Quiz A for 1:00 Class: 04/17/13 Name Key

Using the following information, set up the calculations (write out equations and plug in the numbers) needed to determine the value of a call on Exxon Mobil that expires on July 19, 2013 (93 days from today) and which has a strike price of $85. You plan to hold this call only through June 21, 2013 (65 days from today). Risk-free interest rates (all less than 1%) vary by maturity as follows: 5/16 = 0.030%, 5/23 = 0.020%, 5/30 = 0.035%, 6/6 = 0.040%, 6/13 = 0.036%, 6/20 = 0.041%, 6/27 = 0.042%, 7/5 = 0.046%, 7/11 = 0.056%, 7/18 = 0.051%, and 7/25 = 0.057%. Note: All of the following are per-share data related to Exxon Mobil.

Actual or expected values as of:

	4/17	6/21	7/19
Assets	89	92	94.5
Stock	86	88	90
Debt	3	4	4.5

Expected standard deviation between now and:

	4/17	6/21	7/19
Assets	12%	13%	13.5%
Stock	14%	15%	16%
Debt	1%	2%	2.5%
This call	60%	62%	65%
Equivalent put	65%	67%	69%

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

+3 $d_1 = \dfrac{\ln\left(\frac{86}{PVCF}\right)}{.16\sqrt{\frac{93}{365}}} + \dfrac{.16\sqrt{\frac{93}{365}}}{2}$ (15)

+3 $PVCF = \dfrac{85}{(1.00051)^{93/365}}$ (19)

+3 $d_2 = d_1 - .16\sqrt{\frac{93}{365}}$ (7)

+4 $C = 86(N(d_1)) - PVCF\,N(d_2)$ (8)

+1 ⇒ look up $N(d_1)$ & $N(d_2)$ on tables or with Excel