Business and Credit Cycles in Agriculture

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Based on working paper with Todd Hubbs, USDA Economic Research Service. The views are those of the author and should not be attributed to USDA, ERS, or University of Illinois.
Three essential questions for the farm economy in 2016

• How bad is it?
• How bad can it get?
• How long will this last?
Economic cycles

• **Business cycle**: Expansion and contraction in aggregate economic activity

• **Credit cycle**: Expansion and contraction in credit and asset markets
  - Longer frequency and greater amplitude than business cycle
  - Peaks are closely related to banking failures
  - Recessions during credit cycle downturns are deeper and longer
  - Leading indicator of financial distress
Credit and asset values as drivers of the economy

Credit Cycle Boom:
- More People Willing to Lend
- Financing Easier
- Asset Demand Increases
- Default Rate Decreases
- Asset Prices Increase

Credit Cycle Bust:
- Fewer People Willing to Lend
- Financing More Difficult
- Asset Demand Decreases
- Default Rate Increases
- Asset Prices Decrease
A macroeconomic model for agriculture

<table>
<thead>
<tr>
<th>Aggregate Economy</th>
<th></th>
<th>Agricultural Sector</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Business Cycle</strong></td>
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<tr>
<td>Gross domestic product (GDP)</td>
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<td>Gross value added (GVA)</td>
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<tr>
<td><strong>Credit Cycle</strong></td>
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<tr>
<td>(i) Total credit to private non-financial sector</td>
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<td>Total farm debt</td>
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<tr>
<td>(ii) Residential property prices</td>
<td></td>
<td>Farm real estate values</td>
</tr>
<tr>
<td>(iii) Credit-to-GDP ratio</td>
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<td>Farm debt-to-GVA ratio</td>
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</tbody>
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- Business cycle duration: 1 to 8 years
- Credit cycle duration: 8 to 50 years
- Credit cycle is the average of the cyclical components of debt, real estate, and output-to-debt ratios
Business cycles

![Graph showing business cycles with labeled axes and lines representing different cycles.]

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Net farm income & ag business cycle

Source: USDA-ERS
Credit cycles
Nonperforming non-real estate loans & ag credit cycle

Source: Agricultural Finance Databook
Farm bankruptcies & ag credit cycle

Source: US Bankruptcy Court
Agricultural bank failures & ag credit cycle

Source: Agricultural Finance Databook
Synchronization of cycles

- Credit and business cycles are *slightly procyclical*
- Agricultural and aggregate **business cycles** are *slightly counter-cyclical*
  - In the **short-run**, agricultural and aggregate economies tend to move in opposite directions
- Agricultural and aggregate **credit cycles** are *slightly procyclical*
  - In the **long-run**, agricultural and aggregate economics tend to move together

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Key takeaways

• Asset prices and credit are intrinsically linked through credit cycle
  • Three periods of boom and bust since 1960

• Agricultural credit cycle currently in a downturn
  • Previous downturn durations: 5 years (68-72) and 9 years (83-91)

• Agricultural business cycle currently in a recession since 2013
  • Mean duration since 1960: 1.85 years

• Agricultural credit and business cycles are slightly procyclical
Thank you

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