

Quiz  
25 points possible

Answer Key  
Show Your Work

4/14/2011

1. (8 points) Given the data below, compute a 14-day Relative Strength Index for Dec. 2011 corn.

Date	Futures Price	Up Move	Down Move
3/22/2011	6.12		
3/23/2011	6.10	0.00	0.02
3/24/2011	6.19	0.19	0.00
3/25/2011	6.10	0.00	0.09
3/28/2011	5.97	0.00	0.03
3/29/2011	6.00	0.03	0.00
3/30/2011	5.95	0.00	0.05
3/31/2011	6.25	0.30	0.00
4/1/2011	6.38	0.13	0.00
4/4/2011	6.46	0.08	0.00
4/5/2011	6.47	0.01	0.00
4/6/2011	6.48	0.01	0.00
4/7/2011	6.44	0.00	0.04
4/8/2011	6.53	0.09	0.00
4/11/2011	6.57	0.04	0.00
Sum		0.78	0.33

Up Average = \$0.78 of up moves/14 days = 0.0557

Down Average = \$0.33 of down moves/14 days = 0.0236

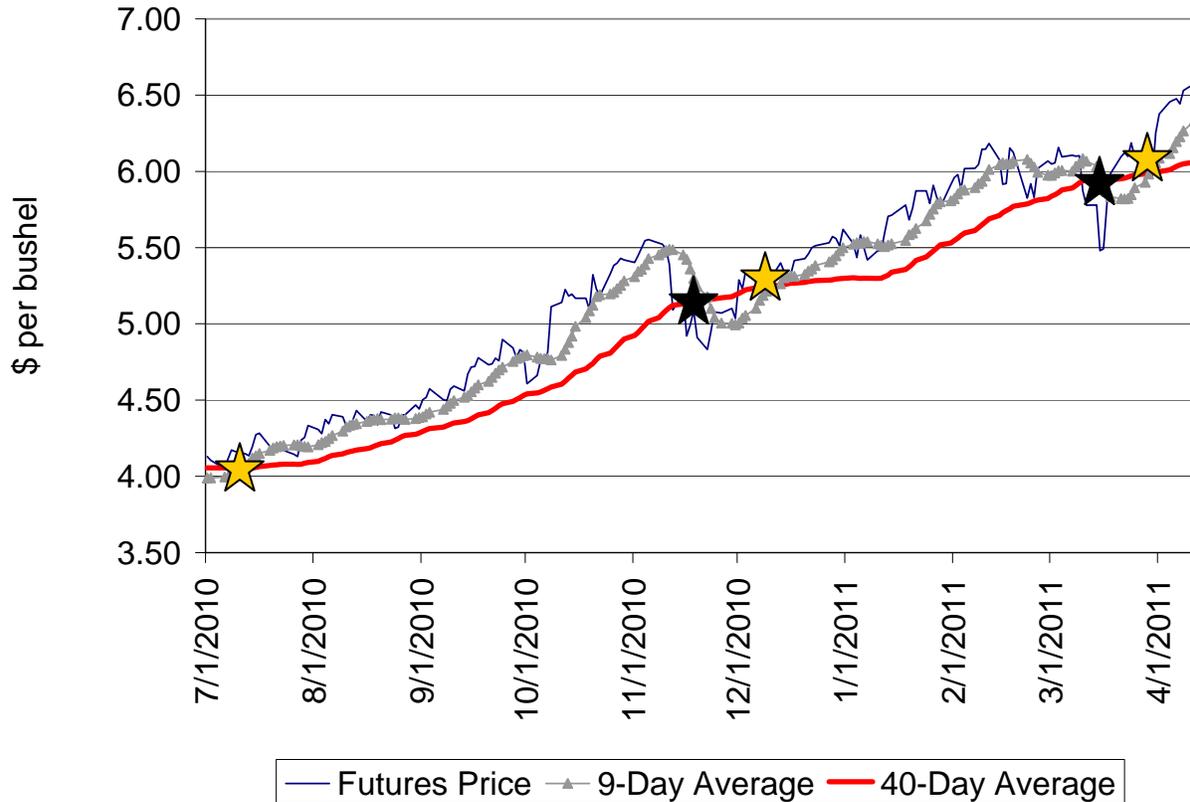
Relative Strength Index =  $100 * (\text{Up Average} / (\text{Up Average} + \text{Down Average}))$   
 $= 100 * (0.0557 / (0.0557 + 0.0236))$   
 $= 70.24$

2. (2 points) For the traders who follow the Relative Strength Index, what sort of signal is your answer to question #1 providing?

A Relative Strength Index above 70 is seen as a signal of a market that poised to decline. For a market to have a Relative Strength Index above 70, recent prices have to be on a significant upward swing (so strong prices). But traders using the RSI to time marketings would use an RSI of 70 as a sell signal, as the market may decline soon.

3. (3 points) Below are the futures prices, 9-day, and 40-day moving averages for Dec. 2011 corn. In looking at the 9-day versus the 40-day average, how many buy signals have we had since last July 1<sup>st</sup>? How many sell signals have we had since last July 1<sup>st</sup>?

There are 3 buy signals ★ and 2 sell signals ★. The signals are when the 9-day average crosses the 40-day average.



4. (12 points) Your farm has an expected corn yield of 220 bushels per acre and the corn insurance (planting) price is \$6.01 per bushel. Insurance premiums are given below.
- What would be the net per-acre insurance payment (payment minus premium) if you bought 75% yield insurance (YP) and had an actual corn yield in 2011 of 122 bushels per acre?
  - What would be the net insurance payment if you bought 75% revenue insurance (RP), had the same actual yield as in part a), and the harvest price was \$5.00 per bushel?
  - Given your 122 bushel per acre yield and the harvest price of \$5.00 per bushel, which coverage gives you the highest net insurance payment: 75% YP or 65% RP?

Cov. Level	Per Acre Premiums (\$ per acre)		
	YP	RPE	RP
65%	4.85	5.47	9.21
70%	6.64	9.29	13.76
75%	9.72	14.48	21.60

a) The net per-acre insurance payment is the payment minus the premium. For yield insurance, the price is \$6.01 per bushel and does not change. If you bought 75% yield insurance and you have an expected yield of 220 bushels per acre, your guarantee is  $75\% * 220$  bushels per acre = 165 bushels per acre. So any yield under 165 bushels per acre will trigger payments. If you have a yield of 122 bushels per acre, you will receive an insurance payment based on 43 bushels per acre (165 – 122). The payment will be \$258.43 per acre = \$6.01 per bushel \* 43 bushels per acre. The premium for 75% yield insurance is \$9.72 per acre. So the net per-acre insurance payment is \$248.71.

$$(75\% * 220 \text{ bushels per acre} - 122 \text{ bushels per acre}) * \$6.01 \text{ per bushel} - \$9.72 \text{ per acre} \\ = \$248.71 \text{ per acre}$$

b) The net per-acre insurance payment is the payment minus the premium. For revenue insurance, the price is \$6.01 per bushel but it can change. If you bought 75% revenue insurance and you have an expected yield of 220 bushels per acre, your guarantee is  $75\% * 220$  bushels per acre \* \$6.01 per bushel = \$991.65 per acre. So any combination of yield and price under \$991.65 per acre will trigger payments. If you have a yield of 122 bushels per acre and the price falls to \$5.00 per bushel, then your revenue was \$610.00 per acre (122 bushels per acre \* \$5.00 per bushel). You will receive an insurance payment based on the revenue shortfall. The payment will be \$381.65 per acre (\$991.65 - \$610.00). The premium for 75% revenue insurance is \$21.60 per acre. So the net per-acre insurance payment is \$360.05.

$$(75\% * 220 \text{ bushels per acre} * \$6.01 \text{ per bushel}) - (122 \text{ bushels per acre} * \$5.00 \text{ per bushel}) \\ - \$21.60 \text{ per acre} \\ = \$360.05 \text{ per acre}$$

c) If you bought 65% revenue insurance and you have an expected yield of 220 bushels per acre, your guarantee is  $65\% * 220$  bushels per acre \* \$6.01 per bushel = \$859.43 per acre. So any combination of yield and price under \$859.43 per acre will trigger payments. If you have a yield of 122 bushels per acre and the price falls to \$5.00 per bushel, then your revenue was \$610.00 per acre (122 bushels per acre \* \$5.00 per bushel). You will receive an insurance payment based on the revenue shortfall. The payment will be \$249.43 per acre (\$859.43 - \$610.00). The premium for 65% revenue insurance is \$9.21 per acre. So the net per-acre insurance payment for 65% RP is \$240.22.

$$(65\% * 220 \text{ bushels per acre} * \$6.01 \text{ per bushel}) - (122 \text{ bushels per acre} * \$5.00 \text{ per bushel}) \\ - \$9.21 \text{ per acre} \\ = \$240.22 \text{ per acre}$$

From part a), the net per-acre insurance payment for 75% YP is \$248.71.

Since \$248.71 > \$240.22, 75% YP provides the higher net insurance payment in this case.