

Key

Econ 339 Spring 2010
Mid-term Exam, March 9, 2010

Please circle the correct answer. (2 points each)

1. ☒ T ☐ F A new ethanol plant in the county will impact the corn basis, but not corn futures.
2. ☐ T ☒ F Basis is more volatile than futures prices for most agricultural commodities.
3. ☐ T ☒ F LGM insurance protects a selling price.
4. ☒ T ☐ F A higher percentage of fed cattle than hogs are sold in the negotiated/cash market.
5. ☒ T ☐ F LRP insurance is only available to purchase after the CME is settled.
6. ☐ T ☒ F Sellers of options have limited risk and unlimited profit potential.
7. ☒ T ☐ F In 2009, more hogs were owned by packers than were sold in the negotiated/cash market.
8. ☐ T ☒ F Buyer of a call has the right but not the obligation to sell a futures contract at the strike price.
9. ☒ T ☐ F LRP insurance establishes a minimum expected selling price similar to buying a put option.
10. ☐ T ☒ F The range of premiums for an option is set by the CME Group.
11. ☐ T ☒ F Futures and options contracts have flexible sizes to cover any number of animals.
12. ☐ T ☒ F Buyers of LGM will receive a payment if hog, corn and soybean meal prices all decrease.
13. ☒ T ☐ F The dressing percentage for hogs is greater than the dressing percentage for cattle.
14. ☐ T ☒ F Own price flexibilities for agricultural commodities are negative.
15. ☐ T ☒ F The standard deviation of forecasts for cattle or hogs is typically less than 3%.

(10 Points) The initial margin on a Live Cattle contract is \$1350 and the maintenance margin is \$1000. Calculate the daily gain or loss and balance in the trader's margin account for the dates below from buying 2 June Live Cattle contracts at \$87/cwt on January 4. Contract size is 400 cwt.

Date	Settlement	Gain or loss	Margin account
			2700
Jan 4	\$87.00	0	2700
Jan 5	\$85.00	-1600	1100 - 2000 add 900
Jan 6	\$87.00	+1600	3600
Jan 7	\$88.00	+800	4400
Jan 8	\$89.00	+800	5200

Does the trader have to make a margin call? If yes, how much and what day?

Yes Jan 5 for 900

(10 points) Compare and contrast Price Determination and Price Discovery and the role of Price Reporting.

Determination is broad forces of Supply and Demand
Discovery is specific to a specific lot between buyer & seller
Reporting provides input to discovery process as buyers & sellers negotiate
from previous sales and other info

(5 points) Why is the cattle and hog basis positive at times, but the grain basis is typically negative?

Seasonal patterns move from high to low while futures reflect a specific date of maturity. Grain is storable and mobile and is typically reflecting the cost of storage & transportation.

(5 points) Define the relationship between elasticities and flexibilities, which is used for long term and which is used for short term forecasting and why.

$$\varepsilon = \frac{1}{f} \quad \varepsilon \text{ is long term } \frac{\% \Delta Q}{\% \Delta P}$$

$$f = \text{is short term } \frac{\% \Delta P}{\% \Delta Q} - \text{price adjust to clear market in short run.}$$

(10 points) What are the 5 factors that determine the premium for an option and would the premium of a put option increase or decrease if each factor listed were to increase?

1. Strike Price +
2. underlying futures price -
3. time to maturity +
4. interest rate +
5. Volatility of underlying futures +

(5 points) Compare and contrast Live weight to Carcass (in-the-meat) weight selling for fed cattle. (Note this is not value based or grid marketing.) Why is there more Carcass selling in the Midwest and more Live selling in the High Plains.

- Live is one price on all live pounds
- "In the meat" is one price on all carcass pounds
↳ Farmer stands trim loss & Condemnation
- Shrink & Mud greater in Midwest

(10 points) Identify two "alternative marketing agreements" to the cash market and discuss the advantages and disadvantages of them compared to the cash market.

- Packer ownership; Quality & decision making
 - Formula - Quality; market access, Risk?
 - Forward contract; Risk mgt
 - Risk Sharing contracts; Risk mgt
- General advantage: Efficiency of Supply chain, Lower cost, higher quality
General disadvantage: Packer has captive supply, Lower farm prices

(20 points) A packer buyer is looking at a pen of cattle that she believes will grade 60% Choice, 10% CAB, 5% Prime and 25% Select. She also thinks there are 10% yield grade 4, 40% yield grade 1 or 2 and 5% will have carcasses that are over 950 pounds. She has the following information (all in \$/cwt of carcass weight) from her boss?

Base: Choice Yield Grade 3 = \$140
 Select = -\$5.00
 CAB = +\$7.00
 Prime = +\$15.00

Yield grade 1 and 2 = +\$3.00
 Yield grade 4 and 5 = -\$20.00
 Carcass wt over 950 = -\$20.00

The farmer wants a flat "in-the-meat" bid. How much should she bid for the cattle? (Show your work)

$$\begin{array}{l}
 -5 \times .25 = -1.25 \\
 15 \times .05 = +.75 \\
 7 \times .10 = +.70 \\
 3 \times .40 = +1.20 \\
 \hline
 -20 \times .1 = -2.00 \\
 -20 \times .05 = -1.00 \\
 \hline
 -1.60 \\
 \hline
 138.40
 \end{array}$$

If the farmer is willing to sell the cattle on the grid with a base price that is the same as the in-the-meat price she offered him should the packer take the offer? (assume same premiums and discounts) Why?

Packer should take it. The cattle are not as good as the farmer thinks. Farmer stands grading risk.

(12 points) Fill in the boxes below for the two time periods. Assuming the perspective of a hog farmer wanting protection from falling prices and given the information on March 9th for June Lean Hog Futures, calculate the expected hedge price and expected minimum price for each strike price shown. Next assume that it is June 9th and the actual futures price is \$79/cwt and the actual basis in -\$1.00 what is the net price for the futures hedge and each strike price?

June Lean Hogs		March 9th Expected Price	June 9th Net price
F	Futures	80.50	
B	Basis	-2.00	
C	Commission	0.10	
		$F + B - C$	Cash + Futures gain/loss - C
Strike Price	Premium		
	Call	Put	
	$SP - P_r + B - C$		Cash + Opt Value - Option Cost
76	6.65	1.65	
78	5.30	2.25	
80	4.10	3.00	
82	3.05	4.00	
84	2.25	5.25	

Prem + c

(5 points) Using the seasonal price index below, forecast the June price if the February price is \$50/cwt.

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
93	97	100	103	107	105	106	104	102	97	92	92

$$P_{Feb} = P_{Jun} \times \frac{I_{Feb}}{I_{Jun}} \quad P_{Jun} = \frac{P_{Feb} \times I_{Jun}}{I_{Feb}} \quad \frac{50 \times 105}{97} = 54.12$$

(20 points) Consider a feedlot with a simple cost of production formula: Purchase cost and cost of gain. It bought 750# steers at \$.90/lb and cost of gain will be \$.70/lb up to 1250 lbs and then the total cost of gain will increase 5% to go to 1275 and 15% to go to 1300. Show your work

1) What is the breakeven selling price (\$/cwt) steers at 1200, 1225, 1250, 1275 and 1300 pounds?

$$\begin{aligned} .9 \times 7.5 + .7 \times 450 &= 82.50 \\ .9 \times 7.5 + .7 \times 500 &= 82.24 * \\ .9 \times 7.5 + .7 \times 550 &= 82.00 \\ .9 \times 7.5 + .7 \times 600 \times 1.05 &= 83.21 \\ .9 \times 7.5 + .7 \times 650 \times 1.15 &= 85.98 * \end{aligned}$$

2) A packer offered the feedlot \$84/cwt for the 1225 pound cattle today or a contract for \$87/cwt for the same cattle delivered at 1300 pounds in three weeks. What should the feedlot do? Why?

$$\$/cwt \times cwt = \text{Profit/head}$$

$$84 - 82.24 = 1.76 \times 12.25 = 21.50$$

$$87 - 85.98 = 1.02 \times 13.00 = 13.26$$

Take bid today

(8 points) Identify two ways that a livestock feeder could protect itself from higher grain prices and discuss at least one advantage and one disadvantage for each.

Buy Call option: ceiling but not floor, costly
 Buy Futures: sets flat price, locked out of lower prices
 Buy Corn: sets price, ties up capital, Storage cost