

Quiz B for 9:45 Class: 08/01/13

Name Key

Notes: In solving the following I recommend setting up a table. Answer everything 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.

Assume Time Warner's stock trades at \$62.70 per share and that the price of a call that expires on 10/19/13 (79 days from today) with a \$60 strike price is \$3.85 and that the price of a put that expires on 10/19/13 (79 days from today) with a strike price of \$60 is \$1.53. Assume also that the risk-free interest rate is 0.9%.

- What set of transactions today will earn you an arbitrage profit today? What is your profit?
- What cash flows will your individual transactions today create one year from today if Time Warner's stock ends up at \$66 on 10/19 and if Time Warner's stock ends up at \$58 on 10/19? What are the total cash flows for your arbitrage portfolio on 10/19 if Time Warner's stock ends up at \$66 and if it ends up at \$58?
- What transactions or actions on 10/19 generate each of the individual cash flows in part (b) if Time Warner's stock price ends up at \$58? Note: Be sure to specify where each transaction occurs.

a. $S + P = C + PV(K)$
 $62.70 + 1.53 = 3.85 + \frac{60}{(1.009)^{79/365}} = 3.85 + 59.884$
 $64.23 \neq 63.73$
 sell buy

Trans	CF ₀	CF ₁	
		58	66
+5 Short stock	+62.70 ⁺	-58 (a) ⁺	-66 ⁺
+5 Sell put	+1.53 ⁺	-2 (b) ⁺	0 ⁺
+5 Buy call	-3.85 ⁺	0 (c) ⁺	+6 ⁺
+5 Buy risk-free bond	-59.88 ⁺	+60 (d) ⁺	+60 ⁺
<u>Total</u>	+0.50 ⁺	0 ⁺	0 ⁺

- a) Buy stock for \$58 in market & return to lender ✓
 b) Buy stock for \$60 from holder of put and sell for \$58 in market ✓
 c) Don't exercise call ✓
 d) Bond matures for \$60 ✓

✓ = +1