**Quiz A for 4:00 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 put on Toyota that expires on June 21, 2013 (65 days from today) and which has a strike price of $115. You plan to hold this put only through May 17, 2013 (30 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 Toyota.

Actual or expected values as of:

|         | 4/17 | 5/17 | 6/21 |
|---------|------|------|------|
| Assets  | 195  | 192  | 187  |
| Stock   | 112  | 110  | 107  |
| Debt    | 83   | 82   | 80   |

Expected standard deviation between now and:

|                 | 4/17 | 5/17 | 6/21 |
|-----------------|------|------|------|
| Assets          | 19%  | 21%  | 22%  |
| Stock           | 24%  | 25%  | 27%  |
| Debt            | 6%   | 7%   | 9%   |
| Equivalent call | 100% | 102% | 104% |
| This put        | 90%  | 93%  | 95%  |

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

$$+3 \left( d_1 = \frac{\ln\left(\frac{\overset{+4}{112}}{PVCK)}\right)}{\underset{+2}{.2)}\sqrt{\frac{65}{365}}+2} + \frac{.27\sqrt{\frac{65}{365}}\overset{+2}{}}{2} \right) \quad \textcircled{15}$$

$$+3 \left( PVCK) = \frac{\overset{+7}{115}}{(1.00041)^{65/365}}\overset{+2}{} \right) \quad \textcircled{19}$$
$$\underset{+7}{}$$

$$+3 \left( d_2 = d_1 - .27\sqrt{\frac{65}{365}}+2 \right) \quad \textcircled{7}$$

$$+4 \left( P = PVCK)(1-N(d_2)) - 112\overset{+4}{}(1-N(d_1)) \right) \quad \textcircled{8}$$

$+1 \Rightarrow$ look up $N(d_1) + N(d_2)$ on tables or with Excel