Future Food Prices: FAPRI Projections and Sources of Uncertainty

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Conference on “Agricultural Markets and Food Price Inflation”
Federal Reserve Bank of Chicago
October 2, 2008
Agenda

- Quick review of food inflation numbers
- FAPRI agricultural market and food price projections
- Sources of uncertainty in the projections
Food and general inflation

Source: www.bls.gov
Food inflation: at home and away

Source: www.bls.gov
Food inflation: a few categories

Source: www.bls.gov
Food inflation: a few categories

Source: www.bls.gov
Food inflation: FAPRI projections

Source: FAPRI-MU (food) and Global Insight (all items), August 2008
Food inflation: Aug. vs. Jan. projections

Source: FAPRI-MU projections, January and August 2008
Food expenditures: farm value and marketing bill, 2006

Source: USDA Economic Research Service
U.S. grain use
Based on USDA estimates, September 2008

2003/04
- Feed: 25%
- Ethanol: 8%
- Food & other: 21%
- Exports: 46%
Total: 353 million metric tons

2007/08
- Feed: 26%
- Ethanol: 18%
- Food & other: 18%
- Exports: 38%
Total: 420 million metric tons

Grains: Wheat, corn, sorghum, barley, oats and rice
WTI petroleum prices: Aug. vs. Jan. projections and current futures

Sources: Global Insight, January & August 2008; NYMEX July light crude contracts, 9/30/08
Ethanol rack prices: Aug. vs. Jan. projections and current futures

Sources: FAPRI-MU projections, January & August 2008; CBOT March contracts, 9/30/08
Corn prices: Aug. vs. Jan. projections and current futures

Sources: FAPRI-MU projections, January & August 2008; CBOT Dec. contracts, 9/30/08 (- $0.30 basis)
Ethanol production: Aug. vs. Jan. projections

Source: FAPRI-MU projections, January & August 2008
Ethanol production capacity

Source: Renewable Fuels Association website
Ethanol dry mill operating costs and returns

Source: FAPRI-MU projections, August 2008

Note: 9/30/08 futures would imply a narrower operating return in 2008/09
Omaha rack prices for ethanol and gasoline

April 2009 futures on 9/30: $2.66 for NYMEX RBOB gasoline, $2.09 for CBOT ethanol

Source: FAPRI-MU projections, August 2008

Note: Maintains 2009 tax credits, tariffs
Ethanol consumption by category

Source: FAPRI-MU projections, August 2008

*To meet air quality requirements and state mandates
Biofuel consumption and the Renewable Fuel Standard (RFS)

Source: FAPRI-MU projections, August 2008
U.S. soyoil consumption by category

Source: FAPRI-MU projections, August 2008
Crop prices: FAPRI-MU projections

Source: FAPRI-MU projections, August 2008
# U.S. crop exports

Based on USDA estimates, September 2008

<table>
<thead>
<tr>
<th></th>
<th>Corn (mil. bu.)</th>
<th>Soybeans</th>
<th>Wheat</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Quantity</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2005/06</td>
<td>2,134</td>
<td>940</td>
<td>1,003</td>
</tr>
<tr>
<td>2006/07</td>
<td>2,125</td>
<td>1,116</td>
<td>908</td>
</tr>
<tr>
<td>2007/08</td>
<td><strong>2,425</strong></td>
<td><strong>1,155</strong></td>
<td><strong>1,264</strong></td>
</tr>
<tr>
<td>2008/09</td>
<td>2,000</td>
<td>1,000</td>
<td>1,000</td>
</tr>
<tr>
<td><strong>2008/09 vs. 2005/06</strong></td>
<td><strong>-6%</strong></td>
<td><strong>+6%</strong></td>
<td>0%</td>
</tr>
<tr>
<td><strong>Farm value of exports (bil. dollars)</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2005/06</td>
<td>$4.3</td>
<td>$5.3</td>
<td>$3.4</td>
</tr>
<tr>
<td>2008/09</td>
<td>$11.0</td>
<td>$12.4</td>
<td>$7.3</td>
</tr>
<tr>
<td><strong>2008/09 vs. 2005/06</strong></td>
<td><strong>+158%</strong></td>
<td><strong>+132%</strong></td>
<td><strong>+111%</strong></td>
</tr>
</tbody>
</table>
China imports of soybean products
Based on USDA estimates, September 2008
### U.S. crop production
Based on USDA estimates, September 2008

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<tr>
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<th>Corn (mil. bu.)</th>
<th>Soybeans (mil. bu.)</th>
<th>Wheat (mil. bu.)</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Quantity</strong></td>
<td>2005/06</td>
<td>11,114</td>
<td>3,063</td>
</tr>
<tr>
<td></td>
<td>2006/07</td>
<td>10,535</td>
<td>3,188</td>
</tr>
<tr>
<td></td>
<td>2007/08</td>
<td>13,074</td>
<td>2,585</td>
</tr>
<tr>
<td></td>
<td>2008/09</td>
<td><strong>12,072</strong></td>
<td>2,934</td>
</tr>
<tr>
<td><strong>2008/09 vs. 2005/06</strong></td>
<td>+9%</td>
<td>-4%</td>
<td>+17%</td>
</tr>
<tr>
<td><strong>Farm value of prod. (bil. dollars)</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2005/06</td>
<td>$22.2</td>
<td>$17.3</td>
<td>$7.2</td>
</tr>
<tr>
<td>2008/09</td>
<td><strong>$66.4</strong></td>
<td>$36.2</td>
<td><strong>$17.8</strong></td>
</tr>
<tr>
<td><strong>2008/09 vs. 2005/06</strong></td>
<td>+199%</td>
<td>+109%</td>
<td>+148%</td>
</tr>
</tbody>
</table>
U.S. crop acreage planted: 2 views
FAPRI-MU Aug. 2008 projections

Other crops: Upland cotton, rice, sorghum, barley, oats, peanuts, sunflowers, sugar cane and sugar beets
Corn market receipts, government payments and variable expenses

Source: FAPRI-MU projections, August 2008

Note: Payments assume 1 acre of base for each acre planted
U.S. grain exports and corn used for ethanol production

Source: FAPRI-MU projections, August 2008
Feed prices: FAPRI-MU projections

Source: FAPRI-MU projections, August 2008
Livestock prices: FAPRI-MU projections

Source: FAPRI-MU projections, August 2008
Hogs: Farrow-to-finish receipts and expenses

Source: FAPRI-MU projections, August 2008
Cattle: Cow-calf receipts and expenses

Source: FAPRI-MU projections, August 2008
U.S. meat exports: FAPRI-MU projections

Source: FAPRI-MU projections, August 2008
U.S. meat production: FAPRI-MU projections

Source: FAPRI-MU projections, August 2008
U.S. meat consumption per capita: FAPRI-MU projections

Source: FAPRI-MU projections, August 2008
Retail meat prices: FAPRI-MU projections

Source: FAPRI-MU projections, August 2008

The graph shows projected retail meat prices from 2003 to 2013 for Beef, Pork, and Chickens. The lines indicate an upward trend for all categories, with Beef showing the most significant increase.
Some (of very many) uncertainties

- Petroleum prices
- Weather
- Technological growth
- Exchange rates
- Economic growth
- Biofuel policies
- Agricultural policies
2011/12 corn price and petroleum price

Source: FAPRI August 2008 stochastic baseline update
Thanks!

- Contact me at westhoffp@missouri.edu or 573-882-4647
- Visit FAPRI-MU web page at www.fapri.missouri.edu