, so $E = 26,250$. $r_e = 0.10 + (0.05)(0.75)(15,000/26,250) = 12.143\%$; $\text{WACC} = (15,000/41,250)(5\%)(0.75) + (26,250/41,250)(12.143\%) = 9.091\%$ (down from 10%). [Note: In this example the book cites "MM Proposition II with corporate taxes (i.e., Equation 5)" for $V_L = V_U + tD$; Equation 5 is Proposition I with taxes.]

Optimal debt (Boulder). $V_U = 45$, $t = 30\%$; PV of distress costs 0.5, 1.5, 6.0 at $D = 15, 20, 25$: $V_L = 49.0, 49.5, 46.5$, so $D^* \approx \$20\text{m}$.

What examiners like to test

- **Which MM result?** 100% debt optimal = MM with taxes and no distress costs; WACC unchanged = no taxes; with taxes r_e still rises, but more slowly.
- **Weights:** use market values for WACC (a rise in share price lowers the debt weight); targets are often in book values; convert D/E of 0.7 to $w_d = 0.7/1.7 = 0.4118$.
- **Theory match:** optimal structure = static trade-off; asymmetric information and signalling = pecking order (no optimal structure); agency costs = free cash flow hypothesis. Higher operating leverage or business risk raises the costs of debt and equity.

Module 7 — Business Models

Topic: Corporate Issuers · Exam relevance: **Low-yield** · **Concept-heavy**

The big picture

A business model is a plain description of how a business makes money: **who** its customers are, **what** it sells (and why customers buy it), **where** and through which channels it sells, **how much** it charges, and **how** it is organized to deliver at a profit. Analysts build their own view of the model — rather than relying on management's — because it shapes revenue, cost behaviour, risks and the financing a firm needs.

Learning outcomes in plain language

- LOS 1 Describe key features of business models.** Target customers and segments (B2B vs B2C, geography); product or service offering and the customer “job” it does; channel strategy (traditional intermediaries, direct sales, omnichannel); pricing (price taker vs pricing power, cost leadership, total cost of ownership) and pricing models; value proposition; organization and capabilities; value chain vs supply chain; unit economics and profitability.
- LOS 2 Describe various types of business models.** Eight conventional models, common variations (private label/contract manufacturing, value-added resellers, licensing, franchising), business model innovation (often digital), network effects (one-sided and multi-sided platforms) and crowdsourcing.

Key facts

Pricing models	<i>Tiered</i> (by volume or features); <i>dynamic</i> (by time, supply and demand, e.g. surge pricing); <i>value-based</i> (value to the customer); <i>auction/reverse auction</i> . Price discrimination aims to maximize profit when customers differ in willingness to pay.
Multiple/complex products	<i>Bundling</i> ; <i>razor</i> , <i>razorblade</i> (cheap durable, high-margin consumables); <i>add-on</i> pricing (optional extras once the customer is “captive”).
Building scale	<i>Penetration pricing</i> (discount to gain share); <i>freemium</i> (basic use free); <i>hidden revenue</i> (free to users, paid by others, e.g. advertisers).
Recurring revenue	<i>Subscriptions</i> ; <i>leasing</i> (physical assets), <i>licensing</i> (intellectual property), <i>franchising</i> (licence plus territory and support; franchisor earns a royalty).
Value chain vs supply chain	<i>Value chain</i> : systems and processes <i>within one firm</i> that create customer value (Porter: primary activities — inbound logistics, operations, outbound logistics, marketing and sales, service; support — procurement, HR, technology development, infrastructure). <i>Supply chain</i> : all steps to make and deliver the product, inside <i>and</i> outside the firm.
Conventional models	Natural resource producer, manufacturer, distributor, retailer, broker, bank, service producer, software (e.g. Infosys as a service producer).
Network effects	Value of a network rises as more users join. One-sided (phone, peer-to-peer payments); two- or multi-sided platforms (card networks, marketplaces, food delivery). Strong barrier to entry. Digital technology: location matters less, outsourcing is easier, marketing can target narrow segments.

Worked example (CFA curriculum)

Two models for one firm (HD Tools, fictional). *Model A*: apartment dwellers and new homeowners (who) buy a simple, low-priced tool kit (what), online or at mass retailers (where), at a low price point (how much); the challenge is a product cost low enough for an acceptable margin. *Model B*: do-it-yourself and professional trades buy a full range of premium tools individually through home-improvement stores and trade distributors; success depends on demonstrable quality, warranty, availability and knowledgeable staff — hard for a new brand against established rivals.

Reading a model (Winston Bikes vs Carbondash). Winston: mass-market bikes, leased robotic plant, simple designs, many suppliers, thin margins — scales up or down easily but is a *price taker* exposed to material costs. Carbondash: hand-built premium bikes, long-term skilled labour, a single-source rare input, direct sales to loyal price-insensitive buyers — higher prices and unit costs, more supplier risk, better able to pass on cost increases.

What examiners like to test

- **Definitions:** segmenting (grouping customers); pricing power vs price taker (commodity producer); value proposition (why customers choose the firm, given relative price); value chain is *within* a firm, supply chain spans firms.
- **Spot the missing element:** a description giving product, channel and pricing but no target customers omits the “who”.
- **Model logic:** network-effect businesses tend to be few and large (e.g. online travel agencies vs many hotels); a direct sales channel brings close customer relationships but high fixed selling costs.