



SESSION 8: ESTIMATING GROWTH

Growth in Earnings

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- Look at the past
 - The historical growth in earnings per share is usually a good starting point for growth estimation
- Look at what others are estimating
 - Analysts estimate growth in earnings per share for many firms. It is useful to know what their estimates are.
- Look at fundamentals
 - Ultimately, all growth in earnings can be traced to two fundamentals - how much the firm is investing in new projects, and what returns these projects are making for the firm.

I. Historical Growth in EPS

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- The historical growth rate in earnings for a company may seem like a fact but it is an estimate. In fact, it is sensitive to
 - How it is computed: The growth rates in earnings will be different, depending upon how you compute the average. An simple (arithmetic) average growth rate will tend to be higher than a compounded (geometric) average growth rate.
 - Estimation period: The starting point for the computation can make a big difference. Using a bad year as the base year will generate much higher growth rates.
- In using historical growth rates, recognize the following:
 - Growth rates become meaningless when earnings go from negative values to positive values
 - Growth rates will go down as companies get larger
- Worst of all, there is evidence that historical growth rates in earnings are not very good predictors of future earnings...

II. Management/Analyst Forecasts

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- When valuing companies, we often fall back on management forecasts for the future (after all, they know the company better than we do) or forecasts of other analysts.
- Management forecasts may reflect their “superior” knowledge, but they have a fatal flaw. They are biased.
- Analyst forecasts may seem like a simple way to avoid the problem, but not only are they also biased but using them represents an abandonment of a basic requirement in valuation: that you make your own best judgment of growth.

III. Fundamental Growth

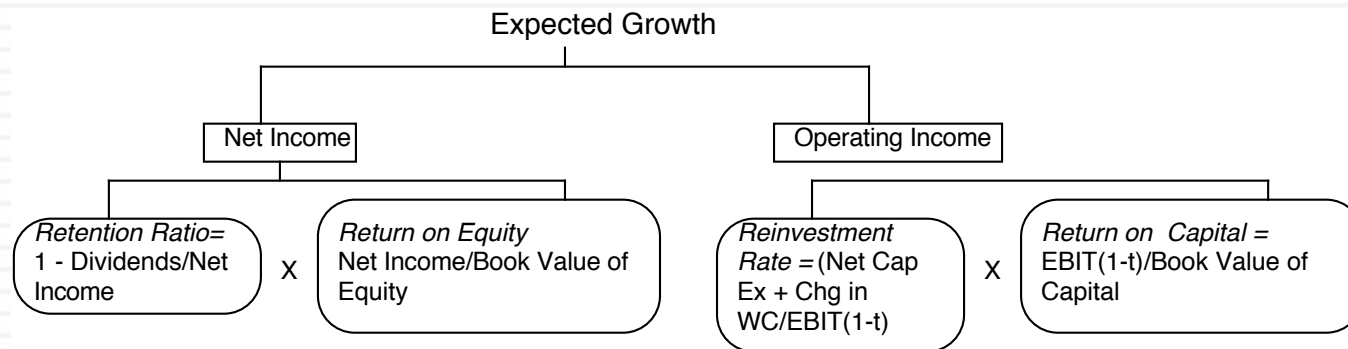
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- Growth has to be earned by a company. You and I do not have the power to endow a company with growth.
- In terms of basic fundamentals, for a company to grow its earnings, it has to
 - Add to its asset or capital base and generate returns on that added capital (new investment growth)
 - Manage its existing assets more efficiently, generating higher margins and higher returns on existing assets (efficiency growth)

a. New Investment Growth

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- The growth in earnings for a firm from new investments is a function of two decisions:
 - How much to reinvest back into the business for long term growth
 - Equity earnings: Portion of net income put back into the business (retention)
 - Operating earnings: Portion of after-tax operating income invested in the business.
 - How well it reinvests its money, defined again
 - With equity earnings, the return on equity
 - With operating earnings, the return on invested capital



The Key Number: Return on Capital (Equity)

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Adjust EBIT for

- Extraordinary or one-time expenses or income
- Operating leases and R&D
- Cyclicality in earnings (Normalize)
- Acquisition Debris (Goodwill amortization etc.)

Use a marginal tax rate to be safe. A high ROC created by paying low effective taxes is not sustainable

$$\text{ROC} = \frac{\text{EBIT} (1 - \text{tax rate})}{\text{Book Value of Equity} + \text{Book value of debt} - \text{Cash}}$$

Adjust book equity for

- Capitalized R&D
- Acquisition Debris (Goodwill)

Adjust book value of debt for

- Capitalized operating leases

Use end of prior year numbers or average over the year but be consistent in your application

b. Efficiency Growth

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- When the return on equity or capital is changing, there will be a second component to growth, positive if the return is increasing and negative if the return is decreasing. If ROC_t is the return on capital in period t and ROC_{t+1} is the return on capital in period t+1, the growth rate in operating income will be:

$$\text{Expected Growth Rate} = ROC_{t+1} * \text{Reinvestment rate} + (ROC_{t+1} - ROC_t) / ROC_t$$

- For example, assume that you have a firm that is generating a return on capital of 8% on its existing assets and expects to increase this return to 10% next year. The efficiency growth for this firm is

$$\text{Efficiency growth} = (10\% - 8\%) / 8\% = 25\%$$

- Thus, if this firm has a reinvestment rate of 50% and makes a 10% return on capital on its new investments as well, its total growth next year will be 30%

$$\text{Growth rate} = .50 * 10\% + 25\% = 30\%$$

- The key difference is that growth from new investments is sustainable whereas returns from efficiency are short term (or transitory).

Revenue Growth and Operating Margins

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- All of the fundamental growth equations assume that the firm has a return on equity or return on capital it can sustain in the long term.
- When operating income is negative or margins are expected to change over time:
 - ▣ Estimate growth rates in revenues over time
 - Use historical revenue growth to get estimates of revenue growth in the near future
 - Decrease the growth rate as the firm becomes larger
 - Keep track of absolute revenues to make sure that the growth is feasible
 - ▣ Estimate expected operating margins each year
 - Set a target margin that the firm will move towards
 - Adjust the current margin towards the target margin
 - ▣ Estimate the capital that needs to be invested to generate revenue growth and expected margins
 - Estimate a sales to capital ratio that you will use to generate reinvestment needs each year.

Sirius Radio: Revenues and Revenue Growth- June 2006

Year	Revenue Growth	Revenue \$	Operating Margin	Operating Income
Current		\$187	-419.92%	-\$787
1	200.00%	\$562	-199.96%	-\$1,125
2	100.00%	\$1,125	-89.98%	-\$1,012
3	80.00%	\$2,025	-34.99%	-\$708
4	60.00%	\$3,239	-7.50%	-\$243
5	40.00%	\$4,535	6.25%	\$284
6	25.00%	\$5,669	13.13%	\$744
7	20.00%	\$6,803	16.56%	\$1,127
8	15.00%	\$7,823	18.28%	\$1,430
9	10.00%	\$8,605	19.14%	\$1,647
10	5.00%	\$9,035	19.57%	\$1,768

*Target margin based upon
Clear Channel*

Sirius: Reinvestment Needs

Year	Revenues	Change in revenue	Sales/Capital Ratio	Reinvestment	Capital Invested	Operating Income (Loss)	Imputed ROC
Current	\$187				\$ 1,657	-\$787	
1	\$562	\$375	1.50	\$250	\$ 1,907	-\$1,125	-67.87%
2	\$1,125	\$562	1.50	\$375	\$ 2,282	-\$1,012	-53.08%
3	\$2,025	\$900	1.50	\$600	\$ 2,882	-\$708	-31.05%
4	\$3,239	\$1,215	1.50	\$810	\$ 3,691	-\$243	-8.43%
5	\$4,535	\$1,296	1.50	\$864	\$ 4,555	\$284	7.68%
6	\$5,669	\$1,134	1.50	\$756	\$ 5,311	\$744	16.33%
7	\$6,803	\$1,134	1.50	\$756	\$ 6,067	\$1,127	21.21%
8	\$7,823	\$1,020	1.50	\$680	\$ 6,747	\$1,430	23.57%
9	\$8,605	\$782	1.50	\$522	\$ 7,269	\$1,647	17.56%
10	\$9,035	\$430	1.50	\$287	\$ 7,556	\$1,768	15.81%

Industry average Sales/Cap Ratio



*Capital invested in year $t+1$ =
Capital invested in year t +
Reinvestment in year $t+1$*

