

# Financial Statements and Valuation

(Welch, Chapter 14)

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# 1: Sample Project I

- ▶ 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.
    - ▶ (CoC is not really used, just sketched.)

## 2: Sample Project II

- ▶ Corporate Tax Rate: 40% / year
- ▶ Debt: \$200 ( $r=10\%$ ). Assume in year 1, you get the money but you already 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.

## 3: Income Statement (IS)

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

## 4: Project Cash Flows

- ▶ A project is like a “black box,” with both inflows and outflows.
  - ▶ The net CFs are then returned to financiers, *both debt and equity*.
  - ▶ Interest payments are a flow back to financiers, just like dividend payments.
    - ▶ They are not negatives that just evaporate.
    - ▶ They are a return of capital to financiers.
    - ▶ They are not a cost of operating.

## 5: Equity Cash Flows

- ▶ If you own just the equity (and borrow money from someone else), then
  - ▶ you get a cash inflow from the creditors upfront,
  - ▶ and you have to pay interest to creditors later.
  - ▶ You must count both!

## 6: Project vs Equity CFs

- ▶ **Total** project cash flows can be paid out to debt and equity holders *combined*.
  - ▶ Imagine you provide both debt and equity.
  - ▶ You get the interest payment back.
- ▶ Put differently, subtract interest only if you get the loan!
  - ▶ Overall project: All cash flow goes to the owners.
  - ▶ Equity: We first receive credit and then we pay it back.

## 7: Nerd: Project CF is not Unlevered!

- ▶ Project cash flows here are not the “as-if-unlevered” cash flows later in the WACC chapter.
  - ▶ There, an unlevered firm will have less of an interest tax shield.
  - ▶ Therefore it will have to pay more in corporate income taxes.



## 8: Project and Equity CFs & NPV

- ▶ What are the project CFs and NPV?
- ▶ What are the equity CFs and NPV?
- ▶ Think “Economics” and not “Accounting.”

## 9: Reverse-Engineered

- ▶ What are the project and equity cash flows, reverse-engineered from the financials?

## 10: What Formula Did You Use?

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

$$CF = \text{Net Sales} - \text{Tax} - \text{CapExpense}$$

$$CF = \text{NI} + \text{Deprec} - \text{CapExp} + \text{Interest}$$

# 11: Discounted Net Income (NI)?

- ▶ Could you have just discounted net income? Close enough?

- ▶ Discounting NI would come to

$$\$33 + \$138/1.15 + \$93/1.15^2 \approx \$223.$$

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

## 12: Discounted EBITDA?

- ▶ Would it make sense to discount EBITDA?
  - ▶ Sales Minus COGS Minus SGA.
  - ▶ Are you nuts?
  - ▶ Would you really want to discount near-sales, ignoring tax and depreciation??? How should capex matter?

# 13: Discounted Net Income + Depreciation?

- ▶ Would it make sense to discount NI + Dep?
  - ▶ Are you super-nuts?
  - ▶ Do you need to spend CapEx to produce? Or
  - ▶ Do your cash flows fall like manna from heaven?
  
- ▶ Is it better to subtract fictional capex (as in NI) or zero capex (as in NI+Dep)!

## 14: IS or CFS Depreciation?

- ▶ Should you take depreciation from the IS or the depreciation figure from the CFS?



# 15: Deferred Tax or Taxes Payable?

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

## 16: GAAP vs IRS

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

# 17: Reverse Engineering

- ▶ What formula could you use?
- ▶ Recall that your formula needs to come to
  - ▶ CF0: -\$72,
  - ▶ CF1: \$258, and
  - ▶ CF2: \$138.

## 18: Deferred Tax Adjustment Conclusion

- ▶ With the (true) IRS financials, we would have calculated cash flows of

$$NI + Dep - CapExp + Int = \$33 + \$125 - \$250 + \$20 = -\$72$$

- ▶ We only see the public financials.

$$NI + Dep - CapExp + Int + ? = \$58 + \$83 - \$250 + \$20 + ? = -\$89 + ?$$

- ▶ Add the change in deferred taxes to the public financials, which here is \$17, and you have the right number back.

## 19: A/R: Half Now, Half Later

- ▶ 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?
- ▶ If customers pay later, are the economic cash flows different?

## 20: Public Financial Statements

- ▶ How do your public financials look like?

# 21: Reverse Engineering

- ▶ What formula could you use?

## 22: Working Capital

- ▶ What else is in *working capital*?
- ▶ Why do you work with *changes* in working capital and not working capital itself?



## 23: Goodwill

- ▶ What is Investment in Goodwill?

## 24: Valuation Formula I

Earnings after Interest before Taxes ( = NI + Tax )

+ Interest Expense

= **EBIT**

- Corporate Income Tax

= **Net Operating Profit**

+ Changes in Deferred Taxes

+ Depreciation

= **Gross Cash Flow**

**= 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**

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- 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**

# 25: Public Firm's CFS Example

(Student Choice)

## 26: Easier Better Estimates

- ▶ Use the CFS directly, but realize that interest expense goes to capital providers!!!

$$CF\ Project = CF\ Oper + CF\ Invest + Int\ Expense$$

$$CF\ Equity = CF\ Project - Int\ Expense + Net\ Debt\ Issues$$

## 27: Balance Sheet Truths

- ▶ What can you believe on the Balance Sheet?

## 28: What Manipulation Is Possible?

- ▶ Do accountants have discretion?
- ▶ How would you overreport earnings?
- ▶ How would you overreport cash flows?
- ▶ How would you try to detect this as an external analyst?



## 29: How Would You Manipulate?

- ▶ How many products will customers return?
- ▶ How much debt will be repaid to you? (I.e., sell product on credit)
- ▶ How much inventory will spoil?
- ▶ How long will equipment last?
- ▶ Is it an expense (maintenance) or an acquisition?