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	0.983152
R Square	0.966587
Adjusted R Square	0.949881
Standard Error	0.039686
Observations	4

ANOVA

	df	*SS*	*MS*	*F*	*Significance F*
Regression	1	0.091125	0.091125	57.85714	0.016848
Residual	2	0.00315	0.001575		
Total	3	0.094275			

	Coefficients	*Standard Error*	*t Stat*	*P-value*	*Lower 95%*
Intercept	2	0.048606	41.14756	0.00059	1.790867
X Variable 1	0.135	0.017748	7.606388	0.016848	0.058635

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

Year	EPS
2008	2.12
2009	2.27
2010	2.45
2011	2.51
Average	2.3375

$$GA = \left(\frac{E_0}{E_{-n}}\right)^{1/n} - 1$$

$$= \left(\frac{2.51}{2.12}\right)^{1/3} - 1 = 5.79\%$$

A. 4.31%

B. 4.37%

C. 5.79%

D. 5.82%

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

$$AverageEPSGrowth = \frac{0.135}{2.3375} = 5.78\%$$

A. 5.78%

B. 5.81%

C. 6.75%

D. 13.5%

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 before tax during 2011 was $125,000 and the tax rate is 20%. It paid out $40,000 in dividends.

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

$$\text{Income} = \text{Profit before tax}\left(1-t_c\right) = 125{,}000\left(0.8\right) = \$100{,}000$$

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

$$b = \frac{\text{Income} - \text{Dividends}}{\text{Income}} = \frac{100{,}000 - 40{,}000}{100{,}000} = 0.6$$

$$ROE = \frac{\text{Income}}{\text{Equity}} = \frac{100{,}000}{500{,}000} = 0.2$$

$$g = b \times ROE = 0.6 \times 0.2 = 12\%$$

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 2%.
   - The industry efficiency ratio of 1.25x is achievable.

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

$$\begin{aligned} g &= b \times ROE \\ &= b \times \text{Profitability} \times \text{Efficiency} \times \text{Leverage} \\ &= 0.6 \times 0.02 \times 1.25 \times \frac{2{,}000{,}000}{500{,}000} = 6\% \end{aligned}$$

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 24 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?

$$
\begin{aligned}
g &= b \times ROE \\
&= b \times \text{Profitability} \times \text{Efficiency} \times \text{Leverage} \\
&= \frac{\text{Income} - \text{Dividends}}{\text{Income}} \times \frac{\text{Income}}{\text{Sales}} \times \text{Efficiency} \times \text{Leverage} \\
&= \frac{2{,}400{,}000 - (0.24 \times 3{,}000{,}000)}{2{,}400{,}000} \times \frac{2{,}400{,}000}{40{,}000{,}000} \times 1.5 \times 1.5 \\
&= 0.7 \times 0.06 \times 1.5 \times 1.5 = 9.45\%
\end{aligned}
$$

A. 4.05%

B. 6.25%

C. 9.45%

D. 10.1%

6. What is SCC's estimated share price?

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

$$P = \frac{D_1}{r - g} = \frac{0.24(1.0945)}{0.194 - 0.0945} = \$2.64$$

A. $2.64

B. $2.67

C. $6.08

D. $6.65