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%.

a. What set of transactions today will earn you an arbitrage profit today? What is your profit?
b. 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?
c. 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.

\[ S + P = C + PV(\text{k}) \]

\[ 62.70 + 1.53 = 3.85 + \frac{60}{(1.009)^{79/365}} = 3.85 + 59.88 \]

\[ 64.23 \| 63.73 \]

\[ \text{sell} \| \text{buy} \]

\[ \text{CF} \]

\[ 58 \| 60 \]

\[ 6 + 3 \]

\[ -58 \| -66 \]

\[ +2 \| 0 \]

\[ -60 \| 66 \]

\[ 0 \| 0 \]

\[ 0 \| -2 \]

<table>
<thead>
<tr>
<th>Trans</th>
<th>CF</th>
<th>58</th>
<th>60</th>
</tr>
</thead>
<tbody>
<tr>
<td>+5 Short stock</td>
<td>+62.70</td>
<td>-58</td>
<td>-66</td>
</tr>
<tr>
<td>+5 Sell put</td>
<td>+1.53</td>
<td>-2</td>
<td>0</td>
</tr>
<tr>
<td>+5 Buy call</td>
<td>-3.85</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>+5 Buy $1,000 bond</td>
<td>-59.88</td>
<td>+60</td>
<td>+60</td>
</tr>
<tr>
<td>Total</td>
<td>+0.50</td>
<td>0</td>
<td>0</td>
</tr>
</tbody>
</table>

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