

Teaching Note

Sprint Nextel 2006

Equity Valuation

OVERVIEW:

In this case students explore various conceptual and technical issues associated with estimating the value of a share of stock. The case considers the 2006 financial statements of Sprint Nextel – this is the year before the company records a significant goodwill impairment related to the Nextel acquisition. The resulting stock price is below the actual traded price.

GENERAL CASE NOTES:

The forecasting and present value techniques in the case have many fair-value applications. Thus, the case can be used to not only introduce students to a common equity valuation model but to segue to estimating goodwill and other asset impairments. Indeed, instructors can follow this case with the Sprint Nextel 2007 Asset Impairment case.

The case is accompanied by a Background Reading on the residual operating profit (ROPI) model. Students should be encouraged to read these materials before class.

The case assumes that students have some familiarity with SFAS 157 and Level 1 versus Level 2 and Level 3 inputs. The case also assumes that students can calculate present values. If this is not the case, instructors will need to provide additional background materials.

The case includes the financial statements for Sprint Nextel for 2006. Students can skim the financial statements before class, but this is not required as the case is self-contained.

One approach is to have students complete as much of the case as they can in advance – this advance preparation will maximize the students' learning during class.

The case opens with four conceptual questions. Instructors can begin class with these as discussion questions to ensure that students understand the broad concepts of equity valuation before delving into the quantitative analysis for Sprint Nextel.

The case then walks through the necessary steps to estimate the ROPI model for Sprint Nextel at the end of 2006. Based on the case assumptions, the company's estimated stock price is \$12.61. This is significantly below the traded price on the balance sheet date (\$18.79). This was a deliberate decision – the company's stock price subsequently tumbles as market factors change in 2007. The point is to get students to consider possible reasons for the low stock price estimate including model assumptions *and* the fact that the company's operating assets include a very large amount for goodwill. This makes the expected profit very high and the actual profit can't meet this hurdle. Again, this case can be used to segue to the Sprint Nextel Impairment case.

ADDITIONAL BACKGROUND INFORMATION FOR INSTRUCTORS:

We briefly explain our rationale for each case assumption.

2006 Net operating profit after tax = \$1,540

Operating profit from the income statement, after tax at 38% = $\$2,484 \times (1 - 38\%) = \$1,540$.

2006 Net operating assets = \$75,270

- Operating assets from the balance sheet are equal to total assets less marketable securities: $\$97,161 - \$15 = \$97,146$
- Operating liabilities from the balance sheet are equal to total liabilities less short-term and long-term debt: $\$44,030 - \$1,143 - \$21,011 = \$21,876$
- Net operating assets = $\$97,146 - \$21,876 = \$75,270$

2006 Debt, net of marketable securities = \$22,139

Short-term and long-term debt from the balance sheet less marketable securities
 $\$1,143 + \$21,011 - \$15 = \$22,139$

Short-term sales growth = 20%

The actual sales growth in 2005 and 2006 were 33% and 42.5% respectively. This is due to the Nextel acquisition and other organic and acquisition-related growth. The assumption of 20% growth over the coming four years acknowledges that growth will slow somewhat. Nonetheless, 20% is optimistic.

Long-term sales growth = 3%

In the long-run, growth mirrors that of the economy as a whole. The assumption of a 3% terminal growth rate is somewhat conservative.

Profit margin = 7.5%

This is somewhat higher than the actual 2006 net profit margin of 3.75% but closer to the historical average. Thus, the case assumes that the company will be able to increase profit margins in the post-acquisition period. This assumption is very influential in the valuation. Small changes in this margin significantly affect stock price. This is an important point to make during the case discussion.

Operating asset growth = 5%

The historical numbers from the financial statements show asset growth much greater than the assumed 5%. However, the Nextel merger accounts for this meteoric asset growth and it is not reasonable to assume that such a large asset growth rate is sustainable. Thus, we assume a more reasonable 5% rate.

Tax rate = 38%

The current marginal tax rate for the average U.S. company is about 38%.

Weighted average cost of capital = 8.07%

We estimate the company's cost of debt and equity capital with the following inputs:

Average cost of debt from Sprint Nextel financial statement footnote 9	7.07%
Tax rate	38%
After tax average cost of debt: $7.07\% \times (1 - 38\%)$	4.38%
Risk free rate: 10Y Treasury 12/31/2006 http://www.treas.gov/offices/domestic-finance/debt-management/interest-rate/yield_historical_2007.shtml	4.88%
Beta 12/31/2006 www.yahoofinance.com	1.25
Equity premium	5.00%
Cost of equity (CAPM model): $4.88\% + (1.25 \times 5\%)$	11.13%
Percent of debt in capital structure: $\$44,030 \div (\$44,030 + \$53,131)$	45.3%
Weighted average cost of capital: $(45.3\% \times 4.38\%) + (55.7\% \times 11.13\%)$	8.07%

We encourage instructors to explore with the class, how the estimated stock price of the firm changes when the assumptions are changed. An excel spreadsheet with the ROPI model will be posted to the AAA website. One approach is to project the spreadsheet in class and vary model assumptions one-by-one. The re-estimated stock price will demonstrate the relative sensitivity of the model to the various inputs.

Instructors can tailor the questions to fit the level of students and the time constraints of the class. For example, to shorten the case, instructors can provide the forecasted numbers in part e rather than have students generate them. To enrich (and lengthen) the case, instructors can have students generate the NOPAT and NOA for the year and/or the weighted average cost of capital (inputs for all these extra calculations are provided below).

SUGGESTED SOLUTIONS:

- a. While the fair value of a share of the stock of a publicly traded company is easily observed, it is sometimes the case that the stock price is not an appropriate fair value. For example, when the firm's stock is thinly traded, the quoted market price may not be a fair value. Other times, Level 1 inputs are not available; for instance, when the firm is undergoing an IPO or the firm is private. When Level 1 inputs are either inappropriate or unavailable, we must rely on Level 2 and Level 3 inputs to estimate valuation models to determine equity fair values. The Level 2 inputs would include observable inputs such as interest rates or risk premiums. Level 3 inputs are assumptions about future cash flows or about the appropriate model to use to estimate the equity.

- b. To value a company we take the following steps:
 - Select an appropriate valuation model.
 - Determine the model assumptions. This will depend on the specific model requirements.
 - Forecast the company's future operations or cash flows. The numbers forecasted will depend on the model. Common forecasts include dividends, net income, residual income, and free cash flows.
 - Discount the projected operating numbers or cash flows
 - Sum the future amounts and calculate per share values.

- c. The following assumptions are implicit in equity valuation models:
 - Time horizons including the number of periods in the forecast horizon and the length of the terminal period.
 - Expected short-term and long-term growth rate for the company. This considers the company itself and the industry in which the company operates and the larger global macroeconomic expectations.
 - Profit margins or turnover ratios that will determine future operating results or cash flows.
 - Discount rate, risk-free rate, equity premium, model to estimate cost of equity capital (CAPM or other).

- d. Residual operating income is the difference between actual (forecasted) and expected (required) operating income. Each period, the firm's expected operating income is equal to the value of beginning of the period net operating assets times the firm's weighted average cost of capital. If a firm's net operating income is exactly equal to the expected income, then the firm has earned no residual operating income. When earnings are greater than (less than) the hurdle amount, the firm has positive (negative) residual operating income. In contrast, net income is the nominal profit the company earns and does not consider the expected profits.

e.

(\$millions)	Current	Forecast Horizon				Terminal
	Year	2007	2008	2009	2010	Period
Sales	\$41,028	\$49,234	\$59,080	\$70,896	\$85,076	\$87,628
NOPAT	\$1,540	\$3,693	\$4,431	\$5,317	\$6,381	\$6,572
NOA at end of year	\$75,270	\$79,034	\$82,985	\$87,134	\$91,491	\$96,066

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	2007	2008	2009	2010	Terminal Period
NOA at beginning of year	\$75,270	\$79,034	\$82,985	\$87,134	\$91,491
Expected operating profit = (NOA at beginning of year × 8.07%)	\$6,075	\$6,379	\$6,698	\$7,033	\$7,385
Residual operating profit = NOPAT - Expected operating profit	-\$2,383	-\$1,948	-\$1,381	-\$652	-\$813
Present value factor at 8.07%	0.92531	0.85620	0.79226	0.73309	**
Present value of residual operating profit	-\$2,205	-\$1,668	-\$1,094	-\$478	-\$11,746

** Present value of terminal ROPI = (-\$813 ÷ (8.07% - 3%)) × 0.73309 = \$11,746

g.

Cumulative Present value of residual operating profit	<u>-\$17,192</u>
Plus Net Operating Assets at end of 2006	<u>\$75,270</u>
Less Debt, net of marketable securities	<u>-\$22,139</u>
= Value of Equity	<u>\$35,939</u>
Shares outstanding (millions)	<u>2,897</u>

Stock Price per share

\$12.41

- h. At the end of the 2006 fiscal year, the stock of Sprint Nextel was trading for \$18.79. Our price of \$12.41 is significantly lower than the actual fair value. Reasons for this include our assumptions – our growth rates and operating profit margins may be lower than the rates assumed by other market participants. Alternately, our discount rate could be too high, compared to other investors'. The company's balance sheet reports a significant amount of goodwill. Perhaps the market assumes that the company will be able to recoup larger profits in the future from this major investment. In that case, the NOPAT will be higher, residual income will be higher, which will make stock price higher.