Advanced Accounting
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Lesson 10
Solvency Analysis

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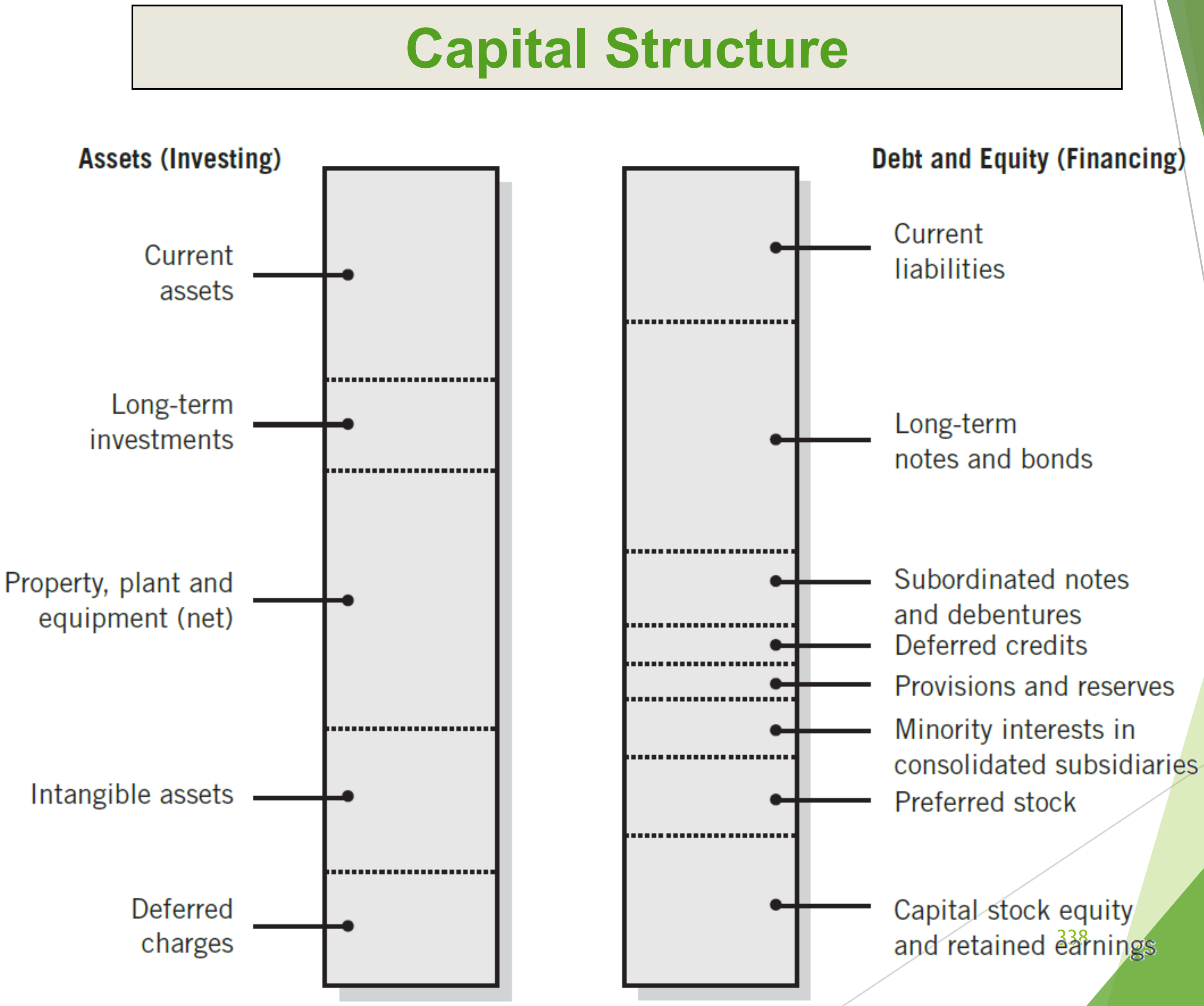
Basics of Solvency

Key Elements

Solvency —> long-run financial viability and its ability to cover long-term obligations

- ✓ **Capital structure** – financing sources, their attributes and the associated risks.
- ✓ **Earning power** – recurring ability to generate cash from operations.
- ✓ **Loan covenants** – protection against insolvency and financial distress; they define default (and the legal remedies available when it occurs) to allow the opportunity to collect on a loan before severe distress. Often designed to: 1) emphasize key measures of financial strength (e.g. current ratio and debt-to-equity ratio); 2) prohibit the issuance of new debts; 3) ensure against disbursement of company resources through excessive dividends or acquisitions.

Basics of Solvency



Basics of Solvency

Capital Structure

- **Equity financing**
  - Risk capital of a company
  - Uncertain and unspecified return
  - Lack of any repayment pattern
  - Contributes to a company's stability and solvency
- **Debt financing**
  - Must be repaid with interest
  - Specified repayment pattern

When the proportion of debt financing is higher, the higher are the resulting fixed charges and repayment commitments.

The likelihood of a company's inability to pay interest and principal when due and potential losses for creditors also increases.

Basics of Solvency

Motivation for debt

From a shareholder's perspective, debt is a preferred external financing source for at least two reasons:

1) Interest on most debt is fixed and, provided interest cost is less than the return on net operating assets, the excess return is to the benefit of equity investors.
2) Interest is a tax-deductible expense whereas dividends are not.

Basics of Solvency

Financial Leverage

	Assets	FINANCING SOURCES Debt	FINANCING SOURCES Equity	Operating Income before Taxes	10% Debt Interest	Taxes (40%)	Net Income	NOPAT [operating income × (1 − 40%)]	RETURN ON Net Operating Assets (RNOA)*	RETURN ON Equity† (ROE)
Year 1										
Risky, Inc	$1,000	$400	$ 600	$200	$40	$64	$ 96	$120	12%	16%
Safety, Inc	1,000	0	1,000	200	0	80	120	120	12	12
Year 2										
Risky, Inc.	1,000	400	600	100	40	24	36	60	6	6
Safety, Inc.	1,000	0	1,000	100	0	40	60	60	6	6
Year 3										
Risky, Inc.	1,000	400	600	50	40	4	6	30	3	1
Safety, Inc.	1,000	0	1,000	50	0	20	30	30	3	3

- Financial leverage refers to the amount of debt financing in a company's capital structure
- Companies with financial leverage are said to be trading on the equity.

Basics of Solvency

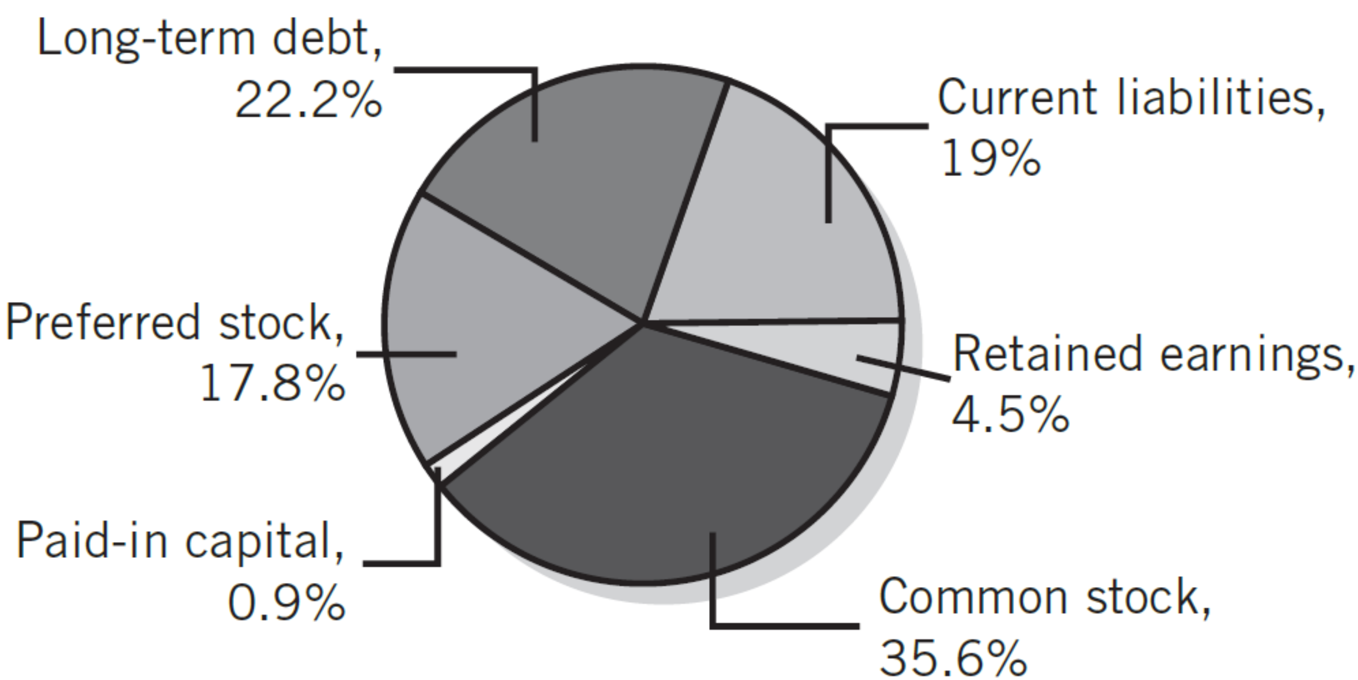
Tax Deductibility of Interest

Year 2	Risky, Inc.	Safety, Inc.
Income before interest and taxes	$100	$100
Interest (10% of $400)	(40)	0
Income before taxes	60	100
Taxes (40%)	(24)	(40)
Net income	36	60
Add back interest paid to bondholder	40	0
Total return to security holders (debt and equity)	$ 76	$ 60

Capital Structure Composition and Solvency

Common-Size Statements in Solvency Analysis

Common-Size Analysis of Tennessee Teletech's Capital Structure



- Reveals the relative magnitude of financing sources of a company.

Capital Structure Composition and Solvency

Common-Size Statements in Solvency Analysis

Tennessee Teletech's Capital Structure: Common-Size Analysis

Current liabilities	$ 428,000	19.0%
Long-term debt	500,000	22.2
Equity capital		
Preferred stock	400,000	17.8
Common stock	800,000	35.6
Paid-in capital	20,000	0.9
Retained earnings	102,000	4.5
Total equity capital	1,322,000	58.8
Total liabilities and equity	$2,250,000	100.0%

Capital Structure Composition and Solvency

Capital Structure Ratios

- **Total Debt to Total Capital**
  - Measures the relation between total debt and total capital.
  - It also called ‘tc

$$\frac{\text{Total debt}}{\text{Total capital}}$$

- **Total Debt to Equity Capital**

$$\frac{\text{Total debt}}{\text{Shareholders' equity}}$$

Capital Structure Composition and Solvency

Capital Structure Ratios

- **Long-Term Debt to Equity Capital**
  - Measures the relation of LT debt to equity capital.
  - Commonly referred to as the ‘debt to equity ratio’.

$$\frac{\text{Long-term debt}}{\text{Shareholders' equity}}$$

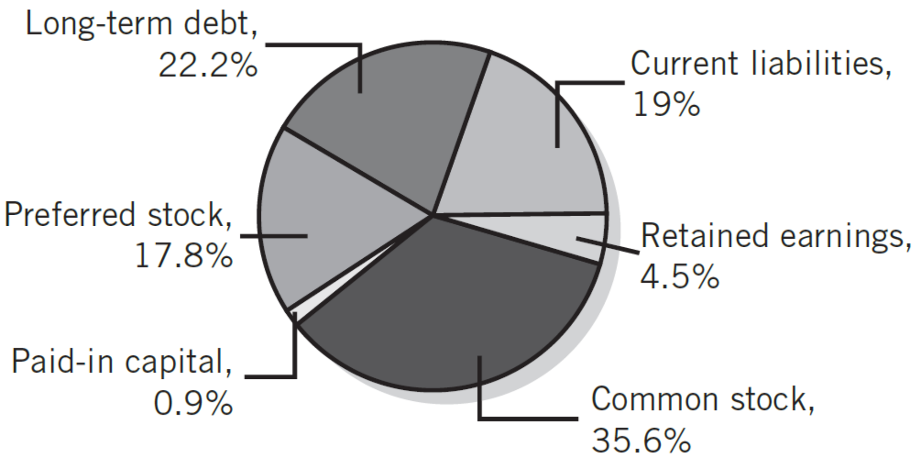
- **Short-Term Debt to Total Debt**
  - Indicator of enterprise reliance on short-term financing.
  - Usually subject to frequent changes in interest rates.

Capital Structure Composition and Solvency

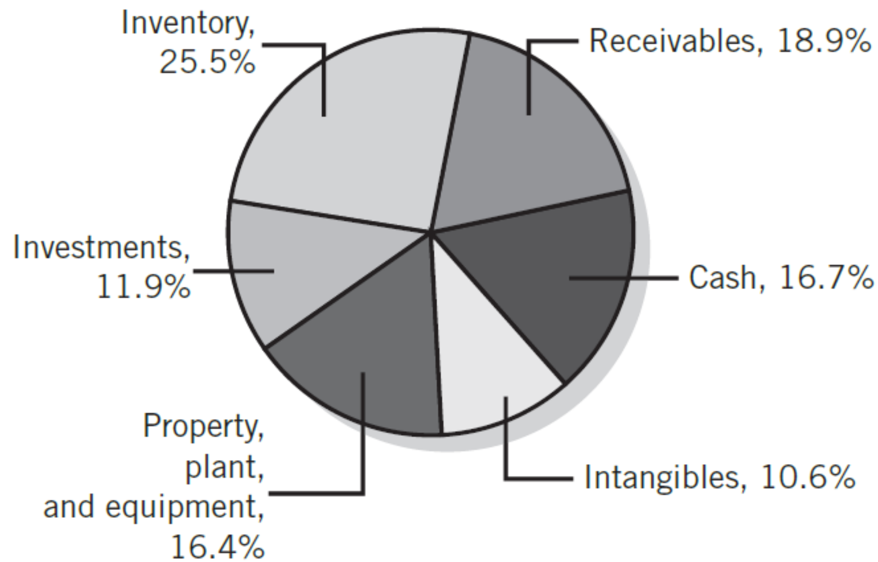
Asset-Based Measures of Solvency

- **Asset composition in solvency analysis**
  - Important tool in assessing capital structure risk exposure.
  - Typically evaluated using common-size statements of asset balances

Common-Size Analysis of Tennessee Teletech's Capital Structure



Common-Size Analysis of Tennessee Teletech's Asset Composition



Earnings Coverage

- Capital structure analysis is unable to focus on availability of cash flows to service a company’s debt.
- Earning power measures help to determine if the company can face the charges related to debt.

Times Interest Earned

$$\frac{\text{Income} + \text{Tax expense} + \text{Interest expense}}{\text{Interest expense}}$$

- The ratio consider interest as the only fixed charge needing earning coverage.
- Numerator is sometimes referred to as earnings before interest and taxes (EBIT).
- It is a simplified measure (potentially misleading).
- An alternative measure can be determined using the operating cash flow and the interest paid (Operating cash flow/Interest paid).

Earnings Coverage

Capital Structure Risk and Return

- ✓ A company can increase risks (and potential returns) of equity holders by increasing leverage
- ✓ Substitution of debt for equity yields a riskier capital structure
- ✓ Relation between risk and return in a capital structure exists
- ✓ Only personal analysis can reflect one's unique risk and return expectations