Valuation Problem Set

1. Dell issues a 10-year bond with a par value of $1,000 and a coupon rate of 8% paid semiannually. If payments are discounted at a 10% annual interest rate, how much is this bond worth?

2. Dell issues a 10-year bond with a par value of $1,000 and a coupon rate of 6% paid semiannually. If this bond sells for $1,100, what is its yield to maturity?

3. Preferred stock in the Bright Corporation offers a quarterly dividend of $1.20 per share. If this dividend payment is expected to continue, and future payments are discounted at an 8% annual rate, how much should a share be worth?

4. Stock in Viola Inc. offers annual dividend payments of $2 per share (starting next year) that are expected to grow at an annual rate of 4%. What is a share worth if future payments are discounted at a 9% rate.

5. (continuation of 4) If a share was selling for $60, how fast would dividends have to grow to justify that price (assuming the other information is unchanged).

6. You own the rights to a movie. You expect it to generate $10 million in the first year, $5 million in the second year, and then $500,000 each year after that (continuing into the indefinite future). Assume that payments come at the end of the year. If future payments are discounted at a 6% rate, how much are these rights worth?

Answers

1. N: 20, I: 5, **PV: 875.38,** PMT: 40, FV: 1,000

2. N: 20, **I: 2.3666,** PV: -1,100, PMT: 30, FV: 1,000

   2.3666*2 = 4.7332

3. 1.2/0.02 = 60

4. 2/(0.09-0.04) = 40

5. 60 = 2/(0.09-g), g = 0.0567

6.

Year 1: PV = 10,000,000/(1.06) = 9,433,962.26

Year 2: PV =   5,000,000/(1.06)^2 = 4,449,982.20

500,000 from year 3 on. Value in Year 2 = 500,000/0.06 = 8,333,333.33

PV = 8,333,333.33/(1.06)^2 = 7,416,637.00

Total PV = 21,300,581.46