FIN5EQS EQUITY SECURITIES

Quiz 2 Solutions

The following information should be used in answering Questions 1 and 2.

A company has achieved the following EPS in the years shown.

Year	EPS
2008	2.12
2009	2.27
2010	2.45
2011	2.51

The results of a linear regression based on these values are shown overleaf.

SUMMARY OUTPUT

Regression Statistics	
Multiple R	0.9809
R Square	0.962164
Adjusted R Square	0.943246
Standard Error	0.018277
Observations	4

ANOVA

	df	*SS*	*MS*	*F*	*Significance F*
Regression	1	0.016989	0.016989	50.86	0.0191
Residual	2	0.000668	0.000334		
Total	3	0.017657			

	Coefficients	*Standard Error*	*t Stat*	*P-value*	*Lower 95%*
Intercept	0.701165	0.022384	31.32401	0.001018	0.604853
X Variable 1	0.058291	0.008174	7.131619	0.0191	0.023123

1. What is the arithmetic average annual growth rate over this period?

Year	EPS	Growth
2008	2.12	
2009	2.27	7.08%
2010	2.45	7.93%
2011	2.51	2.45%
Average	2.3375	

$$AA = \frac{\sum_{t=-n}^{-1} g_t}{n}$$
$$= \frac{7.08 + 7.93 + 2.45}{3} = 5.82\%$$

A. 4.31%

B. 4.37%

C. 5.79%

D. 5.82%

2. Based on log-linear regression, what is the average annual growth rate over this period?

A. 2.49%

B. 4.07%

C. 5.83%

D. 8.31%

The following information should be used in answering Questions 3 and 4.

You are analysing the Jupiter Mining Corporation.

- At the beginning of 2011, the company had total assets of $2,000,000 and total liabilities of $1,500,000.
- Its profit after tax during 2011 was $75,000 and the tax rate is 20%. It paid out $45,000 in dividends.

3. Based on the information above, what is JMC's sustainable growth rate?

$$\text{Equity} = \text{Assets} - \text{Liabilities} = 2{,}000{,}000 - 1{,}500{,}000 = \$500{,}000$$

$$b = \frac{\text{Income} - \text{Dividends}}{\text{Income}} = \frac{75{,}000 - 45{,}000}{75{,}000} = 0.4$$

$$ROE = \frac{\text{Income}}{\text{Equity}} = \frac{75{,}000}{500{,}000} = 0.15$$

$$g = b \times ROE = 0.4 \times 0.15 = 6\%$$

A. 6%

B. 8%

C. 10%

D. 12%

4. After further analysis, you believe that:
   - JMC's degree of financial leverage (at the beginning of 2011) is representative of its long-term financial leverage.
   - JMC's payout ratio in 2011 is likely to remain constant.

However, you form the view that the ROE that JMC achieved in 2011 is not indicative of its long-term profitability, so you attempt to estimate its future ROE based on Du Pont analysis. You decide that:
   - A more realistic value for the company's profitability ratio is 4%.
   - The industry efficiency ratio of 1.25x is achievable.

Based on this information, what is JMC's sustainable growth rate?

$$\begin{aligned} g &= b \times ROE \\ &= b \times \text{Profitability} \times \text{Efficiency} \times \text{Leverage} \\ &= 0.4 \times 0.04 \times 1.25 \times \frac{2{,}000{,}000}{500{,}000} = 8\% \end{aligned}$$

A. 6%

B. 8%

C. 10%

D. 12%

The following information should be used in answering Questions 5 and 6.

You are analysing the Sirius Cybernetics Corporation, and you have compiled the following information:

- Sales for the year just ended were $40,000,000.
- Net income for the year just ended was $2,400,000.
- There are 3,000,000 shares on issue.
- The company has just paid a dividend of 56 cents per share.
- The asset turnover is 1.5x.
- The equity multiplier is 1.5x.
- The company's beta is 1.2.
- The risk-free rate of return is 5%.
- The market risk premium is 12%.

5. What is SCC's sustainable growth rate?

$$
\begin{aligned}
g &= b \times ROE \\
&= b \times \text{Profitability} \times \text{Efficiency} \times \text{Leverage} \\
&= \frac{\text{Income} - \text{Dividends}}{\text{Income}} \times \frac{\text{Income}}{\text{Sales}} \times \text{Efficiency} \times \text{Leverage} \\
&= \frac{2{,}400{,}000 - (0.56 \times 3{,}000{,}000)}{2{,}400{,}000} \times \frac{2{,}400{,}000}{40{,}000{,}000} \times 1.5 \times 1.5 \\
&= 0.3 \times 0.06 \times 1.5 \times 1.5 = 4.05\%
\end{aligned}
$$

A. 4.05%

B. 6.25%

C. 9.45%

D. 10.1%

6. What is SCC's estimated share price?

$$r = r_f + \beta(r_m - r_f) = 5 + 1.2(12) = 19.4\%$$

$$P = \frac{D_1}{r - g} = \frac{0.56(1.0405)}{0.194 - 0.0405} = \$3.80$$

A. $2.64

B. $3.80

C. $6.08

D. $6.65