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Module 7 Financial Condition Analysis

PAD 501

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Introduce financial statement analysis and ratios

- Goals of this lecture
  - Understand why we use financial ratios.
  - Learn how to calculate key ratios.
  - Practice interpreting ratios:
    - What does a high or low value mean?
    - Is an increase good or bad?
  - Learn how to compare ratios:
    - Over time (trend)
    - Across organizations (benchmarks)

Ratios for Analysis

- For each ratio, always ask:
  - Purpose: What does this ratio measure?
  - Formula: How do we calculate it?
  - Interpretation: What does a high/low value mean?
  - Direction: Is it better for this ratio to go up or down?
  - Source: Which financial statement(s) do we use?

Common Size Ratios

- Common-Size Ratios: Convert financial statements to percentages, not dollars.
- On the balance sheet:
  - Express each item as a % of Total Assets.
  - Example:
    - Cash = $10,000; Total Assets = $50,000 → Cash = 20% of assets
    - Cash = $100,000; Total Assets = $10,000,000 → Cash = 1% of assets
- On the statement of activities / income statement:
  - Express each item as a % of Total Revenues.
- Why useful?
  - Makes it easier to compare organizations of different sizes.
  - Helps identify unusual structures (e.g., too much inventory, too little cash).

Liquidity Ratios

- Focus on liquidity, that is: Can the organization meet its near-term obligations on time?
- Key questions:
  - Do we have enough current assets to pay current liabilities?
  - How much truly liquid (quickly usable) resources do we have?
  - How long can we operate if cash inflows slow down?
- Three liquidity ratios: current ratio, quick ratio, and days of cash on hand.

Current Ratio

$$Current\ Ratio = \frac{Current\ Assets}{Current\ Liabilities}$$

- Interpretation:
  - Measures overall short-term solvency.
  - A ratio of 1.0 means:
    - Current assets = current liabilities
    - We *just* have enough to cover near-term obligations.
- Rules of thumb:
  - Target: around 1.0 to 2.0
  - Trend: should generally be stable or increasing
  - Benchmark: compare to the sector median
- Too low → risk of not paying bills on time; Too high → may be holding too much idle cash or inventory.

Quick Ratio

$$\text{Quick } Ratio = \frac{Cash + Marketable\ Securities + Accounts\ Receivable}{Current\ Liabilities}$$

- Interpretation:
  - Measures ability to meet current obligations using most liquid assets only.
  - Excludes assets like inventory that may be hard to convert to cash quickly.
- Compare with Current Ratio:
  - Quick ratio is usually lower than the current ratio.
  - A big gap between them suggests a lot of inventory or less liquid assets.
- Rules of thumb:
  - Target: about 1.0
  - Trend: ideally up
  - Benchmark: above the sector median

Days of Cash on Hand

$$Days\ of\ Cash\ on\ Hand = \frac{Cash + Marketable\ Securities}{(Operating\ Expenses - Bad\ Debts - Depreciation)/365}$$

- Interpretation:
  - Approximate number of days we can operate using only existing cash and near-cash.
  - Answers: “If revenues stopped tomorrow, how long could we keep going?”
- Guidelines:
  - No single “magic number” — depends on the industry and risk tolerance.
  - Trend: higher and stable is generally better (more cushion).
  - Benchmark: compare to peers and rating agencies’ guidelines.

Efficiency (Asset-Turnover) Ratios

- How efficiently does the organization use its assets to generate revenues and collect cash?
  - High turnover ⟶ assets are used intensively.
  - Low turnover ⟶ potential under-utilization of resources.
- We will look at:
  - Receivables Turnover
  - Inventory Turnover
  - Fixed Asset Turnover

Receivables Turnover

$$Receivables\ Turnover = \frac{Revenues\ and\ Support - Cash\ Sales}{Accounts\ Receivable}$$

- Interpretation:
  - Number of times per year we collect our receivables.
  - Higher turnover → faster collection, better cash flow.
  - Very high turnover may indicate very strict credit policies.
- Guidelines:
  - No universal rule of thumb.
  - Trend: generally want higher turnover.
  - Benchmark: compare to similar organizations.

Inventory Turnover

$$Inventory\ Turnover = \frac{Cost\ of\ Inventory\ Used}{Inventory}$$

- Interpretation:
  - Number of times per year the organization uses or sells its inventory.
  - Higher → inventory moves quickly; less risk of obsolescence or spoilage.
  - Too high → risk of stockouts (not enough inventory).
- Guidelines:
  - No universal target.
  - Trend: generally want higher, but watch for too high.
  - Benchmark: compare to similar organizations or industry norms.

Fixed Asset Turnover

$$\textit{Fixed Asset Turnover} = \frac{\textit{Total Unrestricted Revenues and Support}}{\textit{Net Fixed Assets}}$$

- Interpretation:
  - Measures how much revenue each dollar of fixed assets supports.
  - Higher ⟶ more productive use of buildings, equipment, etc.
  - Very low ⟶ possible excess capacity or under-utilized facilities.
- Guidelines:
  - No strict rule of thumb.
  - Trend: prefer stable or increasing efficiency.
  - Benchmark: compare to similar organizations with similar capital intensity.

Leverage and Coverage Ratios

- Leverage ratios:
  - How much does the organization rely on debt financing?
- Coverage ratios:
  - Can the organization pay interest and debt service?
- Debt is a double-edged sword:
  - Pros: can finance growth and spread out large capital costs.
  - Cons: increases fixed obligations; too much debt → higher risk of financial distress.
- Several leverage and coverage ratios: debt to assets ratio, debt to equity ratio, and times interest earned.

Debt to Assets

$$Debt\ to\ Assets = \frac{Total\ Liabilities}{Total\ Assets}$$

- Interpretation:
  - What portion of total assets has been financed with debt, rather than equity/net assets?
  - Higher ratio → more leverage and higher financial risk.
- Rule of thumb:
  - Target: about 0.5 or less
  - Trend: ideally flat or decreasing
  - Benchmark: should be below sector median (not always, but often the goal)

Debt to Equity

$$Debt\ to\ Equity = \frac{Total\ Liabilities}{Total\ Equity\ or\ Net\ Assets}$$

- Interpretation:
  - Compares the organization's debt to its own resources.
  - Higher ratio ⟶ more dependence on borrowed money.
- Rules of thumb:
  - Target: about 1.0 or less
  - Trend: prefer decreasing over time
  - Benchmark: typically want to be below the median for peers

Times Interest Earned

$$\textit{Times Interest Earned} = \frac{\textit{Increase in Unrestricted Net Assets Before Interest Expense}}{\textit{Interest Expense}}$$

- Interpretation:
  - If times interest earned = 2, we earned 2 times our interest expense.
  - Higher ratios → more room to cover interest payments.
- Guidelines:
  - Minimum target: at least 1.0 (just enough to cover interest)
  - Safer if > 2.0, depending on risk.
  - Trend: should be upward or stable
  - Benchmark: compare to similar organizations or rating criteria.

Total Margin

$$\text{Total } \textit{Margin} = \frac{\textit{Increase in Net Assets}}{\textit{Total Unrestricted Revenues and Support}}$$

- Interpretation:
  - Measures what the organization earns per dollar of revenue.
  - Positive margin ⟶ surplus (resources added).
  - Negative margin ⟶ deficit (resources used up).
- Guidelines:
  - No single “correct” margin.
  - Healthy nonprofits often aim for a small positive margin each year.
  - Trend: judgment call – persistent deficits are a warning sign.
  - Benchmark: compare to similar organizations and to board / funder expectations.

Return on Net Assets

$$\text{Return } \textit{on Net Assets} = \frac{\textit{Increase in Net Assets}}{\textit{Net Assets}}$$

- Interpretation:
  - Measures how effectively the organization uses its net assets to generate additional resources.
  - Rough nonprofit equivalent of return on equity.
- Guidelines:
  - No universal target – depends on mission, risk, and capital structure.
  - Trend & benchmark: judgment call, but:
    - Very low or negative returns over many years may indicate weak performance.

Return on Total Assets

$$\textit{Return on Total Assets} = \frac{\textit{Increase in Net Assets}}{\textit{Total Assets}}$$

- Interpretation:
  - Measures what the organization earns per dollar of total assets.
  - Shows overall effectiveness in using resources (debt + net assets).
- Guidelines:
  - Again, no single ideal value.
  - Trend: judgment call; sustained negative return on assets signals deteriorating condition.
  - Benchmark: compare to peers and to prior years.

Getting Comparative Data

- Using Ratios: Comparison and Context
- Always compare ratios to:
  - The same organization over time: Are things getting better or worse?
  - Similar organizations: similar size, mission, funding mix, region.
  - Industry benchmarks: sector averages, rating agency medians, etc.
- Key questions:
  - Should this ratio ideally be higher or lower than average?
  - Is it good if it is increasing or decreasing?
  - Are there special circumstances (policy changes, one-time events)?

Real-World Example – NYS Fiscal Stress Monitoring System (FSMS)

- Developed by the Office of the State Comptroller (OSC) in 2013 to monitor counties, cities, towns, villages, and school districts.
- Uses nine financial indicators (fund balance, cash, deficits, debt, fixed costs) and separate environmental indicators (poverty, tax base, unemployment, etc.).
- Produces a 0–100 score and classifies governments into:
  - Significant Stress (65–100)
  - Moderate Stress (55–64.9)
  - Susceptible to Stress (45–54.9)
  - No Designation (0–44.9)

Source: https://www.osc.ny.gov/files/local-government/fiscal-monitoring/pdf/system-manual.pdf

The Nine FSMS Financial Indicators

- 1–2. Year-End Fund Balance (2 indicators – 50 pts)
  - Assigned & Unassigned Fund Balance ÷ Gross Expenditures
  - Total Fund Balance ÷ Gross Expenditures
- 3. Operating Deficits (10 pts)
  - Looks at whether there were deficits in each of the last 3 years using: (Revenues – Expenditures) ÷ Expenditures.
- 4–5. Cash Position (2 indicators – 20 pts)
  - Cash Ratio: (Cash + Investments) ÷ Net Current Liabilities.
  - Cash as % of Monthly Expenditures:
    (Cash + Investments) ÷ (Annual Expenditures ÷ 12).

The Nine FSMS Financial Indicators

- 6–7. Use of Short-Term Cash-Flow Debt (2 indicators – 10 pts)
  - Short-Term Debt Issuance % of General Fund Revenues
  - Short-Term Debt Issuance Trend
- 8–9. Fixed Costs (2 indicators – 10 pts)
  - Personal Services & Employee Benefits ÷ Total Revenues (3-year average).
  - Debt Service ÷ Total Revenues (3-year average).

Comparing textbook ratios with FSMS ratios

- Liquidity – “Can we pay our bills now?”
  - PAD 501: Current Ratio, Quick Ratio, Days of Cash on Hand
  - FSMS: Cash Ratio; Cash as % of Monthly Expenditures (Indicators 4 & 5)
  - FSMS: Additional short-term debt ratios: Use & Trend of Short-Term Cash-Flow Debt (Indicators 6 & 7)
- Margins (budgetary surplus)– “Are we structurally balanced?”
  - PAD 501: Total Margin (surplus/deficit over time)
  - FSMS: Operating Deficit Trend over 3 years (Indicator 3)

Comparing textbook ratios with FSMS ratios

- Fund Balance & Flexibility – “How big is our reserve?”
  - PAD 501: Concept of reserves and accumulated surpluses, not specifically measured
  - FSMS: Fund Balance ÷ Expenditures (Assigned & Unassigned; Total) (Indicators 1 & 2)
- Long-Term Solvency & Fixed Costs – “How locked-in are our costs?”
  - PAD 501: Debt-to-Assets, Debt-to-Equity, Times Interest Earned
  - FSMS: Personal Services & Benefits ÷ Revenues; Debt Service ÷ Revenues (Indicators 8 & 9)