

Quiz B for 2:30 Class: 11/12/12

Name Key

Assume you are planning to buy a call on Saks 5th Avenue with an exercise price of \$9 that expires 67 days from today on 1/18/13. As soon as the call expires, you plan to buy a second call that expires 95 days from today on 2/15/13. Saks' stock price currently equals \$10 per share. By 1/18/13, you expect Saks' stock price to rise to \$12 per share and by 2/15/13, you expect Saks' stock price to rise to \$15 per share. By a year from today (11/12/13), you expect Saks' stock price to fall back to \$11 per share.

Using the following information, set up the equations and plug in as many numbers as possible to use the Black-Scholes option pricing model to value this option.

	Between now and:		
	1/18/13	2/15/13	11/12/13
Standard deviation of returns on:			
Saks' assets	18.2%	19.4%	20.1%
Saks' stock	39.4%	40.4%	41.3%
Saks' bonds	4.5%	4.6%	4.8%
An equivalent put	45.6%	52.5%	54.4%
This call	39.0%	41.0%	44.2%
Annualized return on:			
U.S. Treasuries (all < 1%):	0.097%	0.120%	0.204%
Saks' bonds	0.35%	0.45%	0.50%

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

$$d_1 = \frac{\ln\left(\frac{10}{9}\right) + 0.394\sqrt{\frac{67}{365}}}{0.394\sqrt{\frac{67}{365}}} + \frac{0.394\sqrt{\frac{67}{365}}}{2} \quad (22)$$

$$P(CK) = \frac{9}{(1.00097)^{\frac{67}{365}}} \quad (28)$$

$$d_2 = d_1 - 0.394\sqrt{\frac{67}{365}} \quad (11)$$

$$C = 10(N(d_1) - P(CK)N(d_2)) \quad (13)$$

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