FINANCIAL STATEMENT ANALYSIS

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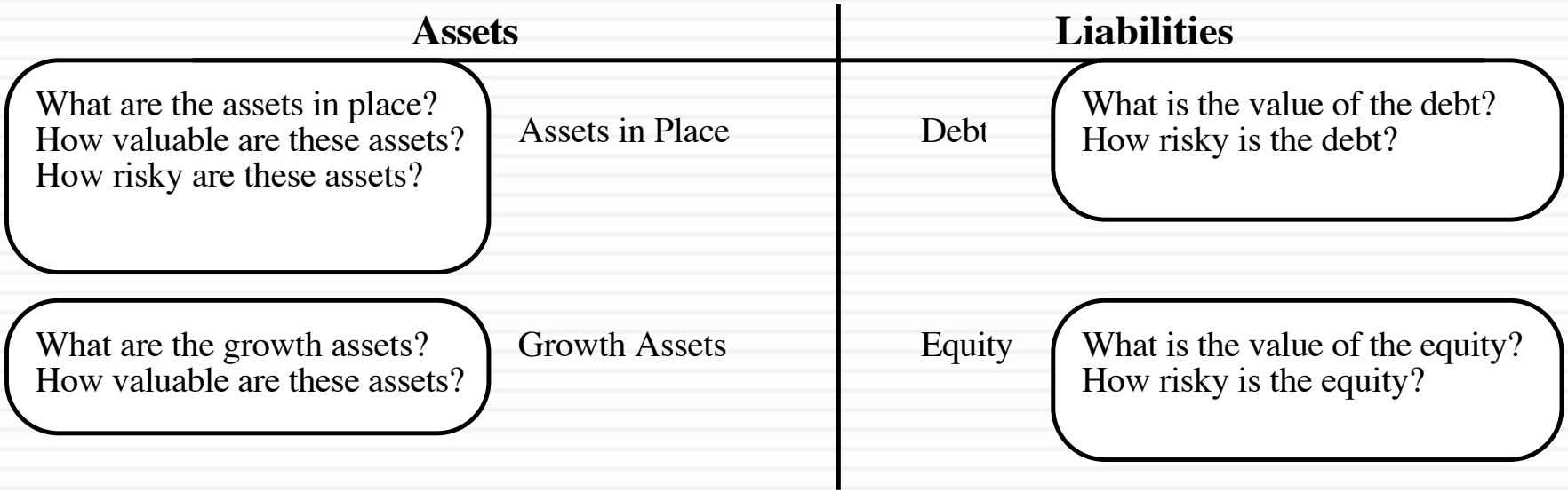
Questions we would like answered…

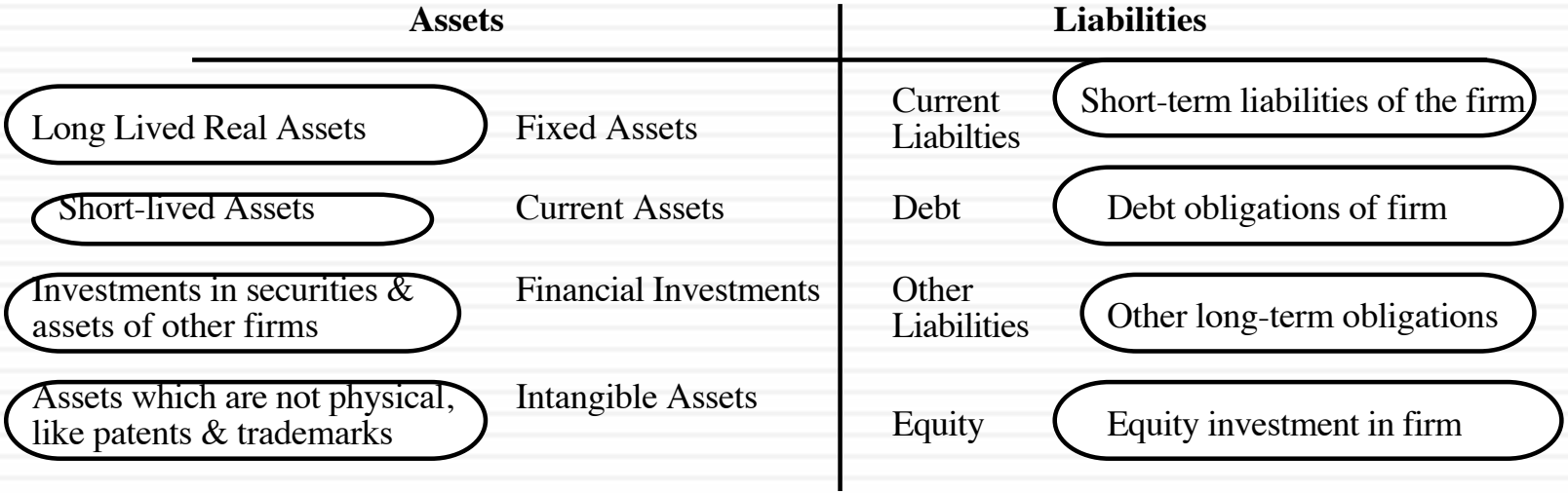


Basic Financial Statements

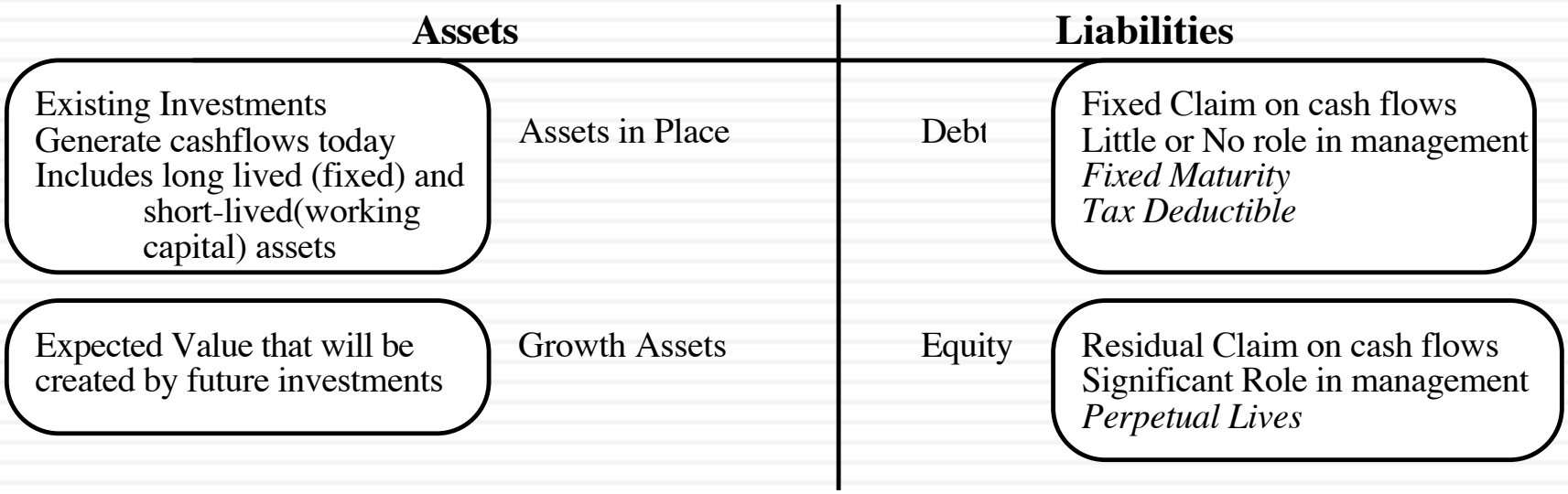
- The balance sheet, which summarizes what a firm owns and owes at a point in time.
- The income statement, which reports on how much a firm earned in the period of analysis
- The statement of cash flows, which reports on cash inflows and outflows to the firm during the period of analysis

The Balance Sheet

Figure 4.1: The Balance Sheet

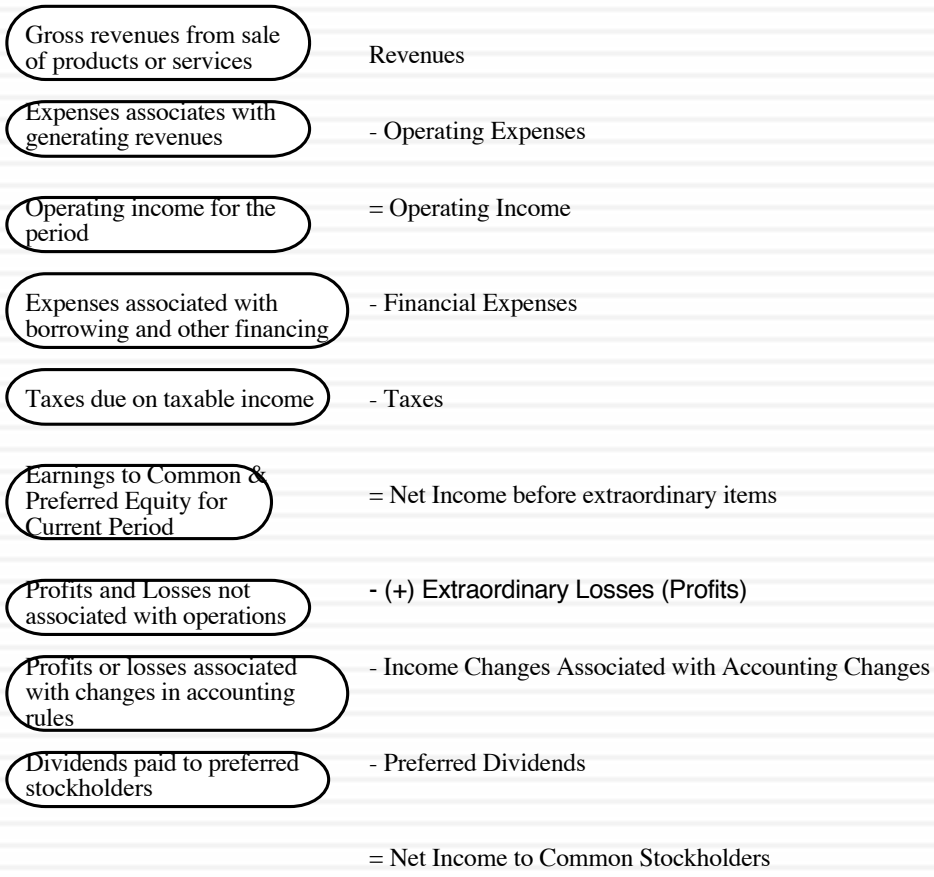


A Financial Balance Sheet



The Income Statement

Figure 4.2: Income Statement



Modifications to Income Statement

- There are a few expenses that consistently are miscategorized in financial statements.In particular,
  - Operating leases are considered as operating expenses by accountants but they are really financial expenses
  - R &D expenses are considered as operating expenses by accountants but they are really capital expenses.
- The degree of discretion granted to firms on revenue recognition and extraordinary items is used to manage earnings and provide misleading pictures of profitability.

Dealing with Operating Lease Expenses

- Debt Value of Operating Leases = PV of Operating Lease Expenses at the pre-tax cost of debt
- This now creates an asset - the value of which is equal to the debt value of operating leases. This asset now has to be depreciated over time.
- Finally, the operating earnings has to be adjusted to reflect these changes:
  - Adjusted Operating Earnings = Operating Earnings + Operating Lease Expense - Depreciation on the leased asset
  - If we assume that depreciation = principal payment on the debt value of operating leases, we can use a short cut:
  - Adjusted Operating Earnings = Operating Earnings + Debt value of Operating leases * Cost of debt

Operating Leases at The Gap in 2003

- The Gap has conventional debt of about $ 1.97 billion on its balance sheet and its pre-tax cost of debt is about 6%. Its operating lease payments in the 2003 were $978 million and its commitments for the future are below:

Year	Commitment (millions)	Present Value (at 6%)
1	$899.00	$848.11
2	$846.00	$752.94
3	$738.00	$619.64
4	$598.00	$473.67
5	$477.00	$356.44
6&7	$982.50 each year	$1,346.04

- Debt Value of leases = $4,396.85 (Also value of leased asset)
- Debt outstanding at The Gap = $1,970 m + $4,397 m = $6,367 m
- Adjusted Operating Income = Stated OI + OL exp this year - Deprec'n
  = $1,012 m + 978 m - 4397 m /7 = $1,362 million (7 year life for assets)
- Approximate OI = $1,012 m + $ 4397 m (.06) = $1,276 m

The Collateral Effects of Treating Operating Leases as Debt

Conventional Accounting	*Operating Leases Treated as Debt*
Income Statement EBIT& Leases = 1,990 - Op Leases = 978 EBIT = 1,012	*Income Statement* EBIT& Leases = 1,990 - Deprecn: OL= 628 EBIT = 1,362 Interest expense will rise to reflect the conversion of operating leases as debt. Net income should not change.
Balance Sheet Off balance sheet (Not shown as debt or as an asset). Only the conventional debt of $1,970 million shows up on balance sheet	*Balance Sheet* Asset / Liability OL Asset 4397 / OL Debt 4397 Total debt = 4397 + 1970 = $6,367 million
Cost of capital = 8.20%(7350/9320) + 4% (1970/9320) = 7.31% Cost of equity for The Gap = 8.20% After-tax cost of debt = 4% Market value of equity = 7350	Cost of capital = 8.20%(7350/13717) + 4% (6367/13717) = 6.25%
Return on capital = 1012 (1-.35)/(3130+1970) = 12.90%	Return on capital = 1362 (1-.35)/(3130+6367) = 9.30%

R&D Expenses: Operating or Capital Expenses

- Accounting standards require us to consider R&D as an operating expense even though it is designed to generate future growth. It is more logical to treat it as capital expenditures.
- To capitalize R&D,
  - Specify an amortizable life for R&D (2 - 10 years)
  - Collect past R&D expenses for as long as the amortizable life
  - Sum up the unamortized R&D over the period. (Thus, if the amortizable life is 5 years, the research asset can be obtained by adding up 1/5th of the R&D expense from five years ago, 2/5th of the R&D expense from four years ago and so on.

Capitalizing R&D Expenses: SAP

- R & D was assumed to have a 5-year life.

Year	R&D Expense	Unamortized		Amortization this year
Current	1020.02	1.00	1020.02	
-1	993.99	0.80	795.19	€ 198.80
-2	909.39	0.60	545.63	€ 181.88
-3	898.25	0.40	359.30	€ 179.65
-4	969.38	0.20	193.88	€ 193.88
-5	744.67	0.00	0.00	€ 148.93

Value of research asset = € 2,914 million

Amortization of research asset in 2004 = € 903 million

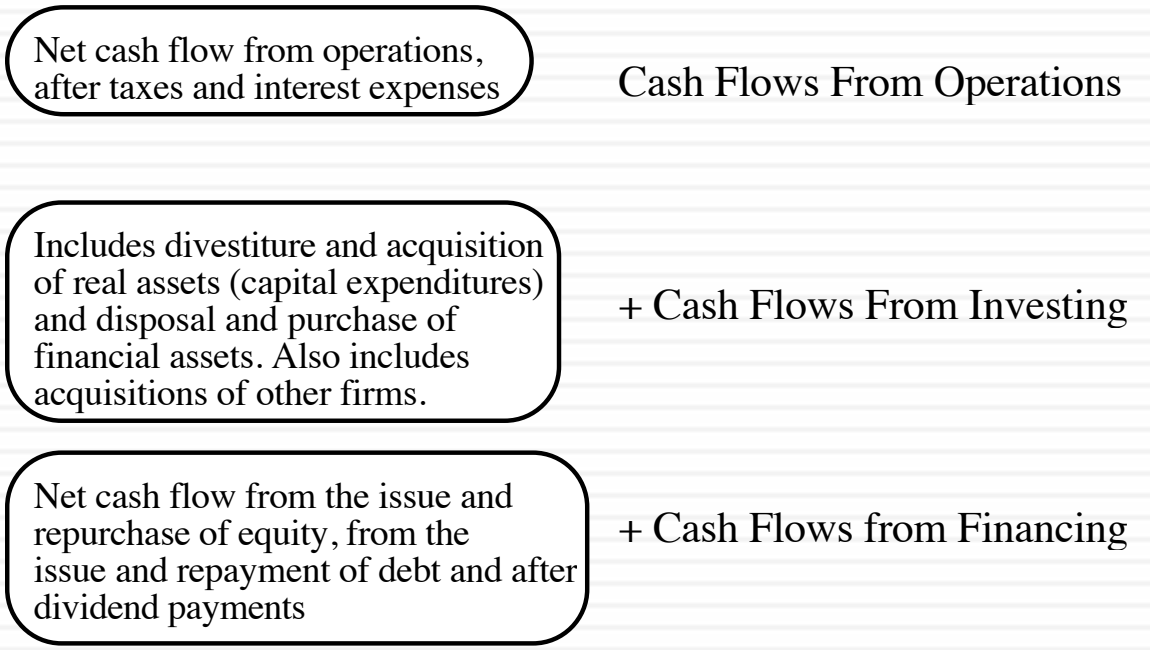
Increase in Operating Income = 1020 - 903 = € 117 million

The Effect of Capitalizing R&D at SAP

Conventional Accounting	*R&D treated as capital expenditure*
Income Statement EBIT& R&D = 3045 - R&D = 1020 EBIT = 2025 EBIT (1-t) = 1285 m	*Income Statement* EBIT& R&D = 3045 - Amort: R&D = 903 EBIT = 2142 (Increase of 117 m) EBIT (1-t) = 1359 m Ignored tax benefit = (1020-903)(.3654) = 43 Adjusted EBIT (1-t) = 1359+43 = 1402 m (Increase of 117 million) Net Income will also increase by 117 million
Balance Sheet Off balance sheet asset. Book value of equity at 3,768 million Euros is understated because biggest asset is off the books.	*Balance Sheet* Asset Liability R&D Asset 2914 Book Equity +2914 Total Book Equity = 3768+2914= 6782 mil
Capital Expenditures Conventional net cap ex of 2 million Euros	*Capital Expenditures* Net Cap ex = 2+ 1020 – 903 = 119 mil
Cash Flows EBIT (1-t) = 1285 - Net Cap Ex = 2 FCFF = 1283	*Cash Flows* EBIT (1-t) = 1402 - Net Cap Ex = 119 FCFF = 1283 m
Return on capital = 1285/(3768+530)	Return on capital = 1402/(6782+530)

The Statement of Cash Flows

Figure 4.3: Statement of Cash Flows



The Financial perspective on cash flows

- In financial analysis, we are much more concerned about
  - Cash flows to the firm or operating cash flows, which are before cash flows to debt and equity)
  - Cash flows to equity, which are after cash flows to debt but prior to cash flows to equity.
- You can estimate both from the statement of cash flows.

Measures of profitability: Return on assets

- The *return on assets* (ROA) of a firm measures its operating efficiency in generating profits from its assets, prior to the effects of financing.

$$\text{Pre-tax ROA} = \frac{\text{EBIT}}{\text{Total Assets}}$$

- By separating the financing effects from the operating effects, the ROA provides a cleaner measure of the true return on these assets.
- This measure is useful if the firm or division is being evaluated for purchase by an acquirer with a different tax rate or structure.

A better measure? Return on capital (or Return on Invested capital)

- A more useful measure of return relates the operating income to the capital invested in the firm, where capital is defined as the sum of the book value of debt and equity, net of cash and marketable securities.

$$\text{After-Tax ROC} = \frac{\text{EBIT } (1\text{-t})}{\text{BV of Debt } + \text{ BV of Equity-Cash}}$$

- When a substantial portion of the liabilities is either current (such as accounts payable) or non–interest-bearing, this approach provides a better measure of the true return earned on capital employed in the business.

Decomposing the Return on Capital

- The ROC of a firm can be written as a function of its operating profit margin and its capital turnover ratio:

$$\text{After-Tax ROC} = \frac{\text{EBIT}\,(1\text{-t})}{\text{BV of Capital}} = \frac{\text{EBIT}\,(1\text{-t})}{\text{Sales}} \text{ X } \frac{\text{Sales}}{\text{BV of Capital}}$$

$$= \text{After-Tax Operating Margin} * \text{Capital Turnover Ratio}$$

$$\text{Pre-Tax ROC} = \text{Pre-Tax Operating Margin} * \text{Capital Turnover Ratio}$$

- Thus, a firm can arrive at a high ROC by either increasing its profit margin or more efficiently using its capital to increase sales.

Return on equity

- The *return on equity* (ROE) examines profitability from the perspective of the equity investor by relating profits to the equity investor (net profit after taxes and interest expenses) to the book value of the equity investment.

$$\text{ROE} = \frac{\text{Net Income}}{\text{Book Value of Common Equity}}$$

Non-cash Return on Equity

- When a company has a significant portion of its value invested in cash and marketable securities, the return on equity becomes a composite measure of both the return on its operating assets and cash. Consequently, you can modify the return on equity to look at only operating assets (or at least non-cash assets):

$$\text{Non-cash ROE} = \frac{\text{(Net Income- Interest income from cash (1-tax rate))}}{\text{(Book Value of Common Equity- Cash \& Marketable Securities)}}$$

- This non-cash ROE can be viewed as a measure of the return generated by the equity invested in just operating assets.

Profit Margins

- The profits of a firm can also be scaled to the revenues of a firm to deliver a measure of profit margins.
- From equity investors' perspective, this usually takes the form of scaling net profits to sales:

$$\text{Net Margin} = \frac{\text{Net Income}}{\text{Sales}}$$

- For the entire firm's perspective, you look at operating income (or after-tax operating income) as a percent of sales:

$$\text{Operating Margin} = \frac{\text{Operating Income}}{\text{Sales}}$$