Farmland Prices, Cash Rents, and Potential Credit Availability

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The views expressed are those of the author and do not necessarily reflect the positions of Federal Reserve Bank of Kansas City or the Federal Reserve System.
Farmland Prices, Cash Rents, and Potential Credit Availability

• Today’s Outline:
  – The Drivers of Change
    • Non-farm demand
    • Farm demand surges
  – Has the Farm Boom Peaked?
  – Credit Availability
On a national basis, real farmland values have topped their 1980s highs

U.S. Farmland Values

Dollars

Real
(Inflated to 2008 dollars)

Nominal

Source: USDA
The Heartland, however, has not topped their 1980s highs

Real Farmland Value Gains
(Percent change from 1980s highs to 2008)

Source: USDA
Land value gains outpace cash rents

U.S. Cropland Values and Cash Rents

Index (1998=100)

100 120 140 160 180 200 220 240


Land Values

Cash Rents

Source: USDA

Photos courtesy of USDA
Rent to value ratios have fallen across the country

Cash Rent to Cropland Value Ratios

- Northeast
- Southeast
- Appalachian
- Southern Plains
- Lake States
- Corn Belt
- Pacific
- Mountain
- Delta
- Northern Plains

Source: USDA
Farmland Prices, Cash Rents, and Potential Credit Availability

• Today’s Outline:
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    • Non-farm demand
    • Farm demand surges
Recreational demand surged over the past decade

U.S. Wildlife Recreation Expenditures for Land Ownership and Leasing

- Billion dollars
- 1996: Wildlife watching = 4, Fishing and Hunting = 2
- 2001: Wildlife watching = 5, Fishing and Hunting = 5
- 2006: Wildlife watching = 7, Fishing and Hunting = 8

Source: US Fish and Wildlife Service

Photos courtesy of USDA
Kansas Missouri Metropolitan Areas (1999)

Photos courtesy of USDA

Existing Metro Counties
Kansas Missouri Metropolitan and Micropolitan Areas (2003)

Photos courtesy of USDA
Recreation and residential demand has slowed

Reasons for Farmland Purchased by Non-farmers

Source: Federal Reserve Bank of Kansas City
Government payments have declined in a booming farm economy

**U.S. Farm Subsidy Payments**

![Bar chart showing U.S. Farm Subsidy Payments from 1970 to 2005.](chart.png)

Source: USDA
Market returns have jumped sharply for corn and soybeans

*Market returns to Crop Production*
*(less variable or operating costs)*

Dollars per acre

- Wheat
- Corn
- Soybeans

Calculations based on USDA cost and returns data.

Photos courtesy of USDA
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• Today’s Outline:
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  – Has the Farm Boom Peaked?
Tenth District Farmland Values
(Third Quarter)
Percent change from year-to-year

Source: Federal Reserve Bank of Kansas City
*Percent changes are calculated using responses only from those banks reporting in both the past and the current quarter.
Farmland Value Gains by State
Third Quarter 2007 to Third Quarter 2008

<table>
<thead>
<tr>
<th>State</th>
<th>Nonirrigated</th>
<th>Irrigated</th>
<th>Ranchland</th>
</tr>
</thead>
<tbody>
<tr>
<td>Kansas</td>
<td>21.8</td>
<td>25.1</td>
<td>19.0</td>
</tr>
<tr>
<td>Missouri</td>
<td>17.1</td>
<td>18.6</td>
<td>10.9</td>
</tr>
<tr>
<td>Nebraska</td>
<td>28.3</td>
<td>25.9</td>
<td>17.1</td>
</tr>
<tr>
<td>Oklahoma</td>
<td>16.3</td>
<td>24.0</td>
<td>16.5</td>
</tr>
<tr>
<td>Mountain States</td>
<td>7.6</td>
<td>15.6</td>
<td>7.6</td>
</tr>
</tbody>
</table>

Source: Federal Reserve Bank of Kansas City
*Percent changes are calculated using responses only from those banks reporting in both the past and the current quarter.
Farm input costs surged beyond expectations

2008 Farm Input Costs

Source: USDA and FAPRI
Production costs could rise further

**Crop Breakeven Prices**  
(Variable and Fixed Costs)

Dollars per bushel

<table>
<thead>
<tr>
<th></th>
<th>2006</th>
<th>2007</th>
<th>2008</th>
<th>2009 Baseline Cost (6% increase)</th>
<th>2009 Higher Cost Scenario (15% increase)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Soybeans</td>
<td>6.43</td>
<td>7.17</td>
<td>8.17</td>
<td>8.33</td>
<td>9.18</td>
</tr>
<tr>
<td>Wheat</td>
<td>5.60</td>
<td>5.82</td>
<td>6.51</td>
<td>6.89</td>
<td>7.61</td>
</tr>
<tr>
<td>Corn</td>
<td>2.75</td>
<td>3.00</td>
<td>3.65</td>
<td>3.77</td>
<td>4.13</td>
</tr>
</tbody>
</table>

Source: Calculations based on USDA cost of production forecasts
## Have Farmland Values Peaked?

### Historical and Projected Returns to Corn Production

<table>
<thead>
<tr>
<th></th>
<th>2007</th>
<th>2008</th>
<th>2009</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Total Revenue per acre</strong></td>
<td>$657</td>
<td>$837</td>
<td>$816</td>
</tr>
<tr>
<td><strong>Price (dollars per bushel)</strong></td>
<td>$4.35</td>
<td>$5.40</td>
<td>$5.25</td>
</tr>
<tr>
<td><strong>Yield (bushel per acre)</strong></td>
<td>151</td>
<td>155</td>
<td>156</td>
</tr>
<tr>
<td><strong>Total Costs per acre (excluding land)</strong></td>
<td>$358</td>
<td>$462</td>
<td>$488</td>
</tr>
<tr>
<td><strong>Returns to Land (dollars per acre)</strong></td>
<td>$299</td>
<td>$375</td>
<td>$328</td>
</tr>
</tbody>
</table>

Calculations based on USDA and FAPRI

**Capitalized value at 5.5% cap rate**

<table>
<thead>
<tr>
<th></th>
<th>2007</th>
<th>2008</th>
<th>2009</th>
</tr>
</thead>
<tbody>
<tr>
<td>$5440</td>
<td>$6811</td>
<td>$5970</td>
<td></td>
</tr>
</tbody>
</table>
Have Farmland Values Peaked?

What If?
Projected Returns to Corn Production

<table>
<thead>
<tr>
<th></th>
<th>2009</th>
<th>09a</th>
<th>09b</th>
<th>09c</th>
</tr>
</thead>
<tbody>
<tr>
<td>Total Revenue per acre</td>
<td>$816</td>
<td>$624</td>
<td>$816</td>
<td>$889</td>
</tr>
<tr>
<td>Price (dollars per bushel)</td>
<td>$5.25</td>
<td>$4.00</td>
<td>$5.25</td>
<td>$5.70</td>
</tr>
<tr>
<td>Yield (bushel per acre)</td>
<td>156</td>
<td>156</td>
<td>156</td>
<td>156</td>
</tr>
<tr>
<td>Total Costs per acre (excluding land)</td>
<td>$488</td>
<td>$488</td>
<td>$562</td>
<td>$561</td>
</tr>
<tr>
<td>Returns to Land (dollars per acre)</td>
<td>$328</td>
<td>$136</td>
<td>$254</td>
<td>$328</td>
</tr>
</tbody>
</table>

2009 calculations based on USDA and FAPRI but what if scenarios are arbitrary

Capitalized value at 5.5% cap rate | $5970 | $2473 | $4618 | $5970 |
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- Today’s Outline:
  - The Drivers of Change
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  - Has the Farm Boom Peaked?
  - Credit Availability
    - Based on banker responses to the Agricultural Credit Survey
Farm Income and Capital Spending

Diffusion Index*

Q4:08 Expectations

*Bankers responded to each item by indicating whether conditions during the current quarter were higher than, lower than, or the same as in the year-earlier period. The index numbers are computed by subtracting the percent of bankers that responded "lower" from the percent that responded "higher" and adding 100.
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Farm Credit Conditions

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District Farm Interest Rates

Percent

Source: Federal Reserve Bank of Kansas City

Photos courtesy of USDA
Importance of Operating Credit

• According to the USDA, most farm loans are a fixed rate loan for real estate

• However, operating credit is important given recent input cost increases
  – Over the last 5 years 27-30 percent of cash expenses were short-term financed
  – Total operating credit has increased from $47 billion in 2003 to over $58 billion in 2007
  – Source: USDA

• Positive correlation between credit use and farm size
  – Scope, scale, and collateral availability
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Conclusions

• Land values boom with rising farm income.
• Have farmland values peaked?
  – Expected decrease in farm income.
  – Uncertainty of ethanol.
  – Global supply in the future.
• Higher seed costs and other input costs have created operating loan demand.
  – Agricultural credit supply
• The state of agriculture was volatile in 2008, what will 2009 hold?