Golden Eras and Farm Crisis: Are We Going to See a Replay of 1920s or 1980s Farm Crisis?

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Denver, CO, October 4th, 2016
The new Mike Duffy since Aug 2015
Iowa Ag Real Estate Values
1850-2015

Source: USDA-NASS; Ag Census
What happened in the 1920s? And why do we care??

- Rising corn prices: $.30/bu in 1900 to $.60/bu in 1914
- New record for farmland values and investment, speculation → land boom: a farmer who bought at $43/acre in 1900 saw the value at $124/acre in 1914
- A sharp, unexpected decline in corn prices in 1919-1920: $2/bu in 1919 summer to $.41/bu in 1921
- Land buyers fail to pay off mortgages and farm mortgage foreclosures rose drastically in the 1920s, and then continue to rise following the Great Depression
- **Two Depressions: a long, drawn-out decline**
Outline

• Positives
  – High income in pre-crisis “golden” eras
  – Low interest rate environment
  – Prudence among ag lenders and bank regulators
  – Wider, stronger (?) govn’t safety net

• Concerns
  – Deteriorating farm income and ag credit
  – High reliance on ag exports, US $
  – Uncertainty in farmland supply and turnover

• Looking Ahead
Positive 1: Real Income Accumulation 2003-2013

<table>
<thead>
<tr>
<th>Golden Eras</th>
<th>Average % change in inflation-adjusted values per year</th>
<th>Source: USDA-ERS, Ag DM C2-70, Zhang and Beek 2016</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>1910-1920</strong></td>
<td><strong>Land</strong>: 1.2%  <strong>Gross Income</strong>: 0.8%  <strong>Net Income</strong>: 0.2%</td>
<td><strong>1973-1981</strong></td>
</tr>
<tr>
<td><strong>2003-2013</strong></td>
<td><strong>Land</strong>: 11.1%  <strong>Gross Income</strong>: 4.5%  <strong>Net Income</strong>: 8.1%</td>
<td><strong>1921-1933</strong></td>
</tr>
<tr>
<td><strong>1981-1987</strong></td>
<td><strong>Land</strong>: -15.0%  <strong>Gross Income</strong>: -2.5%  <strong>Net Income</strong>: 2.6%</td>
<td><strong>2013-2016</strong></td>
</tr>
</tbody>
</table>

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Source: USDA-ERS, Ag DM C2-70, Zhang and Beek 2016
Positive 1: Income Average Corn Return Changes vs. Land Value Changes 2005-2015

Model 1: % change in Iowa land price = -0.001 % corn change^2 + 0.2835 % corn change + 5.0049
\[ R^2 = 0.703 \]

Model 2: % change in Iowa land price = 0.1207 % corn change + 5.0606
\[ R^2 = 0.4805 \]

Annual percentage change in Iowa farmland value (%)

Annual percentage change in 7-year average corn net revenue (%) Source: Chad Hart
Positive 2: Historically low interest rate

Ten-Year CMT Rate
Positive 2: Historically low interest rate
Positive 3: Prudence in Ag Lenders/Regulators

• Banking Regulations
  – More stringent, frequent stress-test
  – BASEL III, liquidity requirements for banks
  – (Ron Hansen – Iowa Division of Banking Superintendent) walk into this “with eyes wide open”

• Changes in Loan Practices (FCS, Iowa)
  – Before 1987: loan to value ratio is 85%
  – 1987-2008: loan to value ratio is 65%
  – After 2008: use cash-flow method for collateral ($4 corn, $10 bean) and 50% of cash flow value

Source: Jim Knuth, FCS
Debt restructuring could make a difference, now, not in the 1980s

Annual Mortgage Payments vs. Rents

Cash Rent 20-yr PMT 30-yr PMT 15-yr PMT

Debt restructuring could make a difference, now, not in the 1980s.
Positive 4: Stronger Govn’t Safety Net

Federal Crop Insurance

Source: Chad Hart
Concern 1: Rising ag debt

Agricultural Financial Ratios for the US 1960-2016

Source: Federal Reserve
Loan Repayment Index vs. Loan Deliquency Rates 1970 - 2015

- Loan repayment index
- Ag loan delinquency rate
- Farmland loan delinquency rate

Source: Federal Reserve
## Concern 1: Rising Ag Debt

### Debt to Asset Ratios – Iowa FBA (316 farms)

<table>
<thead>
<tr>
<th></th>
<th>Jan 2015</th>
<th>Dec 2015</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>% Farms</td>
<td>Avg DTA</td>
</tr>
<tr>
<td>Vulnerable (DTA &gt; 60%)</td>
<td>19</td>
<td>0.7</td>
</tr>
<tr>
<td>Caution (DTA: 30-60%)</td>
<td>38</td>
<td>0.4</td>
</tr>
<tr>
<td>Strong (DTA &lt;30%)</td>
<td>44</td>
<td>0.1</td>
</tr>
</tbody>
</table>

Source: Alejandro Plastina
Ag Decision Maker C1-11
Concern 1: Rising Ag Debt

Figure 1. 2015 Adjusted farm cash income (AFCI) and return on assets (ROA), by APCI Quintiles

Source: Alejandro Plastina
Ag Decision Maker C1-11
## Concern 2: More Reliance on Ag Exports and World Economy

<table>
<thead>
<tr>
<th>Decade</th>
<th>Ag Exports ($ bn)</th>
<th>Ag Exports / Ag Production</th>
<th>Ag Exports/US Exports</th>
</tr>
</thead>
<tbody>
<tr>
<td>1920s</td>
<td>1.94</td>
<td>15%</td>
<td>42%</td>
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<tr>
<td>1980s</td>
<td>35.6</td>
<td>23%</td>
<td>11%</td>
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<tr>
<td>2010-2016</td>
<td>133</td>
<td>32%</td>
<td>10.5%</td>
</tr>
</tbody>
</table>

Source: FOTUS
Concern 2: More Reliance on Ag Exports and World Economy
Concern 3: Uncertainty in Farmland Supply

ISU Sale Activity Index and Percentage Change in Iowa Land Value

Sale activity index = (% Reported More - % Reported Less) * 100

Source: ISU Land Value Survey
FCS, Ag Decision Maker
Concern 3: Uncertainty in Farmland Supply

Number of Public Auctions by Month 2011-2016

Source: ISU Land Value Survey
FCS, Ag Decision Maker
Concern 3: Uncertainty in Farmland Supply

Percent of No Sales in Iowa Public Auctions

Source: ISU Land Value Survey
FCS, Ag Decision Maker

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CARD
Center for Agricultural and Rural Development
## Farmland Values Predictions in the Next Year as of Nov 2015

<table>
<thead>
<tr>
<th>District</th>
<th>Increase 5% or more</th>
<th>Increase 0-5%</th>
<th>Stay the same</th>
<th>Decrease 0-5%</th>
<th>Decrease 5-10%</th>
<th>Decrease 10% or more</th>
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</thead>
<tbody>
<tr>
<td>Northwest</td>
<td>3</td>
<td>9</td>
<td>28</td>
<td>36</td>
<td>19</td>
<td>6</td>
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<tr>
<td>North Central</td>
<td>0</td>
<td>2</td>
<td>16</td>
<td>38</td>
<td>44</td>
<td>2</td>
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<tr>
<td>Northeast</td>
<td>0</td>
<td>2</td>
<td>20</td>
<td>38</td>
<td>36</td>
<td>5</td>
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<tr>
<td>West Central</td>
<td>2</td>
<td>2</td>
<td>22</td>
<td>44</td>
<td>26</td>
<td>4</td>
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<tr>
<td>Central</td>
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<td>13</td>
<td>48</td>
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<td>East Central</td>
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<td>2</td>
<td>18</td>
<td>30</td>
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<tr>
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<tr>
<td>South Central</td>
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<td>47</td>
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<td><strong>IOWA</strong></td>
<td><strong>1</strong></td>
<td><strong>3</strong></td>
<td><strong>19</strong></td>
<td><strong>39</strong></td>
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<td><strong>6</strong></td>
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</tbody>
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PERCENT
## Farmland Values Predictions in Five Years as of Nov 2015

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<th>District</th>
<th>Increase 5% or more</th>
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<th>Stay the same</th>
<th>Decrease 0-5%</th>
<th>Decrease 5-10%</th>
<th>Decrease 10% or more</th>
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<tr>
<td>Northwest</td>
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<td>18</td>
<td>20</td>
<td>16</td>
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<tr>
<td>North Central</td>
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<td>Central</td>
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<tr>
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<tr>
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<td>26</td>
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<tr>
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<td>17</td>
<td>14</td>
<td>19</td>
<td>18</td>
</tr>
</tbody>
</table>

PERCENT
**Conclusion**

- Farmland market and ag sector will continue to soften, probably in a long slow process as in the 1920s, but now farmers are better suited to weather it out.
- But unlikely to have as widespread and sudden collapse as in the 1980s.
- Beginning farmers with high leverage, rented acres and higher prod/family expenses might get hit harder.
Thank You!

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www.card.iastate.edu/farmland/
A New, Interactive Iowa Farmland Value Portal

http://card.iastate.edu/farmland/
Iowa Farmland Value Portal

http://card.iastate.edu/farmland

Iowa Farmland Value Portal BETA

Your One-Stop Web-Portal for Everything You Need to Know about Iowa’s Farmland Value

2015 Results  Charts  Interactive County Maps  Downloads  Resources  Archive

Select a county or district: State of Iowa ▼

Select result format:  ● dollar value  ○ annual percentage change  ○ farmland value indexes (state only)

Select data sources:  ● ISU Iowa Land Value Survey  ○ USDA National Agricultural Statistics Service
  ○ REALTORS Land Institute  ○ Federal Reserve Bank of Chicago

Years: 1951 ▼ through 2014 ▼

Show Values

Show Iowa Average  Show District Average
Iowa Farmland Value Portal

http://card.iastate.edu/farmland
Iowa Farmland Value Portal
ww.card.iastate.edu/farmland