

### Comments for Students

#### 1. NAV Tax Adjustments

NAV is all about replacement costs. Why do we take the after tax value of assets (e.g. excess real estate, underfunded pension fund, etc.)? If the market value of real estate is \$400M, the replacement cost for a competitor is \$400M, not \$400M after-tax. If this holds true, then investments and advances should be in after-tax terms as well, since they also incur capital gains tax when the shares are sold.

#### 2. NAV Adjustments in EPV

EPV is all about future cash flows. Mixing the NAV adjustments related to non-operating assets, non-operating current liabilities, and long term liabilities and equity in EPV raises concerns.

In the current model, EPV is broken down into two parts:

- a) The stable cash flow created by operating assets is taken into perpetuity by dividing it with WACC. → affected by cost of capital.
- b) Adjustments are made with non-operating NAV items. Market value of debt is affected by cost of debt → affected by cost of capital. The rest of the non-operating NAV items, however, are not affected by cost of capital.

Problems:

Non-operating assets are funded by liabilities and equities that have cost of capital as well, and are responsible for delivering investor returns. In the current model, having non-operating assets add EPV value, where in reality they only have cash flow implications when they are sold. From the cash flow perspective, adding non-operating fixed assets separately essentially means that the company is selling that asset now, since no cost of capital is applied. If the assets are not sold this year, the valuation is overvaluing the assets.

For example, if the construction in progress of \$110 is sold this year, it will create \$110 of cash inflow this year. However, if the construction in progress of \$110 is sold next year and the discount rate is 10%, then present value of future cash flow from construction in progress for EPV purposes should be \$100. If we just make adjustment to EPV with \$110, then we have effectively overvalued the construction in progress asset by \$10.

In the current model, higher cost of capital may result in increase in intrinsic value for firms with a large amount of non-operating assets and little non-operating liabilities and equities. This goes against the most fundamental concept of time value of money.

Solutions:

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- a. For items that have stable future cash flows, apply WACC to the cash flow to discount it.
  - for operating leases, current operating expenditure can be used as steady annual cash flow, since the company is likely to incur that level of operating lease into the future.
  - for long term debt, annual interest expense + principal payment can be deducted.
  - for investments & advances, investment income (e.g. dividend) should be included. No adjustments for investments and advances should be added to EPV since dividing dividend by discount rate already provides the value.
- b. For items that do not provide steady cash flows,
  - we could try our best to estimate when the company will sell it and apply discount rate accordingly to come up with the right present value cash flow adjustment number.. (e.g. excess real estate)
  - for something like construction in progress, the construction in progress by itself does not add any cash flow to the firm, and should not be added to EPV. Refer to Comment #3 – CAPEX for additional recommendation.
- c. ECMS should not be included in EPV since it costs money to keep it in the company and it provides no extra future cash flows. (For marketable securities, we can include dividend income if available)
- d. There could be an additional “discounting” factor for risk of bankruptcy. With increase in cost of capital, the risk of bankruptcy will change (The U-shaped relationship between leverage and credit risk), which could be used to discount the value of the assets. This is also in line with the value investing philosophy that above a certain threshold of credit risk, liquidation value should be used for NAV analysis instead of replacement costs.
- e. We could try to adjust [31] Equity Risk Premium dynamically according to the cost of debt level.

### 3. CAPEX

For product portfolio and customer relations:

- a. In zero growth scenario, we take average R&D and marketing as zero growth expense.
- b. In the growth scenario, we add back growth expense, to come to the *real* no growth values.

For CAPEX,

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- a. In zero growth scenario, we "calculate" the zero growth CAPEX and subtract it instead of taking the average CAPEX like R&D and marketing and assuming it is the zero growth cost.
- b. In growth scenario, it's already zero growth so we don't make any adjustments.

There should not be a discrepancy in terms of assumptions. Along with concerns raised in Comment #2, I think the more accurate way to account for CAPEX is to look to see whether the company has CAPEX cycles, and do the following:

- a. In zero growth scenario, use the average CAPEX in the long run as the CAPEX in the zero growth scenario.
- b. In the growth scenario, we add back growth CAPEX (change in sales \* CAPEX/Sales), to come to the *real*/no growth values.

### Additional Suggestions

#### 4. Implied MV of Excess Real Estate

For excess real estate, if market value is not given, we should use the inflation equation used for operating land to figure out the implied MV of excess real estate. (already incorporated in the model)

5. In EPV, I changed add/less adjustments to be simpler for the end user to understand. Instead of listing items separately, I categorized them into:
  - a. Add: Non-Operating Current Assets (ECMS)
  - b. Add: Non-Operating Fixed Assets
  - c. Less: Non-Operating Current Liabilities
  - d. Less: LT Liabilities & Equities (Excl. Common Shares)