Farmer Responses to Higher Corn and Soybean Costs

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Outline

• Corn and soybean cost increases
  Key division: non-land costs versus land costs (cash rents)

• Responses to crop cost increases

• Livestock costs and responses

Graph showing the increase in non-land costs for corn and soybeans from 1972 to 2009. The graph indicates a significant increase in costs, with corn reaching $569 per acre in 2009 and soybeans reaching $324 per acre in the same year.
## Per Acre Change in Costs, 2008 to 2009

<table>
<thead>
<tr>
<th>Item</th>
<th>Corn</th>
<th>Soybeans</th>
</tr>
</thead>
<tbody>
<tr>
<td>Fertilizer</td>
<td>$97</td>
<td>$53</td>
</tr>
<tr>
<td>Seed</td>
<td>48</td>
<td>13</td>
</tr>
<tr>
<td>Power *</td>
<td>12</td>
<td>9</td>
</tr>
<tr>
<td>Crop insurance</td>
<td>7</td>
<td>4</td>
</tr>
<tr>
<td>Interest</td>
<td>4</td>
<td>3</td>
</tr>
<tr>
<td>Other</td>
<td>13</td>
<td>4</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>$181</strong></td>
<td><strong>$85</strong></td>
</tr>
</tbody>
</table>

* Includes machinery repairs, depreciation, hire, and fuel.
Non-Land Costs and Crude Oil Prices

![Graph showing the comparison of Non-Land Costs and Crude Oil Prices over the years. The graph displays three lines representing Corn, Soybeans, and Crude Oil. The x-axis represents the years from 1972 to 2004, while the y-axis represents the prices per acre and per barrel.]
Factors Impacting Crop Costs

<table>
<thead>
<tr>
<th>Per Acre Costs</th>
<th>Crude Oil</th>
<th>CPI</th>
</tr>
</thead>
<tbody>
<tr>
<td>Corn</td>
<td>.82</td>
<td>.84</td>
</tr>
<tr>
<td>Soybeans</td>
<td>.75</td>
<td>.85</td>
</tr>
</tbody>
</table>

Factors impacting costs include energy prices, world demands for foods, weak U.S. dollar.

Significant probability that costs could come down, introduces risks when purchasing inputs.

Not sure that would increase crop farm returns as decline in the above factors also likely to put downward pressure on grain prices.
Revenue, Non-Land Costs and Returns, Corn, Central Illinois, High Productivity Farmland

Operator & land return = gross revenue - non-land costs, represents return remaining to pay for land and provide the farmer a return.
Returns and Rents, Corn, Central Illinois, High Productivity Farmland

<table>
<thead>
<tr>
<th>Year</th>
<th>Operator &amp; Land Return</th>
<th>Cash Rent</th>
<th>Farmer Return</th>
</tr>
</thead>
<tbody>
<tr>
<td>2000</td>
<td>$173</td>
<td>$132</td>
<td>$41</td>
</tr>
<tr>
<td>2001</td>
<td>169</td>
<td>137</td>
<td>32</td>
</tr>
<tr>
<td>2002</td>
<td>143</td>
<td>137</td>
<td>6</td>
</tr>
<tr>
<td>2003</td>
<td>232</td>
<td>140</td>
<td>92</td>
</tr>
<tr>
<td>2004</td>
<td>248</td>
<td>143</td>
<td>105</td>
</tr>
<tr>
<td>2005</td>
<td>206</td>
<td>147</td>
<td>59</td>
</tr>
<tr>
<td>2006</td>
<td>285</td>
<td>150</td>
<td>135</td>
</tr>
<tr>
<td>2007</td>
<td>488</td>
<td>166</td>
<td>322</td>
</tr>
<tr>
<td>2008P</td>
<td>636</td>
<td>188</td>
<td>448</td>
</tr>
<tr>
<td>2009P</td>
<td>448</td>
<td>210</td>
<td>238</td>
</tr>
</tbody>
</table>

Farmer return averaged about $55 per acre from 2000 to 2005.

Central question: What will be the new “farmer” return bid into the market?
Besides Costs and Prices, Risks Have Also Increased

Risk Increases

• Between 1995 and 2005, farmer return averaged $55 per acre ($40 if 1995 to 2000 is included)

• For the same risk level, farmer return has to average $120 per acre post 2006

Reasons for Increases

• More volatile commodity prices and costs

• Less protection from Federal commodity price programs

• Larger losses before crop insurance makes payments
Farmer Responses

1. Rental decisions

2. Crop decisions: Corn versus soybeans

3. Earlier purchases of inputs, particularly fertilizer

4. More borrowing

5. Other implications (new risks)
Rental Decisions

- Importance of rental decisions to “commercial” grain farms
  - 50% of farmland in U.S. is rented
  - About 70% in Illinois is rented
  - 84% of farmland by Illinois FBFM pure grain farms is rented

<table>
<thead>
<tr>
<th>Acre Range</th>
<th>% rented</th>
</tr>
</thead>
<tbody>
<tr>
<td>100 - 499</td>
<td>53%</td>
</tr>
<tr>
<td>500 - 799</td>
<td>73%</td>
</tr>
<tr>
<td>800 - 1,199</td>
<td>80%</td>
</tr>
<tr>
<td>1,200 - 1,999</td>
<td>81%</td>
</tr>
<tr>
<td>2,000 - 2,999</td>
<td>89%</td>
</tr>
<tr>
<td>Over 3,000</td>
<td>85%</td>
</tr>
</tbody>
</table>
Rental Decisions

- Higher returns cause higher rents and higher land values (capitalization)

- Reach a point where farmer return recognizes capital, risk, and management contributions of farmers

- Question: Will the market recognize a need for a higher farmer return post 2006?
Rental Decisions

• Some circumstantial evidence, farmer margins may be larger post 2006

• But, will see continued increases on high productivity farmland (Illinois Society of Professional Farm Managers and Rural Appraisers indicate rents will increase by $43 per acre in 2009)

• Cost increases would suggest rent declines on lower productivity farmland. Post 2006 environment suggests much larger range in cash rents for different qualities of farmland
Rental Decisions

- Other changes:
  - Shorter lease terms - many more leases of one year term
  - Some increase in variable cash rents. Farm Service Agency interpretation of cash leases (and attendant switches in commodity program payments) is a major hindrance to movement to variable cash lease.

- In future years, many will have to reduce rental payments when projected returns decline
Crop Decisions: Corn Versus Soybeans

<table>
<thead>
<tr>
<th></th>
<th>Ratio</th>
<th>2007</th>
<th>2008P</th>
<th>2009P</th>
</tr>
</thead>
<tbody>
<tr>
<td>Northern</td>
<td>3.52</td>
<td>$90</td>
<td>$202</td>
<td>$111</td>
</tr>
<tr>
<td>Central - High</td>
<td>3.42</td>
<td>95</td>
<td>217</td>
<td>149</td>
</tr>
<tr>
<td>Central - Low</td>
<td>3.35</td>
<td>77</td>
<td>257</td>
<td>75</td>
</tr>
<tr>
<td>Southern</td>
<td>3.74</td>
<td>79</td>
<td>108</td>
<td>16</td>
</tr>
</tbody>
</table>

Corn returns still exceed soybeans by a large margin, but will farmers go to lower “cost” crops.
Other Responses

• Earlier purchases: Many farmers have purchased fertilizer for 2009, had to pay for a portion or all of the input price.

• More borrowing: More than a doubling of operating requirements.
Other Implications

• Counterparty and “chain” risk has increased
  – Risk of a party not performing (default) on their contracts is higher
  – Disruptions of supply or processing chain will be the cause of the next financial crisis.

• Much higher break-even prices
  – Commodity prices will not decrease to old levels
  – Prices will still be higher even if ethanol credits are reduced
Break-even Corn Prices to Cover Costs

(Central Illinois, High Productivity Farmland)

Target price - direct rate

Break-even (with land)

Break-even (without land)

Year

$ per bushel
Quarterly Hog Production Costs, Illinois, 2004 to 2008(2)
Quarterly Hog Prices and Costs, Illinois, 2004 to 2008

The graph shows the quarterly hog prices and total costs in dollars per cwt for each quarter from 2004 to 2008. The x-axis represents the year/quarter, while the y-axis represents the price in dollars per cwt. The bars for hog price (blue) and total costs (red) are plotted for each quarter.
Livestock

• What will the adjustment process look like moving to higher production costs?
  – Higher cost means an adjustment to higher prices but lower quantity
  – How do you get to lower quantity? Will it be with financial pain?

• Who is currently bearing the losses depend on contractual arrangements
Summary

- Costs have increased dramatically, little chance that there will be reductions in the next year or two, but chance of declines in the future

- Risks, as well as costs and prices, have increased

- New environment due to scarcity of basic resources (energy and fertilizers)

- What is going to be the public policy response to energy?

- Adjustments
  - Cash rents (and farmland prices) on grain farms
  - Supply and prices on livestock farms