Quiz A for 2:30 Class: 9/18/13 Name Key

Short Answer 1: Assume you are planning to deposit enough money today to make monthly withdrawals that will continue forever and grow by 1% each. Your first withdrawal of $100 will occur three years from today. List the sequence of steps (use words not equations) that would allow you to solve for the amount you must deposit today? For each step, state what you are solving for.

1) Present value of perpetuity, solve for present value (+4)
2) present value of a single cashflow, solve for present value (+4, +3)

Short Answer 2: Assume two dollar-denominated bonds issued in the U.S. are correctly priced but offer different rates of return. What might explain the higher return on one of the bonds?

+7/+5/+3 1) longer maturity, 2) higher tax rates, 3) higher risk

Problem: Assume that two months from today you plan to make the first of a series of semiannual deposits into the account that pays an APR of 9% with monthly compounding. Your first deposit will equal $300 and subsequent deposits will grow by 2% each. Your final deposit will occur two years and two months from today. You plan to make a series of annual withdrawals from this account beginning two and a half years from today. Your withdrawals would shrink by 1% each and your final withdrawal would occur seven and a half years from today. Set up the calculations (and plug in as many numbers as possible) to determine the size of your withdrawal five and a half years from today.

Wall Street Journal Questions are on the back of this page.

+4 $r\left(\frac{1}{12}\right) = \frac{.09}{12}$ +3 +5 (12)

+4 $r\left(\frac{1}{2}\right) = (1+r(\frac{1}{12}))^{6} - 1$ +5 (9)

+4 $r(1) = (1+r(\frac{1}{12}))^{12} - 1$ +5 (5)

+4 $FV_{2\frac{1}{2}yrs,2mo} = \left(\frac{300}{r(\frac{1}{2})-.02}\right)\left((1+r(\frac{1}{2}))^{5} - (1.02)^{5}\right)$ +3 +5 (15)

Note: -5 if use wrong rate that solved for previously

+4 $PV_{1\frac{1}{2}yr,6mo} = FV_{2\frac{1}{2}yrs,2mo}\left(\frac{1}{1+r(\frac{1}{2})}\right)^{8}$ +5 (9)

set equal + solve for C

+4 $PV_{1\frac{1}{2}yr,6mo} = \left(\frac{C}{r(1)-(-.01)}\right)\left(1-\left(\frac{1-.01}{1+r(1)}\right)^{6}\right)$ +2 +5 (14)

Note: -5 if use wrong rate that solved for previously.

+4 $C_{5\frac{1}{2}yrs,6mo} = C(1-.01)^{3}$ +2 +5 (11)

Note: -1 for each missing parenthesis