Quiz B for 2:30 Class: 10/30/13

Name ____________________

Short Answer 1 (15 points): Assume you buy a call with a $25 strike price. Sketch a graph of the possible payoffs from this long call position at the expiration of the option one month from today. Feel free to put your answer anywhere on this page.

Short Answer 2 (15 points): What transactions or actions would generate each of the individual cash flows in the problem below if Goodyear’s stock price ends up at $25 per share when the options expire? Feel free to list your answers beside the table you (should) create for the problem. Otherwise, be sure to label everything clearly. Be sure to include amounts and locations for transaction.

Problem (75 points): Assume the current prices for Goodyear stock and for options that expire on April 14, 2014 (166 days from today) with a strike price of $20 are as follows:

<table>
<thead>
<tr>
<th></th>
<th>Bid</th>
<th>Ask</th>
</tr>
</thead>
<tbody>
<tr>
<td>Stock</td>
<td>20.62</td>
<td>20.63</td>
</tr>
<tr>
<td>Call</td>
<td>2.50</td>
<td>2.55</td>
</tr>
<tr>
<td>Put</td>
<td>1.60</td>
<td>1.65</td>
</tr>
</tbody>
</table>

If you assume the risk-free interest rate is 0.1%, what set of transactions today would generate an arbitrage profit today? What are the individual and total cash flows created today and at the expiration of the options if Goodyear’s stock price ends up at $16 or at $25 per share (when the options expire)? Use a "+" for an inflow and a "−" for an outflow. I will assume an inflow if you do not give a sign. Note: Answer on a per-share basis.

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

The diagram shows a stock price graph with a payoff and profit calculation. The calculations include:

- \( P_U(t) = \frac{20}{(1.001)^{166/365}} = 19.99 \)
- \( S + P = 20.63 + 1.65 = 22.28 \)
- \( S - P = 20.63 - 1.65 = 18.98 \)
- \( S + 2P = 20.63 + 1.65 = 22.28 \)
- \( 2S + 19.99 = 22.49 \) sell
- \( 2P + 19.99 = 22.98 \) buy

The transactions are shown as:

- Buy stock for $25 in market
- Sell stock for $25 in market
- Buy put for $25 in market
- Sell call for $20
- Buy bond for $20 in market
- Short risk-free bond

The total profit is calculated as $0.21.