

Lecture 2 – Team Activity – Stocks

Question 1: A stock is selling for \$10 a share. It just paid its annual dividend of \$2, so the next dividend will be paid in one year. The dividend is not expected to change. What must be the required return on equity?

Question 2: A stock is selling for \$10 a share. It just paid its annual dividend of \$2, so the next dividend will be paid in one year. The dividend is expected to grow at 4% pa. What must be the cost of equity?

Question 3: A stock is selling for \$10 a share. It is just about to pay a dividend of \$2, so the next dividend will be paid at any moment ($t=0$). The dividend is expected to grow at 4% pa. What must be the discount rate of equity?

Question 4a: The NAB stock price is \$22.40. It **just paid** its **semi-annual** dividend of \$0.84 per share. The dividend is expected to grow by 2%, given as an effective 6-month rate. What is the stock's required return on equity, given as an effective annual rate?

Question 4b: What is the total return, dividend yield, and capital return on the stock? You may express them all as effective 6 month rates.

Question 4c: How much do you expect the stock price and dividend to be in 3 years?

Question 5: The ROC (Roc Oil) stock price is \$0.275. It doesn't pay dividends at all yet.

Your friend studies geology and knows about Roc Oil, and he says that in 3 years the company should be able to pay a constant semi-annual dividend of \$0.05. So the first dividend payment will be at $t=3$ years. You estimate that the cost of equity is 12.36% pa, given as an effective annual rate. Using this information, what is your valuation of the stock?

Question 6: Google Inc. (GOOG on the NASDAQ) last traded at US\$604.96 on 6/3/2012. On Google's Investor Relations website there is an FAQ which reads:

"Does Google pay a cash dividend?

No, we have never declared or paid a cash dividend nor do we expect to pay any dividends in the foreseeable future."

Since floating in 2004, Google has never paid a dividend nor completed a buy back. Do shareholders expect Google to pay a dividend or undertake a buy-back?

Lecture 2 – Team Activity – Debt

Question 1: What is the price of a \$1 million BAB maturing in 180 days if the yield is 10% pa?

$$Price_{bill} = V_0 = \frac{F_t}{\left(1 + r_{simple} \times \frac{t}{365}\right)}$$

Question 2: A BAB with a face value of \$100,000 is trading at a price of \$99,000. It matures in 60 days. What is the yield on the bill?

Question 3: If a zero-coupon bond is issued at par, what must its yield be equal to?

Question 4: A bond maturing in 10 years that has a coupon rate of 12%, paid **semi-annually**. The bond's yields is currently 10% pa. The face value of the bond is \$100. What is its price?

$$Price_{bond} = PV(\text{annuity of coupons}) + PV(\text{principal})$$

$$= \frac{C_1}{r_{eff}} \left(1 - \frac{1}{(1 + r_{eff})^T} \right) + \frac{Face}{(1 + r_{eff})^T}$$

Question 5: A bond maturing in 10 years yields 10% pa. The coupon rate is 8%, paid **annually**. The face value of the bond is \$100. What is its price?

Question 6a: A 3 year 6% semi-annual coupon bond with a face value of \$100 is issued at par. What is its price? What is its yield?

Question 6b: Exactly one year later, just after the second coupon was paid, yields have fallen to 5% pa. What is the new bond price?

Question 6c: A 3 year 6% semi-annual coupon bond with a face value of \$100 was issued at par 2.5 years ago. Now, six months before maturity, only the last coupon and principal are owing. The price of the bond is \$98. What is its yield at this time? Give the yield as an APR compounding every 6 months.

Question 7a: A bond trading in the **EU** has the following details:

Maturity: 2yrs

Coupon rate: 5%, **paid annually**

Yield: 10%

Face value: 100

Find the bond price. Note that **European bonds pay annual coupons**.

Question 7b: A bond trading in the **US** has the following details:

Maturity: 2yrs

Coupon rate: 5%, paid semi-annually

Yield: 10%

Face value: 100

Find the bond price. Note that **US (and Australian) bonds pay semi-annual coupons**.

Question 7c: Compare the US bond to the EU bond in the previous question. Which bond promises a higher yield, or do they promise the same yield? Hint: APR's of different compounding periods cannot be compared.