Name:

SID:

Session:

Week 9 Investment

Stock Trading

- You are now offered a chance to do an investment of buying shares of a stock.
  - All shares of stock owned at the end of each period will pay a dividend.
  - Dividends will be paid on all shares owned after trading in a round is complete.
  - Dividend paid depends on the outcome of a random process.
    - A random number from 1 to 10, with each integer in this interval being equally likely. This random "state" determines which column of the Dividend Table shown above is relevant.
    - Each of the dividend amounts listed in the bottom row of the table are equally likely

Random Determination of Dividends per Share

Random State:	1	2	3	4	5	6	7	8	9	10
Share Dividend:	$0.40	$0.40	$0.40	$0.40	$0.40	$1.00	$1.00	$1.00	$1.00	$1.00

Stock Trading

- There are 20 periods for yielding dividends.
- All shares of the stock that you own at the end of the final trading period (from your endowment or obtained by purchase) will be redeemed for **$7.00** each.
- You may also keep your money in cash.
  - Each dollar in retained cash (from the endowment or obtained from stock sales) will earn a fixed interest rate.
  - Each dollar of cash held after trading for the round is complete will earn an amount of interest that is **$0.10**.
    Interest is paid on cash balances after trading has taken place in a round but before dividends are paid.

Question 1

What is the maximum amount you are willing to pay for a share in the 1st period?

$$PV = Anuity \times \frac{1 - \frac{1}{(1+i)^n}}{i} \qquad PV = \frac{FV}{(1+i)^n}$$

$$8.514 = 1 \times \frac{1 - \frac{1}{(1+0.1)^{20}}}{0.1} \qquad 1.041 = \frac{7}{(1+0.1)^{20}}$$

9.555

Question 2

What is the minimum amount you need to pay for a share in the 1st period?

$$3.4056 = 0.4 \times \frac{1 - \frac{1}{(1+0.1)^{20}}}{0.1} \qquad 1.041 = \frac{7}{(1+0.1)^{20}}$$

4.4466

Question 3

What is the expected value (average value) of a share in the 1st period?

$$5.9598 = 0.7 \times \frac{1 - \frac{1}{(1 + 0.1)^{20}}}{0.1} \qquad 1.041 = \frac{7}{(1 + 0.1)^{20}}$$

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