

## Problematika: DDM, Gordonův model

1. Vincent Nquyen je analytik, který oceňuje akcie společnosti British Airways (BAY) or roku 2010. Zaznamenal, že panuje obecný názor, že akcie vyplatí v roce 2015 dividendu 4 libry a dividendu 5 liber v roce 2016, rovněž očekává, že koncem roku 2016 bude cena akcie 250 liber. Požadovaná výnosová míra z CAPM vychází na 11 procent. Předpokládáme pro zjednodušení, že všechny dividendy jsou vždy vyplaceny koncem roku.
  - S využitím DDM (konečného) stanovte cenu akcie BAY na konci roku 2015
  - S využitím DDM (konečného) stanovte cenu akcie BAY na konci roku 2014
2. Justin Owens je analytik akciového fondu, který investuje do britských akcií. Počátkem roku 2014 analyzoval společnosti British Sky Broadcasting Group (BSY). Akcie vyplatila dividendu na akcie ve výši 9; 12,20; 15,50 liber v období 2011, 2012, 2013. Dále se mezi analytiku očekává dividendě 18,66 v roce 2014 a 20,20 v roce 2015. Požadovaná výnosová míra je 21 procent.

A. porovnejte průměrnou roční míru růstu dividendy mezi roky 2011 – 2012 (včetně) a očekávanou průměrnou mírou růstu dividend v letech 2013 – 2015, včetně. Zpracujte prostřednictvím geometrického průměru.

B. Očekává se, že míra růstu dividendy z období 2013 – 2015 bude již konstantní mírou růstu do nekonečna (vypočteno v bodě A). Určete hodnotu akcie společnosti v roce 2013.

C. určete vztah mezi požadovanou výnosovou mírou  $r$  a odhadovanou mírou růstu  $g$
3. Mezi roky 1960 – 2007 vzrostly zisky společností, které jsou součástí indexu S&P 500 průměrně o 8,18 procent ročně. Dividendy těchto společností v průměru rostly 5,9 procent. Předpokládejte:
  - Dividend budou pokračovat v růstu průměrnou mírou z let 1960 – 2007
  - Požadovaná výnosová míra je 8 procent
  - V roce 2007 společnosti z indexu S&P 500 v součtu vyplatili 27,73 miliard USD na dividendách

S využitím Gordonova modelu stanovte hodnotu společností z indexu S&P 500.
4. Great Plains Energy je veřejně obchodovaná společnost, která uvedla na NYSE prioritní akcie v ceně 100 USD, pokud je požadovaná výnosová míra 5,6 procent, jaká je vnitřní hodnota této prioritní akcie při dividendě 4,6 USD?
5. Akcie společnosti Maspeth Robotics jsou nyní prodávány za 25 EUR a vyplácejí dividendu 1 EURO, dále jsou známy tyto informace:
  - Bezriziková výnosová míra je 4 procenta
  - Beta společnosti 1,2
  - Prémie za riziko je 5 procent

Na základě uvedených informací stanovte míru růstu dividend  $g$ , která odpovídá tržní ceně akcie 24 EUR.

## **6. CFA příklady:**

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Casey Hyunh is trying to value the stock of Resources Limited. To easily see how a change in one or more of her assumptions affects the estimated value of the stock, she is using a spreadsheet model. The model has projections for the next four years based on the following assumptions.

- Sales will be \$300 million in year 1.
- Sales will grow at 15 percent in years 2 and 3 and at 10 percent in year 4.
- Operating profits (EBIT) will be 17 percent of sales in each year.
- Interest expense will be \$10 million per year.
- Income tax rate is 30 percent.
- Earnings retention ratio would stay at 0.60.
- The per-share dividend growth rate will be constant from year 4 forward and this final growth rate will be 200 basis points less than the growth rate from year 3 to year 4.

The company has 10 million shares outstanding. Hyunh has estimated the required return on Resources' stock to be 13 percent.

- A. Estimate the value of the stock at the end of year 4 based on the preceding assumptions.
- B. Estimate the current value of the stock using the same assumptions.
- C. Hyunh is wondering how a change in the projected sales growth rate would affect the estimated value. Estimate the current value of the stock if the sales growth rate in year 3 is 10 percent instead of 15 percent.

*The following information relates to questions 16 through 21.*

Jacob Daniel is the chief investment officer at a U.S. pension fund sponsor and Steven Rae is an analyst for the pension fund who follows consumer/noncyclical stocks. At the beginning of 2009, Daniel asks Rae to value the equity of Tasty Foods Company for its possible inclusion in the list of approved investments. Tasty Foods Company is involved in the production of frozen foods that are sold under its own brand name to retailers.

Rae is considering whether a dividend discount model would be appropriate for valuing Tasty Foods. He has compiled the information in the following table for the company's EPS and DPS during the past five years. The quarterly dividends paid by the company have been added to arrive at the annual dividends. Rae has also computed the dividend payout ratio for each year as DPS/EPS and the growth rates in EPS and DPS.

Year	EPS (\$)	DPS (\$)	Payout Ratio	Growth in EPS	Growth in DPS
2008	2.12	0.59	0.278	2.9%	3.5%
2007	2.06	0.57	0.277	2.5	5.6
2006	2.01	0.54	0.269	6.3	5.9
2005	1.89	0.51	0.270	6.2	6.3
2004	1.78	0.48	0.270		

Rae notes that the EPS of the company has been increasing at an average rate of 4.48 percent per year. The dividend payout ratio has remained fairly stable and dividends have increased at an average rate of 5.30 percent. In view of a history of dividend payments by the company and the understandable relationship dividend policy bears to the company's earnings, Rae concludes that the DDM is appropriate to value the equity of Tasty Foods. Further, he expects the moderate growth rate of the company to persist and decides to use the Gordon growth model.

Rae uses the CAPM to compute the return on equity. He uses the annual yield of 4 percent on the 10-year Treasury bond as the risk-free return. He estimates the expected U.S. equity risk premium, with the S&P 500 Index used as a proxy for the market, to be 6.5 percent per year. The estimated beta of Tasty Foods against the S&P 500 Index is 1.10. Accordingly, Rae's estimate for the required return on equity for Tasty Foods is  $0.04 + 1.10(0.065) = 0.1115$  or 11.15 percent.

Using the past growth rate in dividends of 5.30 percent as his estimate of the future growth rate in dividends, Rae computes the value of Tasty Foods stock. He shows his analysis to Alex Renteria, his colleague at the pension fund who specializes in the frozen foods industry. Renteria concurs with the valuation approach used by Rae but disagrees with the future growth rate he used. Renteria believes that the stock's current price of \$8.42 is the fair value of the stock.

16. Which of the following is closest to Rae's estimate of the stock's value?
  - A. \$10.08
  - B. \$10.54
  - C. \$10.62
17. What is the stock's justified trailing P/E based on the stock's value estimated by Rae?
  - A. 5.01
  - B. 5.24
  - C. 5.27

19. The beta of Tasty Foods stock of 1.10 used by Rae in computing the required return on equity was based on monthly returns for the past 10 years. If Rae uses daily returns for the past 5 years, the beta estimate is 1.25. If a beta of 1.25 is used, what would be Rae's estimate of the value of the stock of Tasty Foods?
- A. \$8.64
  - B. \$9.10
  - C. \$20.13
20. Alex Renteria has suggested that the market price of Tasty Foods stock is its fair value. What is the implied growth rate of dividends given the stock's market price? Use the required return on equity based on a beta of 1.10.
- A. 3.87%
  - B. 5.30%
  - C. 12.1%
21. If Alex Renteria is correct that the current price of Tasty Foods stock is its fair value, what is expected capital gains yield on the stock?
- A. 3.87%
  - B. 4.25%
  - C. 5.30%