Weathering Unexpected Downturns in Agriculture

Paul Ellinger
University of Illinois
pellinge@illinois.edu
Outline

• Risks and risk weights
• Agricultural producers
  – Profitability
  – Asset valuations
  – Simple shocks
• Lenders to Agriculture
  – Who is financing?
  – Financial condition
  – Simple shocks
• Discussions
Robert Shiller:

*farmland is a dark horse bubble candidate partially because the environment is similar to the 1970s in the U.S. when a food price scare sparked the last farmland bubble.*

Sheila Bair (FDIC Chair):

*signs of instability exist in farmland markets and require close monitoring*
Agricultural Weights Risks: different from 1980s?

Portfolio / Magnitude
Higher or Lower?

Weights Different?
- Farmers
- Lenders
- Suppliers
- Government
- Investors
- Insurance Cos.
- Consumers
- Others

Can the “new” risk bearers manage the risks?
Profitability

Figure 1. U.S. Net Farm Income 1999-2011F

Figure 2. Average Income on Illinois Farms 1999-2010
Aggregate Measures

Debt to Asset

Debt Coverage

Relative Stability  Good Times  Bad Times  Relative Stability  Good Times  Good Times

Economic Research Service
How Many Farms Does It Take?
Value of Ag Output - $200 Billion

Distribution matters

389 Farms  30,495 Farms

34,085 Farms

3,201 Farms  2,000,000 Farms

0%  10%  25%  50%  100%
Farm Financial Conditions

• Briggeman: 2008 & 2011
  – Debt Utilization
  – Leverage
  – Net Worth

• Extensions: Sources of loan repayment
  – Cash Flow and Earnings
  – Liquidity
  – Equity
Illinois Farm Records data

% revenue drop to reduce repayment capacity to 1.25 benchmark
Revenue Decline:
50% farms below repayment capacity benchmark (ave: 2006-10)
Liquidity: Working Capital to Sales

- 2006: 0.09
- 2007: 0.23
- 2008: 0.27
- 2009: 0.21
- 2010: 0.26

- 25% percentile
- 50% percentile
Components of Equity

Figure 5. Components of Farm Equity

- Working Capital
- Real Estate
- Other

- 2006: 12%, 46%, 18%
- 2007: 19%, 44%, 18%
- 2008: 21%, 43%, 18%
- 2009: 18%, 44%, 18%
- 2010: 18%, 46%, 18%
Leverage Changes: 30% Decline in Farmland Prices

Baseline 30% Reduction

Baseline

Young

Large

Livestock

<table>
<thead>
<tr>
<th>Category</th>
<th>Baseline</th>
<th>30% Reduction</th>
</tr>
</thead>
<tbody>
<tr>
<td>Baseline</td>
<td>0.24</td>
<td>0.27</td>
</tr>
<tr>
<td>Young</td>
<td>0.30</td>
<td>0.45</td>
</tr>
<tr>
<td>Large</td>
<td>0.30</td>
<td>0.33</td>
</tr>
<tr>
<td>Livestock</td>
<td>0.31</td>
<td>0.35</td>
</tr>
</tbody>
</table>
Interest Rate Risk: Farmers

- Capital values more than cash flows

Source: Schnitkey and Sherrick
Land Prices: CAP Rates x Cash Rents

Source: Schnitkey and Sherrick
Farm Debt Shares

- **Real Estate**
  - Farm Credit System, 58,423
  - Commercial banks, 50,338
  - Life insurance companies, 14,246
  - Individuals and others, 9,164
  - Farm Service Agency, 2,343

- **Non Real Estate**
  - Farm Credit System, 39,883
  - Commercial banks, 57,027
  - Individuals and others, 11,113
  - Farm Service Agency, 2,823
How Many Banks Does It Take? % of Commercial Bank Loans to Agriculture

Distribution Matters

15 Banks

474 Banks

821 Banks

0% 20% 40% 50% 100%

332 Banks

5,184 Banks

Ellinger, 7/20/2011
Delinquency Rates: Commercial Banks

Delinquency Rate (%)
Financial Health: Commercial Banks

Profitability: ROA 2010 Q4= 0.88

Failed Banks 2010- 2011Q1

1.2 billion of ag loans (1% @ banks)

Commercial Banks:

Problem Ag Loans / Equity

68 banks > 20% 232 banks > 10%
(1.5% ag loans) (4.7% ag loans)

GA, FL, OK, NE
### Health of Commercial Banks

#### Table 1. Distribution of Agricultural Loans at Commercial Banks By Equity/Asset Ratio

<table>
<thead>
<tr>
<th>December 2010</th>
<th>Large Banks</th>
<th>Other Banks</th>
</tr>
</thead>
<tbody>
<tr>
<td>Equity to Assets</td>
<td>Share</td>
<td>Number</td>
</tr>
<tr>
<td>less than 4%</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>4-8%</td>
<td>1.2%</td>
<td>8</td>
</tr>
<tr>
<td>8-12%</td>
<td>16.5%</td>
<td>33</td>
</tr>
<tr>
<td>&gt; 12%</td>
<td>6.0%</td>
<td>22</td>
</tr>
</tbody>
</table>

1 Banks with assets exceeding $10 billion.

#### Table 2. Distribution of Agricultural Loans at Commercial Banks By Equity/Asset Ratio

<table>
<thead>
<tr>
<th>December 2010</th>
<th>Large Banks</th>
<th>Other Banks</th>
</tr>
</thead>
<tbody>
<tr>
<td>Equity to Assets</td>
<td>Share</td>
<td>Number</td>
</tr>
<tr>
<td>less than 4%</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>4-8%</td>
<td>1.2%</td>
<td>8</td>
</tr>
<tr>
<td>8-12%</td>
<td>16.6%</td>
<td>34</td>
</tr>
<tr>
<td>&gt; 12%</td>
<td>5.9%</td>
<td>21</td>
</tr>
</tbody>
</table>

1 Banks with assets exceeding $10 billion.
Health of Farm Credit System

- ROA 2011Q1=2.19%

- Capital to assets ratio for FCS associations exceeded 17% with nonperforming loans at 2.39% of gross loan volume.

- 16 FCS associations nonaccrual / loans > 5% (Q4 2010)
  - 5 FL, 3 TX, 2 GA and all others in south

- Ethanol, hogs, dairy, forestry, and poultry are the portfolio segments experiencing the most stress across the Farm Credit System. Cumulatively, these segments represent about 1/5 of Farm Credit System’s portfolio.
Discussion:
Weathering Unexpected Downturns in Agriculture