Financial Analysis

Module 29.1: Financial Statement Roles

LOS 29.a: Steps in the Financial Statement Analysis Framework

- **Step 1: State the objective and context**
  - Define key questions: e.g., "Should we invest in this company's bonds?"
  - Decide reporting format (memo, detailed report, presentation).
  - Consider time and resources available.
- **Step 2: Gather data**
  - Collect company's financial statements (10-K, annual reports).
  - Industry reports, macroeconomic data.
  - Field research: interviews with management, suppliers, site visits.
- **Step 3: Process the data**
  - Adjust statements (e.g., leases capitalized).
  - Compute ratios: liquidity, profitability, leverage.
  - Prepare exhibits: graphs, common-size balance sheets.
- **Step 4: Analyze and interpret the data**
  - Compare with peers and historical data.
  - Identify risk factors and growth opportunities.
- **Step 5: Report conclusions or recommendations**
  - Ensure compliance with CFA Code and Standards.
  - Adapt report to audience (investors, management, regulators).
- **Step 6: Update the analysis**
  - Continuous monitoring of new data.
  - Adjust recommendations as conditions change.

LOS 29.b: Roles of Financial Statement Analysis

- Uses accounting information to support **economic decisions**.
- Examples of decisions:
  - Buy/sell recommendations for equity or debt securities.
  - Assigning credit ratings.
  - Extending trade or bank credit.
- Analysts evaluate:
  - Past performance and financial position.
  - Future ability to generate profits and cash flows.
  - Risk factors impacting profitability and stability.

LOS 29.c: Importance of Regulatory Filings and Disclosures

- **Standard-setters:**
  - **FASB (U.S.)**: U.S. GAAP.
  - **IASB (International)**: IFRS.
- **Regulators:**
  - SEC (U.S.), FCA (UK), ESMA (EU).
  - Members of **IOSCO** regulate 95% of global markets.
- **IOSCO Objectives:**
  1. Protect investors.
  2. Ensure fair, efficient, transparent markets.
  3. Reduce systemic risk.
- **SEC Example Requirements:**
  - Compliance with Sarbanes–Oxley Act (SOX 2002).
  - CEO/CFO certification of financial statements.
  - Auditor independence (cannot provide consulting services).
  - Internal controls effectiveness statement.

Financial Statement Notes (Footnotes):

- Provide basis of presentation (IFRS vs U.S. GAAP, fiscal year end).
- Disclose accounting methods, assumptions, estimates.
- Contain details on acquisitions, legal contingencies, pensions, related parties.
- Segment disclosures:
  - Revenue (external + inter-segment).
  - Assets, liabilities, profit/loss.
  - CapEx, D&A, income taxes.
- Segments must account for $\geq 75\%$ of external sales.

Management Commentary (MD&A):

- Nature of business, strategy, past performance.
- Key risks, relationships, forward-looking statements.
- U.S. SEC requires MD&A to cover:
  - Liquidity and capital resources.
  - Effects of inflation.
  - Off-balance sheet obligations.
  - Critical accounting policies.

Audit Reports:

- **Unqualified opinion (clean)**: No material errors.
- **Qualified opinion**: Exceptions exist.
- **Adverse opinion**: Misstated or misleading.
- **Disclaimer**: No opinion possible (scope limitation).
- Key Audit Matters (KAMs) / Critical Audit Matters (CAMs) disclose:
  - Most significant accounting judgments.
  - Challenging/subjective areas of audit.

LOS 29.d: Alternative Reporting Systems and Monitoring

- **Key issue:** IFRS vs. U.S. GAAP differences can distort cross-border comparisons.
- Example differences:
  - **IFRS:** Principle-based, allows revaluation of PP&E.
  - **U.S. GAAP:** Rule-based, historical cost model.
- Analysts must track:
  - New products and financial innovations.
  - Emerging accounting standards.
  - Significant changes in company disclosures.
- Sources: IASB, FASB websites, CFA Institute position papers.

LOS 29.e: Additional Information Sources

- **Issuer sources:**
  - Earnings calls (Q&A with management).
  - Ad hoc presentations, press releases.
  - Direct communications with management / IR.
- **Public third-party sources:**
  - Industry reports, whitepapers, trade journals.
  - Government statistics.
  - Media and social media.
- **Proprietary third-party sources:**
  - Bloomberg, FactSet, Wind.
  - Analyst/consultancy reports.
- **Proprietary primary research:**
  - Commissioned studies.
  - First-hand product usage.
  - Technical expert consultations.

Exhibit: Comparison Table

Source	Strengths	Limitations
Financial Statements	Audited, standardized (IFRS/GAAP)	Backward-looking, limited qualitative info
Management Commentary	Forward-looking, strategic insights	Partially unaudited, potential bias
Footnotes	Detail on assumptions, methods, risks	Complex, requires expertise to interpret
Audit Report	Provides assurance, highlights key issues	Only "reasonable assurance," not absolute
Earnings Calls / Press Releases	Timely updates, direct access to management	Not audited, selective disclosure risk
Third-party Reports (Bloomberg, FactSet)	Independent analysis, benchmarks	Expensive, potential conflicts of interest
Proprietary Research	Tailored, unique insights	Costly, time-intensive

Table 1: Comparison of Information Sources in Financial Analysis

Module 30.1: Revenue Recognition

LOS 30.a: General Principles of Revenue Recognition

- **Core principle:** Revenue is recognized when control of goods/services transfers to the customer, not necessarily when cash is received.
- **Accrual basis:**
  - Credit sales → Revenue recognized at sale; Accounts Receivable created.
  - Cash received in advance → Recorded as *Unearned Revenue (liability)* until goods/services delivered.
  - Example: Magazine subscription → Cash received upfront, liability recognized, revenue recognized as issues delivered.
- **Revenue is reported net of:**
  - Returns
  - Allowances
  - Discounts
  - Warranty provisions

Five-Step Model under Converged IFRS/US GAAP (IFRS 15 / ASC 606)

1. Identify the **contract(s)** with a customer.
2. Identify distinct **performance obligations**.
3. Determine the **transaction price**.
4. Allocate the transaction price to the performance obligations.
5. Recognize revenue when/as performance obligations are satisfied.

Definitions:

- **Contract:** Agreement with enforceable rights/obligations; collectability must be probable (definition of "probable" differs under IFRS vs US GAAP).
- **Performance obligation:** Promise to deliver a distinct good/service.
  - Distinct if:
    1. Customer can benefit independently or with other resources.
    2. Transfer promise is identifiable separately.
- **Transaction price:** Expected amount of consideration (fixed or variable).
- **Revenue recognition:** Only when highly probable it won't be reversed.
- **Indicators of control transfer:** Physical possession, acceptance, transfer of risks/benefits, legal title, right to payment.

Revenue Recognition in Long-Term Contracts

- Revenue recognized **over time** if:
  1. Customer benefits continuously as supplier performs (e.g., maintenance contracts).
  2. Customer controls asset being created/enhanced (e.g., construction projects).
  3. Asset has no alternative use + supplier has right to payment for completed work.
- Measurement:
  - **Input method:**
  - **Output method:** Engineering milestones,
- Costs to secure contracts (e.g., sales commissions) must be **capitalized**.

Examples (IFRS 15 Applications)

1. Long-term contract (Warehouse construction)

- Contract price = \$10m; total costs estimated = \$8m.
- Year 1: Costs incurred = \$4m (50% completion) → Revenue recognized = 0.5 × \$10m = \$5m.
- Year 2: Costs incurred additional \$2m → Cumulative costs = \$6m (75% completion). Revenue to date = 0.75 × \$10m = \$7.5m. Revenue recognized in Year 2 = \$7.5m – \$5m = \$2.5m.
- Equivalent to **Percentage-of-Completion Method**.

2. Acting as an Agent (Travel Agent)

- Ticket price = \$10,000.
- Commission = \$1,000 (no credit or inventory risk).
- Revenue recognized = \$1,000 (net).
- If treated as principal → Revenue = \$10,000, Expense = \$9,000, GP = \$1,000.
- **Gross profit margin differences:**
  - As principal: $\frac{1,000}{10,000} = 10\%$.
  - As agent: $\frac{1,000}{1,000} = 100\%$.

3. Franchising and Licensing (Fast Food Chain)

- Revenue categories:
  1. Company-owned restaurants.
  2. Franchise royalties & fees (deferred then amortized over franchise term).
  3. Supplies to franchisees (equipment, food).
- Royalties (e.g., 2% turnover) recognized when payable.

4. Service vs License (Software Supplier)

- **Case A: License with continuous updates.** Revenue recognized over contract life.
- **Case B: License "as is".** Revenue recognized at outset; updates covered in separate contract.
- **Cloud service (SaaS).** Revenue recognized over subscription life (service).

5. Bill-and-Hold Agreements

- Customer pays ahead of shipping; normally → deferred revenue.
- Revenue may be recognized before delivery if:
  - Customer requests arrangement.
  - Goods are identified as belonging to customer.
  - Goods are complete and ready to ship.
  - Supplier cannot redirect goods.

Required Disclosures (IFRS 15 / ASC 606)

- Disaggregation of revenue (by product/service category).
- Assets & liabilities from contracts (balances, changes).
- Outstanding performance obligations + allocated transaction prices.
- Management judgments on timing/amount of revenue.

Exhibit: Examples of Revenue Recognition

Scenario	Revenue Recognition	Implications for Analysis
Credit Sale	Recognized at sale (A/R created)	Cash flow timing differs from revenue; analysts adjust for working capital.
Advance Payment (Magazine subscription)	Initially liability (unearned revenue); recognized as delivered	Liability inflates until service performed.
Long-term Contract	Over time using input/output methods	Smooths revenue; requires estimate reliability.
Agent vs Principal	Agent → Net revenue (commission only). Principal → Gross revenue	Gross margin ratios differ; important for comparability.
Franchise Fees & Royalties	Fees deferred, amortized; royalties when payable	Analysts separate recurring vs one-time revenue streams.
Software License vs SaaS	License revenue upfront vs over contract term	Recognition timing significantly affects earnings profile.
Bill-and-Hold	Recognize if customer controls goods	May accelerate revenue; analysts should check substance.

Table 2: Revenue Recognition Scenarios and Implications

Module 30.2: Expense Recognition

LOS 30.b: General Principles of Expense Recognition

- **Definition (IASB):** Expenses = decreases in economic benefits during an accounting period in the form of:
  - Outflows or depletions of assets
  - Increases in liabilities
  - Resulting in decreases in equity (other than distributions to owners)
- **Accrual vs Cash Basis:**
  - **Cash basis:** Expense when paid.
  - **Accrual basis:** Expense when economic benefit is consumed.
- **Three recognition methods:**

1. **Matching principle:** Match expense with revenue generated (e.g., COGS, warranty provisions).
2. **Capitalization:** Record as asset → amortized/depreciated as benefits consumed.
3. **Expensing as incurred:** Period costs (admin, rent, utilities).

- **Conservatism vs Aggressiveness:**
  - Expensing earlier = conservative.
  - Deferring via capitalization = aggressive.

Example: Matching Principle with Inventory

- Firm sells 100 units during the year.
- Beginning inventory = 20 units @ $400 total.
- Purchases = 90 units (various costs). Units available = 110.
- Ending inventory = 10 units (8 from most recent purchase, 2 from prior).
- **Matching:** Remove 10 units from COGS → report them as inventory (asset).
- Ensures COGS = cost of 100 units sold.

Note: If exact identification is not possible → use cost flow methods:

1. FIFO (First-in, First-out)
2. LIFO (Last-in, First-out)
3. Weighted Average Cost

Capitalization vs Expensing

- **Capitalization:**
  - Expected future economic benefit → recorded as asset.
  - Cost spread via depreciation, amortization, or depletion.
  - Land and indefinite-life intangibles (goodwill) not amortized.
- **Expensing:**
  - No future benefit or highly uncertain → expense immediately.
  - Reduces current pretax income fully in period incurred.
- **Subsequent expenditures:**
  - **Extend life/increase benefits** → capitalize.
  - **Maintenance/repairs** → expense.

Example: Northwood Equipment

- Equipment cost = $250,000 (incl. freight + taxes).
- Installation = $10,000 → capitalize.
- Training = $7,500 → expense (benefits employees, not asset).
- Repairs & maintenance = $35,000 → expense.
- Motor rebuild = $85,000 → capitalize (extends life).

Example: Chair Ltd. (Impact of Capitalization vs Expensing)

- Equipment cost = £12,000, useful life = 4 years, straight-line depreciation.
- Annual revenue = £30,000, operating margin = 40%, tax = 30%.

Impacts:

- **Income Statement:**
  - Capitalization: Expense spread (£3,000/year depreciation).
  - Expensing: Entire £12,000 in Year 1.
  - Result: Expensing = lower NI in Year 1, higher NI in later years. Capitalization smooths earnings.
- **Balance Sheet:**
  - Capitalization: Higher assets (equipment net of depreciation), higher retained earnings.
  - Expensing: No asset recorded → lower equity in early years.
- **Cash Flow Statement:**
  - Capitalization: Cash outflow → investing activities.
  - Expensing: Cash outflow → operating activities.
  - Expensing gives full tax benefit upfront, capitalization spreads it.
- **Ratios:**
  - Asset turnover = lower if capitalized (assets higher).
  - Net profit margin = higher in Year 1 if capitalized.
  - ROE = higher in Year 1 if capitalized, lower in later years.

Capitalized Interest

- When firm builds asset for own use or resale → interest during construction is capitalized.
- Treatment:
  - Included in asset cost.
  - Expensed later via depreciation (if held for use) or COGS (if held for sale).
- Cash flow effect:
  - Capitalized interest → investing outflow.
  - Expensed interest → operating outflow (GAAP) or operating/financing (IFRS).
- **Analyst adjustment:** Add capitalized interest back to interest expense for solvency ratios.

Example: Willock AG

- EBIT = €160m, reported interest expense = €80m.
- €20m capitalized, €10m depreciation from prior capitalized interest.
- Adjusted EBIT = €160m + €10m = €170m.
- Adjusted interest = €80m + €20m = €100m.
- Interest coverage = $\frac{170}{100} = 1.7$ (vs reported $\frac{160}{80} = 2.0$).

R&D Costs

- **IFRS:**
  - Research costs → expensed.
  - Development costs → capitalized if criteria met (e.g., feasibility, intent to use/sell).
- **U.S. GAAP:**
  - R&D → expensed.
  - Software development: expensed until technological feasibility, then capitalized.
- **Analyst adjustment:**
  - Expense capitalized development costs for comparability.
  - Remove amortization of past capitalized costs.
  - Adjust CFO downward (include costs in operations).

Bad Debt & Warranty Expense Recognition

- Matching principle requires recognition **at time of sale**.
- Estimates involved → risk of earnings management.
- Analyst checks:
  - Compare to peers (e.g., unusually low warranty expense).
  - Assess whether estimate changes reflect real improvements or manipulation.

Exhibit: Capitalization vs Expensing – Financial Statement Effects

Aspect	**Capitalization**	**Expensing**
Income Statement	Spreads cost over asset life (depreciation)	Entire cost in Year 1
Balance Sheet	Higher assets (PP&E), higher equity (retained earnings)	No asset, lower equity early
Cash Flow Statement	Outflow under investing activities	Outflow under operating activities
Tax Effect	Tax benefit spread over years	Immediate tax benefit in Year 1
Ratios	Lower asset turnover, smoother NI, higher margins in Year 1	Higher turnover, volatile NI, margins lower in Year 1
Earnings Profile	Smooth, less volatile	Front-loaded cost, volatile earnings

Table 3: Comparison of Capitalization vs Expensing

Module 30.3: Nonrecurring Items

LOS 30.c: Financial Reporting Treatment and Analysis of Nonrecurring Items

1. Unusual or Infrequent Items

- **Definition:** Events that are unusual in nature or infrequent in occurrence, and **material** enough to affect decisions.
- **Examples:**
  - Gains/losses from sale of assets or business units (not part of ordinary operations).
  - Impairments, write-offs, write-downs.
  - Restructuring costs.
- **Reporting:**
  - Included in *income from continuing operations*.
  - Reported **before tax**.
- **Analyst consideration:**

- Should assess whether such items are truly nonrecurring.
- Some firms report "one-off" charges frequently → signals recurring issues.
- Adjust forecasts by excluding these from "core" earnings if justified.

2. Discontinued Operations

- **Definition:** Component of business that is physically and operationally distinct, and management has decided to dispose of.
- **Phases:**
  - **Measurement date:** When formal plan to dispose is announced.
  - **Phaseout period:** Between measurement date and disposal.
- **Accounting treatment:**
  - Reported separately in income statement, **net of tax**, after continuing operations.
  - Prior-period statements restated for comparability.
  - Losses during phaseout and estimated loss on sale recognized at measurement date.
  - Gains only recognized when disposal completed.
- **Analyst treatment:**
  - Exclude discontinued operations from future earnings forecasts.
  - Consider disposal impact on firm's future cash flows and structure.

3. Changes in Accounting Policies, Estimates, and Errors

- **Types of accounting changes:**
  1. **Accounting policy changes:** (e.g., inventory method, capitalization vs expensing).
     - Require **retrospective application** unless impractical.
     - Enhances comparability across periods.
     - Example: IFRS 15 revenue recognition → allowed modified retrospective application (adjust cumulative balances, no restatement of prior periods).
  2. **Accounting estimate changes:** (e.g., useful life of asset, bad debt allowance).
     - Require **prospective application**.
     - Do not affect prior periods; only future results.
     - Do not directly affect cash flows.
  3. **Corrections of errors / prior-period adjustments:** (e.g., correcting from non-GAAP to GAAP method).

  - Require **retrospective restatement**.
  - Disclosure required (nature of error and impact).
  - May indicate weak internal controls.

- **Analyst adjustments:**
  - Scrutinize policy changes for earnings management.
  - Adjust comparability when firms adopt different policies.
  - For estimates, determine whether changes reflect genuine new information or manipulation.

4. Changes in Scope and Exchange Rates

- **Changes in scope:** Acquisitions, mergers, or disposals → affect comparability of financial statements before vs after.
- **Exchange rates:** Affect overseas subsidiaries' revenues, expenses, and assets when translated to reporting currency.
- **Disclosure:** Not explicitly required, but analysts should monitor.

Exhibit: Summary of Nonrecurring Items Treatment

Item	Reporting Treatment	Analyst Implications
Unusual / Infrequent Items	Included in continuing operations (before tax)	Adjust if not truly one-off; recurring charges reduce quality of earnings
Discontinued Operations	Separate line, net of tax, after continuing operations; prior periods restated	Exclude from future earnings forecasts; assess disposal impact on cash flows
Change in Accounting Policy	Retrospective application (unless impractical)	Improves comparability, but check for management bias
Change in Accounting Estimate	Prospective application	No restatement; assess impact on future earnings
Correction of Errors (Prior-period Adjustment)	Retrospective restatement; disclosure required	May signal weak internal controls; usually no cash flow effect
Change in Scope (M&A)	Not separately disclosed	Reduces comparability; analyst should adjust historical trends
Exchange Rate Effects	Not separately disclosed	Affects revenues/assets of foreign subsidiaries; adjust for FX volatility

Table 4: Nonrecurring Items – Reporting Treatment and Analyst Considerations

Key Analytical Insights

- Nonrecurring items distort earnings comparability.
- Analysts should focus on **income from continuing operations** as basis for forecasting.

- Frequent "one-off" losses may reveal poor operations or aggressive accounting.
- Restatements (policy or error corrections) improve comparability but highlight potential internal control issues.
- Scope and FX changes → require careful normalization in trend analysis.

Module 30.4: Earnings Per Share (EPS)

LOS 30.d: Basic and Diluted EPS – Principles and Calculations

1. Overview

- EPS = most widely used measure of corporate profitability for publicly traded firms.
- EPS is reported only for **common stock**.
- **Capital structure types:**
  - **Simple:** Only common stock, nonconvertible debt, nonconvertible preferred. ⇒ Report only **basic EPS**.
  - **Complex:** Contains potentially dilutive securities (options, warrants, convertible bonds, convertible preferred). ⇒ Report both **basic and diluted EPS**.

2. Basic EPS

Formula:

$$\text{Basic EPS} = \frac{\text{Net income} - \text{Preferred dividends}}{\text{Weighted average number of common shares outstanding}}$$

- Preferred dividends are subtracted (common shareholders' claim).
- Common dividends are **not** subtracted.
- Weighted average shares = shares outstanding adjusted for:
  - Issue or repurchase (time-weighted by days/months).
  - Stock splits/dividends → applied retroactively to beginning of year and prior periods.

Example – Weighted Average Shares (Johnson Co.):

- 10,000 shares at start.
- April 1: issue 4,000 shares.
- July 1: 10% stock dividend (retroactive adjustment).
- Sept 1: repurchase 3,000 shares.

Weighted Average Shares = time-adjusted and dividend-adjusted count (new shares)

Example – Basic EPS (Johnson Co.):

- Net income = \$10,000.
- Preferred dividends = \$1,000.
- Weighted average shares (from above) = used in denominator.
- Cash dividends to common (\$1,750) ignored in EPS.
- $$\text{Basic EPS} = \frac{10,000 - 1,000}{\text{Weighted Avg. Shares}}$$

3. Diluted EPS

Definition:

- Diluted EPS considers effects of all **potentially dilutive securities**.
- **Dilutive security:** reduces EPS if converted (included).
- **Antidilutive security:** increases EPS if converted (excluded).

Formula:

$$\text{Diluted EPS} = \frac{\text{Net income available to common (adjusted)}}{\text{Weighted average shares outstanding + shares from conversion (if dilutive)}}$$

Adjustments:

- **Convertible Preferred Stock:** Add back preferred dividends to numerator if dilutive.
- **Convertible Debt:** Add back after-tax interest expense:

$$\text{Adj. Net Income} = \text{Net Income} + \text{Interest} \times (1 - t)$$

- **Options/Warrants:** Use Treasury Stock Method:
  - Assumes exercise proceeds used to buy back shares at average market price.
  - Net increase = new shares issued – shares repurchased.

4. Worked Examples

Example 1 – Convertible Preferred Stock (ZZZ Corp.)

- Net income = \$4.35m.
- Shares outstanding = 2m.
- Preferred stock = \$5m par, 7% dividend, convertible 1.1 shares per \$10 par.
- Step 1 – Basic EPS:

$$\text{Basic EPS} = \frac{4.35m - 0.35m}{2m} = 2.00$$

- Step 2 – Diluted EPS:
  - New shares = (5m / 10) × 1.1 = 550,000 shares.
  - Add back preferred dividends (\$0.35m).
  - Diluted EPS:

$$\frac{4.35m}{2.55m} = 1.71$$

- Since diluted EPS (1.71) ¡ basic (2.00) → dilutive.

Example 2 – Convertible Debt (YYY Corp.)

- Net income available = \$2.5m.
- Shares outstanding = 1m.
- Basic EPS = 2.50.
- Convertible bonds = 2,000 bonds × \$1,000 × 5% = \$100,000 interest.
- Tax rate = 30%.
- Step 1 – Extra shares if converted:

$$2,000 \times 120 = 240,000$$

- Step 2 – Add back after-tax interest:

$$100,000 \times (1 - 0.30) = 70,000$$

- Step 3 – Diluted EPS:

$$\frac{2.5m + 70,000}{1m + 240,000} = 2.07$$

- Since 2.07 ¡ 2.50 → dilutive.

Example 3 – Stock Options/Warrants (XXX Corp.)

- Net income = $1.2m.
- Shares = 500,000.
- Basic EPS = 2.40.
- Options outstanding = 100,000 @ $15 exercise price.
- Average market price = $20.
- Step 1 – Shares issued if exercised = 100,000.
- Step 2 – Proceeds = 100,000 × 15 = 1.5m.
- Step 3 – Shares repurchased = 1.5m / 20 = 75,000.
- Step 4 – Net new shares = 25,000.
- Step 5 – Diluted EPS:

$$\frac{1.2m}{500,000 + 25,000} = 2.29$$

- Options are dilutive since 2.29 ¡ 2.40.

5. Summary Table – Basic vs Diluted EPS

Case	Numerator Adjustment	Denominator Adjustment
Basic EPS	Net income – preferred dividends	Weighted average shares outstanding
Convertible Preferred	Add back preferred dividends if dilutive	Add new shares if converted
Convertible Debt	Add back interest × (1 – tax) if dilutive	Add new shares if converted
Options/Warrants	No adjustment	Treasury stock method: new shares – repurchased shares
Antidilutive Securities	Excluded	Excluded (ignored in denominator)

Table 5: Basic vs Diluted EPS Adjustments

6. Key Analyst Considerations

- Always test each potential security separately for dilution.
- Exclude antidilutive securities even if they are convertible.
- Stock splits/dividends → retroactively adjust prior years to ensure comparability.
- Diluted EPS provides more conservative measure of per-share profitability.
- Frequent issuance of dilutive securities = red flag for shareholders (dilution of ownership).

Module 30.5: Ratios and Common-Size Income Statements

LOS 30.e: Evaluate Performance Using Common-Size Income Statements and Ratios

1. Common-Size Income Statements

- **Definition:** Expresses each line item as a percentage of revenue.
- **Purpose:**
  - Eliminates firm size effect ⇒ allows **time-series** and **cross-sectional** analysis.
  - Facilitates comparison across peers and over time.
- **Key points:**
  - Reveals structural differences in costs and profitability.
  - Highlights strategic focus (e.g., high R&D vs low R&D firms).
  - Exception: Income tax is more meaningful as **percentage of pretax income** = effective tax rate.

2. Example: North vs South Company

Absolute Results (in $):

- North: Revenue = 75,000,000; Gross Profit = 22,500,000; Operating Profit = 7,500,000.
- South: Revenue = 3,500,000; Gross Profit = 2,800,000; Operating Profit = 1,575,000.
- North larger and higher absolute profit.

Metric	North (% of Revenue)	South (% of Revenue)
Gross Profit Margin	30%	80%
Operating Profit Margin	10%	45%
R&D Expense	Lower proportion	Higher proportion

Table 6: Common-Size Income Statement Comparison: North vs South

Common-Size Results (relative % of revenue):

Insights:

- South is **more profitable relatively**, despite smaller size.
- High gross margin suggests **technological differentiation or pricing power**.
- Higher R&D share indicates innovation-driven strategy.

3. Margin Ratios (Profitability Metrics)

Formulas:

- **Gross Profit Margin:**

$$\text{GPM} = \frac{\text{Gross Profit}}{\text{Revenue}} = \frac{\text{Revenue} - \text{COGS}}{\text{Revenue}}$$

- **Operating Profit Margin:**

$$\text{OPM} = \frac{\text{Operating Profit}}{\text{Revenue}}$$

- **Pretax Margin:**

$$\text{Pretax Margin} = \frac{\text{Pretax Accounting Profit}}{\text{Revenue}}$$

- **Net Profit Margin:**

$$\text{NPM} = \frac{\text{Net Income}}{\text{Revenue}}$$

- **Effective Tax Rate:**

$$\text{ETR} = \frac{\text{Income Tax Expense}}{\text{Pretax Income}}$$

Interpretation:

- **Gross Profit Margin (GPM):**
  - Indicates ability to cover production costs.
  - Improved via: raising prices, reducing production costs.
  - Higher GPM often reflects product differentiation (brand, technology, patents).
- **Operating Profit Margin (OPM):**
  - Accounts for operating expenses (R&D, SG&A).
  - Measures efficiency of operations and cost control.
- **Net Profit Margin (NPM):**
  - Includes all expenses (interest, tax).
  - Best measure of bottom-line profitability.
- **Pretax Margin:**
  - Useful for comparing firms across different tax jurisdictions.

4. Example: Ratio Analysis of North vs South

Ratio	Formula	North	South
Gross Profit Margin	GP / Revenue	30%	80%
Operating Profit Margin	OP / Revenue	10%	45%
Net Profit Margin	NI / Revenue	Lower	Higher
R&D as % of Revenue	R&D / Revenue	Low	High
Effective Tax Rate	Tax Expense / Pretax Income	Apply separately	Apply separately

Table 7: Comparison of Profitability Ratios: North vs South

Insights:

- North: Economies of scale, but low margins. Strategy: volume-driven.
- South: Differentiated products, high pricing power, innovation-focused.
- Indicates South may sustain higher profitability despite smaller size.

5. Key Analyst Considerations

- Common-size analysis reveals **underlying strategy and structure**, not visible in absolute figures.
- Margin ratios should be tracked **over time** (trend analysis) and **against peers** (cross-sectional).
- Tax effects should be separated using effective tax rate.
- High margins may indicate differentiation but may also suggest risk if not sustainable.
- Low margins may suggest commoditization, reliance on cost leadership.

Module 31.1: Intangible Assets and Marketable Securities

LOS 31.a: Intangible Assets

- **Definition:** Non-monetary assets lacking physical substance.
- **Types:**
  - **Identifiable:** Can be acquired separately (patents, trademarks, copyrights).
  - **Unidentifiable:** Cannot be separated, often indefinite life (e.g., goodwill).
- **IFRS Treatment:**
  - Purchased intangibles: cost model or revaluation model (if active market exists).
  - Internally created intangibles:

    - Research costs ⇒ expensed.
    - Development costs ⇒ capitalized if criteria met (technical feasibility, resources, market, intention).

- **U.S. GAAP Treatment:**
  - Only cost model allowed.
  - Internally created intangibles (R&D) generally expensed (except certain legal costs).
- **Subsequent Treatment:**
  - Finite-lived ⇒ amortized + impairment testing.
  - Indefinite-lived ⇒ no amortization, annual impairment test.
- **Costs Always Expensed (IFRS & GAAP):** start-up, training, admin, advertising, relocation, termination.

Example: Lowe S.A. R&D Projects (IFRS)

- Project 1: Hydrogen fuel cells (research stage) ⇒ costs expensed.
- Project 2: Catalytic converter (development stage, prototype exists, resources and market available) ⇒ costs capitalized.

$$\text{Capitalized Costs} = 120 + 60 + 30 = 210 \text{ million}$$

- Admin costs ⇒ expensed.

LOS 31.b: Goodwill

- **Definition:** Excess purchase price over fair value of net assets in an acquisition.

$$\text{Goodwill} = \text{Purchase Price} - \text{Fair Value of Net Assets}$$

- **Key Points:**
  - Created only in acquisitions (not internally generated).
  - Indefinite life ⇒ not amortized, but tested annually for impairment.
  - Impairment recognized as loss (no cash flow impact).
- **Special Case:** If purchase price $<$ fair value ⇒ gain recognized in income statement.
- **Analyst Considerations:**
  - Some analysts exclude goodwill from balance sheets (improves comparability).
  - Goodwill impairments can signal poor acquisitions.
  - Firms may allocate more cost to goodwill (not amortized) vs assets (which depreciate), inflating net income.

Types of Goodwill:

- **Accounting Goodwill:** Arises from past acquisitions.
- **Economic Goodwill:** PV of expected future excess returns.

LOS 31.c: Financial Instruments

- **Definition:** Contracts that create both a financial asset (for one party) and a liability/equity instrument (for the other).
- **Examples (Assets):** investment securities, derivatives, loans, receivables.
- **Measurement Bases:**
  - **Historical Cost:** e.g., unquoted equity investments, loans.
  - **Amortized Cost:** held-to-maturity (GAAP), debt securities with intent to hold to maturity.
  - **Fair Value:** trading securities, available-for-sale (GAAP), derivatives.

Category	Measurement	Income Statement Impact
Held-to-Maturity	Amortized cost	Interest income only
Trading Securities	Fair value	Unrealized gains/losses + income
Available-for-Sale	Fair value	Realized gains/losses + income; Unrealized gains/losses → OCI

Table 8: Financial Assets under U.S. GAAP

U.S. GAAP Classification:

Example: Triple D Bond ($1M, 6%, decline by $20k)

- **Held-to-Maturity:** Report $1,000,000, interest income $60,000.
- **Trading:** Report $980,000, interest $60,000 + unrealized loss $20,000.
- **Available-for-Sale:** Report $980,000, interest $60,000 in IS, $20,000 unrealized loss in OCI.

IFRS Classification:

- Amortized Cost (hold to collect).
- Fair Value through OCI (collect + sell).
- Fair Value through P&L (trading/default).
- Key Differences: Equity can be FVOCI under IFRS (choice at purchase), not under U.S. GAAP.

LOS 31.d: Non-Current Liabilities

- **Examples:** Bank loans, notes payable, bonds payable, some derivatives.
- **Measurement:**
  - Usually reported at amortized cost:

$$\begin{aligned}\text{Amortized Cost} = &\text{ Issue Price}\\ &- \text{Principal Payments}\\ &+ \text{Amortized Discount}\\ &- \text{Amortized Premium}\end{aligned}$$

  - Premium/discount amortized into interest expense.
  - Liability approaches face value at maturity.
  - Some liabilities (e.g., trading, derivatives, hedged) measured at fair value.
- **Deferred Tax Liabilities (DTL):**
  - Taxes payable in future due to timing differences between financial vs tax reporting.
  - Created when:
    - Tax deductions occur before expense recognition (e.g., accelerated tax depreciation).
    - Revenues recognized before taxable (e.g., subsidiary earnings).
  - Eventually reverse when taxes are paid.

Module 32.1: Cash Flow Introduction and Direct Method CFO

LOS 32.a: How the Cash Flow Statement Links to Income Statement and Balance Sheet

- The **Cash Flow Statement (CFS)** provides insights not visible in the Income Statement (IS) and Balance Sheet (BS):
  - Cash receipts and cash payments during the period.
  - Classification into: Operating (CFO), Investing (CFI), Financing (CFF).
  - Quality of earnings: accrual vs. cash-backed profits.
- **Uses of CFS by analysts:**
  - Liquidity $\rightarrow$ ability to sustain business with operating cash.
  - Solvency $\rightarrow$ ability to meet long-term obligations.
  - Financial flexibility $\rightarrow$ ability to fund growth or meet surprises.

- **Link to Financial Statements:**
  - IS = performance between two BS dates (flow statement).
  - CFS reconciles change in cash between beginning and end of BS period.
  - Operating Activities ↔ Current Assets & Liabilities.
    Investing Activities ↔ Noncurrent Assets.
    Financing Activities ↔ Noncurrent Liabilities & Equity.

Example: Accounts Receivable (AR)

$$\text{Ending AR} = \text{Beginning AR} + \text{Sales} - \text{Cash Collections}$$

$$\text{Cash Collections} = \text{Sales} - (\text{Ending AR} - \text{Beginning AR})$$

Numerical Example Beginning AR = €10,000, Ending AR = €15,000, Sales = €68,000

$$\text{Cash Collections} = 68{,}000 - (15{,}000 - 10{,}000) = 63{,}000$$

- An **increase in AR** → use of cash. - An **increase in Unearned Revenue** → source of cash.

General Rules (Sources vs Uses of Cash):

- Increase in an Asset → Use of Cash ().
- Decrease in an Asset → Source of Cash (+).
- Increase in a Liability → Source of Cash (+).
- Decrease in a Liability → Use of Cash ().

LOS 32.b: Direct vs. Indirect CFO Presentation

- CFO can be presented using:
  1. **Direct Method:** Lists actual cash inflows/outflows.
  2. **Indirect Method:** Adjusts net income for non-cash items and accruals.
- CFI and CFF are presented the same under both methods.

Direct Method for CFO: Step-by-Step

1. Start with Revenue (top of IS).
2. Adjust for changes in related BS accounts:

- Subtract increase in asset (use of cash).
- Add decrease in asset (source of cash).
- Add increase in liability (source of cash).
- Subtract decrease in liability (use of cash).

3. Treat expenses as negative values before adjustments.
4. Ignore non-cash items (e.g., depreciation, unrealized gains/losses).
5. Sum adjusted inflows/outflows = CFO.

Components of Direct Method CFO:

- Cash collected from customers.
- Cash paid to suppliers (COGS adjusted for Inventory & AP).
- Cash operating expenses (e.g., wages, rent).
- Cash interest paid.
- Cash taxes paid.

Example: Direct Method CFO Calculation

Income Statement (20X7)

Sales Revenue	500,000
COGS	(300,000)
Depreciation	(20,000)
Operating Expenses	(100,000)
Interest Expense	(10,000)
Tax Expense	(20,000)
Net Income	50,000

Balance Sheet Changes (20X6 $\rightarrow$ 20X7)

Accounts Receivable	+15,000
Inventory	+5,000
Accounts Payable	+8,000
Taxes Payable	+3,000

Step-by-Step CFO:

- Cash Collected from Customers:

$$500{,}000 - 15{,}000 = 485{,}000$$

- Cash Paid to Suppliers (COGS adj.):

$$300{,}000 + 5{,}000 - 8{,}000 = 297{,}000$$

- Cash Operating Expenses:

$$100{,}000 \quad \text{(no adjustment assumed)}$$

- Cash Interest Paid:

$$10{,}000 \quad \text{(no adjustment assumed)}$$

- Cash Taxes Paid:

$$20{,}000 - 3{,}000 = 17{,}000$$

$$\text{CFO} = 485{,}000 - 297{,}000 - 100{,}000 - 10{,}000 - 17{,}000 = 61{,}000$$

Interpretation:

- CFO = 61,000 (positive cash flow from operations).
- Quality of earnings is high if CFO $\geq$ Net Income (50,000).
- Indicates earnings are backed by real cash collections.

Module 32.2: Indirect Method CFO

LOS 32.b: Prepare and interpret CFO using the indirect method

Core idea

- Start from **Net Income (NI)** and reconcile to **Cash Flow from Operations (CFO)** by:
    1. **Adding back** noncash charges and **removing** non-operating gains/losses that flowed through NI.
    2. **Adjusting for working capital** changes (operating current assets and operating current liabilities).

Bridge formula

$$\boxed{\text{CFO} = \text{NI} + \text{NCC} - \text{WCINV}}$$

- **NCC (Noncash Charges):** Items in NI with no current-period cash effect (e.g., depreciation). Gains reduce NI without cash classification in CFO; losses increase NI similarly. Under the indirect method: *add back charges*, *subtract gains*, *add losses*.
- **WCINV (Working Capital Investment):** Net increase in *noncash* operating current assets minus the net increase in *operating* current liabilities.

What counts as operating for WCINV

- **Include (typical):** Accounts receivable, inventory, prepaid expenses, other operating CAs; Accounts payable, accrued expenses, taxes payable, unearned (deferred) revenue.
- **Exclude:** Cash and cash equivalents; short-term *interest-bearing* debt and dividends payable (CFF); short-term investments (except trading securities which are CFO under U.S. GAAP).

Account change	**CFO effect**	**Logic**
↑ Operating current asset (e.g., AR, Inventory)	−	Cash not yet received or tied up in inventory
↓ Operating current asset	+	Release of cash (collection or inventory run-down)
↑ Operating current liability (e.g., AP, Accrued, Taxes Payable)	+	Paying later preserves cash
↓ Operating current liability	−	Paying earlier uses cash

Table 9: Working capital adjustments under the indirect method

Sign rules for working capital adjustments

Income statement item	**Indirect CFO adjustment**
Depreciation and amortization	Add back
Impairment losses, write-downs	Add back
Stock-based compensation expense	Add back
Bad-debt expense (allowance build)	Add back
Deferred tax expense (net)	Add back (if noncash)
Unrealized FX losses (noncash)	Add back
Gains on sale of PPE/investments (CFI item)	Subtract
Losses on sale of PPE/investments (CFI item)	Add back

Table 10: Common noncash and non-operating items in the NI-to-CFO bridge

Typical noncash charges, gains, and losses (NCC bucket)

Step-by-step algorithm (indirect method)

1. Begin with **Net Income**.
2. **Add back** noncash charges and **remove** non-operating gains/losses: + Depreciation/Amortization, + Impairments, − Gains on asset sales, + Losses on asset sales, + Deferred tax expense, etc.
3. Adjust for **working capital**:
   - Subtract increases / add decreases in operating current *assets*.
   - Add increases / subtract decreases in operating current *liabilities*.
4. Resulting total is **CFO**.

Worked example (reconciling to the 32.1 direct-method numbers)

Given (from 32.1):

- Income Statement (20X7): NI = \$50,000; Depreciation = \$20,000; no gains/losses assumed.
- Balance sheet changes (20X6 → 20X7): AR = +15,000; Inventory = +5,000; AP = +8,000; Taxes Payable = +3,000.

Indirect method CFO:

$$\begin{aligned}\text{CFO} &= \text{NI} + \text{NCC} + (\Delta\text{AP}) + (\Delta\text{Taxes Payable}) - (\Delta\text{AR}) - (\Delta\text{Inventory}) \\ &= 50{,}000 + 20{,}000 + 8{,}000 + 3{,}000 - 15{,}000 - 5{,}000 \\ &= \boxed{61{,}000}\end{aligned}$$

This matches the **direct method CFO** computed in Module 32.1, as required.

Aggregate working capital formulation

$$\text{WCINV} = \Delta(\text{AR+Inventory+Prepaids+Other Op. CAs}) - \Delta(\text{AP+Accrued+Taxes Pay.+Unearned})$$

$$\text{CFO} = \text{NI} + \text{NCC} - \text{WCINV}$$

Standards notes and exam tips

- Both IFRS and U.S. GAAP *encourage* the direct format, but most issuers present **indirect** CFO. Under U.S. GAAP, if direct is shown, an indirect reconciliation is required in the notes.
- Remember classification options: under IFRS, interest and dividends received/paid may be classified as CFO or CFI/CFF (policy choice), while U.S. GAAP generally classifies interest paid/received and dividends received as **CFO**, and dividends paid as **CFF**.
- Quality of earnings: persistent gap where NI > CFO can indicate aggressive accruals or working-capital build.

Module 32.3: Investing and Financing Cash Flows and IFRS/U.S. GAAP Differences

Cash Flow From Investing (CFI) and From Financing (CFF)

Definitions

- **CFI:** Cash inflows/outflows from acquiring or disposing of *long-term assets* and certain investments.
- **CFF:** Cash inflows/outflows from transactions affecting *capital structure* (debt and equity).

Bucket	Inflows	Outflows
CFI	Proceeds from sale of PP&E, intangibles, long-term investments	Purchase of PP&E and intangibles; purchase of debt/equity investments (other than trading); loans made to others
CFF	Proceeds from issuing debt (bonds/notes) or equity (shares); proceeds from new borrowings	Repayment of principal on debt; share repurchases (treasury stock); cash dividends paid
CFO (relevant contrasts)	Interest received; dividends received	Interest paid; income taxes paid (all taxes under U.S. GAAP)

Table 11: Cash flow classifications under U.S. GAAP (selected items)

U.S. GAAP classification (typical)

Professor's note

- Do not confuse *dividends received* (CFO under U.S. GAAP) with *dividends paid* (CFF).

Worked example: Computing CFI

Given:

- Footnote: PP&E purchases during the year = \$25,000.
- Gross PP&E: beginning = \$60,000; ending = \$69,000.
- Depreciation expense = \$7,000.
- Accumulated depreciation increased only \$3,000 (implies disposal removed accumulated depreciation).
- Loss on sale of PP&E in the income statement (therefore proceeds < carrying value).
- Land: beginning carrying value = \$40,000; ending = \$35,000; no land purchases disclosed.

1) Identify PP&E disposals (gross and accumulated depreciation)

$$\begin{aligned}\text{Disposed gross cost} &= \text{Beg. gross PP\&E} + \text{Additions} - \text{End. gross PP\&E} \\ &= 60{,}000 + 25{,}000 - 69{,}000 = 16{,}000\end{aligned}$$

Accumulated depreciation removed with the disposal:

$$\text{AD removed} = \text{Beg. AD} + \text{Depreciation} - \text{End. AD} = 7{,}000 - 3{,}000 = 4{,}000$$

(We only need the net change; exact beg/end AD levels are not required.)

2) Carrying value and proceeds on PP&E sale

$$\text{Carrying value disposed} = \text{Disposed gross cost} - \text{AD removed} = 16{,}000 - 4{,}000 = 12{,}000$$

Given a *loss* on disposal and that only *proceeds* are cash:

$$\text{Proceeds on PP\&E sale} = 10{,}000 \quad \text{(implied by loss of \$2,000)}$$

3) Land disposal

$$\text{Carrying value disposed (land)} = 40{,}000 - 35{,}000 = 5{,}000 \quad \text{(no depreciation on land)}$$

$$\text{Proceeds on land sale} = 15{,}000$$

4) Compute CFI

$$\begin{aligned}\text{CFI} &= -\text{Cash paid for PP\&E additions} + \text{Proceeds on PP\&E sale} + \text{Proceeds on land sale} \\ &= -25{,}000 + 10{,}000 + 15{,}000 \\ &= \boxed{0}\end{aligned}$$

In this case, new asset purchases were exactly offset by disposal proceeds.

One-line shortcut for carrying value of PP&E disposed

$$\text{Carrying value disposed} = \text{Beg. net PP\&E} - \text{Depreciation} + \text{Additions} - \text{End. net PP\&E}$$

Then use: Proceeds = Carrying value + Gain (or − Loss).

Worked example: Computing CFF

Given:

- Bonds outstanding issued at par. Bonds payable: beginning = \$10,000; ending = \$15,000.
- Contributed capital (Common stock + APIC): beginning = \$40,000; ending = \$50,000.
- Retained earnings: beginning = \$30,500; ending = \$61,000. Net income = \$39,000.
- Dividends payable change as applicable (not shown below; include if provided).

1) Net principal cash flow from debt (issued at par)

$$\Delta\text{Bonds payable} = 15{,}000 - 10{,}000 = \boxed{+5{,}000 \text{ (CFF inflow)}}$$

2) Net equity cash flow

$$\Delta\text{Contributed capital} = 50{,}000 - 40{,}000 = \boxed{+10{,}000 \text{ (CFF inflow)}}$$

If contributed capital decreased, it would be an outflow (share repurchase).

3) Cash dividends paid

Dividends declared = Beg. RE + Net income − End. RE = 30,500 + 39,000 − 61,000 = 8,500

Adjust for change in dividends payable (DP):

$$\text{Dividends paid} = \text{Dividends declared} + \text{Beg. DP} - \text{End. DP}$$

Use provided DP figures; if none, assume declared = paid.
Thus, $\boxed{\text{Dividends paid} = 8{,}500 \text{ (CFF outflow)}}$.

4) Total CFF (sign convention: inflows positive)

$$\text{CFF} = (+5{,}000) + (+10{,}000) - (8{,}500) = \boxed{+6{,}500}$$

Completing the cash flow statement

- Compute **CFO** (from 32.1/32.2), **CFI**, and **CFF**.
- Net change in cash = CFO + CFI + CFF.
- Check: End cash − Beg cash = Net change in cash.

Converting Indirect CFO to Direct CFO (LOS 32.c)

Three-step method

1. **Aggregate** all revenues & gains and all expenses & losses.
2. **Remove** all noncash items and **disaggregate** the remainder into natural cash categories.
3. **Convert accruals to cash** by adjusting each category for related working-capital changes.

Useful direct-method building blocks

$$\text{Cash collected from customers} = \text{Sales} - \Delta\text{Accounts receivable}$$

$$\text{Cash paid to suppliers} = \text{COGS} + \Delta\text{Inventory} - \Delta\text{Accounts payable}$$

$$\text{Cash operating expenses} \approx \text{SG\&A} - \Delta\text{Accrued expenses} - \Delta\text{Prepaids}$$

$$\text{Cash interest paid} = \text{Interest expense} - \Delta\text{Interest payable}$$

$$\text{Cash taxes paid} = \text{Tax expense} - \Delta\text{Taxes payable} - \Delta\text{Deferred taxes}$$

Sum the adjusted cash inflows/outflows to get $\text{CFO}_{\text{direct}}$ (it must equal indirect CFO).

IFRS vs U.S. GAAP classification differences (LOS 32.d)

Item	U.S. GAAP	IFRS
Interest received	CFO	CFO or CFI
Interest paid	CFO	CFO or CFF
Dividends received	CFO	CFO or CFI
Dividends paid	CFF	CFO or CFF
Income taxes paid	CFO (all)	CFO unless specifically attributable to CFI or CFF

Table 12: Key classification differences: IFRS vs U.S. GAAP

Illustration: tax on investing transaction Sell land for $1,000,000; income tax on sale = $160,000.

- **U.S. GAAP:** CFI inflow $1,000,000; CFO outflow $160,000.
- **IFRS:** May present net CFI inflow $840,000 if taxes are directly attributable to the investing transaction.

Exam tips and analyst notes

- When bonds are issued at par (Level I simplification), Δ Bonds payable equals *cash* from debt issuance/repayment.
- Premium/discount amortization affects interest expense and carrying value but not cash; focus on principal cash flows in CFF.
- For equity, Δ (Common stock + APIC) approximates net share issuance (inflow) or repurchase (outflow); differences from issue price affect retained earnings in practice.
- Always reconcile totals to the change in cash as a validation step.