Recapping the Cost of Capital

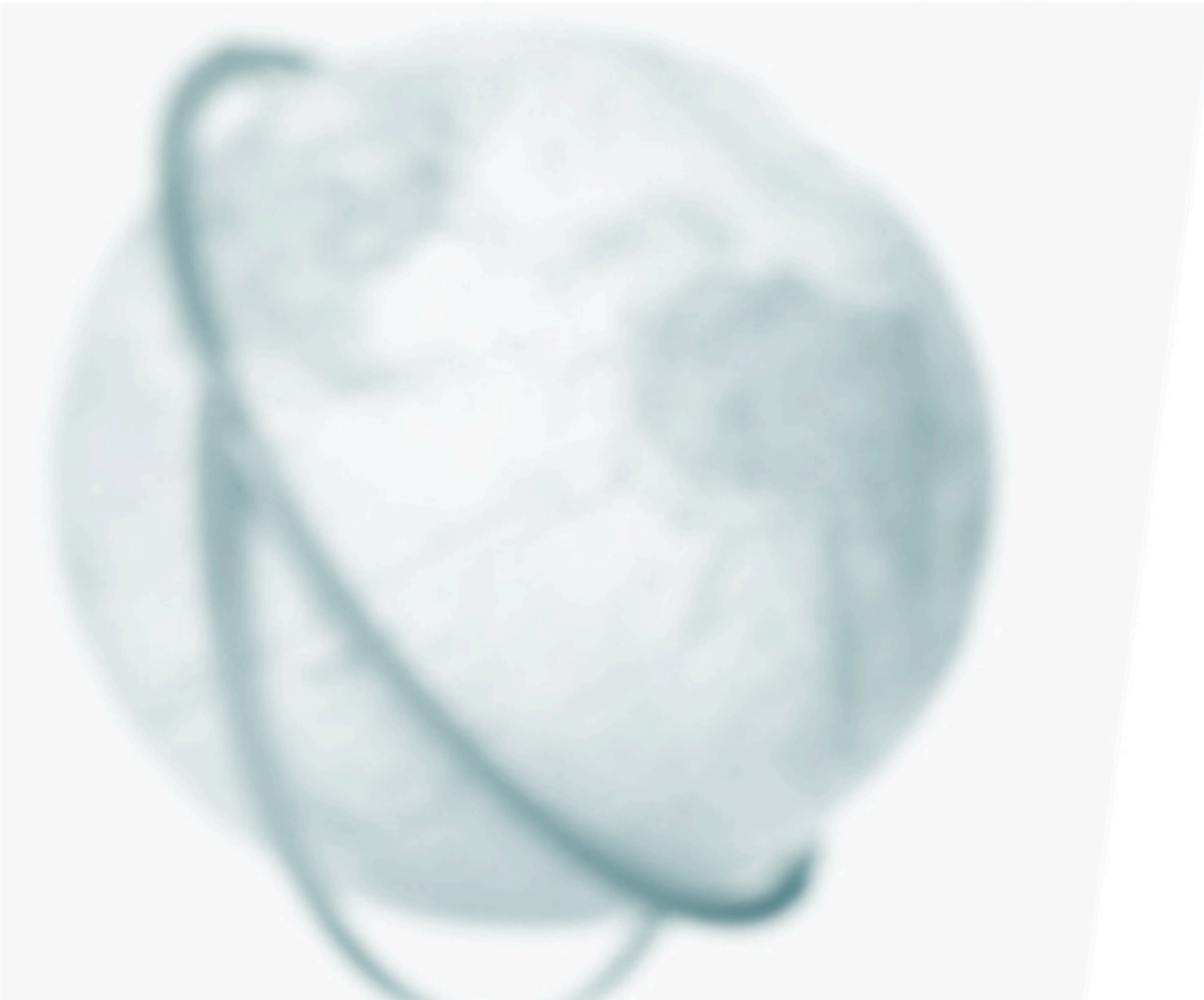
Cost of borrowing should be based upon
(1) synthetic or actual bond rating
(2) default spread
Cost of Borrowing = Riskfree rate + Default spread

Marginal tax rate, reflecting tax benefits of debt

Cost of Capital = Cost of Equity (Equity/(Debt + Equity)) + Cost of Borrowing (1-t) (Debt/(Debt + Equity))

Cost of equity based upon bottom-up beta

Weights should be market value weights



II. ESTIMATING CASH FLOWS

Cash is king…

Steps in Cash Flow Estimation

- Estimate the current earnings of the firm
  - If looking at cash flows to equity, look at earnings after interest expenses - i.e. net income
  - If looking at cash flows to the firm, look at operating earnings after taxes
- Consider how much the firm invested to create future growth
  - If the investment is not expensed, it will be categorized as capital expenditures. To the extent that depreciation provides a cash flow, it will cover some of these expenditures.
  - Increasing working capital needs are also investments for future growth
- If looking at cash flows to equity, consider the cash flows from net debt issues (debt issued - debt repaid)

Measuring Cash Flows

Cash flows can be measured to

All claimholders in the firm

EBIT (1- tax rate)
- (Capital Expenditures - Depreciation)
- Change in non-cash working capital
= Free Cash Flow to Firm (FCFF)

Just Equity Investors

Net Income
- (Capital Expenditures - Depreciation)
- Change in non-cash Working Capital
- (Principal Repaid - New Debt Issues)
- Preferred Dividend

Dividends
+ Stock Buybacks

Measuring Cash Flow to the Firm

EBIT (1 - tax rate)

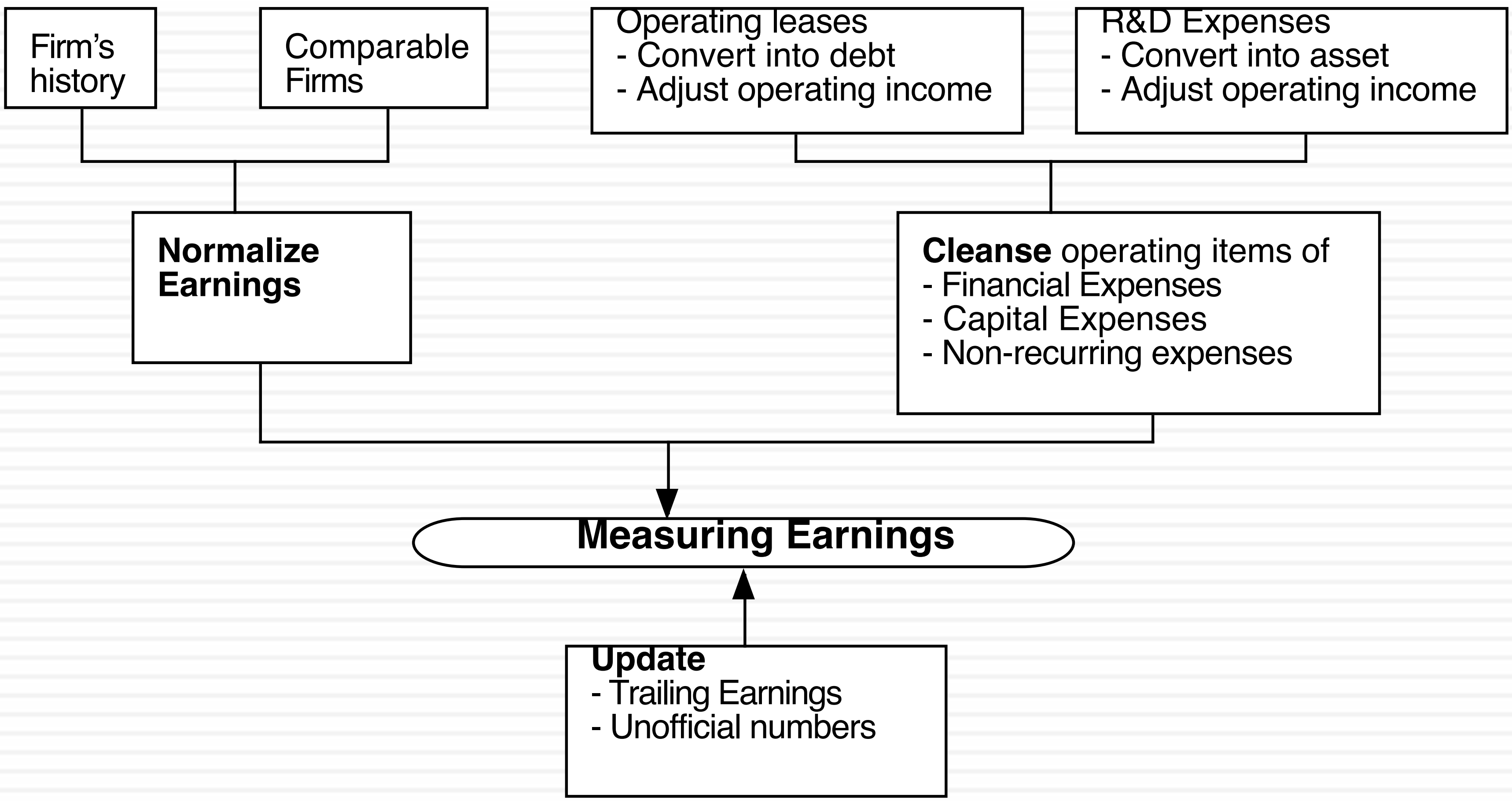
- (Capital Expenditures - Depreciation)

- Change in Working Capital

= Cash flow to the firm

- Where are the tax savings from interest payments in this cash flow?

From Reported to Actual Earnings



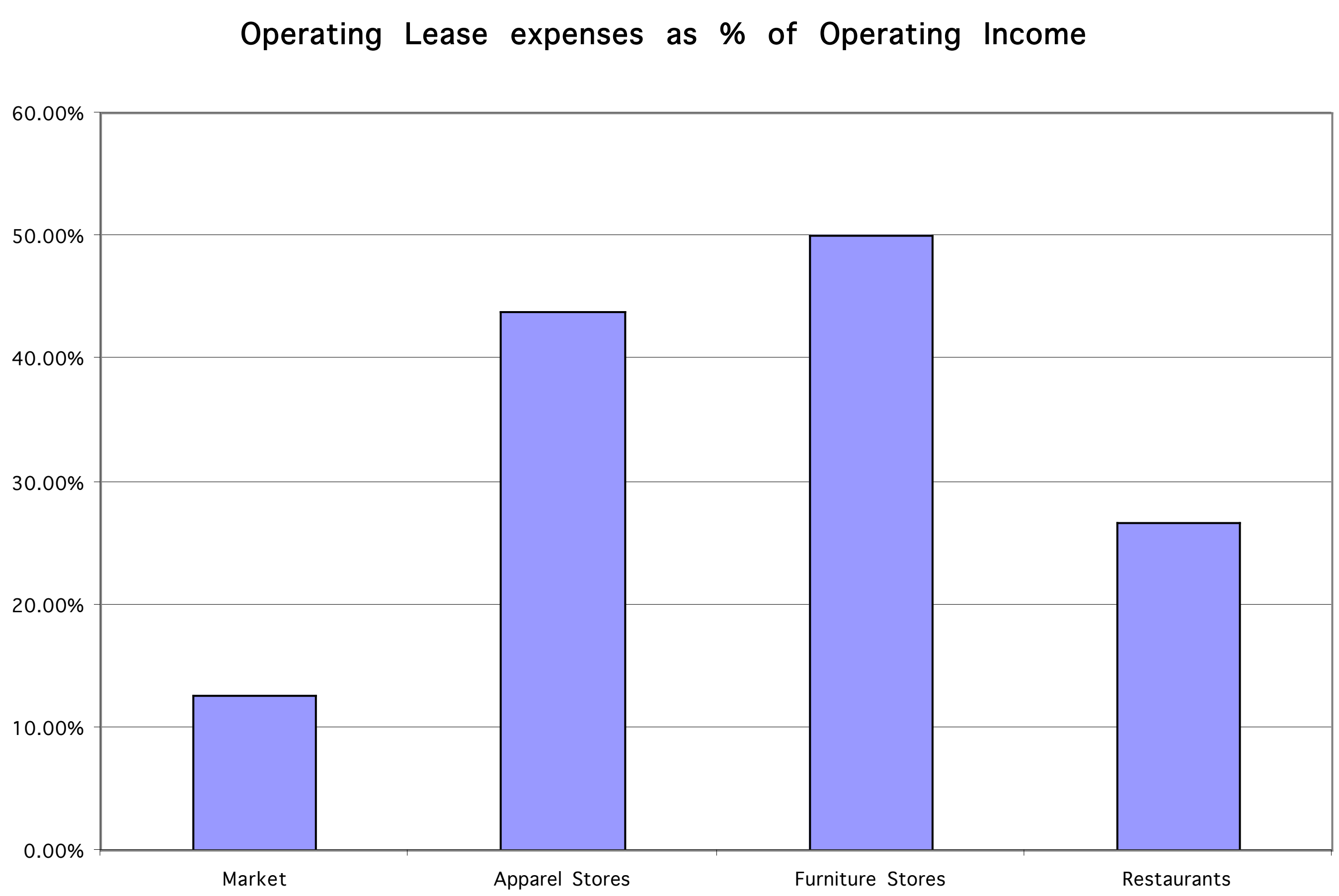
I. Update Earnings

- When valuing companies, we often depend upon financial statements for inputs on earnings and assets. Annual reports are often outdated and can be updated by using-
  - Trailing 12-month data, constructed from quarterly earnings reports.
  - Informal and unofficial news reports, if quarterly reports are unavailable.
- Updating makes the most difference for smaller and more volatile firms, as well as for firms that have undergone significant restructuring.
- Time saver: To get a trailing 12-month number, all you need is one 10K and one 10Q (example third quarter). Use the Year to date numbers from the 10Q:
  - Trailing 12-month Revenue = Revenues (in last 10K) - Revenues from first 3 quarters of last year + Revenues from first 3 quarters of this year.

II. Correcting Accounting Earnings

- Make sure that there are no financial expenses mixed in with operating expenses
  - Financial expense: Any commitment that is tax deductible that you have to meet no matter what your operating results: Failure to meet it leads to loss of control of the business.
  - Example: Operating Leases: While accounting convention treats operating leases as operating expenses, they are really financial expenses and need to be reclassified as such. This has no effect on equity earnings but does change the operating earnings
- Make sure that there are no capital expenses mixed in with the operating expenses
  - Capital expense: Any expense that is expected to generate benefits over multiple periods.
  - R & D Adjustment: Since R&D is a capital expenditure (rather than an operating expense), the operating income has to be adjusted to reflect its treatment.

The Magnitude of Operating Leases



Dealing with Operating Lease Expenses

- Operating Lease Expenses are treated as operating expenses in computing operating income. In reality, operating lease expenses should be treated as financing expenses, with the following adjustments to earnings and capital:
- Debt Value of Operating Leases = Present value of Operating Lease Commitments at the pre-tax cost of debt
- When you convert operating leases into debt, you also create an asset to counter it of exactly the same value.
- Adjusted Operating Earnings
  - Adjusted Operating Earnings = Operating Earnings + Operating Lease Expenses - Depreciation on Leased Asset

  As an approximation, this works:
  - Adjusted Operating Earnings = Operating Earnings + Pre-tax cost of Debt * PV of Operating Leases.

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:

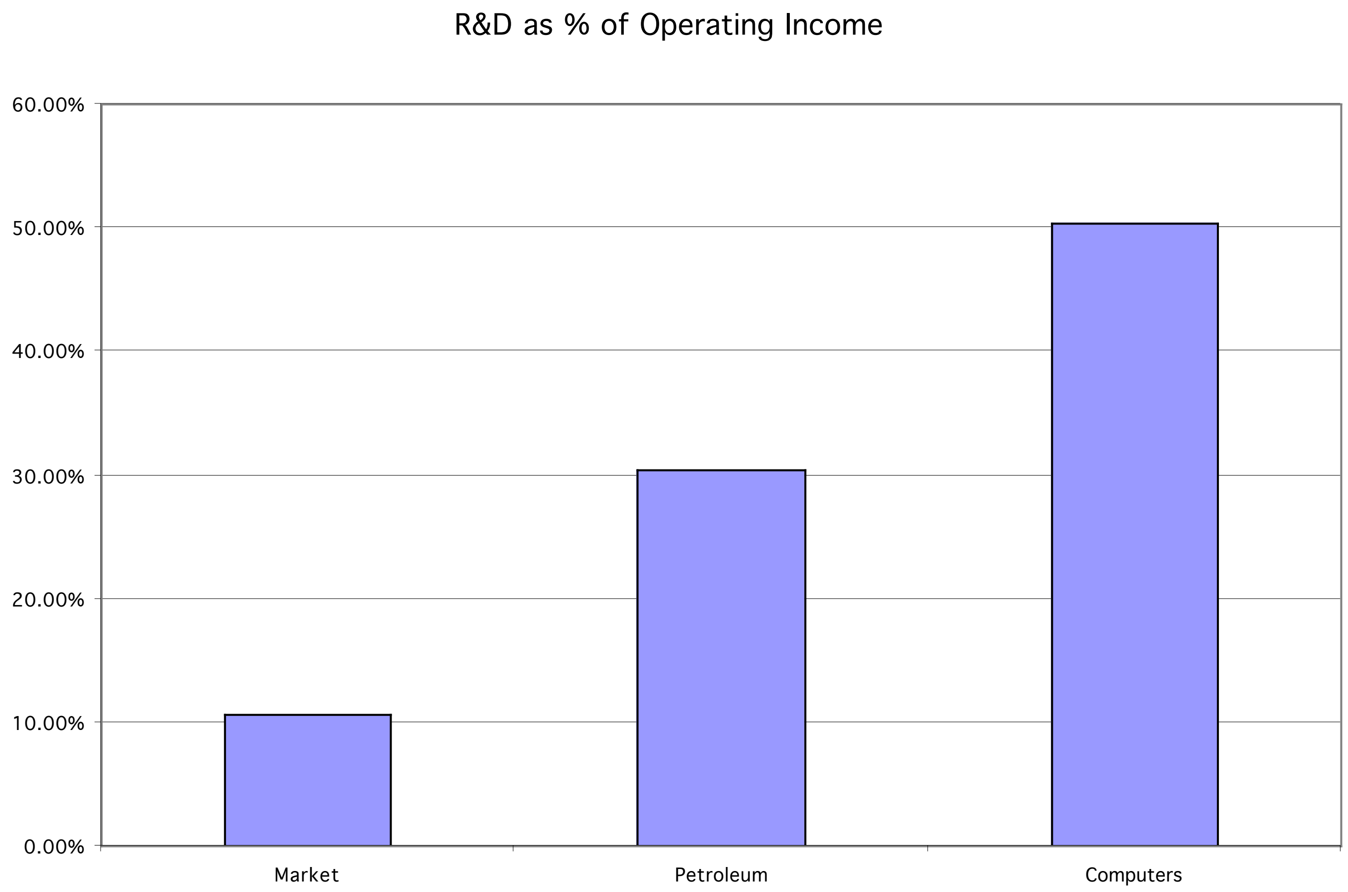
Year	Commitment (millions)	Present Value (at 6%)
1	\$899.00	\$848.11
2	\$846.00	\$752.94
3	\$738.00	\$619.64
4	\$598.00	\$473.67
5	\$477.00	\$356.44
6&7	\$982.50 each year	\$1,346.04

- 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%

The Magnitude of R&D Expenses



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...:

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)

III. One-Time and Non-recurring Charges

- Assume that you are valuing a firm that is reporting a loss of $ 500 million, due to a one-time charge of $ 1 billion. What is the earnings you would use in your valuation?
  a. A loss of $ 500 million
  b. A profit of $ 500 million
- Would your answer be any different if the firm had reported one-time losses like these once every five years?
  a. Yes
  b. No

IV. Accounting Malfeasance….

- Though all firms may be governed by the same accounting standards, the fidelity that they show to these standards can vary. More aggressive firms will show higher earnings than more conservative firms.
- While you will not be able to catch outright fraud, you should look for warning signals in financial statements and correct for them:
  - Income from unspecified sources - holdings in other businesses that are not revealed or from special purpose entities.
  - Income from asset sales or financial transactions (for a non-financial firm)
  - Sudden changes in standard expense items - a big drop in S,G &A or R&D expenses as a percent of revenues, for instance.
  - Frequent accounting restatements
  - Accrual earnings that run ahead of cash earnings consistently
  - Big differences between tax income and reported income

V. Dealing with Negative or Abnormally Low Earnings

A Framework for Analyzing Companies with Negative or Abnormally Low Earnings