What Lies Beyond The Horizon For Farm Incomes:

The Case For Volatility With An Upward Bias

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Summary

• Restructuring of margin risk
  – Structural shift in demand leading to expanded production in more volatile areas
  – Tighter global stocks conditions leaving little room for supply disruptions
  – Resulting in higher and more volatile prices

• Cost of production to reclaim historic proportion of crop value
  – Competition between inputs and land values for proportion of crop value
    – Cost of land claims residual profits
  – Outlook returns margins to break even with high volatility

• Margin compaction with high volatility leaves margins vulnerable
  – Warning signs if input costs exceed historic proportions or land costs exceed fundamental drivers
  – Increasing cost of capital, energy markets/policy and macroeconomic conditions are keys to future.
Summary

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What Happened to Prices

Source: USD, Rabobank

2011=$6.2/bu
The basics have remained the same

But corn is now $6.50, not $2.50

For many decades productivity gains outpaced demand growth. But things have changed.

Now due to GDP growth in the developing world, demand is accelerating.

Unfortunately, productivity from yield improvement is decelerating.

The world has changed from one of structural surplus to structural deficits.

Source: FAO Stat

Source: FAO Stat, Rabobank
China Industrialization

Herd Size of Hog Farms in China

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<table>
<thead>
<tr>
<th>Year</th>
<th>Specialized farm (+3000 heads/farm)</th>
<th>Commercial farm (50~3000 heads/farm)</th>
<th>Backyard farm (1~49 heads/farm)</th>
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</thead>
<tbody>
<tr>
<td>2001</td>
<td>74%</td>
<td>57%</td>
<td>42%</td>
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<td>2005</td>
<td>57%</td>
<td>48%</td>
<td>37%</td>
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<tr>
<td>2007</td>
<td>42%</td>
<td>37%</td>
<td>30%</td>
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<tr>
<td>2009</td>
<td>30%</td>
<td>30%</td>
<td>21%</td>
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<tr>
<td>2013F</td>
<td>21%</td>
<td>21%</td>
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Structural trend towards scaled farming will accelerate in coming years

Herd Size of Poultry Farms in China

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<table>
<thead>
<tr>
<th>Year</th>
<th>Large commercial farm (&gt;500K)</th>
<th>Commercial farm (50K-500K birds)</th>
<th>Large size farm (10-50K birds)</th>
<th>Mid size farm (2-10K birds)</th>
<th>Backyard farm (&lt;2K birds)</th>
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</thead>
<tbody>
<tr>
<td>2000</td>
<td>70%</td>
<td>18%</td>
<td>23%</td>
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<td>2005</td>
<td>64%</td>
<td>39%</td>
<td>25%</td>
<td>18%</td>
<td>6%</td>
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<tr>
<td>2010</td>
<td>64%</td>
<td>39%</td>
<td>25%</td>
<td>18%</td>
<td>6%</td>
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<tr>
<td>2015F</td>
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<td>39%</td>
<td>25%</td>
<td>18%</td>
<td>6%</td>
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Source: MOA, Rabobank estimates

“BEIJING (Dow Jones)--China's grain demand will likely increase by 4 million metric tons a year over the next five years, while the local supply of agricultural products will face huge pressure, Vice Agricultural Minister Chen Xiaohua said Thursday.” January 28, 2011
Supply For Global Wheat Trade Is Shifting

- North America: -9%
- South America: -2%
- Former Soviet Union: 12%
- East Asia: -1%
- Canada: 0%
- United States: 5%
- Black Seas: 10%
- Oceania: 0%

Graph showing global wheat trade shifts from 2000 to 2011.
Tightening In Global Stocks

World STU ratio: All Grains

World STU ratio: Corn

Source: USDA/FAS, Rabobank
Higher and more volatile price outlook (Farm Received Corn Price)
Summary

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• **Cost of production to reclaim historic proportion of crop value**
  – Competition between inputs and land values for proportion of crop value
    – Cost of land to claim residual profits
  – Outlook returns margins to break even with high volatility
Margins Showing Sign of Compaction

No Government Payments

Source: Iowa State University, University of Illinois, Rabobank
Room For Land Costs to Grow

Source: Chicago Federal Reserve Board, Rabobank
Volatility Persists As Margins Tighten

$/Acre

Increased Probability of Losses

- Probability of Margins Less Than $0.00/bu and Greater Than $60/bu

<table>
<thead>
<tr>
<th>Year</th>
<th>0%</th>
<th>10%</th>
<th>20%</th>
<th>30%</th>
<th>40%</th>
<th>50%</th>
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<td>2014</td>
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<td>0.32</td>
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Confidence:

- The feeling just before you completely understand the situation

- Manage the balance sheet
- Secure liquidity
- Secure working capital
  - Depends on how much growth is desired in the future
    - 20%-40%
- Maintain good lending/credit standards
- Behavior consistent with margin minimization
Summary Key Risks

- Margin compaction with high volatility leaves margins vulnerable
  - Warning signs if input costs exceed historic proportions or land costs exceed fundamental drivers
  - Increasing cost of capital, energy markets/policy and macroeconomic conditions
  - Interest rate increases
  - Demand destruction as a result of drought
“The financial link in the global food chain”™