

Quiz A for 1:00 Class: 2/11/13

Name Key

Assume you have collected the following information on Mastercard (MA). Set up the calculations (equations and all relevant numbers) to determine the annual rate of return (annualized return) on MA between 12/31/11 and 4/4/12 assuming

- a. you reinvested all dividends
- b. you did not reinvest any dividends.

Date	Dividend	Price	Day
12/31/2011	-	436.31	0
1/5/2012	0.15	352.41	5
4/4/2012	0.30	430.94	95
6/30/2012	-	430.11	182
7/5/2012	0.30	444.05	187
10/5/2012	0.30	475.27	279
12/31/2012	-	491.28	366

Note: 2012 was a leap year and had 366 days

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

a. 
$$r_{1/5} = \frac{0.15}{436.31} + \frac{352.41 - 436.31}{436.31} \quad (11)$$

$$r_{4/4} = \frac{0.3}{352.41} + \frac{430.94 - 352.41}{352.41} \quad (8)$$

$$r = (1 + r_{1/5})(1 + r_{4/4}) - 1 \quad (3)$$

$$r(1) = (1 + r)^{366/95} - 1 \quad (5)$$

b. 
$$NPV = 0 = -436.31 + \frac{0.15}{(1+r)^{5/366}} + \frac{0.3 + 430.94}{(1+r)^{95/366}} \quad (21)$$

$$\Rightarrow \text{solve for } r$$