Session 8

Financial Models

Capital Transactions

Review of last time: Managing Spreadsheet Modeling Projects

- Management is like steering
  - Know where you are
  - Know where you want to go
  - Know what you have to do to get there
- Six cultural patterns of modeling process capability
- Key process areas for spreadsheet modeling
  - Reviews and inspections

Basics of financial models

- Financial Models tell you about companies or their parts
  - Typically of interest to investors and creditors
  - Attributes that are modeled are almost always in monetary units
  - Both internal and external models
    - Internal: used for financial management
    - External: three standard financial statements
  - Income Statement (Revenue and Expenses for a given period)
  - Balance Sheet (Financial Position at the end of the period)
  - Cash Flow (Statement of Changes in Financial Position during the period)
- Relevance to course project
  - If you choose to model an entire company you'll find it helpful to express the model in terms of these three financial statements

Income statement

- Reports profit performance of the company for the given period
- Revenue
  - All sales including those for which cash is not yet received
  - Exclude advance payments such as deposits
- Expenses
  - All costs including those still unpaid
  - Exclude advance payments such as deposits
  - Exclude "Capital Items"
  - Depreciation

Net Income = Revenue - Expenses

Balance sheet

- Assets
  - Include all categories of property, cash and securities
  - Accounts receivable
- Liabilities
  - Include all forms of debt, notes and taxes owed
  - Accounts payable
- Owner's equity
  - Contributed capital, retained earnings

Assets = Liabilities + Owner's Equity

Changes in financial position

- Sources of changes
  - Investment
  - Borrowing
  - Profits
  - Selling non-cash assets
- Two categories
  - Inflows
  - Outflows

Cash flow is especially critical to investment decisions because it is a strong determiner of risk and return

Impact of transactions

- Every transaction potentially impacts
  - Income Statement
  - Balance Sheet
  - Cash flow
- When building a model of a company, you probably have to produce or help produce these three reports
- Internal accounting and budgeting is often driven by the needs of external reporting
- In part, this is due to inflexibility of internal data management
- Organize your models to make this reporting easy
- Capital goods purchases can be difficult — they impact all statements, sometimes in complex ways

Overview of capital expenditures

- Capital transactions affect
  - Cash on hand
  - Assets
  - Depreciation
  - Expenses
- Key characteristics of capital transactions
  - Either purchases or sales (as opposed to rentals)
  - They have effects beyond the current reporting period

◆ DepreciationExample

Buying capital equipment

- Income Statement
  - Equipment depreciation contributes to depreciation expense
  - Maintenance costs cause additional expenses
- Balance sheet
  - Value of the equipment is added to assets
- Cash Flow
  - If purchased for cash, the purchase affects cash on hand
- Example:
  - Buying personal computers for new hires as the company expands
  - You are given the hiring stream
  - Find the effect on cash flow, capital equipment assets, and depreciation expense

Reference readings

- Optional:
  Any text on financial accounting. Examples:
  - Welch, Anthony, and Short. *Fundamentals of Financial Accounting*. Irwin, Homewood, IL
  - Robert Libby, Patricia Libby and Daniel G. Short. *Financial Accounting (Fourth Edition)*. McGraw-Hill/Irwin, 2003.

Preview of next time: Capital Leases I

- Capital Leases
- Leases have effects on all three financial statements
- Present Value and Future Value are the basic concepts underlying leases
- Present and Future Value (`PV`, `FV`)
  - Present value of a stream is the equivalent value as a lump sum now
  - Future value of a stream is the equivalent value as a lump sum in the future
- The present (future) value of a sum of streams is the sum of the present (future) values of the streams