

Financial Statements and Valuation

(Welch, Chapter 14)

Ivo Welch

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Did you bring your calculator? Did you read these notes and the chapter ahead of time?

Create an IRS Income Statement and IRS Cash Flow Statement

- ▶ 3-Year Project
- ▶ \$250 capital expense in year 1
- ▶ \$50 capital expense in year 2
- ▶ Net Revenues (EBITDA): \$200, \$400, \$200
- ▶ Cost of Capital: 15% / year. (Not really used, just sketched.)
- ▶ Corporate Tax Rate: 40% / year
- ▶ Debt: \$200 ($r=10\%$). Assume in year 1, you get the money and you pay interest.

- ▶ IRS allows Depreciation: 2 years, linear.
 - ▶ The usual US IRS schedules are 5 years, 7 years, or 10 years, sometimes accelerated (depending on Congress) and depending on the asset. We are too lazy to deal with so many columns, so we sketch it with a 2-year depreciation schedule.

Create the Income Statement (IS). What extra do you know from the CFS?

Thought Experiment: Project Cash Flows

- ▶ If you are just the equity (and get the credit from someone else), then you have to pay interest, but you also get cash from the creditors. So, if you count one, you must count the other.
- ▶ A project is like a black box, with inflows and outflows. These are then returned to financiers, both debt and equity. Interest is a flow back to financiers, just like dividends. It's not a negative.
- ▶ Think of interest a return of capital to financiers, not as a cost to operations just like machine maintenance.
- ▶ Total project cash are flows that accrues to debt and equity holders combined. If you wish, imagine that you yourself provide both types of capital. As far as your (project) cash flows are concerned, your project interest payments are not an expense to you.
- ▶ Put differently, why would you subtract out interest cash outflows without getting any cash inflow? For the project, we do neither. For the equity, we do both.
- ▶ Project cash flows here are not "as-if-unlevered" cash flows. (An unlevered firm would get less interest tax shield, and therefore it would have to pay more in taxes.)

What are the project and equity cash flows and NPV?
Think “Economics” and not “Accounting.”

What are the project and equity cash flows and NPV, reverse-engineered?

What Formula Did You Use?

There are many ways to get the same number, of course. Here are some variants:

$$CF = \text{NetSales} - \text{Tax} - \text{CapExpense}$$

$$CF = \text{NI} + \text{Depreciation} - \text{CapExpense} + \text{Interest}$$

Could you have just discounted net income? Close enough?

Usually cash flows and net income are very different, so using one in stead of the other is a no-no. (It is worse for growing or shrinking firms than for stable firms.)

	Y1	Y2	Y3
Cash Flow	\$72	\$258	\$138
Net Income	\$33	\$138	\$93

In this example, discounting net income would yield $\$22 + \$138/1.15 + \$93/1.15^2 \approx \223 .

This is much different from the correct \$257 earlier.

Would it make sense to discount EBITDA? Or net income plus depreciation?

- ▶ Would you really want to discount sales???. You gotta be nuts.
- ▶ Net income plus depreciation is especially crazy, because your cash flows do not fall like manna from heaven. You needed to make capital expenditures to get anything. It is better to subtract fictional factory costs than zero factory costs.

Should you take the depreciation figure from the income statement or the depreciation figure from the cash flow statement?

What is the difference between deferred tax and taxes-payable?

The reported GAAP financials force a three-year depreciation schedule. [Note: the economic CF's do not change. The only thing that changes is that you now see only GAAP financials.] How would the publicly-reported financials look look? Where on the public financials would you find IRS Tax Payments?

What reverse-engineering formula could you use? Recall that this needs to come to $-\$72$, $\$258$, and $\$138$.

Two Financials and Deferred Taxes

- ▶ With the (true) IRS financials, we would have calculated cash flows of
$$\text{NI} + \text{Dep} - \text{CapExp} + \text{Int} = \$33 + \$125 - \$250 + \$20 = -\$72$$
- ▶ We only see the public financials.
$$\text{NI} + \text{Dep} - \text{CapExp} + \text{Int} + ?? = \$58 + \$83 - \$250 + \$20 + ?? = -\$89 + ??.$$
- ▶ Add the change in deferred taxes to the public financials, which here is \$17, and you have the right number back.

Assume COGS and SG&A were \$0. Customers pay half of what they owe immediately, half of what they owe one year later — what are your actual cash flows now?

NOTE: If customers pay later, then the economic cash flows are now different!

How do your public financials look like?

What reverse-engineering formula could you use?

What else is in Working Capital? Why do you work with changes in working capital?

What is Investment in Goodwill?

What would be in a better valuation formula?

	Earnings after Interest before Taxes (= Net Income + Tax)
+	Interest Expense
=	EBIT
-	Corporate Income Tax
=	Net Operating Profit
+	Changes in Deferred Taxes
+	Depreciation
=	Gross Cash Flow
-	Capital Expenditures
-	Changes in Working Capital (e.g. payables)
-	Investment in Goodwill
-	Miscellaneous Increases in Other Assets
=	Free Cash Flow from Operations
-	Acquisition and Divestitures
-	Short-Term Investments
-	Miscellaneous Investing
=	Project Firm Cash Flow to Debt + Equity
+	Net Issuance of Debt
-	Interest Expense
=	Project Firm Cash Flow to Equity

Look at Some Public Firm's Cash Flow Statement

Insert

Estimate Project and Equity Cash Flows

Use the Cash Flow statement directly, but realize that interest expense goes to capital providers!!! Thus:

$$\text{Project} = \text{CF Operations} + \text{CF Investing} + \text{Interest Expense}$$

$$\begin{aligned}\text{Equity} &= \text{CF Operations} + \text{CF Investing} + \text{Net Debt Issuing} \\ &\quad + \text{Interest Expense} - \text{Interest Expense} \\ &= \text{CF Project} - \text{Interest Expense} + \text{Net Debt Issuing}\end{aligned}$$

What do you believe on the Balance Sheet?

How would you overreport earnings? Cash flows? How would you try to detect this as an external analyst?