
ESTIMATING GROWTH
Problem 1

Year	Year: No	EPS	ln(EPS)	Growth Rate
1989	1	\$ 1.28	0.25	
1990	2	\$ 1.42	0.35	10.94%
1991	3	\$ 1.58	0.46	11.27%
1992	4	\$ 1.78	0.58	12.66%
1993	5	\$ 1.98	0.68	11.24%
1994	6	\$ 2.30	0.83	16.16%

a. Arithmetic Average = 12.45%

$$\text{Geometric Average} = (2.30/1.28)^{(1/5)} - 1 = 12.44\%$$

b. $\text{EPS}(t) = 1.025 + 0.199(t)$

$$\text{Growth rate} = 0.199 / \text{Average EPS} = 11.55\%$$

c. $\ln(\text{EPS}(t)) = 0.12 + 0.1156(t)$! Growth rate is 11.56%

Problem 2

a. Expected growth rate in earnings per share = $20\% * (1 - .37) = 12.6\%$

b. Expected growth rate in earnings per share if ROE changes = $.25(1 - .37) + (.25 - .20)/.20 = 40.75\%$

Problem 3

$$\text{Return on equity} = 150/1000 = 15\%$$

$$\text{Equity reinvestment rate} = \{(\text{Net cap ex} + \text{Change in working capital}) - \text{Net Debt issued}\} /$$

$$\text{Net Income} = ((160 - 100 + 40) - 40) / 150 = 40\%$$

$$\text{Expected growth rate} = 15\% * .40 = 6\%$$

Problem 4

a. Return on capital = $100/800 = 12.5\%$

$$\text{Reinvestment rate} = (25 + 15) / 100 = 40\%$$

$$\text{Expected growth rate} = 12.5\% * .4 = 5\%$$

b. Expected growth rate = $15\% * .4 + (15\% - 12.5\%) / 12.5\% = 26\%$

Problem 5

<i>Year</i>	<i>Current</i>	<i>1</i>	<i>2</i>	<i>3</i>	<i>4</i>	<i>5</i>
Revenues	\$100.00	\$200.00	\$350.00	\$525.00	\$682.50	\$887.25
Margin	-10.00%	-6.40%	-2.80%	0.80%	4.40%	8.00%
EBIT	-\$10.00	-\$12.80	-\$9.80	\$4.20	\$30.03	\$70.98

I am assuming a linear improvement in operating margins over time.

Problem 6

Revenues in most recent year = \$ 25 million

Revenues in 10 years = \$ 2 billion $(1.06)^{10}(.08) = \$286.54$ million

Expected growth rate = $(286.54/25)^{1/10} - 1 = 27.62\%$