

Quiz B for 1:00 Class: 03/25/13

Name Key

Notes: In solving the following I recommend setting up a table like we did in chapter 3, but this is not required. I also recommend that you think a little about the following information rather than starting by doing a bunch of calculations. All answers should be on a per-share basis. Use a "+" for an inflow and a "-" for an outflow. I will assume an inflow if no sign is given.

Based on the following information on Cummins stock and options, 1) what set of transactions today will generate an arbitrage profit today, 2) what is your arbitrage profit today, 3) at expiration of the options, what are the cash flows on your individual positions and on your total portfolio if Cummins's stock price a) rises to \$120 per share and b) falls to \$110 per share?

Strike price on options = \$115; Expiration of options: 9/20/13 (179 days); Risk-free interest rate = 1.4%

	Bid	Ask
Stock	113.48	113.52
Call	7.70	8.00
Put	7.10	7.30

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

Note: put is in-the-money & call is out-of-the-money  
 ⇒ put should be worth more than call  
 ⇒ buy put & sell call

$$S + P = C + PV(K)$$

Buy                      Sell

$$PV(K) = \frac{115}{(1.014)^{179/365}} = 114.22$$

Transactions (t=0)	CF <sub>0</sub>	CF <sub>1</sub> (120)	CF <sub>1</sub> (110)
+3 Buy stock	-113.52 <sup>+2</sup>	+120 <sup>+2</sup>	+110 <sup>+2</sup> (9)
+3 Buy put	-7.30 <sup>+2</sup>	0 <sup>+3</sup>	+5 <sup>+3</sup> (11)
+3 Sell call	+7.70 <sup>+2</sup>	-5 <sup>+3</sup>	0 <sup>+3</sup> (11)
+3 Short bond	+114.22 (6)	-115 <sup>+2</sup>	-115 <sup>+2</sup> (15)
<u>Total</u>	+1.1 <sup>+2</sup>	0 <sup>+2</sup>	0 <sup>+2</sup> (6)