



RBei Classes

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CFA® PROGRAM LEVEL I

Essential Formula Sheet

2026 Curriculum Edition

Inside This Sheet — All 10 Topic Areas

Quantitative Methods • Economics • Financial Statement Analysis
Corporate Issuers • Equity Investments • Fixed Income
Derivatives • Alternative Investments • Portfolio Management • Ethics

Curriculum-aligned ♦ Formula-by-formula checked ♦ Exam-ready

Prepared by RBei Classes

A quick-revision companion to the official CFA Institute curriculum • For candidate study use only

CFA® Level I — Essential Formula Sheet

RBci Classes • 2026 Curriculum • All 10 Topic Areas

Compiled and cross-checked against the 2026 Level I learning modules. Use alongside the official curriculum.

1. QUANTITATIVE METHODS

Time Value of Money

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

Annuities & Perpetuity

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

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

$$PV_{perp} = \frac{A}{r} \quad PV_{perp}(t-1) = \frac{A}{r}$$

Compounding of Rates

$$EAR = \left(1 + \frac{r_s}{m}\right)^m - 1$$

$$EAR_{cont} = e^{r_s} - 1 \quad r_{cc} = \ln(1 + HPR)$$

Returns

$$HPR = \frac{P_1 - P_0 + D_1}{P_0}$$

$$\bar{R}_{geo} = \left[\prod_{i=1}^n (1 + R_i) \right]^{1/n} - 1$$

$$\bar{R}_{harm} = \frac{n}{\sum_{i=1}^n (1/R_i)}$$

Money-weighted return = IRR of all cash flows. Time-weighted return chains sub-period HPRs.

$$R_{real} \approx \frac{1 + R_{nom}}{1 + \text{infl}} - 1$$

Money-Market Yields

$$r_{BD} = \frac{D}{F} \cdot \frac{360}{t} \quad (D = F - P)$$

$$r_{MM} = \frac{360 r_{BD}}{360 - t r_{BD}} = HPY \cdot \frac{360}{t}$$

$$EAY = (1 + HPY)^{365/t} - 1$$

Dispersion

$$\sigma^2 = \frac{\sum (X_i - \mu)^2}{N} \quad s^2 = \frac{\sum (X_i - \bar{X})^2}{n - 1}$$

$$CV = \frac{s}{\bar{X}} \quad \text{Sharpe} = \frac{\bar{R}_p - R_f}{\sigma_p}$$

Covariance & Correlation

$$\rho_{XY} = \frac{\text{Cov}(X, Y)}{\sigma_X \sigma_Y}$$

Probability

$$E(X) = \sum P(x_i) x_i$$

$$\sigma^2(X) = \sum P(x_i) [x_i - E(X)]^2$$

$$P(A|B) = \frac{P(B|A)P(A)}{P(B)} \quad (\text{Bayes})$$

$${}_nC_r = \frac{n!}{(n-r)!r!} \quad {}_nP_r = \frac{n!}{(n-r)!}$$

Distributions & Sampling

$$z = \frac{x - \mu}{\sigma} \quad \text{SF Ratio} = \frac{E(R_p) - R_L}{\sigma_p}$$

$$\sigma_{\bar{X}} = \frac{\sigma}{\sqrt{n}} \quad CI: \bar{X} \pm z_{\alpha/2} \frac{s}{\sqrt{n}}$$

Hypothesis Test & Regression

$$t = \frac{\bar{X} - \mu_0}{s/\sqrt{n}} \quad \hat{Y} = b_0 + b_1 X$$

$$b_1 = \frac{\text{Cov}(X, Y)}{\sigma_X^2} \quad b_0 = \bar{Y} - b_1 \bar{X}$$

2. ECONOMICS

Elasticities

$$E_{price} = \frac{\% \Delta Q_d}{\% \Delta P} \quad E_{inc} = \frac{\% \Delta Q_d}{\% \Delta I}$$

$$E_{cross} = \frac{\% \Delta Q_d^x}{\% \Delta P^y}$$

$|E| > 1$ elastic; substitutes $E_{cross} > 0$; normal good $E_{inc} > 0$.

National Accounts

$$GDP = C + I + G + (X - M)$$

Expenditure $\equiv$ Income approach. GDP = consumption + investment + gov't + net exports.

Money & Inflation

$$MV = PY \quad (\text{Quantity theory of money})$$

$$(1 + r_{nom}) = (1 + r_{real})(1 + \pi^e)$$

Fisher: $r_{nom} \approx r_{real} + \pi^e$.

Exchange Rates (Price/Base)

$$\text{Cross rate: } \frac{A}{C} = \frac{A}{B} \times \frac{B}{C}$$

$$F_{P/B} = S_{P/B} \times \frac{1 + i_P}{1 + i_B}$$

Covered interest rate parity; i_P = price-currency rate, i_B = base-currency rate over the period.

$$\text{Fwd premium} = F - S \quad \left(\% = \frac{F-S}{S} \right)$$

3. FINANCIAL STATEMENT ANALYSIS

Liquidity

$$\text{Current} = \frac{CA}{CL} \quad \text{Cash} = \frac{\text{Cash} + ST\ Mkt}{CL}$$

$$\text{Quick} = \frac{\text{Cash} + ST\ Mkt + Recv}{CL}$$

Activity

$$\text{Inv T/O} = \frac{COGS}{\text{Avg inv}} \quad \text{DOH} = \frac{365}{\text{Inv T/O}}$$

$$\text{Recv T/O} = \frac{\text{Revenue}}{\text{Avg recv}} \quad \text{DSO} = \frac{365}{\text{Recv T/O}}$$

$$\text{Pay T/O} = \frac{\text{Purchases}}{\text{Avg pay}} \quad \text{DPO} = \frac{365}{\text{Pay T/O}}$$

$$CCC = DOH + DSO - DPO$$

Solvency

$$\frac{D}{E} \quad \frac{D}{\text{Capital}} \quad \frac{D}{\text{Assets}} \quad \text{Lev} = \frac{\text{Avg assets}}{\text{Avg equity}}$$

$$\text{Int. coverage} = \frac{EBIT}{\text{Interest}}$$

Profitability

$$\text{Net margin} = \frac{NI}{\text{Rev}} \quad \text{ROA} = \frac{NI}{\text{Avg assets}}$$

$$\text{ROE} = \frac{NI}{\text{Avg equity}}$$

DuPont Decomposition

$$ROE = ROA \times \text{Leverage}$$

$$ROE = \underbrace{\frac{NI}{\text{Rev}}}_{\text{margin}} \times \underbrace{\frac{\text{Rev}}{\text{Assets}}}_{\text{turnover}} \times \underbrace{\frac{\text{Assets}}{\text{Equity}}}_{\text{leverage}}$$

$$ROE = \frac{NI}{EBT} \cdot \frac{EBT}{EBIT} \cdot \frac{EBIT}{\text{Rev}} \cdot \frac{\text{Rev}}{\text{Assets}} \cdot \frac{\text{Assets}}{\text{Equity}}$$

= Tax burden × Interest burden × EBIT margin × Asset turnover × Leverage.

Per-Share & Cash Flow

$$\text{Basic EPS} = \frac{NI - \text{Pref. div}}{\text{Wtd avg shares}}$$

$$FCFF = NI + NCC + \text{Int}(1-t) - FCInv - WCInv$$

$$FCFF = CFO + \text{Int}(1-t) - FCInv$$

$$FCFE = CFO - FCInv + \text{Net borrowing}$$

4. CORPORATE ISSUERS

Cost of Capital (WACC)

$$WACC = w_d r_d(1-t) + w_p r_p + w_e r_e$$

$$r_p = \frac{D_p}{P_p} \quad r_d^{after} = r_d(1-t)$$

Cost of Equity

$$r_e = R_f + \beta_i [E(R_m) - R_f] \quad (\text{CAPM})$$

$$r_e = \frac{D_1}{P_0} + g \quad (\text{DDM})$$

$$r_e = r_d + \text{risk premium} \quad (\text{bond yield} + \text{RP})$$

Leverage

$$DOL = \frac{Q(P - V)}{Q(P - V) - F}$$

$$DFL = \frac{EBIT}{EBIT - \text{Interest}}$$

$$DTL = DOL \times DFL = \frac{Q(P - V)}{Q(P - V) - F - I}$$

Breakeven

$$Q_{BE} = \frac{F + I}{P - V} \quad Q_{OBE} = \frac{F}{P - V}$$

Investment Decisions

$$NPV = \sum_{t=1}^N \frac{CF_t}{(1+r)^t} - \text{Outlay}$$

IRR: rate where NPV = 0. Accept if NPV > 0 or IRR > required return.

Modigliani-Miller (no taxes)

$$r_e = r_0 + (r_0 - r_d) \frac{D}{E}$$

Prop II: WACC and firm value unchanged by capital structure (no taxes).

5. EQUITY INVESTMENTS

Dividend Discount Models

$$V_0 = \frac{D_1}{r - g} = \frac{D_0(1+g)}{r - g} \quad (\text{Gordon})$$

$$V_0 = \sum_{t=1}^n \frac{D_t}{(1+r)^t} + \frac{V_n}{(1+r)^n}, \quad V_n = \frac{D_{n+1}}{r - g}$$

Growth & Preferred

$$g = b \times ROE \quad b = 1 - \text{payout}$$

$$V_{pref} = \frac{D_p}{r}$$

Multiples

$$\text{Justified fwd } \frac{P_0}{E_1} = \frac{D_1/E_1}{r - g} = \frac{\text{payout}}{r - g}$$

$$\text{Justified trailing } \frac{P_0}{E_0} = \frac{(1-b)(1+g)}{r - g}$$

$$EV = \text{MV equity} + \text{MV debt} - \text{Cash \& Inv}$$

Margin Trading

$$\text{Leverage} = \frac{1}{\text{Initial margin \%}}$$

$$P_{call} = P_0 \frac{1 - \text{Initial margin}}{1 - \text{Maint. margin}}$$

6. FIXED INCOME

Pricing & Yields

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

$$\text{Current yield} = \frac{\text{Annual coupon}}{\text{Bond price}}$$

Money Market Instruments

$$PV = FV \left(1 - \frac{\text{Days}}{\text{Year}} DR \right)$$

$$PV = \frac{FV}{1 + \frac{\text{Days}}{\text{Year}} AOR}$$

Spot & Forward Rates

$$(1 + z_A)^A (1 + f_{A,B})^B = (1 + z_{A+B})^{A+B}$$

Full / Flat Price

$$PV^{Full} = PV \times (1 + r)^{t/T}$$

$$AI = \frac{t}{T} \times PMT \quad PV^{Flat} = PV^{Full} - AI$$

Duration

$$\text{ModDur} = \frac{\text{MacDur}}{1 + r}$$

$$\text{ApproxModDur} = \frac{PV_- - PV_+}{2 \times \Delta \text{Yield} \times PV_0}$$

$$\text{MoneyDur} = \text{AnnModDur} \times PV^{Full}$$

$$PVBP = \frac{PV_- - PV_+}{2}$$

$$\text{EffDur} = \frac{PV_- - PV_+}{2 \times \Delta \text{Curve} \times PV_0}$$

Convexity & Price Change

$$\text{ApproxCon} = \frac{PV_- + PV_+ - 2PV_0}{(\Delta \text{Yield})^2 \times PV_0}$$

$$\% \Delta PV^{Full} \approx -\text{ModDur} \Delta y + \frac{1}{2} \text{Con} (\Delta y)^2$$

Credit Risk

$$\text{Expected loss} = POD \times LGD$$

$$LGD = \text{Exposure} \times (1 - \text{Recovery rate})$$

7. DERIVATIVES

Forward Pricing

$$F_0(T) = S_0(1 + r)^T \quad (\text{no carry})$$

$$F_0(T) = [S_0 - PV_0(I) + PV_0(C)](1 + r)^T$$

I = income/benefits of holding; C = carry/storage costs.

Forward Value (long, time t)

$$V_t = \frac{F_t(T) - F_0(T)}{(1 + r)^{T-t}}$$

Option Moneyness & Value

$$\text{Call exercise} = \max(0, S_t - X)$$

$$\text{Put exercise} = \max(0, X - S_t)$$

$$\text{Option value} = \text{Exercise value} + \text{Time value}$$

Put-Call Parity

$$S_0 + p_0 = c_0 + \frac{X}{(1 + r)^T}$$

Put-Call-Forward Parity

$$\frac{F_0(T)}{(1 + r)^T} + p_0 = c_0 + \frac{X}{(1 + r)^T}$$

8. ALTERNATIVE INVESTMENTS

Hedge Fund Fees (e.g. "2 and 20")

$$\text{Mgmt fee} = \text{Mgmt \%} \times AUM$$

$$\text{Incentive} = \text{Incentive \%} \times \text{Profit}_{>\text{hurdle/HWM}}$$

High-water mark: incentive only on gains above prior peak NAV. Fees may be computed independently or net of the management fee.

Real Estate

$$NOI = \text{Rental income} - \text{Operating expenses}$$

$$\text{Cap rate} = \frac{NOI}{\text{Property value}}$$

$$\text{Value} = \frac{NOI}{\text{Cap rate}}$$

9. PORTFOLIO MANAGEMENT

Portfolio Return & Risk

$$E(R_p) = \sum_i w_i E(R_i)$$

$$\sigma_p^2 = w_1^2 \sigma_1^2 + w_2^2 \sigma_2^2 + 2w_1 w_2 \rho_{12} \sigma_1 \sigma_2$$

$$\text{Cov}_{12} = \rho_{12} \sigma_1 \sigma_2.$$

CAPM & Beta

$$E(R_i) = R_f + \beta_i [E(R_m) - R_f] \quad (SML)$$

$$\beta_i = \frac{\text{Cov}(R_i, R_m)}{\sigma_m^2} = \frac{\rho_{i,m} \sigma_i}{\sigma_m}$$

Capital Market Line

$$E(R_p) = R_f + \frac{E(R_m) - R_f}{\sigma_m} \sigma_p$$

Total risk = systematic + unsystematic (diversifiable) risk.

Performance Measures

$$\text{Sharpe} = \frac{R_p - R_f}{\sigma_p} \quad \text{Treynor} = \frac{R_p - R_f}{\beta_p}$$

$$\alpha_J = R_p - [R_f + \beta_p(R_m - R_f)]$$

$$M^2 = (R_p - R_f) \frac{\sigma_m}{\sigma_p} - (R_m - R_f)$$

Investor Utility

$$U = E(R) - \frac{1}{2} A \sigma^2$$

A = risk-aversion coefficient ($A > 0$ risk averse).

10. ETHICAL & PROFESSIONAL STANDARDS

Conceptual, not formula-based. Master the **Code of Ethics** and the **seven Standards**:

- I. Professionalism
- II. Integrity of Capital Markets
- III. Duties to Clients
- IV. Duties to Employers
- V. Investment Analysis, Recommendations & Actions
- VI. Conflicts of Interest
- VII. Responsibilities as a CFA Member/Candidate

GIPS: voluntary, firm-wide; require fair representation & full disclosure of investment performance.

The Standards override local law only where law is less strict.