

LM05 · FINANCIAL STATEMENT ANALYSIS · CFA LEVEL I

Analyzing Statements of Cash Flows II

Evaluating cash-flow quality, common-size analysis, FCFF/FCFE, and cash-flow ratios

What This Module Covers

LM05 is the **analysis and evaluation half** of the cash flow statement. Where LM04 built the statement, LM05 teaches you to *read* it: link its line items back to the income statement and balance sheet, produce common-size views, compute free cash flow (FCFF, FCFE), and diagnose a firm's cash-flow quality with performance and coverage ratios.

Learning Outcome Statements (LM05)

LOS a Analyze and interpret both reported and common-size cash flow statements

LOS b Calculate and interpret free cash flow to the firm (FCFF), free cash flow to equity (FCFE), and performance and coverage cash flow ratios

Three Analytical Moves You Must Master

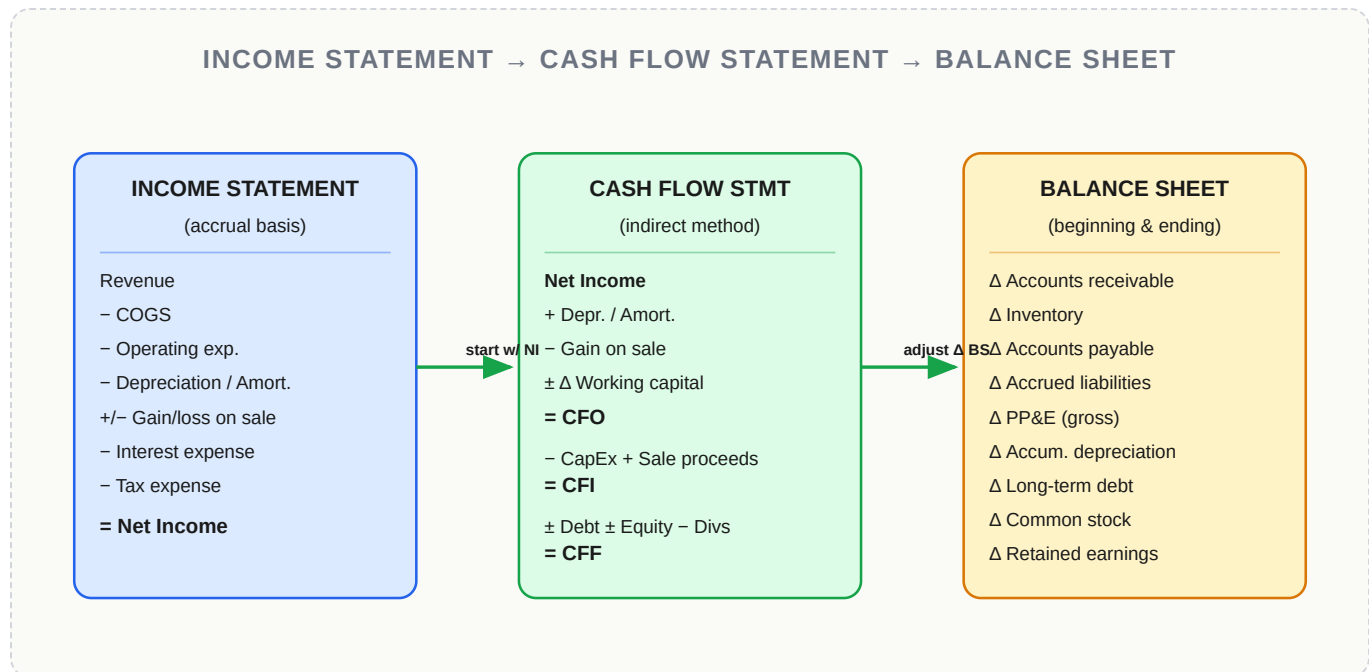
1. **Link CFS ↔ IS ↔ BS.** Every CFS line item reconciles back to a change on the balance sheet or a flow on the income statement.
2. **Convert to common-size.** Either as a % of revenue or as a % of total inflows/outflows — both are in the curriculum.
3. **Compute free cash flow & cash flow ratios.** FCFF, FCFE, performance ratios, coverage ratios.

Exam Tip: Cash-flow quality is a recurring exam theme. Memorize the rule: **earnings >> CFO** signals aggressive accounting (premature revenue / deferred expense). **Positive CFO from liquidating working capital** (shrinking receivables, inventories, or stretching payables) is not sustainable.

LOS A · LINKING CASH FLOW TO INCOME STATEMENT & BALANCE SHEET

Every CFS Line Ties Back to IS or BS

Under the **indirect method**, each CFO adjustment answers one question: "What balance-sheet change caused NI and CFO to differ?" This is the mechanical skill the exam tests.



The Working-Capital Adjustment Rules

From the indirect method (Schweser): "Adjust for working capital by adding or subtracting changes to balance sheet operating accounts as follows":

BALANCE-SHEET CHANGE	EFFECT ON CFO	INTUITION
↑ Operating asset (e.g., A/R, inventory)	Subtract	Use of cash — cash tied up in receivables or stock
↓ Operating asset	Add	Source of cash — asset converted to cash
↑ Operating liability (e.g., A/P, accruals)	Add	Source of cash — financed from suppliers
↓ Operating liability	Subtract	Use of cash — paid down the liability

Item-by-item Linkage

Depreciation / Amortization

Non-cash IS expense → **add back** to NI in CFO · appears on BS as Δ accumulated depreciation

Gain on sale of asset	Non-operating IS item → subtract from NI in CFO (move gross proceeds to CFI) · BS effect: ↓ PP&E at carrying value
Cash collected from customers	Sales (IS) adjusted for Δ A/R and Δ unearned revenue (BS) — direct method
Cash paid to suppliers	COGS (IS) adjusted for Δ inventory and Δ A/P (BS)
CapEx	Outflow in CFI · appears on BS as ↑ gross PP&E
Debt issuance / repayment	CFF flow · appears on BS as Δ long-term debt
Dividends paid	CFF (US GAAP) outflow · appears on BS as reduction in retained earnings after NI is added

Exam Tip: Non-cash investing/financing activities (barter, stock dividends, conversion of convertibles) do **not** appear in the cash flow sections — "no cash, no CFS reporting" — but if material must be disclosed in the footnotes.

LOS A · EVALUATING THE MAJOR CF CATEGORIES

Diagnosing Cash-Flow Quality

Schweser's three evaluation lenses (and IFT's echoing framework):

1. OPERATING CASH FLOW

"The analyst should identify the major determinants of operating cash flow — primarily, the firm's earning-related activities and changes in noncash working capital."

Quality signal: CFO $\approx$ Net Income indicates high-quality earnings.

Red flag: Earnings that *exceed* CFO may indicate premature revenue recognition or delayed expense recognition.

2. INVESTING CASH FLOW

"Increasing capital expenditures, a use of cash, is usually an indication of growth."

Caution: A firm may reduce CapEx or sell capital assets to conserve/generate cash. "This may result in higher cash outflows in the future as older assets are replaced or growth resumes."

3. FINANCING CASH FLOW

Reveals "whether the firm is generating cash by issuing debt or equity" and "whether the firm is using cash to repay debt, reacquire stock, or pay dividends."

Read as a capital-structure choice.

IFT Rule on Sustainable CFO

"A positive operating cash flow generated by liquidating noncash working capital items (like liquidating inventory and receivables or increasing payables) is **not sustainable**. Earnings that are significantly greater than operating cash flows indicate that aggressive accounting policies are being followed."

Startups are exempt from the "positive CFO = healthy" rule (investment phase).

Interpreting CapEx Direction

Increasing CapEx outflows → indication of growth / expansion · cash invested today to generate future CFO

Decreasing CapEx outflows → may signal reduction in growth · or cash conservation that stores up future replacement need

LOS A · COMMON-SIZE CASH FLOW STATEMENT

Common-Size Cash Flow Analysis

Schweser: "The cash flow statement can be converted to common-size format by expressing each line item as a percentage of revenue. Alternatively, each *inflow* of cash can be expressed as a percentage of total cash inflows, and each *outflow* of cash can be expressed as a percentage of total cash outflows."

Two Approaches (verbatim from IFT)

Approach 1 (inflows/outflows method): "express each line item of cash inflow (outflow) as a percentage of total inflows (outflows)."

Approach 2 (revenue method): "express each line item as a percentage of revenue."

Purpose: "A common-size cash flow statement makes it easier to identify trends in cash flows. It also helps us in forecasting future cash flows."

Illustration — Approach 1 (% of total inflows/outflows)

EACH INFLOW AS % OF TOTAL INFLOWS · EACH OUTFLOW AS % OF TOTAL OUTFLOWS

LINE ITEM	\$ (EX.)	% OF TOTAL INFLOWS	% OF TOTAL OUTFLOWS
Cash from customers	+1,000	83%	—
Proceeds from debt issuance	+200	17%	—
Total inflows	+1,200	100%	—
Cash paid to suppliers	−650	—	59%
Cash paid for PP&E	−300	—	27%
Interest paid	−90	—	8%
Dividends paid	−60	—	6%
Total outflows	−1,100	—	100%

Illustrative only — demonstrates the format described in IFT and Schweser.

Illustration — Approach 2 (% of revenue)

LINE ITEM	\$	% OF REVENUE (REV = 1,500)
Net income	120	8.0%
+ Depreciation & amortization	90	6.0%
+ Δ Working capital	40	2.7%
CFO	250	16.7%
– CapEx	(300)	(20.0%)
+/- Net borrowing	200	13.3%

Exam Tip: Approach 1 (inflows/outflows) is the more conventional cash-flow common-size. Approach 2 (% of revenue) ties cash-flow behaviour directly to the income statement's top line and is useful for comparing operating cash-flow generation across periods or peers.

QUIZ 1 · CHECKPOINT

Test Your Understanding: Linking, Quality & Common-Size

Q1. Under the indirect method, an *increase* in accounts receivable during the period is treated as:

Q2. A firm reports net income that is substantially greater than its cash flow from operations. This pattern *most likely* indicates:

Q3. Which of the following is *not* one of the two approaches to a common-size cash flow statement described in the curriculum?

Q4. A firm produces positive CFO primarily by aggressively stretching accounts payable and liquidating inventory. An analyst should conclude that:

LOS B · FREE CASH FLOW TO THE FIRM

Free Cash Flow to the Firm (FCFF)

Definition (Schweser & IFT)

"Free cash flow to the firm (FCFF) is the cash available to all investors (both equity and debt holders) after covering the firm's capital expenditures and working capital requirements."

Two Equivalent Formulas

From Net Income:

FCFF FROM NET INCOME

$$FCFF = NI + NCC + Int \times (1 - Tax\ rate) - FCInv - WCInv$$

- NI*

net income
- NCC*

non-cash charges (e.g., D&A)
- Int*

interest expense (after-tax added back)
- FCInv*

fixed-capital investment (capex – disposals)
- WCInv*

working-capital investment

From Operating Cash Flow:

FCFF FROM CFO

$$FCFF = CFO + Int \times (1 - Tax\ rate) - FCInv$$

Note: CFO already contains NI + NCC – WCInv (using the identity CFO = NI + NCC – WCInv), so the two forms are algebraically identical.

Decoding Each Term

TERM	MEANING	SOURCE
NI	Net income	Income statement
NCC	Non-cash charges (depreciation, amortization, impairment, deferred tax, etc.)	IS / CFS adjustments
Int × (1 – t)	After-tax interest expense — <i>added back</i> because FCFF is available to both debt & equity holders, so we must un-do the tax shield on interest that already hit NI (or CFO)	IS × (1 – tax rate)

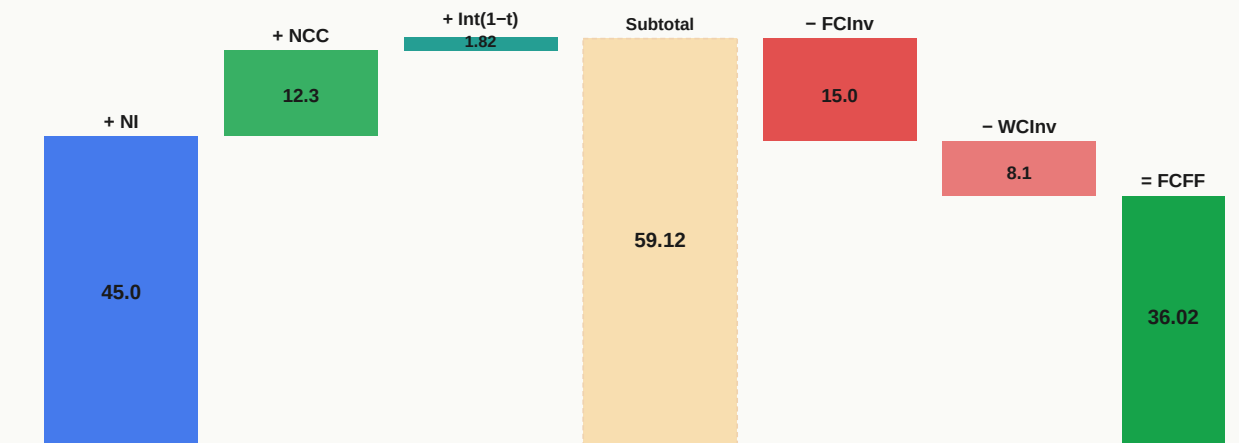
FCInv	Fixed capital investment (CapEx minus proceeds from sale of fixed assets)	CFI section
WCInv	Working capital investment — change in non-cash working capital	BS changes

Why We Add Back $\text{Int} \times (1 - t)$

FCFF is the cash left for **all capital providers**. Interest already reduced NI (and reduced taxes by $\text{Int} \times t$). To reach a flow available to the whole firm, we must put back the cash interest *net of its tax benefit*: $\text{Int} \times (1 - t)$.

FCFF Waterfall — Visualizing Each Step

$$\text{FCFF} = \text{NI} + \text{NCC} + \text{INT}(1-T) - \text{FCINV} - \text{WCINV} \cdot \text{IFT EXAMPLE VALUES (\$M)}$$



Exam Tip: Both FCFF formulas give the same answer when applied consistently. Pick the one that matches the data you're given: if the question hands you CFO, use $\text{FCFF} = \text{CFO} + \text{Int}(1 - t) - \text{FCInv}$; if the question hands you NI and non-cash charges, use the NI version.

LOS B · FCFF WORKED EXAMPLE (IFT)

Worked Example: Calculate FCFF

IFT EXAMPLE

FCFF from net income

■ GIVEN (VERBATIM IFT)

"The following selected data is available for a firm:"

ITEM	\$ MILLIONS
Net income	45.0
Non-cash charges	12.3
Interest expense	2.6
Capital expenditures	15.0
Working capital expenditures	8.1

"If the firm's tax rate is 30%, calculate the free cash flow to the firm (FCFF):"

SOLUTION

► SOLUTION

1

Apply the NI-based formula.

$$\text{FCFF} = \text{net income} + \text{non-cash charges} + \text{interest expense} \times (1 - \text{tax rate}) - \text{capital expenditures} - \text{working capital expenditures}$$

2

Plug in the numbers.

$$\text{FCFF} = 45 + 12.3 + 2.6 \times (1 - 0.3) - 15 - 8.1$$

$$= 45 + 12.3 + 1.82 - 15 - 8.1$$

3

Final.

FCFF = \$36.02 million

◆ **TAKEAWAY**

The five ingredients are NI, NCC, $\text{Int} \times (1 - t)$, FCInv and WCInv. The after-tax interest add-back (1.82) is the term students most often miss.

LOS B · FREE CASH FLOW TO EQUITY

Free Cash Flow to Equity (FCFE)

Definition (Schweser & IFT)

"Free cash flow to equity (FCFE) is the cash flow that is available for distribution to the common shareholders; that is, **after all obligations have been paid.**" (Schweser) · "the free cash available to equity holders after all obligations have been paid." (IFT)

Formula

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

CFO cash flow from operations

FCInv fixed-capital investment

Net Borrowing new borrowings – principal repayments

Equivalently (mind-map form, Kaplan): **FCFE = CFO – fixed capital investment + net debt increase.**

Why These Three Terms?

+ CFO

Already post-interest (unlike FCFF) — interest has been paid, so no add-back needed for equity holders.

– FCInv

Fixed capital must be funded before shareholders can receive cash.

+ Net Borrowing

If the firm raises new debt, that cash is available to shareholders; if it repays debt, equity holders effectively bear that outflow.

Worked Example (IFT, verbatim)

IFT EXAMPLE

Calculating FCFE

■ GIVEN

"The following information has been provided about a firm."

CFO	\$200 million
-----	---------------

Fixed capital investment

\$50 million

Net borrowing

−\$80 million

"Calculate FCFE."

SOLUTION**► SOLUTION****1 Apply the formula.**

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

2 Plug in (note: net borrowing is negative — the firm is repaying debt).

$$\text{FCFE} = 200 - 50 - 80 = \$70 \text{ million}$$

3**FCFE = \$70 million**

Exam Tip: A negative net borrowing number is a debt *repayment* — it reduces FCFE. Signs matter: always plug net borrowing in with its own sign.

LOS B · CASH FLOW PERFORMANCE RATIOS

Performance Ratios — Measuring Efficiency

IFT: "Performance ratios: They measure a firm's efficiency."

RATIO	FORMULA	WHAT IT MEASURES
Cash flow to revenue	$\text{CFO} \div \text{net revenue}$	ability of a firm to convert revenues to cash flows
Cash return on assets	$\text{CFO} \div \text{average total assets}$	cash flow generated from operations which can be attributed to all capital providers
Cash return on equity	$\text{CFO} \div \text{average shareholders' equity}$	cash flow generated from operations which can be attributed to equity capital providers
Cash to income	$\text{CFO} \div \text{operating income}$	ability of a firm to convert operating income to cash flows
Cash flow per share	$(\text{CFO} - \text{preferred dividends}) \div \text{number of common shares outstanding}$	operating cash flow on a per-share basis

Diagnostic Reading

Cash flow to revenue: a *lower* ratio than peers or a declining trend means each dollar of sales is turning into less cash — could signal tougher collection, rising inventory, or aggressive revenue recognition.

Cash to income: values < 1 sustained over time indicate earnings exceed cash generation — aggressive accounting flag.

Cash return on assets/equity: cash-flow-based analogues of ROA/ROE that are less affected by accrual choices.

Exam Tip: Cash flow per share subtracts *preferred dividends* in the numerator (mirroring basic EPS) because those payments are due before common shareholders. Common-share denominator — do not include preferred.

LOS B · CASH FLOW COVERAGE RATIOS

Coverage Ratios — Measuring Liquidity & Solvency

IFT: "Coverage ratios: They measure a firm's liquidity and solvency." Schweser mirrors: "The debt coverage ratio measures financial risk and leverage. The interest coverage ratio measures the firm's ability to meet its interest obligations."

RATIO	FORMULA	WHAT IT MEASURES
Debt coverage	$\text{CFO} \div \text{total debt}$	ability of a firm to cover debt obligations using cash generated from operating activities
Interest coverage	$(\text{CFO} + \text{interest paid} + \text{taxes paid}) \div \text{interest paid}$	ability of a firm to cover interest obligations using cash generated from operating activities
Reinvestment	$\text{CFO} \div \text{cash paid for long-term assets}$	ability of a firm to meet investing and financing flows using cash generated from operating activities
Debt payment	$\text{CFO} \div \text{cash paid for long-term debt repayment}$	ability of a firm to repay debt using cash generated from operating activities
Dividend payment	$\text{CFO} \div \text{dividends paid}$	ability of a firm to pay dividends using cash generated from operating activities
Investing and financing	$\text{CFO} \div \text{cash outflows for investing \& financing activities}$	ability of a firm to fund investing & financing activities from CFO

The Interest Coverage Quirk

The numerator is **CFO + interest paid + taxes paid**. Why add back interest *and* taxes? Because under US GAAP, interest and taxes are already deducted in reaching CFO; to measure pre-interest, pre-tax cash available to pay interest, we un-do both.

IFRS nuance: If interest paid has been classified under CFF (IFRS choice), it was never subtracted from CFO, so only taxes need to be added back. Know the base rule for the exam.

Reading the Ratios Together

Performance ratios focus on profitability quality.

Coverage ratios focus on solvency/liquidity risk.

Are revenues being converted into real cash? Is operating income backed by operating cash?

Can operating cash flow service debt principal, interest, reinvestment needs, and dividends?

QUIZ 2 · CHECKPOINT

Test Your Understanding: FCFF, FCFE & Ratios

Q5. A firm reports $NI = 45.0M$, *non-cash charges* = 12.3M, interest expense = 2.6M, *CapEx* = 15.0M, working capital expenditures = \$8.1M, tax rate = 30%. Using the formula $FCFF = NI + NCC + \text{Int}(1-t) - \text{FCInv} - \text{WCInv}$, FCFF is *closest to*:

Q6. If $CFO = 200M$, *fixed capital investment* = 50M, and net borrowing = -\$80M, FCFE equals:

Q7. The interest coverage ratio is best defined as:

Q8. Cash flow per share is computed as:

SYNTHESIS · EVALUATING CASH FLOW QUALITY

Putting It Together — CF Quality Framework

When asked to evaluate a firm's cash flow quality on the exam, work through this checklist (synthesized from the four sources):

Step 1 — Is CFO positive, and does it come from the right places?

- 1 CFO > 0 is the baseline healthy-firm signal (Schweser, IFT) — *except* for startups.
- 2 Is the CFO driven by earnings-related activities, or by **working-capital liquidation**? Shrinking receivables, inventories, or stretching payables is *not* sustainable.
- 3 Compare CFO to NI. CFO $\approx$ NI $\rightarrow$ high-quality earnings. Earnings $\gg$ CFO $\rightarrow$ possible premature revenue / delayed expense recognition.

Step 2 — What is CFI telling you?

- 1 Rising CapEx = growth indication.
- 2 Falling CapEx or asset sales = conservation now, but "may result in higher cash outflows in the future as older assets are replaced."

Step 3 — What is CFF telling you?

- 1 Is the firm issuing debt/equity or paying them down?
- 2 Large dividend payments plus large debt issuance may indicate CFO is insufficient to fund distributions organically.

Step 4 — Quantify with ratios

Performance: Cash flow to revenue, cash to income, cash return on assets/equity, CF per share. **Coverage:** debt coverage, interest coverage, reinvestment, debt payment, dividend payment.

Plus: **FCFF** and **FCFE** to see what's left for *all* investors vs. equity only.

Red-Flag Checklist

- Net income growing faster than CFO for several periods

- Positive CFO coming from declining A/R, declining inventory, or stretched A/P
- Cash-to-income ratio well below 1 on a sustained basis
- CapEx materially lower than depreciation (asset base shrinking)
- Dividends paid > CFO and funded by new debt (dividend coverage < 1)

QUIZ 3 · CHECKPOINT**Test Your Understanding: Integrated Analysis**

Q9. Which statement correctly links a balance-sheet change to its indirect-method CFO adjustment?

Q10. The reinvestment ratio is defined as:

Q11. A firm's cash-flow-to-revenue ratio has fallen from 18% to 9% while its receivables days outstanding have doubled. The *most likely* interpretation is:

Q12. FCFE differs from FCFF primarily because FCFE:

MODULE COMPLETE

Your Scorecard

0 / 12

LM05 Key Takeaways — Exam-Ready Cheat Sheet

Linking CFS ↔ IS ↔ BS

- 1 **Indirect-method rules:** ↑ Asset: deduct · ↓ Asset: add · ↑ Liability: add · ↓ Liability: deduct.
- 2 **Add back non-cash charges** (depreciation, amortization, impairments, deferred tax) to NI.
Remove gains/losses from asset sales (they belong in CFI, not CFO).
- 3 **Non-cash investing/financing** (barter, stock dividends, conversions) → not in CFS body, disclosed in notes if material.

CF Quality Signals

- 4 **CFO ≈ NI** = high-quality earnings. **Earnings >> CFO** = aggressive accounting (premature revenue / delayed expense).
- 5 **CFO from working-capital liquidation** (shrinking receivables/inventory, stretched payables) is not sustainable.
- 6 **Rising CapEx** → growth. **Falling CapEx** → reduction in growth / future replacement need.

Common-Size CFS — Two Approaches

- 7 **Approach 1:** each inflow as % of total inflows; each outflow as % of total outflows.
- 8 **Approach 2:** each line item as % of revenue.

Free Cash Flow Formulas

- 9 **FCFF** = $NI + NCC + \text{Int}(1 - t) - \text{FCInv} - \text{WCInv}$
- 10 **FCFF** = $\text{CFO} + \text{Int}(1 - t) - \text{FCInv}$
- 11 **FCFE** = $\text{CFO} - \text{FCInv} + \text{Net Borrowing}$ (= CFO – fixed capital investment + net debt increase)

Cash Flow Ratios

Performance (efficiency):

- Cash flow to revenue = $\text{CFO} / \text{net revenue}$
- Cash return on assets = $\text{CFO} / \text{average total assets}$
- Cash return on equity = $\text{CFO} / \text{average shareholders' equity}$
- Cash to income = $\text{CFO} / \text{operating income}$
- Cash flow per share = $(\text{CFO} - \text{preferred divs}) / \text{common shares}$

Coverage (liquidity/solvency):

- Debt coverage = $\text{CFO} / \text{total debt}$
- Interest coverage = $(\text{CFO} + \text{int paid} + \text{taxes paid}) / \text{int paid}$
- Reinvestment = $\text{CFO} / \text{cash paid for long-term assets}$
- Debt payment = $\text{CFO} / \text{long-term debt repayment}$
- Dividend payment = $\text{CFO} / \text{dividends paid}$

Last-Minute Exam Checklist

Quality rule: $\text{CFO} < \text{NI}$ (sustained) = aggressive accounting

Common-size: % of revenue OR % of total inflows/outflows

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

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

FCFE: $\text{CFO} - \text{FCInv} + \text{Net Borrowing}$

Interest coverage numerator: $\text{CFO} + \text{interest paid} + \text{taxes paid}$

WC rule: ↑ Asset deduct · ↑ Liability add