FINANCIAL STATEMENT ANALYSIS

QUESTIONS WE WOULD LIKE ANSWERED…

Assets		Liabilities	
What are the assets in place? How valuable are these assets? How risky are these assets?	Assets in Place	Debt	What is the value of the debt? How risky is the debt?
What are the growth assets? How valuable are these assets?	Growth Assets	Equity	What is the value of the equity? How risky is the equity?

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

	Assets	**Liabilities**	
Long Lived Real Assets	Fixed Assets	Current Liabilties	Short-term liabilities of the firm
Short-lived Assets	Current Assets	Debt	Debt obligations of firm
Investments in securities & assets of other firms	Financial Investments	Other Liabilities	Other long-term obligations
Assets which are not physical, like patents & trademarks	Intangible Assets	Equity	Equity investment in firm

A FINANCIAL BALANCE SHEET

Assets		Liabilities	
Existing Investments Generate cashflows today Includes long lived (fixed) and short-lived(working capital) assets	Assets in Place	Debt	Fixed Claim on cash flows Little or No role in management *Fixed Maturity* *Tax Deductible*
Expected Value that will be created by future investments	Growth Assets	Equity	Residual Claim on cash flows Significant Role in management *Perpetual Lives*

THE INCOME STATEMENT

Figure 4.2: Income Statement

Gross revenues from sale of products or services	Revenues
Expenses associates with generating revenues	- Operating Expenses
Operating income for the period	= Operating Income
Expenses associated with borrowing and other financing	- Financial Expenses
Taxes due on taxable income	- Taxes
Earnings to Common & Preferred Equity for Current Period	= Net Income before extraordinary items
Profits and Losses not associated with operations	- (+) Extraordinary Losses (Profits)
Profits or losses associated with changes in accounting rules	- Income Changes Associated with Accounting Changes
Dividends paid to preferred stockholders	- Preferred Dividends
	= Net Income to Common Stockholders

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 BOEING AND THE HOME DEPOT IN 1998

	Boeing		Home Depot	
Year	Operating Lease Expense	Present Value at 5.5%	Operating Lease Expense	Present Value at 5.8%
1	$ 205	$ 194.31	$ 294	$ 277.88
2	$ 167	$ 150.04	$ 291	$ 259.97
3	$ 120	$ 102.19	$ 264	$ 222.92
4	$ 86	$ 69.42	$ 245	$ 195.53
5	$ 61	$ 46.67	$ 236	$ 178.03
Yr 6 -15	$ -	$ -	$ 270	$ 1,513.37
PV of Operating Lease Expenses		$ 562.64		$ 2,647.70

IMPUTED INTEREST EXPENSES ON OPERATING LEASES

	Boeing	*The Home Depot*
PV of Operating Leases	$ 562.64	$ 2647.70
Interest rate on Debt	5.50%	5.80%
Imputed interest expense on PV of operating leases	$ 30.95	$ 153.57

THE EFFECTS OF CAPITALIZING OPERATING LEASES

1. **Debt** : will increase, leading to an increase in debt ratios used in the cost of capital and levered beta calculation
2. **Operating income**: will increase, since operating leases will now be before the imputed interest on the operating lease expense
3. **Net income**: will be unaffected since it is after both operating and financial expenses anyway
4. **Return on Capital** will generally decrease since the increase in operating income will be proportionately lower than the increase in book capital invested

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: BOEING

Year	R&D	Unamortized Portion	Value
1989	$754	0.10	$75
1990	$827	0.20	$165
1991	$1,417	0.30	$425
1992	$1,846	0.40	$738
1993	$1,661	0.50	$831
1994	$1,704	0.60	$1,022
1995	$1,300	0.70	$910
1996	$1,633	0.80	$1,306
1997	$1,924	0.90	$1,732
1998	$1,895	1.00	$1,895
Capitalized Value of R& D Expenses =			$9,100

BOEING'S CORRECTED OPERATING INCOME

	Boeing
Operating Income	$1,720
+ Research and Development Expenses	$1,895
- Amortization of Research Asset	$1,382
+ Imputed Interest Expense on Operating Leases	$ 31
= Adjusted Operating Income	$2,264

THE EFFECT OF CAPITALIZING R&D

- Operating Income will generally increase, though it depends upon whether R&D is growing or not. If it is flat, there will be no effect since the amortization will offset the R&D added back. The faster R&D is growing the more operating income will be affected.
  - Net income will increase proportionately, depending again upon how fast R&D is growing
  - Book value of equity (and capital) will increase by the capitalized Research asset
  - Capital expenditures will increase by the amount of R&D; Depreciation will increase by the amortization of the research asset; For all firms, the net cap ex will increase by the same amount as the after-tax operating income.

THE STATEMENT OF CASH FLOWS

Figure 4.3: Statement of Cash Flows

Net cash flow from operations, after taxes and interest expenses	Cash Flows From Operations
Includes divestiture and acquisition of real assets (capital expenditures) and disposal and purchase of financial assets. Also includes acquisitions of other firms.	+ Cash Flows From Investing
Net cash flow from the issue and repurchase of equity, from the issue and repayment of debt and after dividend payments	+ Cash Flows from Financing
	= Net Change in Cash Balance

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