

LM11 · FINANCIAL STATEMENT ANALYSIS · CFA LEVEL I

Financial Analysis Techniques

Ratios, common-size analysis, graphical tools, and DuPont decompositions to interpret a firm's operations, liquidity, solvency, and profitability

What This Reading Covers

This module is the **engine room** of financial statement analysis. You will learn the five categories of ratios (activity, liquidity, solvency, profitability, valuation), how to compute and interpret each, and how to decompose ROE through the **3-step and 5-step DuPont equations**. You will also see how analysts use common-size statements, cross-sectional and time-series analysis, graphical tools, regression, and industry-specific adjustments for pro-forma, credit, and equity-selection applications.

Learning Outcome Statements

- LOS a** Describe tools and techniques used in financial analysis, including their uses and limitations
- LOS b** Identify, calculate, and interpret activity, liquidity, solvency, profitability, and valuation ratios
- LOS c** Describe relationships among ratios and evaluate a company using ratio analysis
- LOS d** Demonstrate the application of DuPont analysis of return on equity and calculate and interpret effects of changes in its components
- LOS e** Calculate and interpret ratios used in equity analysis and credit analysis
- LOS f** Explain the requirements for segment reporting and calculate and interpret segment ratios
- LOS g** Describe how ratio analysis and other techniques can be used to model and forecast earnings

Exam Tip: LM11 is dense with formulas — memorize every numerator/denominator pair and the **3- and 5-component DuPont decompositions**. Every turnover ratio uses *revenue* on top *except* inventory turnover (COGS) and payables turnover (purchases or COGS).

LOS A · TOOLS AND TECHNIQUES

The Five Analytical Tools

TOOLS OF THE ANALYST

RATIO ANALYSISNumerator /
Denominator*Across size, time,
currency***COMMON-SIZE ANALYSIS**Vertical = % of
sales / assetsHorizontal = % of
base year**GRAPHICAL ANALYSIS**Pictorial
representation*Quick trend /
structure view***REGRESSION ANALYSIS**Statistical
relationships*Sales vs. GDP,
trend forecasts***CROSS-SECTIONAL & TIME-SERIES**Within co. over
time; across
peers / industry

Ratio Analysis — Uses & Limitations

USES

- Evaluation of operational efficiency and financial flexibility
- Comparing performance vs. industry and peers
- Comparing across companies irrespective of size and currency
- Forecasting future earnings and cash flows
- Evaluating management's performance

LIMITATIONS

- Not useful when viewed in isolation — must be interpreted relative to peers, industry, or history
- Different accounting methods (esp. U.S. GAAP vs. IFRS) impair comparability
- Hard to find comparable ratios for multi-industry firms
- Judgment required — no single "target" value
- Conclusions cannot be made from one set of ratios alone

Common-Size Statements

Vertical common-size IS Each line item as a percentage of **revenue****Vertical common-size BS** Each line item as a percentage of **total assets****Horizontal common-size** Each item as a **ratio to its base-year value** (e.g., 1.10 = 10% above base year)

Normalizes statements so firms of different sizes can be compared; supports both time-series and cross-sectional analysis.

Graphical & Regression Analysis

Graphical analysis is a pictorial representation of ratios or trends — helps quick comparison of performance and structure over time. **Regression analysis** is a statistical method for analyzing relationships (e.g., $Y = \alpha + \beta \cdot X$ where Y is industry growth and X is GDP) and is used to build forecasts.

LOS B · ACTIVITY (EFFICIENCY) RATIOS

Activity Ratios — Operating Efficiency

Measure how efficiently the company manages day-to-day operations: collecting receivables, turning over inventory, and deploying fixed and total assets.

RATIO	NUMERATOR	DENOMINATOR
Inventory turnover	Cost of goods sold	Average inventory
Days of inventory on hand (DOH)	Number of days in period (365)	Inventory turnover
Receivables turnover	Revenue	Average receivables
Days of sales outstanding (DSO)	Number of days in period (365)	Receivables turnover
Payables turnover	Purchases (or COGS)	Average trade payables
Number of days of payables (DPO)	Number of days in period (365)	Payables turnover
Working capital turnover	Revenue	Average working capital
Fixed asset turnover	Revenue	Average net fixed assets
Total asset turnover	Revenue	Average total assets

Cash Conversion Cycle (Net Operating Cycle)

$$CCC = DOH + DSO - \text{Number of days of payables}$$

Measures the days of cash tied up between paying suppliers and collecting from customers. Shorter is better.

Worked Example — Cash Conversion Cycle

IFT EXAMPLE

Company ABC — CCC from turnover ratios

GIVEN

Payables turnover = 8 times · Receivables turnover = 9 times · Inventory turnover = 6 times

FIND

ABC's cash conversion cycle (days)

SOLUTION

SOLUTION

$$1 \quad \text{DSO} = 365 / \text{Receivables turnover} = 365 / 9 = 40.56 \text{ days}$$

$$2 \quad \text{DOH} = 365 / \text{Inventory turnover} = 365 / 6 = 60.83 \text{ days}$$

$$3 \quad \text{DPO} = 365 / \text{Payables turnover} = 365 / 8 = 45.63 \text{ days}$$

$$4 \quad \text{CCC} = 40.56 + 60.83 - 45.63 = 55.76 \text{ days}$$

ANSWER

$\approx 55.76 \text{ days}$

Exam Tip: Every turnover ratio uses **Revenue** in the numerator — *except inventory turnover* (COGS) and **payables turnover** (purchases or COGS). Higher turnover generally signals greater efficiency; very high turnover can also signal inadequate investment (stock-outs, over-worked fixed assets).

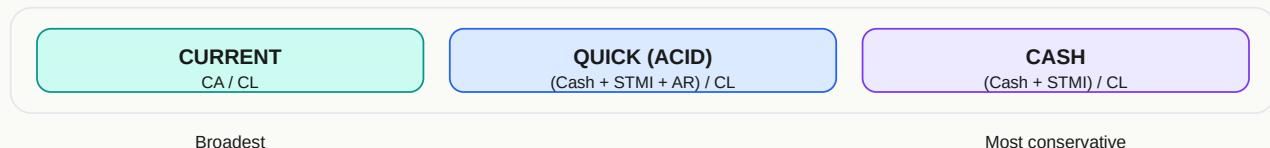
LOS B • LIQUIDITY RATIOS

Liquidity Ratios — Short-Term Obligations

Measure a firm's ability to meet short-term obligations when due. Ratios differ only in the assumed *liquidity* of the included current assets — cash ratio is the most conservative.

RATIO	NUMERATOR	DENOMINATOR
Current ratio	Current assets	Current liabilities
Quick ratio (acid test)	Cash + Short-term marketable investments + Receivables	Current liabilities
Cash ratio	Cash + Short-term marketable investments	Current liabilities
Defensive interval ratio	Cash + Short-term marketable investments + Receivables	Daily cash expenditures

LIQUIDITY SPECTRUM — MOST TO MOST CONSERVATIVE



Defensive Interval Ratio

Measures the **number of days** a firm could meet its daily cash expenditures from its most liquid assets (cash, marketable securities, receivables) without cash inflow from revenue.

Worked Example — Liquidity Ratios

WORKED EXAMPLE

Balance-sheet snapshot (\$ millions): Cash = 50 • Marketable securities = 30 • Receivables = 120 • Inventory = 200 • Other current assets = 20 • Current liabilities = 250. Daily cash expenditures = 2.5.

SOLUTION

Current ratio = $(50+30+120+200+20) / 250 = 420 / 250 = \mathbf{1.68}$

Quick ratio = $(50+30+120) / 250 = 200 / 250 = \mathbf{0.80}$

Cash ratio = $(50+30) / 250 = 80 / 250 = \mathbf{0.32}$

Defensive interval = $(50+30+120) / 2.5 = 200 / 2.5 = \mathbf{80 \text{ days}}$

Exam Tip: Inventory is excluded from both the quick ratio and the defensive interval — a firm with slow-moving inventory can look fine on the current ratio but weak on the quick ratio.

LOS B · SOLVENCY RATIOS

Solvency Ratios — Long-Term Obligations & Coverage

Measure a firm's ability to meet long-term obligations. Higher debt ratios → greater financial leverage → greater financial risk. Coverage ratios measure the *margin of safety* for interest and fixed charges.

Debt Ratios

RATIO	NUMERATOR	DENOMINATOR
Debt-to-assets	Total debt	Total assets
Debt-to-capital	Total debt	Total debt + Total shareholders' equity
Debt-to-equity	Total debt	Total shareholders' equity
Financial leverage ratio	Average total assets	Average total equity
Debt-to-EBITDA	Total debt	EBITDA

Coverage Ratios

RATIO	NUMERATOR	DENOMINATOR
Interest coverage	EBIT	Interest payments
Fixed-charge coverage	EBIT + Lease payments	Interest payments + Lease payments

Definition of "Total Debt"

For CFA purposes, total debt typically includes **long-term liabilities**, **interest-bearing short-term liabilities**, and may also include **deferred tax**, **PV of operating leases**, and **redeemable preferred stock**.

Common stock, additional paid-in capital, retained earnings, comprehensive income items, and irredeemable preferred stock are in *equity*, not debt.

Worked Example — Solvency

WORKED EXAMPLE

Given (\$m): Total debt = 400 · Total assets = 1,000 · Equity = 600 · EBIT = 120 · Interest = 20 · Lease payments = 10.

SOLUTION

$$\text{Debt-to-assets} = 400 / 1,000 = \mathbf{40.0\%}$$

$$\text{Debt-to-capital} = 400 / (400 + 600) = \mathbf{40.0\%}$$

$$\text{Debt-to-equity} = 400 / 600 = \mathbf{0.67}$$

$$\text{Financial leverage} = 1,000 / 600 = \mathbf{1.67\times}$$

$$\text{Interest coverage} = 120 / 20 = \mathbf{6.0\times}$$

$$\text{Fixed-charge coverage} = (120 + 10) / (20 + 10) = 130 / 30 = \mathbf{4.33\times}$$

Exam Tip: For **fixed-charge coverage**, remember to add lease payments to BOTH the numerator AND denominator — it is a common trap to add them to only one side.

LOS B · PROFITABILITY RATIOS

Profitability Ratios — Generating Profit

Measure how well management generates profits from revenue (*return-on-sales* margins) and from assets / equity invested (*return-on-investment* ratios).

Return on Sales (Margin) Ratios

RATIO	NUMERATOR	DENOMINATOR
Gross profit margin	Gross profit (Revenue – COGS)	Revenue
Operating profit margin	Operating income (EBIT)	Revenue
Pretax margin	EBT (earnings before tax, after interest)	Revenue
Net profit margin	Net income	Revenue

Return on Investment Ratios

RATIO	NUMERATOR	DENOMINATOR
Operating ROA	Operating income	Average total assets
Return on assets (ROA)	Net income	Average total assets
ROA (adjusted)	NI + Interest × (1 – tax rate)	Average total assets
Return on total capital	EBIT	Average (short-term + long-term debt + equity)
Return on equity (ROE)	Net income	Average total equity
Return on common equity	Net income – Preferred dividends	Average common equity

Why Two Versions of ROA?

Standard ROA = NI / Avg Assets. But NI excludes interest, so it measures return to *equity holders only* on total assets — mixing two perspectives. The **adjusted ROA** [(NI + Int × (1–t)) / Avg Assets] adds back

after-tax interest, measuring the return to *all capital providers* — debt + equity.

Worked Example — Total Asset Turnover & Gross Margin

IFT EXAMPLE

Company ABC

GIVEN

Sales = 100,000 · *COGS* = 40,000 · Total assets = 70,000 · *Average inventory* = 10,000

SOLUTION

SOLUTION

1 **Total asset turnover** = Sales / Total assets = 100,000 / 70,000 = **1.43 times**

2 **Gross profit** = Sales – COGS = 100,000 – 40,000 = \$60,000

3 **Gross margin** = Gross profit / Sales = 60,000 / 100,000 = **60%**

Exam Tip: Gross margin can be increased only by **raising sales prices** or **reducing production costs** — so a persistent rise/fall in gross margin reveals pricing power or input-cost changes. Operating margin is GP minus operating expenses; net margin also reflects financing, non-operating, and tax effects.

QUIZ 1 · CHECKPOINT

Test Your Understanding: Tools & Ratio Categories

Q1. Which of the following statements about common-size statements is *most accurate*?

Q2. A company has inventory turnover of 8, receivables turnover of 12, and payables turnover of 10. Its cash conversion cycle (in days, using 365) is closest to:

Q3. Which ratio is the *most conservative* measure of liquidity?

Q4. Turnover ratios use Revenue in the numerator *except*:

Q5. A firm has EBIT of 300, *interest of* 60, and lease payments of \$40. Its fixed-charge coverage ratio is closest to:

Q6. Which of the following is *least likely* a valid limitation of ratio analysis?

LOS B · VALUATION RATIOS

Valuation Ratios — Price Multiples

Valuation ratios compare a stock's market price to a fundamental (earnings, book value, sales, or cash flow).

Many are useful for predicting stock returns — historically, **lower multiples are associated with higher future returns**.

MULTIPLE	NUMERATOR	DENOMINATOR
Price-to-earnings (P/E)	Price per share	Earnings per share (trailing or forward)
Price-to-book (P/B)	Price per share	Book value per share
Price-to-sales (P/S)	Price per share	Sales (revenue) per share
Price-to-cash-flow (P/CF)	Price per share	Cash flow per share
Dividend yield	Annual dividends per share	Price per share

Trailing vs. Leading P/E

Trailing P/E uses earnings over the most recent 12 months. **Leading (forward) P/E** uses expected earnings for the next four quarters or fiscal year. Use multiples consistently across firms.

Problems with P/E

Earnings are historical accounting numbers and differ in quality. Business cycles distort current earnings versus expected future earnings. A negative denominator makes the ratio meaningless.

Per-Share Fundamentals

Earnings per share	Net income / Weighted-average common shares outstanding
Book value per share	Common stockholders' equity / Common shares outstanding
Cash flow per share	CFO / Common shares outstanding (Cash flow can also mean FCFE or EBITDA)
Dividend payout ratio	Common dividends / NI attributable to common shares
Retention rate	1 – Payout ratio
Sustainable growth (g)	Retention rate × ROE

Exam Tip: The **sustainable growth rate** $g = b \times \text{ROE}$ (where b = retention rate) ties valuation multiples back to DuPont — anything that improves ROE (margin, turnover, leverage) also improves the firm's sustainable g , given a constant payout policy.

LOS C · RELATIONSHIPS AMONG RATIOS

How the Ratios Fit Together

Ratios are not independent — they relate to each other through mathematical identities. The most powerful of these is DuPont, but several other algebraic links are worth memorizing.

Key Identities

ROA × Financial leverage = ROE → $(\text{NI} / \text{Assets}) \times (\text{Assets} / \text{Equity}) = \text{NI} / \text{Equity}$

Net margin × Asset turnover = ROA → $(\text{NI} / \text{Rev}) \times (\text{Rev} / \text{Assets}) = \text{NI} / \text{Assets}$

Sustainable growth $g = b \times \text{ROE}$ → $\text{retention} \times \text{ROE}$

Cross-Category Relationships

- 1 **LIFO vs. FIFO affects nearly every ratio:** LIFO produces higher COGS, lower inventory, lower current ratio and working capital, higher inventory turnover (and lower DOH), lower gross/operating/net margins, lower total assets and equity → higher debt-to-equity and debt ratios.
- 2 **Activity ↔ Liquidity:** A firm with very fast receivables turnover and low DOH may need less working capital, supporting a lower current ratio without damaging true liquidity.
- 3 **Profitability ↔ Solvency:** Stable margins reduce EBIT volatility, raising interest coverage and lowering default risk at any debt level.
- 4 **Warning signs:** Decreasing receivables turnover, decreasing total asset turnover (especially when growing by acquisition), and declining inventory turnover all suggest potential revenue or inventory quality problems.

Evaluating a Company with Ratios

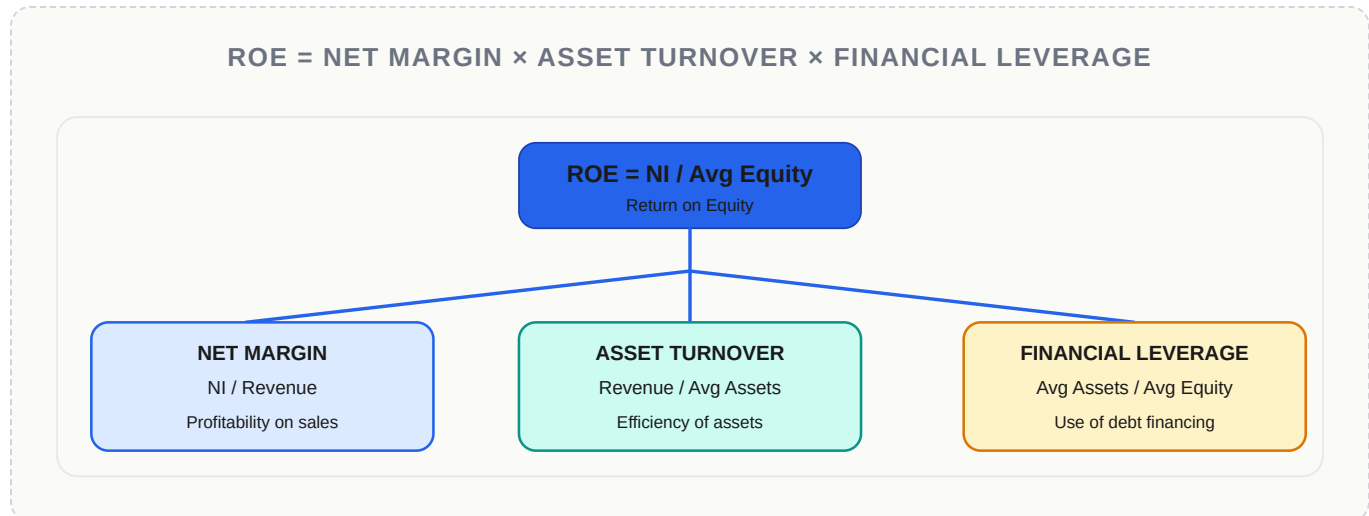
An analyst cannot examine a single ratio or a single category in isolation. The most accurate overall picture comes from **assimilating information from different ratios**, assessing changes over time (time-series) and comparing against peers (cross-sectional). Judgment is required to determine target or comparison values — there is no single "right" number.

Exam Tip: Memorize the **ROE relationships**: $\text{ROE} = \text{ROA} \times \text{Leverage} = \text{Net margin} \times \text{Asset turnover} \times \text{Leverage}$. This identity is the foundation of DuPont decomposition (next step).

LOS D · DUPONT — TRADITIONAL (3-STEP)

DuPont Decomposition — Traditional

DuPont analysis decomposes ROE to reveal the drivers of changes in return on equity. The **3-step (traditional) DuPont** splits ROE into three drivers: profitability, efficiency, and leverage.



Derivation

$$ROE = NI / Equity = (NI / Sales) \times (Sales / Assets) \times (Assets / Equity)$$

$$ROE = NetProfitMargin \times TotalAssetTurnover \times FinancialLeverage$$

Interpretation

If ROE is low, **at least one of the following must be true:**

- The company has a **poor net profit margin** (pricing / cost control issues)
- The company has **poor asset turnover** (inefficient use of assets)
- The firm is **underleveraged** (not using enough debt to amplify returns)

This is why the traditional DuPont equation is called "*arguably the most important equation in ratio analysis.*"

Worked Example — 3-Step DuPont

WORKED EXAMPLE

A company reports net margin = 8%, asset turnover = 1.5×, and financial leverage = 2.0×. What is ROE?

SOLUTION

$$\text{ROE} = 0.08 \times 1.5 \times 2.0 = \mathbf{0.24 = 24\%}$$

If management improves the net margin to 10% (holding the other two constant), ROE rises to $0.10 \times 1.5 \times 2.0 = 30\%$.

LOS D · DUPONT — EXTENDED (5-STEP)

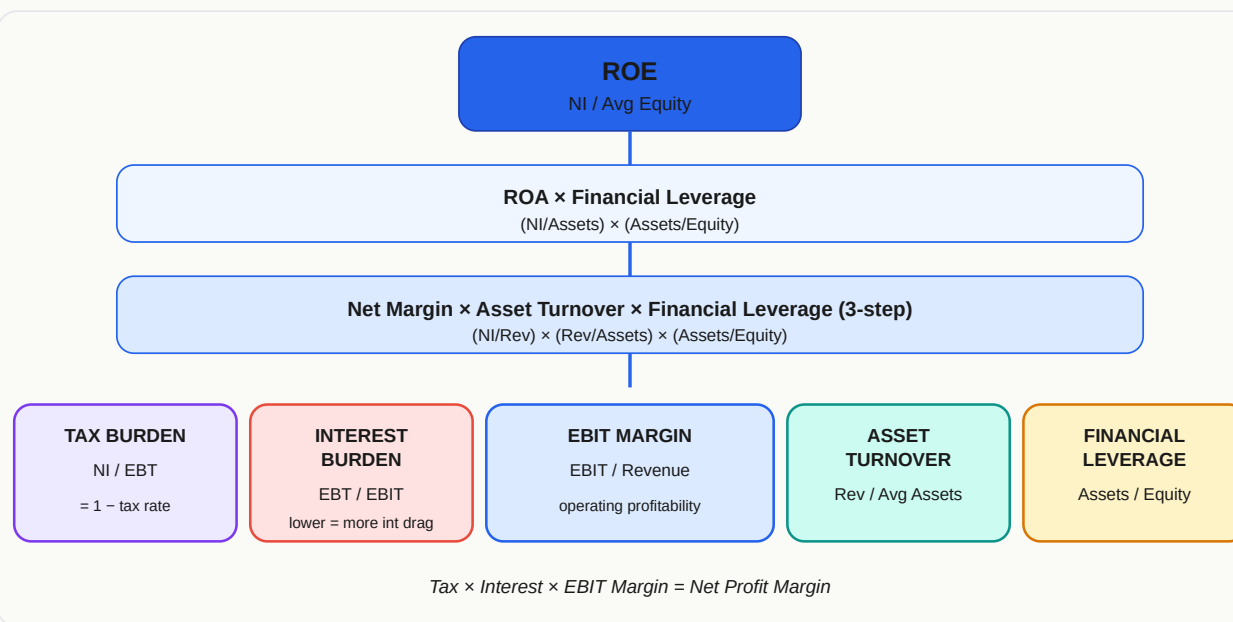
Extended DuPont — 5 Components

The extended DuPont decomposition breaks the net profit margin into **tax burden**, **interest burden**, and **EBIT margin**. This separates the pure operating profitability (EBIT margin) from the financing and tax drags.

$$ROE = (NI/EBT) \times (EBT/EBIT) \times (EBIT/Rev) \times (Rev/Assets) \times (Assets/Equity)$$

$$ROE = TaxBurden \times InterestBurden \times EBITMargin \times AssetTurnover \times FinancialLeverage$$

EXTENDED DUPONT PYRAMID



What Each Component Tells You

Tax burden (NI/EBT)	= 1 – effective tax rate. Higher = less tax drag. Driven by tax planning, jurisdiction mix, tax credits.
Interest burden (EBT/EBIT)	= 1 when interest = 0. Lower values indicate heavier interest drag on operating profit.
EBIT margin (EBIT/Rev)	Pure operating profitability — isolated from financing and tax.
Asset turnover (Rev/Assets)	Efficiency of assets in generating revenue.
Financial leverage (Assets/Equity)	Degree of debt financing. Amplifies operating returns into equity returns.

Exam Tip: Tax burden $\times$ Interest burden $\times$ EBIT margin = **Net Profit Margin**. So the 5-step DuPont is just the 3-step with net margin expanded into three underlying drivers.

LOS D · APPLIED DUPONT

Worked DuPont Example

IFT EXAMPLE

Five-Component DuPont ROE

GIVEN

- Operating profit margin = 12% (EBIT / Revenue)
- Average tax rate = 30%
- Asset turnover ratio = 2 times
- Financial leverage multiplier = 1.5 times
- Interest burden = 0.6 times

FIND

The company's ROE using the extended (5-step) DuPont decomposition

SOLUTION

SOLUTION

1

Tax burden = $1 - \text{tax rate} = 1 - 0.30 = 0.70$

2

Assemble ROE: $\text{ROE} = \text{Tax burden} \times \text{Interest burden} \times \text{EBIT margin} \times \text{Asset turnover} \times \text{Financial leverage}$

3

Substitute: $\text{ROE} = 0.70 \times 0.60 \times 0.12 \times 2.0 \times 1.5$

4

Compute: $\text{ROE} = 0.1512 = 15.12\%$

ANSWER

ROE $\approx$ 15%

Net margin

$0.70 \times 0.60 \times 0.12 = 5.04\%$

ROA

$$5.04\% \times 2.0 = 10.08\%$$

ROE

$$10.08\% \times 1.5 = 15.12\%$$

Interpreting the Decomposition

If ROE rose year-over-year from 12% → 15%, DuPont tells you *why*. Check each driver: did the firm **lower its effective tax rate? Reduce interest expense? Raise operating margin? Use assets more efficiently?** Or just **add leverage**? Each answer has very different investment implications — adding leverage raises risk, while expanding margins from pricing power is a high-quality improvement.

Sensitivity: Change in ROE from a Change in Each Driver

Starting from ROE = 15.12%, hold other components constant and change *one*:

DRIVER CHANGE	NEW ROE	IMPACT
EBIT margin 12% → 14%	$0.70 \times 0.60 \times 0.14 \times 2.0 \times 1.5 = 17.64\%$	+2.52 pp
Asset turnover 2.0× → 2.2×	$0.70 \times 0.60 \times 0.12 \times 2.2 \times 1.5 = 16.63\%$	+1.51 pp
Leverage 1.5× → 2.0×	$0.70 \times 0.60 \times 0.12 \times 2.0 \times 2.0 = 20.16\%$	+5.04 pp
Tax burden 0.70 → 0.80	$0.80 \times 0.60 \times 0.12 \times 2.0 \times 1.5 = 17.28\%$	+2.16 pp

Leverage has the largest mechanical impact here, but it comes with greater financial risk — operating improvements (margin, turnover) are higher-quality drivers of ROE.

QUIZ 2 · CHECKPOINT

Test Your Understanding: Ratios & DuPont

Q7. The traditional (3-step) DuPont decomposition of ROE is:

Q8. A firm's EBIT margin = 15%, asset turnover = 1.2×, leverage = 2×, tax rate = 25%, interest burden = 0.80. Its ROE is closest to:

Q9. In the extended DuPont, "interest burden" is calculated as:

Q10. A company's trailing P/E ratio differs from its leading P/E because the leading P/E uses:

Q11. If a company's ROE has fallen while its net profit margin is unchanged, the decline *must* be explained by at least one of:

Q12. An analyst wishes to compare ROA between two firms with different capital structures. The *better* ROA formula is:

LOS E-F · SEGMENT REPORTING & INDUSTRY-SPECIFIC RATIOS

Segment Reporting and Industry-Specific Ratios

Segment Reporting (Business / Operating Segment)

A reportable segment must satisfy:

- 1 At least **75% of its revenue earned externally** (from non-affiliated customers), *and*
- 2 At least one of the following thresholds $\geq 10\%$ of the firm's total: revenue, operating profit, or use of assets.

Segments may be by **business type** or **geography**.

Required Disclosures for Each Segment

- Revenue (external and internal)
- Segment result (operating profit)
- Carrying amount of segment assets and liabilities
- Cost of PP&E and intangibles acquired

- Depreciation and amortization expense
- Other non-cash expenses
- Income tax expense
- Share of profit/loss from equity-accounted investments

Industry-Specific Ratios

Aspects of performance important in one industry may be irrelevant in another. Specialized ratios capture the economics of particular sectors.

INDUSTRY	ILLUSTRATIVE RATIO / METRIC	WHY IT MATTERS
Retail	Same-store sales; sales per square foot	Separate growth from new stores vs. existing stores; productivity of retail space
Banks	Capital adequacy; net interest margin; non-performing loans; loan-loss coverage	Assess solvency, funding cost, and asset quality under banking regulations
REITs / Real estate	Funds from operations (FFO); occupancy rate; property NOI	Cash-flow generation of property portfolios (ignoring non-cash depreciation)
Airlines / hotels	Revenue per available seat-mile (RASM); cost per ASM; RevPAR (hotels)	Capture capacity utilization and yield management

**Natural
resources**

Reserve life, production per well

Track depletion of finite assets

Business and Financial Risk Ratios

Analysts also examine ratios that quantify risk: **CV of revenue** ($\sigma \text{ Revenue} / \mu \text{ Revenue}$), **CV of operating income** ($\sigma \text{ EBIT} / \mu \text{ EBIT}$), and **operating leverage** ($\% \Delta \text{ EBIT} / \% \Delta \text{ Sales}$) — all proxies for business risk. Debt-to-assets, debt-to-capital, debt-to-equity, and financial leverage capture **financial risk**.

Exam Tip: For the CFA exam, know *that* industry-specific ratios exist and *why* (retail same-store sales is the canonical example from the curriculum) — you won't be asked to compute specialized bank or airline ratios.

LOS E · CREDIT & EQUITY ANALYSIS APPLICATIONS

Applying Ratios — Credit Analysis & Equity Screening

Credit Analysis: Key Ratios

Credit analysts use cash-flow and coverage ratios in addition to debt ratios. Several additional credit ratios appear in the Schweser mind-map:

CREDIT RATIO	NUMERATOR	DENOMINATOR
FFO / Total debt	NI adjusted for non-cash items	Total debt
FCF / Total debt	CFO – Capex	Total debt
Debt-to-EBITDA	Total debt	EBITDA
Return on capital	EBIT	Capital
EBIT interest coverage	EBIT (incl. capitalized interest)	Gross interest
EBITDA interest coverage	EBITDA	Gross interest

Cash-Flow Performance & Coverage Ratios

Performance

Cash flow / Revenue	CFO / Net revenue
Cash return on assets	CFO / Avg total assets
Cash return on equity	CFO / Avg equity
Cash-to-income	CFO / Operating income
Cash flow per share	(CFO – Pref Div) / # Common shares

Coverage

Debt coverage	CFO / Total debt
Interest coverage (CF)	(CFO + Int paid + Tax paid) / Int paid
Reinvestment	CFO / Cash paid for LT assets
Debt payment	CFO / Cash paid for LT debt repayment
Dividend payment	CFO / Dividends paid

Equity Screening & Pro-Forma Forecasting

Screening filters a large set of potential investments into a smaller set meeting specified criteria (e.g., P/E < 15, ROE > 15%, D/E < 1, dividend yield > 2%). **Back-testing** applies the rules to historical data.

Limits: screens do not adjust for GAAP vs. IFRS differences, and historical back-tests may not be relevant going forward.

Pro-forma financial statements are projected statements built from a forecast of revenue and expected values for key ratios (margins, turnover, working-capital days). Forecasts support investment decisions, borrowing needs, and dividend policy.

Forecasting Using Ratios

Receivables = $DSO \times (\text{Forecast revenue} / 365)$ · Inventory = $DOH \times (\text{Forecast COGS} / 365)$ · Payables = $DPO \times (\text{Forecast COGS} / 365)$. Forecast COGS = $(1 - \text{gross margin}) \times \text{forecast revenue}$. Depreciation & amortization can be forecast from net book value of PP&E and estimated useful lives.

Exam Tip: Credit analysts focus on **coverage** (EBIT/Interest, EBITDA/Interest, FFO/Debt, FCF/Debt) and on **stability of cash flows**. Equity analysts care about **profitability**, **growth**, and **valuation multiples**. Both use the same financial statements — just different emphases.

QUIZ 3 · CHECKPOINT

Test Your Understanding: Applications & Interpretation

Q13. Which of the following is *most likely* an industry-specific ratio used in the retail industry?

Q14. A segment must be reported separately if it has at least 75% external revenue and at least ____ of the company's revenue, operating profit, or assets:

Q15. Firm A uses LIFO and Firm B uses FIFO. In a period of rising prices, compared to Firm B, Firm A will have *most likely*:

Q16. A credit analyst is *most likely* to focus on which of the following ratios?

Q17. The sustainable growth rate of a firm (assuming constant ROE, constant payout, no new equity) is equal to:

Q18. A firm's ROE rises from 10% to 14% with unchanged EBIT margin, asset turnover, and tax burden. The rise *most likely* reflects:

MODULE COMPLETE

Your Scorecard

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LM11 Exam-Ready Cheat Sheet

Tools & Common-Size

- 1 **Analytical tools:** ratio analysis, common-size analysis (vertical = % of sales or assets; horizontal = ratio to base year), graphical analysis, regression, time-series and cross-sectional comparison.
- 2 **Limitations of ratios:** not useful in isolation, accounting-method differences, multi-industry firms hard to benchmark, judgment required for target values.

Activity (Efficiency) — all turnovers use Revenue except...

- 3 Inventory turnover = **COGS** / Avg Inventory · DOH = 365 / Inventory turnover
- 4 Receivables turnover = Revenue / Avg AR · DSO = 365 / Receivables turnover
- 5 Payables turnover = **Purchases (or COGS)** / Avg AP · DPO = 365 / Payables turnover
- 6 **Cash Conversion Cycle** = DOH + DSO – DPO · Working capital, Fixed-asset, Total-asset turnover all use Revenue over averages.

Liquidity & Solvency

- 7 **Liquidity (most to most conservative):** Current (CA/CL) · Quick ((Cash+STMI+AR)/CL) · Cash ((Cash+STMI)/CL) · Defensive interval ((Cash+STMI+AR)/Daily cash expenditures).
- 8 **Debt:** D/A (Debt/Assets), D/C (Debt/(Debt+Equity)), D/E (Debt/Equity), Financial leverage (Avg Assets/Avg Equity), Debt/EBITDA.

- 9 **Coverage:** Interest coverage = EBIT/Int ; Fixed-charge coverage = $(\text{EBIT} + \text{Lease})/(\text{Int} + \text{Lease})$ — add lease to BOTH sides.

Profitability & Valuation

- 10 **Margins:** Gross (GP/Rev), Operating (EBIT/Rev), Pretax (EBT/Rev), Net (NI/Rev).
- 11 **Returns:** ROA = $\text{NI}/\text{Avg Assets}$ (adjusted: $(\text{NI} + \text{Int}(1-t))/\text{Avg Assets}$), Op ROA = $\text{Op Inc}/\text{Avg Assets}$, Return on Total Capital = $\text{EBIT}/\text{Avg Cap}$, ROE = $\text{NI}/\text{Avg Equity}$, Return on Common Equity = $(\text{NI} - \text{PfdDiv})/\text{Avg Common Equity}$.
- 12 **Valuation:** P/E, P/B, P/S, P/CF, Dividend Yield (D/P). Trailing uses last 12 months; Leading uses expected next fiscal year.

DuPont

- 13 **3-step:** $\text{ROE} = (\text{NI}/\text{Rev}) \times (\text{Rev}/\text{Assets}) \times (\text{Assets}/\text{Equity}) = \text{Net margin} \times \text{Asset turnover} \times \text{Financial leverage}$.
- 14 **5-step:** $\text{ROE} = (\text{NI}/\text{EBT}) \times (\text{EBT}/\text{EBIT}) \times (\text{EBIT}/\text{Rev}) \times (\text{Rev}/\text{Assets}) \times (\text{Assets}/\text{Equity}) = \text{Tax burden} \times \text{Interest burden} \times \text{EBIT margin} \times \text{Asset turnover} \times \text{Financial leverage}$.
- 15 **Worked example:** tax rate 30%, interest burden 0.60, EBIT margin 12%, asset turnover 2.0, leverage 1.5 → $\text{ROE} = 0.70 \times 0.60 \times 0.12 \times 2.0 \times 1.5 = 15.12\%$.

Applications

- 16 **Segment reporting:** $\geq 75\%$ external revenue AND $\geq 10\%$ of revenue, operating profit, or assets.
- 17 **Industry-specific:** retail (same-store sales), banks (NIM, capital adequacy), REITs (FFO, occupancy), airlines/hotels (RASM, RevPAR).
- 18 **Credit vs. equity:** credit emphasizes coverage (EBIT/Int , EBITDA/Int), cash flow to debt (FFO/Debt , FCF/Debt), and debt ratios; equity emphasizes profitability, growth, and valuation multiples.

Last-Minute Memory Triggers

Turnover exceptions: $\text{Inventory} = \text{COGS} / \text{Inv}$ · $\text{Payables} = \text{Purchases} / \text{AP}$

Cash Conversion Cycle: $\text{DOH} + \text{DSO} - \text{DPO}$

Liquidity order: Current > Quick > Cash (most conservative)

Fixed-charge coverage: add lease payments to BOTH numerator and denominator

3-step DuPont: $\text{NPM} \times \text{AT} \times \text{Lev}$

5-step DuPont: Tax burden $\times$ Int burden $\times$ EBIT margin $\times$ AT $\times$ Lev

Segment: 75% external AND 10% of (revenue / op profit / assets)

Sustainable growth: $g = b \times \text{ROE}$