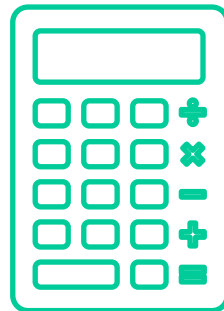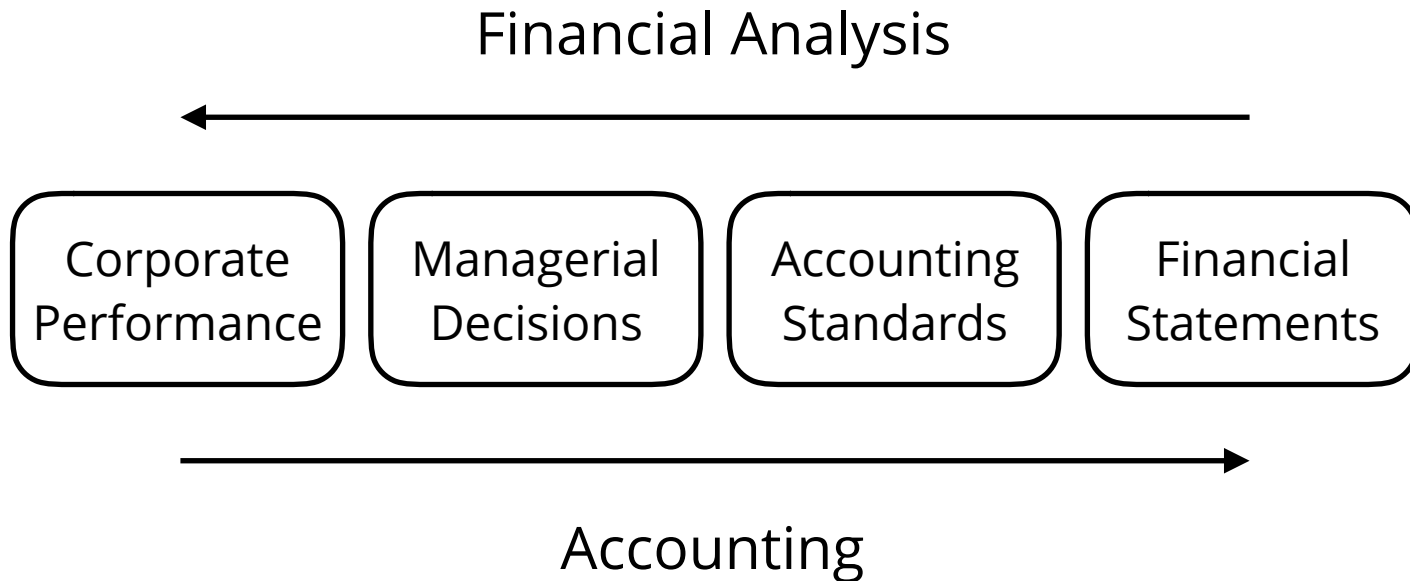# Chapter 3: Financial Statements

The Big Picture

- We need to convert accounting values into economic values.

    - Accounting practices (GAAP, IFRS).

    - Manipulation.

    - Omitted information.

        - Off balance sheet assets, lease financing, etc.

Financial Statements

Financial Statement Analysis

Financial Analysis

← ────────────────────────────────

| Corporate Performance | Managerial Decisions | Accounting Standards | Financial Statements |

──────────────────────────── →

Accounting

Balance Sheets

Book Values (Accounting)		Market Values (Finance)	
Assets	Liabilities	Own	Owe
	Equity		Value

Assets = Liabilities + Equity   *Value = Own - Owe*

(Resources available to pay)

Assets

Current Assets

- Cash & Equivalents

- Inventories

- Other Current Assets

Long Term Assets

- Net Fixed Assets

- PPE

Intangible Assets

(Claims to investors)

Liabilities & Equity

Current Liabilities

- Accounts Payable

- Debt Due (< 1 year)

- Other Current Liabilities

Long Term Capital

- Long Term Debt

- Shareholders Equity

- Preferred Stock

- Common Stock

Income Statement

Sales (Revenues)

- Costs

- Depreciation (Dep)

EBIT

- Interest (Int)

EBT

- Tax

Net Income (NI)

Other Statements

- **Statement of Cash Flows**: Tracks changes in the cash account as a function of Operating, Investing and Financing activities.

- **Statement of Shareholders Equity**: Tracks changes in book equity and number of shares from net income, dividends, and conversions.

Ratios Analysis

Ratio Analysis

- Compute financial ratios for a company and compare to:
    - Competitors
    - Industry-wide average
    - Market-wide average
    - Historical ratios

What matters to bondholders?

- How much principal is owed?

- What resources are available to pay?

- What is the likelihood of default?

- **Leverage Ratios**

  - Debt-to-Assets = D / A

  - Debt-to-Equity = D / E

  - Higher leverage implies riskier debt (lower rating).
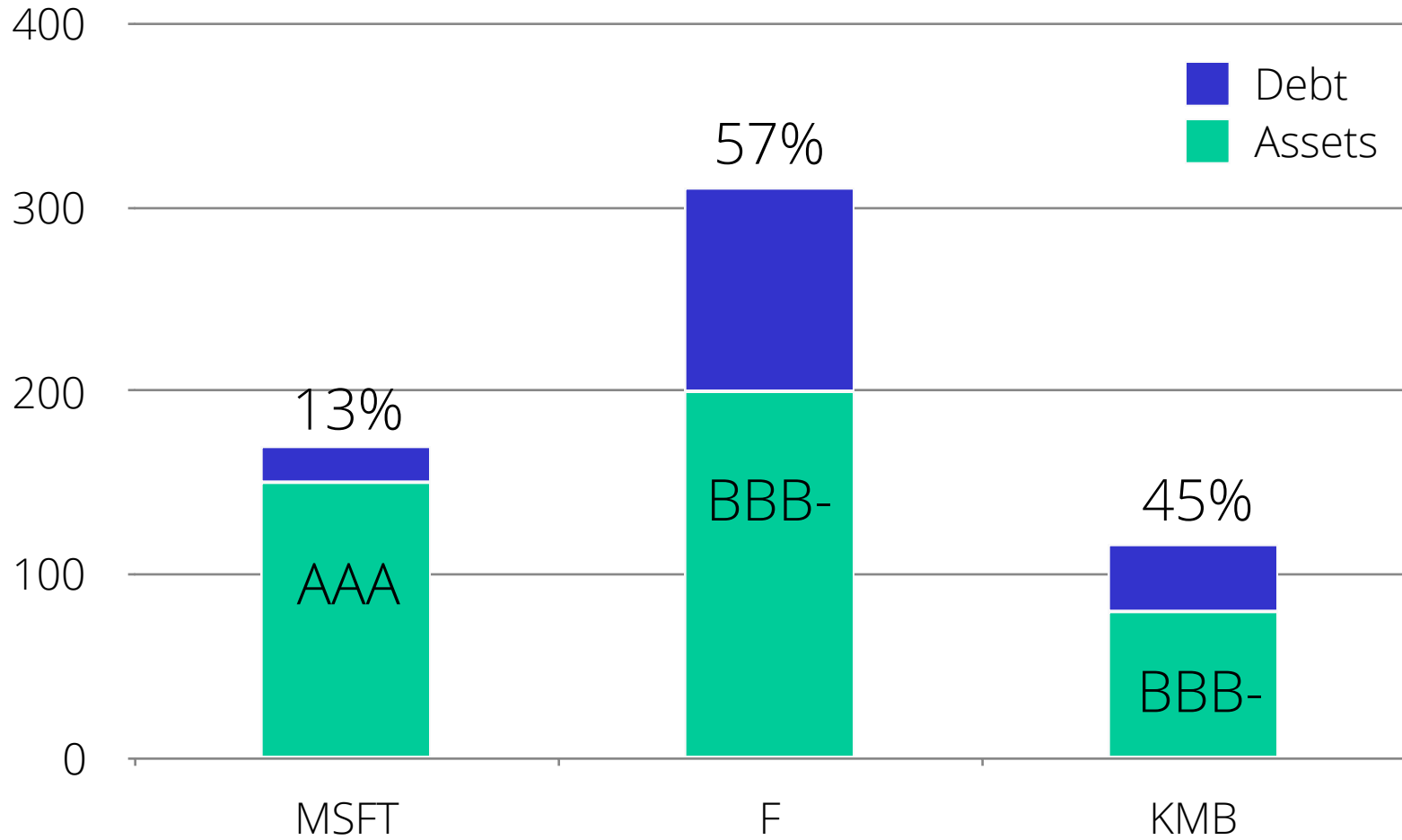
What else matters to bondholders?

- How much interest is owed, and what resources are available to pay.
- **Coverage Ratios**
  - Times Interest Earned (TIE) = EBIT / Int
  - EBITDA / Int
- Higher ratios imply less risk and better rating.

Ratios and Ratings

Financial Ratios by Rating Category, 2013 FY
(Maturity = 10 years)

Rating	D/A	EBIT/Int	EBITDA/Int	Spread	UST	Yield
AAA	0.17	64.10	71.88	0.51%	2.86%	3.37%
AA	0.32	26.15	58.60	0.74%	2.86%	3.60%
A	0.36	12.60	16.68	0.93%	2.86%	3.79%
BBB	0.38	8.79	12.29	3.38%	2.86%	6.24%
BB	0.39	6.14	8.67	4.00%	2.86%	6.86%
B	0.78	1.22	2.39	6.50%	2.86%	9.36%

Anything else?

- Not all assets are created equally.

- **Liquid** assets are more easily converted to cash (to pay back debtholders).

- **Liquidity Ratios**

  - Current Ratio = Current Assets / Current Liabilities

  - Quick Ratio = (Cash + Mkt. Securities + A/R) / CL

What matters to stockholders?

- Shareholders are residual claimants.

- Profit!

- More specifically, return on their equity (ROE).

Profitability Ratios

- **Return on Assets (ROA)**
- ROA = EBIT / TA

- ROA = ROA + (D/E) x (ROA - i)

- Operating Margin = EBIT / Sales
- Net Profit Margin = NI / Sales

- **Return on Equity (ROE)**
- ROE = NI / E

Debt Financing Effects

	Levered Assets = 100 Debt = 50 (@15%) Equity = 50	**Unlevered** Assets = 100 Debt = 0 Equity = 100
Sales	100.00	100.00
- Costs + Dep	70.00	70.00
EBIT	30.00	30.00
- Interest	7.50	0.00
EBT	22.50	30.00
- Taxes	9.00	12.00
Net Income	13.50	18.00
ROE	27%	18%

Debt Financing Effects

	Levered Assets = 100 Debt = 50 (@15%) Equity = 50	**Unlevered** Assets = 100 Debt = 0 Equity = 100
Sales	100.00	100.00
- Costs + Dep	100.00	100.00
EBIT	0.00	0.00
- Interest	7.50	0.00
EBT	(7.50)	0.00
- Taxes	(3.00)	0.00
Net Income	(4.50)	0.00
ROE	-9%	0%

Risk & Return

- Leverage increased the **volatility** (risk) of outcomes.
- Good outcomes become better, but poor outcomes become worse.
- Leverage also increased the expected return.
- **Higher risk implies higher return.**

ROE Breakdown (DuPont)

- Cost efficiency x Asset turnover x Leverage
  - Cost efficiency = NI / Sales
  - Asset turnover = Sales / TA
  - Leverage = TA / E
- **(NI / Sales) x (Sales / TA) x (TA / E) = NI / E = ROE**
- If you want to improve ROE, adjust any of these three ratios.

"Bottom Line" Ratios

- **Price-to-Earnings:** PE = Price / EPS

- **Market-to-Book:** (Price x Shares) / Book Equity

Multiples Analysis

- Compare ratios to comparable stock(s).

- Price-to-Earning:

  - Assume that $PE_0 = PE_1$

  - Then $P_0 = EPS_0 \, (P / EPS)_1$

- Market-to-Book:

  - Assume that $MB_0 = MB_1$

  - Then $P_0 = (E_{book,\,0} / Shares_0) \times (E_{market,\,1} / E_{book,\,1})$

Key Steps

- Identify comparable firms.

  - Exclude firms with negative P/E.

  - Exclude outliers.

  - Don't include your own firm!

- Compute the average across comparable firms.

- Evaluate the result: is this reasonable?

Summary

- Ratios allow us to better interpret financial statements.

- Ratios allow us to compare the performance of multiple firms.

- What if firms know that analyst all use the same ratios?