

Quiz A for 4:00 Class: 11/14/12

Name Key

Use the following information to set up the calculations required to determine a) the portfolio of J.C. Penny (JCP) stock and risk-free bonds required to duplicate a call on JCP that expires on 5/17/13 (184 days from today) with a strike price of \$26 and to b) determine the beta of the call. You plan to hold the call for 93 days through 2/15/13.

Information on market values per share of:

JCP assets = 25; JCP stock = 17.40; JCP bonds = 7.60; this call = 3.05; an equivalent put = 2.70

Information on book values per share of:

JCP assets = 30; JCP stock = 20; JCP bonds = 10

Information on standard deviation of returns on:

JCP assets = 40%; JCP stock = 59%; JCP bonds = 24%; this call = 110%; an equivalent put = 130%

Information on betas on:

JCP assets = 1.5; JCP stock = 1.83; JCP bonds = 0.7

Information on required returns on:

JCP assets = 11.5%; JCP stock = 13.8%; JCP bonds = 5.9%

Information on expected dividends on JCP stock: 1/6 (53 days) = 0.20; 4/5 (142 days) = 0.21; 7/6 (234 days) = 0.22

Information on returns on Treasury returns (all < 1%) maturing on: 1/3 = 0.056%; 2/14 = 0.091%, 4/4 = 0.127%; 5/2 = 0.132%; 5/16 = 0.142%; 7/6 = 0.157%

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

$$+4 \left( \beta_c = \left( \frac{\Delta S^x}{\Delta S^x + B} \right) \beta_s = \left( \frac{\Delta S^x}{\Delta S^x + B} \right) 1.83 \quad (10) \right)$$

$$+4 \left( \Delta = N(d_1) \quad (4) \right)$$

$$+4 \left( d_1 = \frac{\ln\left(\frac{S^x}{P_{VCK}\right)} + \sigma \sqrt{T}}{\sigma \sqrt{T}} + \frac{\sigma \sqrt{T}}{2} = \frac{\ln\left(\frac{S^x}{P_{VCK}\right)} + \frac{.59 \sqrt{\frac{184}{365}}}{2} \quad (14) \right)$$

$$+4 \left( S^x = 17.40 - \frac{.2}{(1.138)^{\frac{53}{365}}} - \frac{.21}{(1.138)^{\frac{142}{365}}} \quad (17) \right)$$

$$+4 \left( P_{VCK} = \frac{26}{(1.00142)^{\frac{184}{365}}} \quad (16) \right)$$

$$+4 \left( B = -P_{VCK} N(d_2) \quad (4) \right)$$

$$+4 \left( d_2 = d_1 - \frac{.59 \sqrt{\frac{184}{365}}}{2} \quad (9) \right)$$

+1 (N()) = look up on table or in excel