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# Agricultural Investments and Finance



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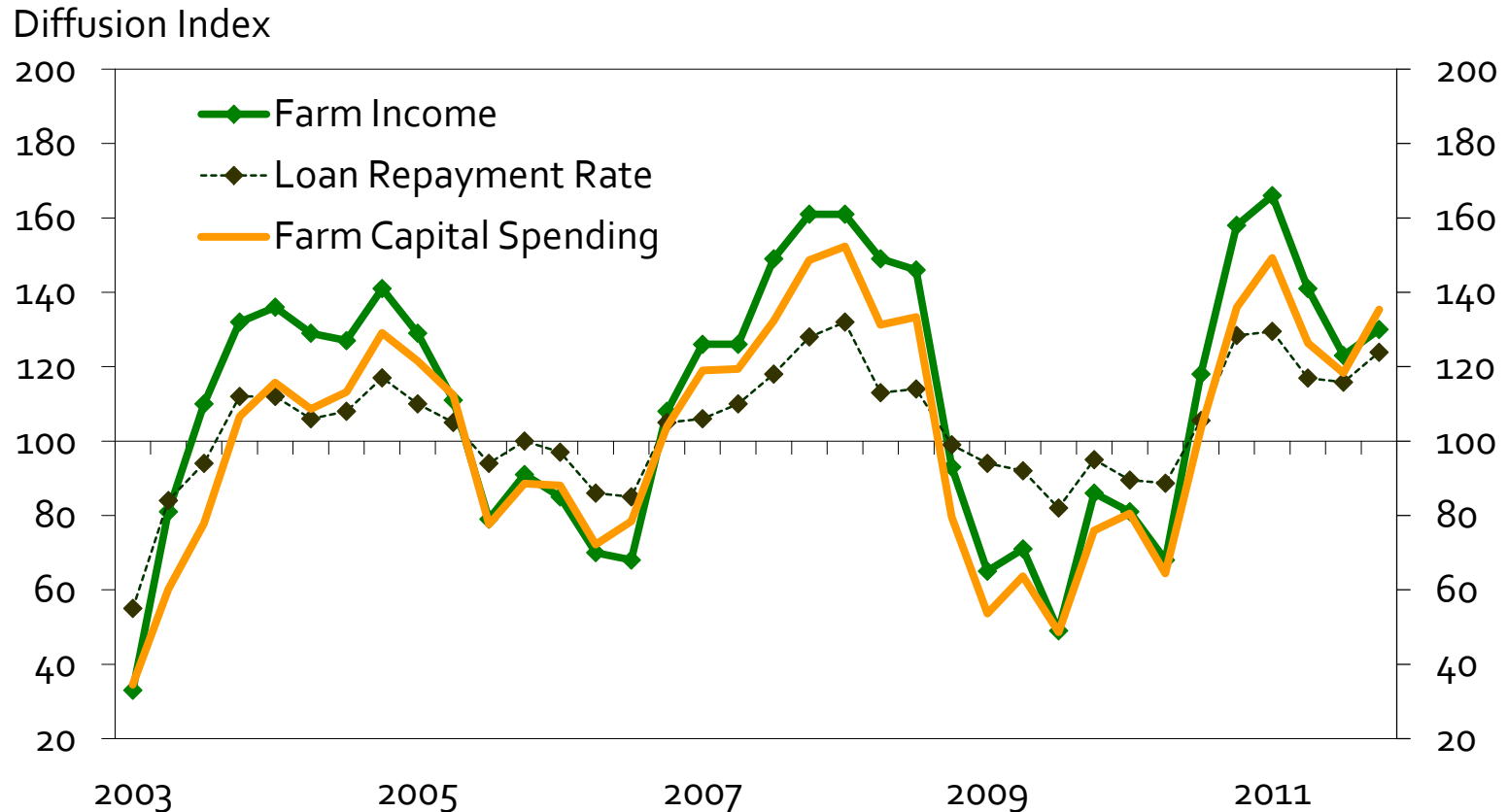
# Agricultural Investments and Finance

- Crop producers use booming incomes to pay off debts and boost capital spending.
- Big cash flows cut loan demand and spur competition for loans.
- Farmland values surge as rising incomes are capitalized.
- Is this a “New Golden Era” or fool’s gold?
- It depends on leverage.



# Farm incomes quickly translate into capital spending.

## Farm Income, Debt Repayment and Farm Capital Spending (Tenth Federal Reserve District)



Source: Federal Reserve Bank of Kansas City



# Rising farm incomes boost rural spending and manufacturing.



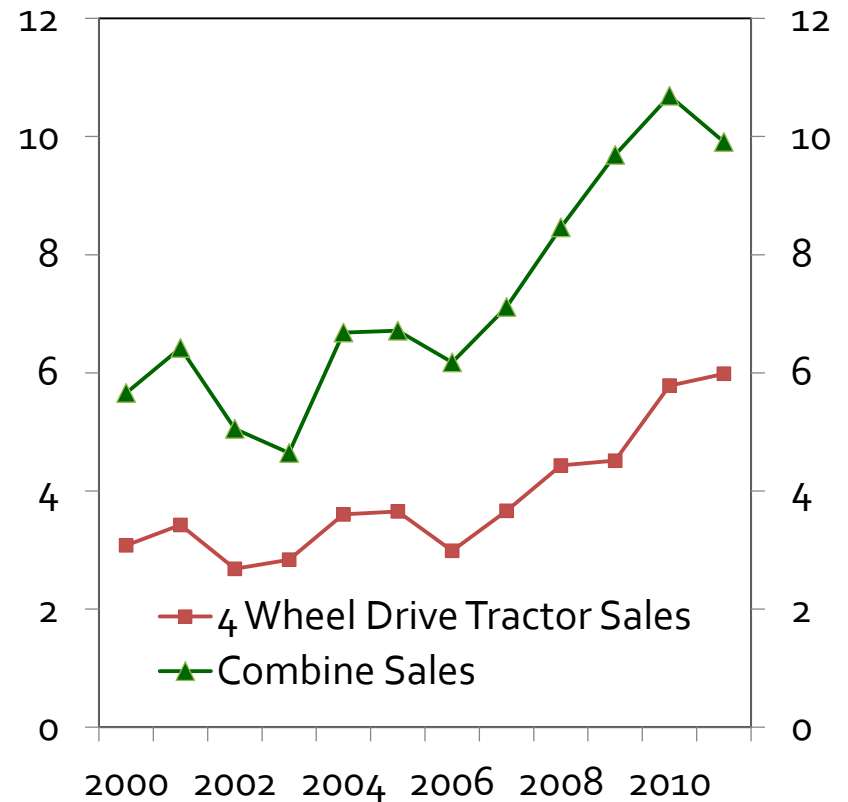
## Rural manufacturing employment

Up 3.8% in 2011

Up 14% since 2009

## U.S. Tractor and Combine Sales

Thousand units per month

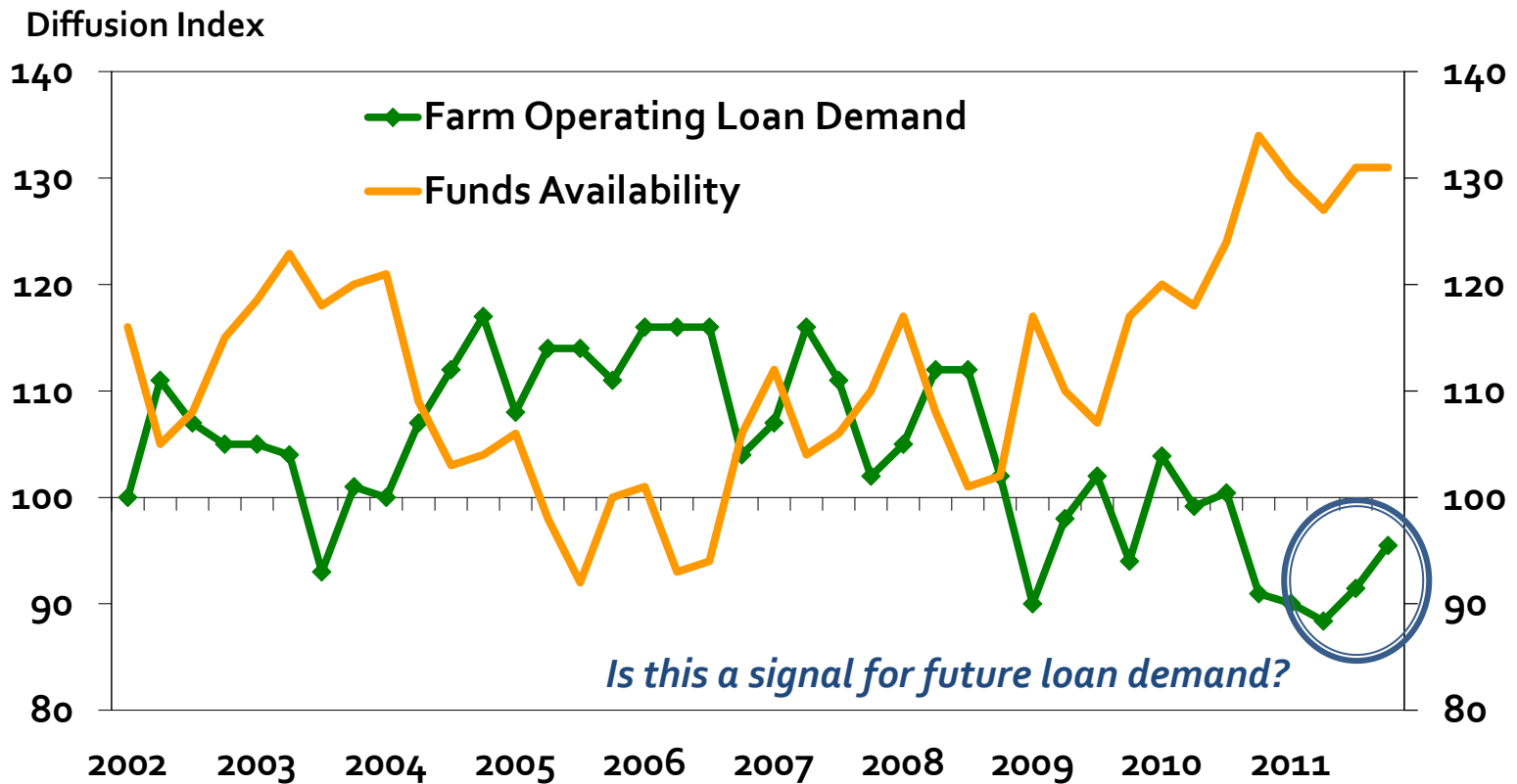


Source: Association of Equipment Manufacturers



# Banks had plenty of funds available for loans, but faced weak loan demand.

## Farm Operating Loan Demand and Funds Availability Tenth Federal Reserve District



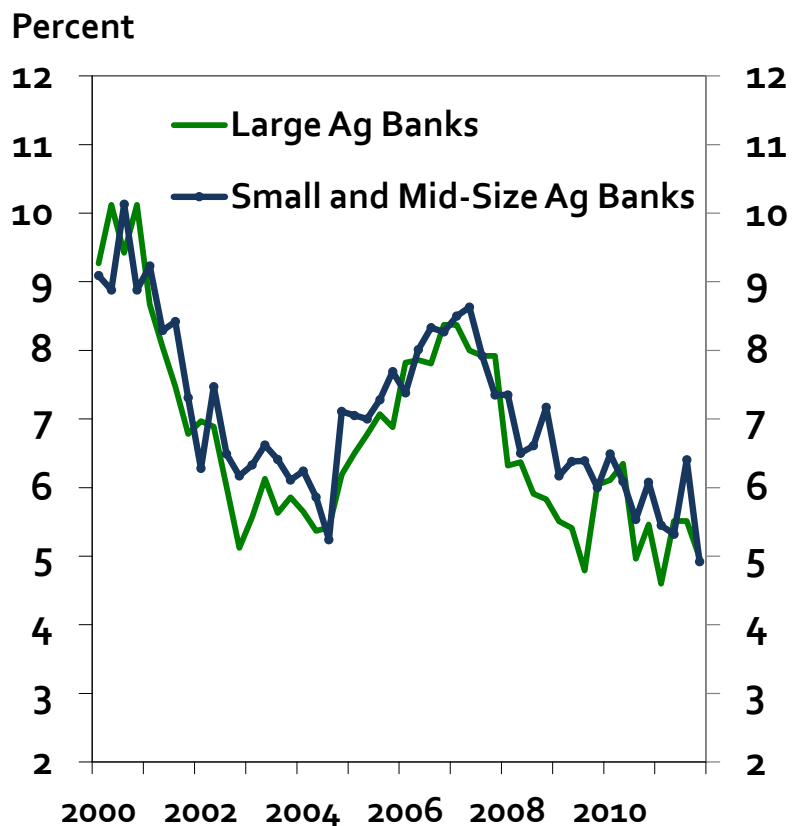
Source: Federal Reserve Bank of Kansas City



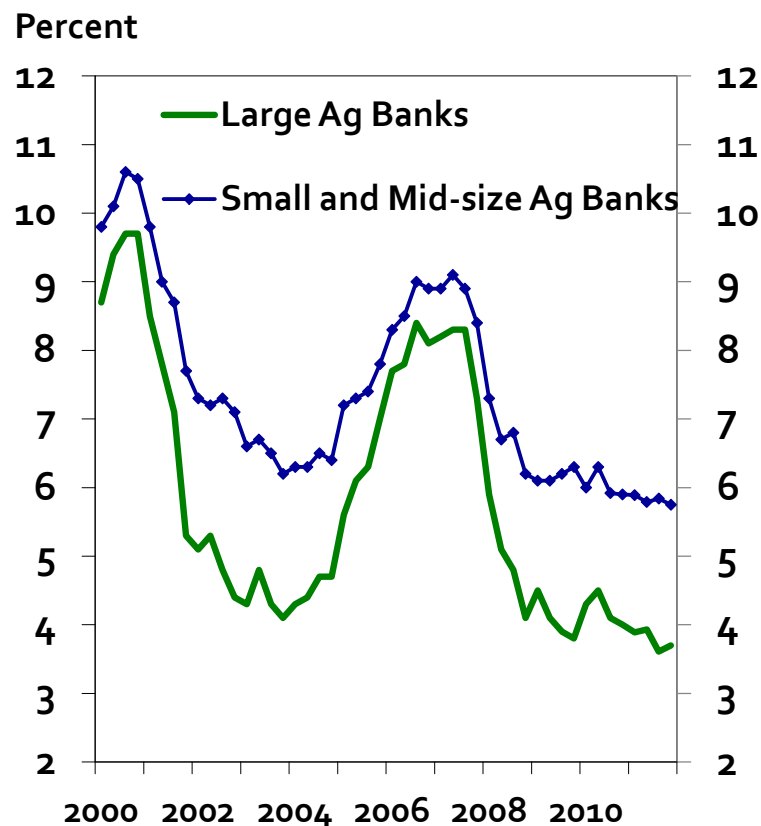
# Large banks are offering lower rates on non-real estate loans.

## Average Effective Interest Rates on Agricultural Loans

### Real Estate Farm Loans



### Non-Real Estate Farm Loans

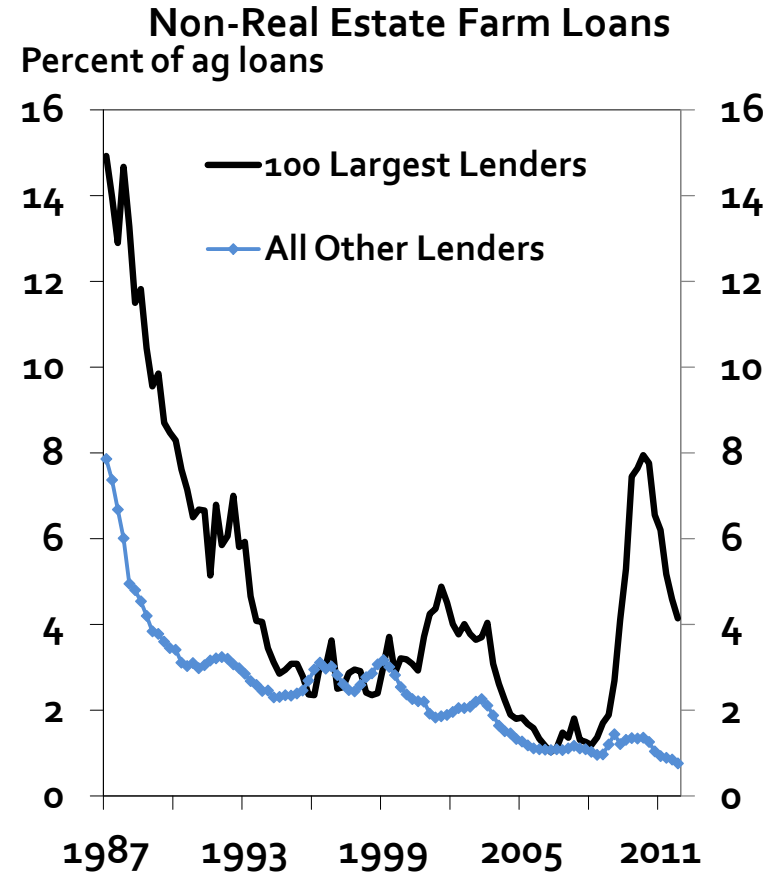
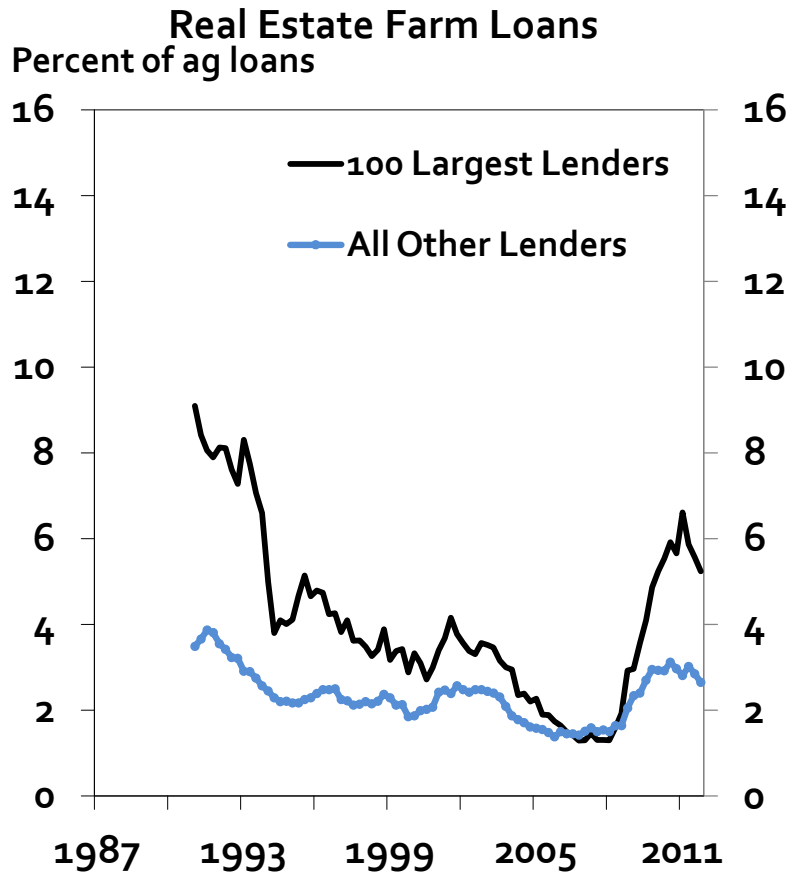


Source: Agricultural Finance Databook



# While falling, delinquency rates are higher at larger commercial banks.

## Delinquency Rates on Agricultural Loans



Source: Federal Reserve Board of Governors



# Is there a farmland bubble?



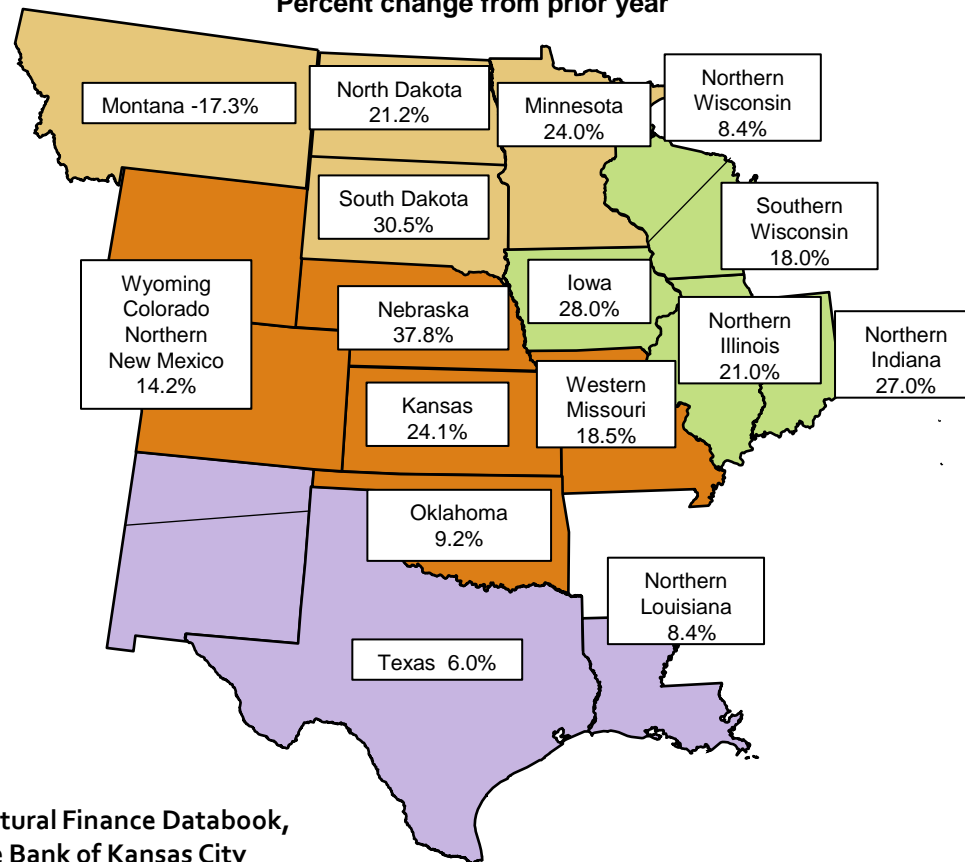


# Farmland values are booming.

## Non-irrigated Cropland Values

Fourth Quarter 2011

Percent change from prior year

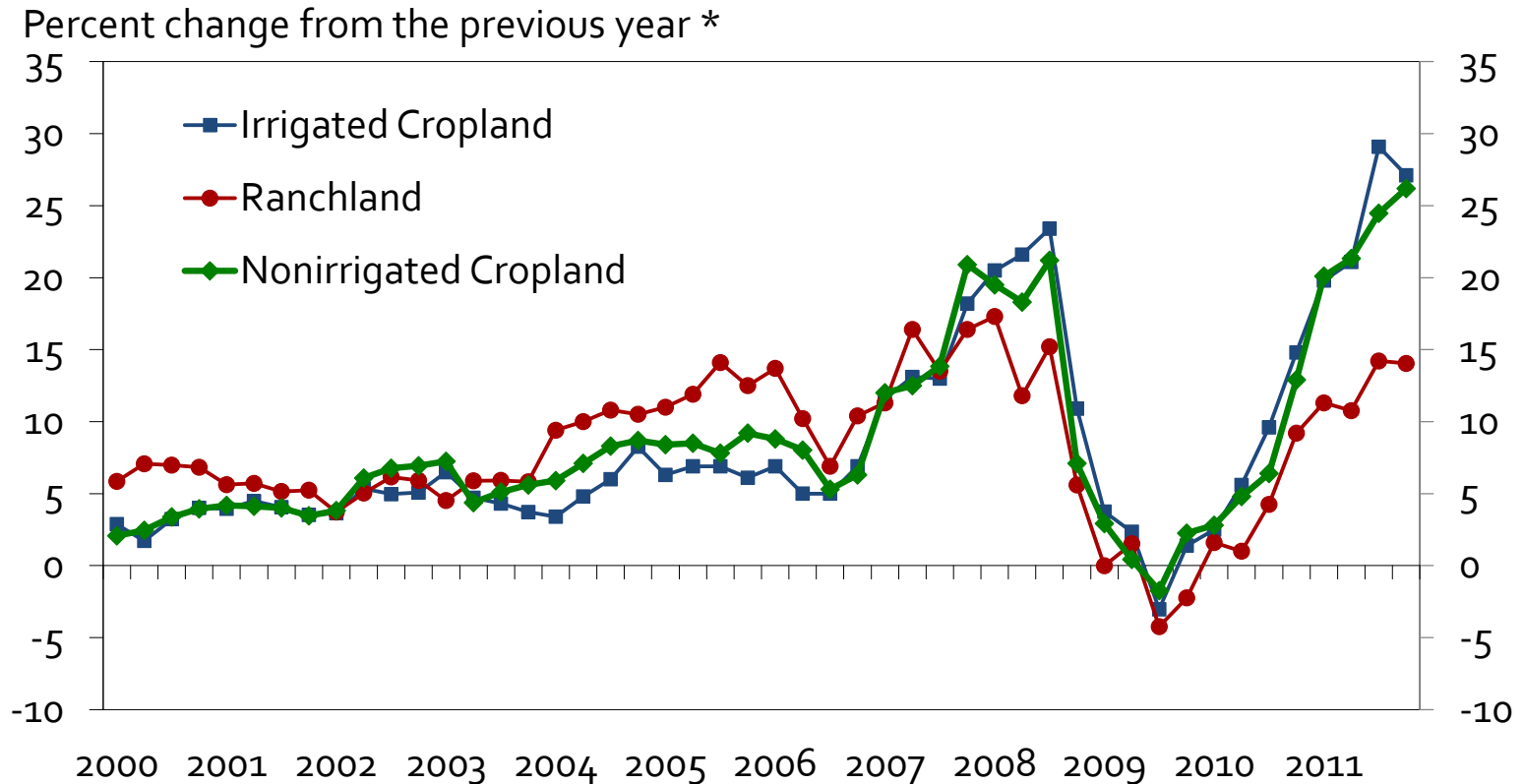


Source: Agricultural Finance Databook,  
Federal Reserve Bank of Kansas City



# Strong gains across all types of land.

## Tenth District Farmland Value Gains

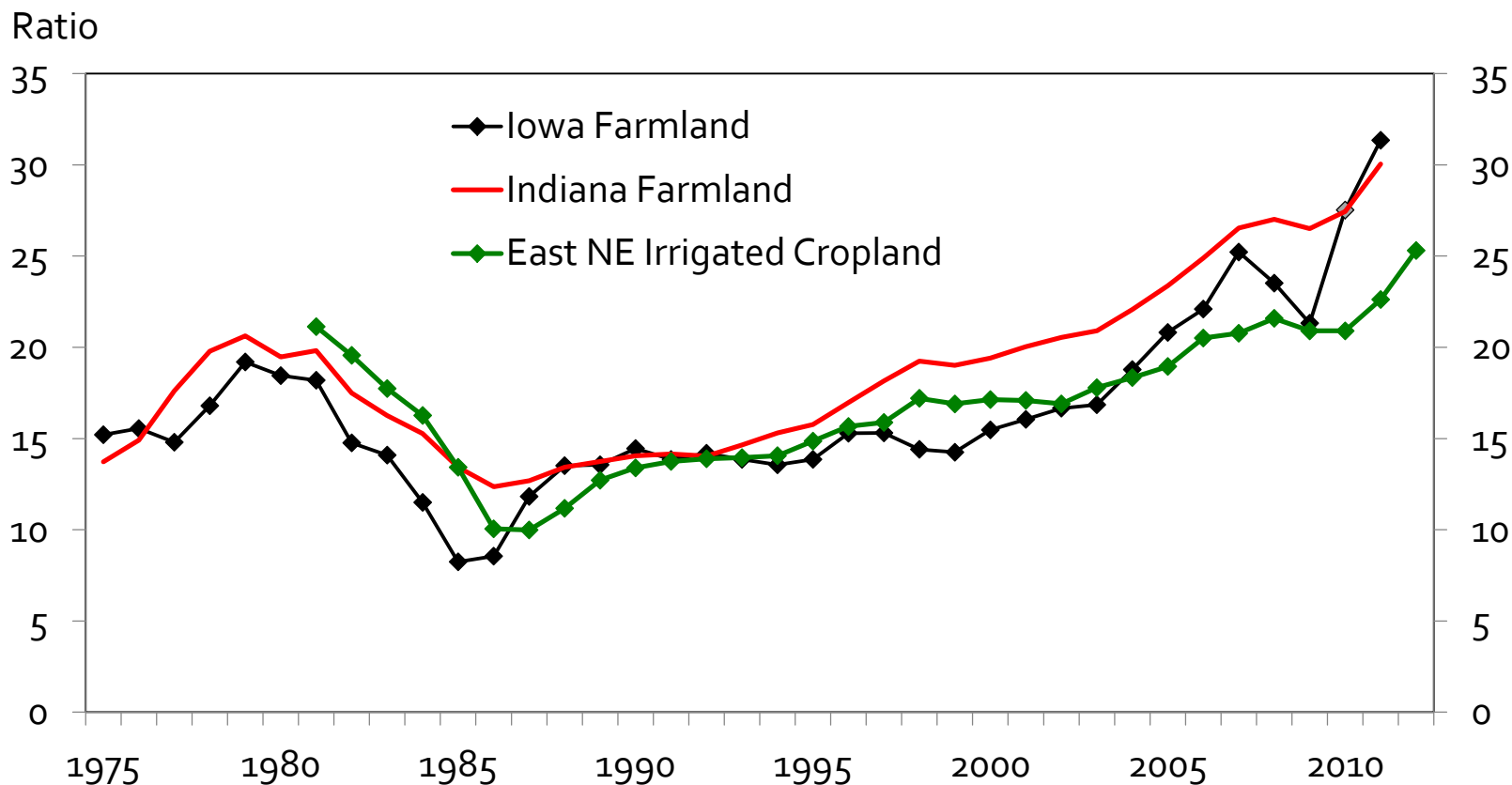


\*Percent changes are calculated using responses only from those banks reporting in both the past and the current quarter.  
Source: Federal Reserve Bank of Kansas City



# Land values are rising faster than cash rents, pushing farmland multiples to record highs.

## Farmland Values to Rent Ratio



Calculations based on Iowa State University, University of Nebraska, and Purdue University data



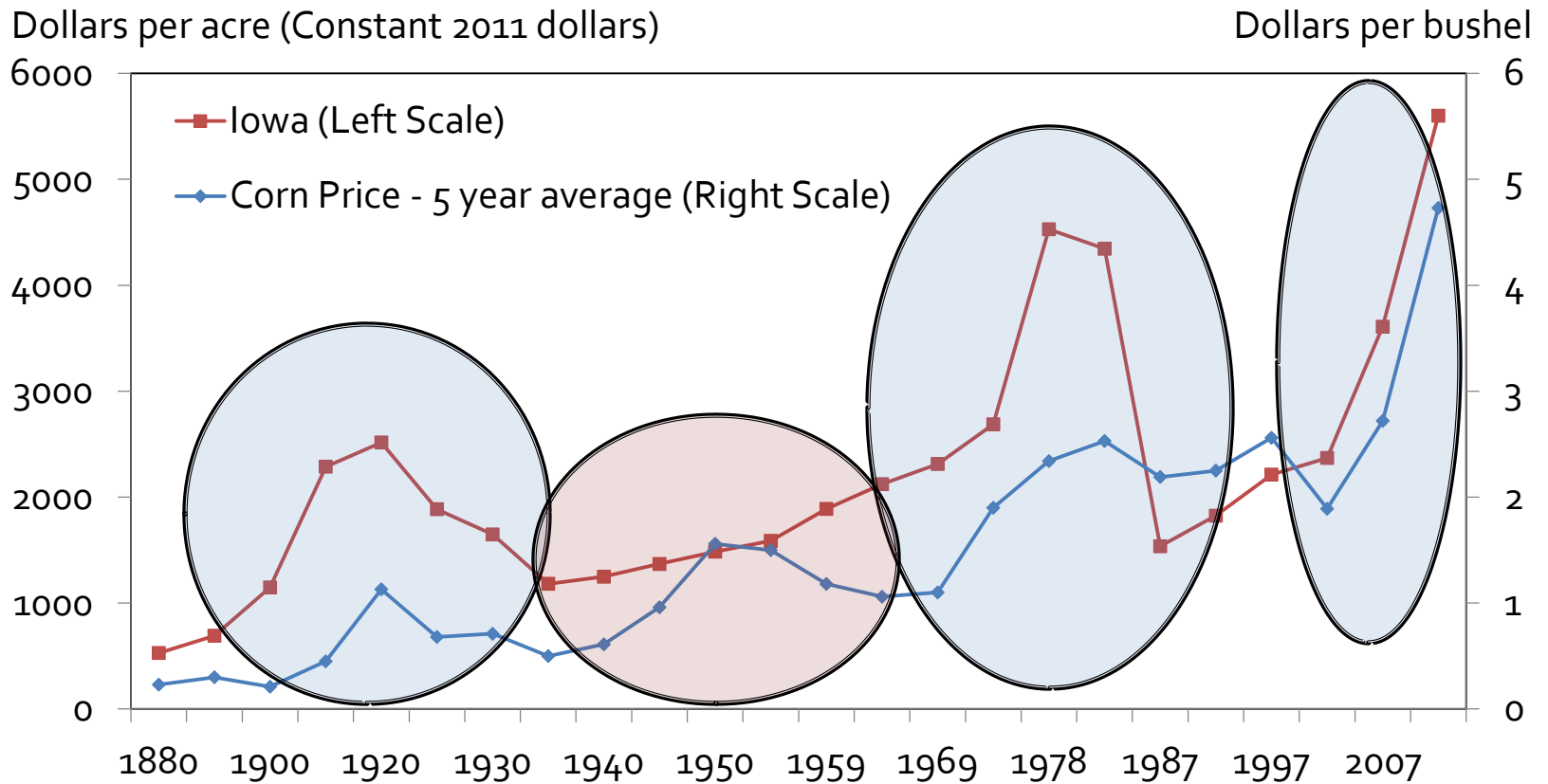
# The Foundation of Farmland Boom/Bust Cycles

BOOM/BUST CYCLES



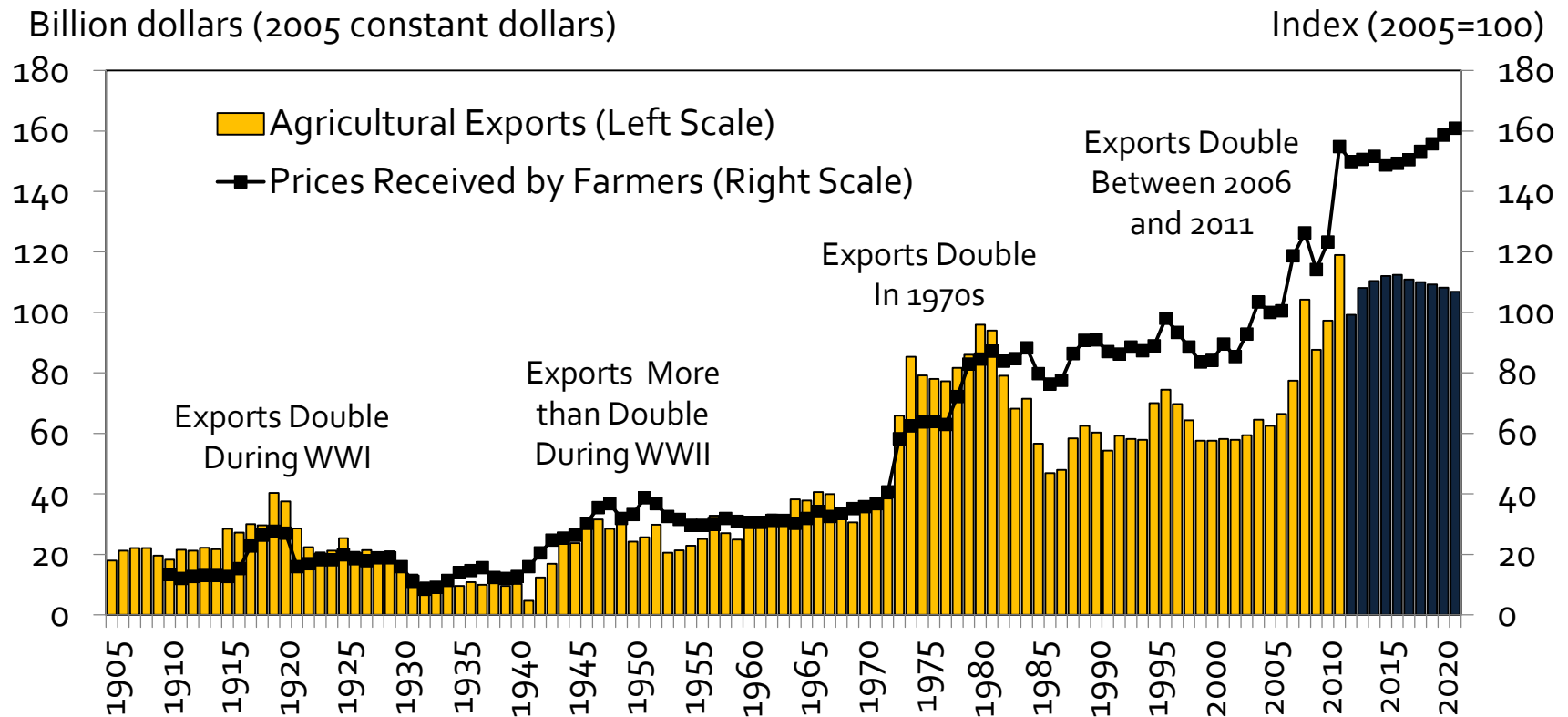
# Is agriculture set up for another correction?

## Iowa Corn Prices and Farm Real Estate Values



# Elevated export trends similar to the 1950s could keep farm prices high.

## U.S. Agricultural Exports and Farm Prices

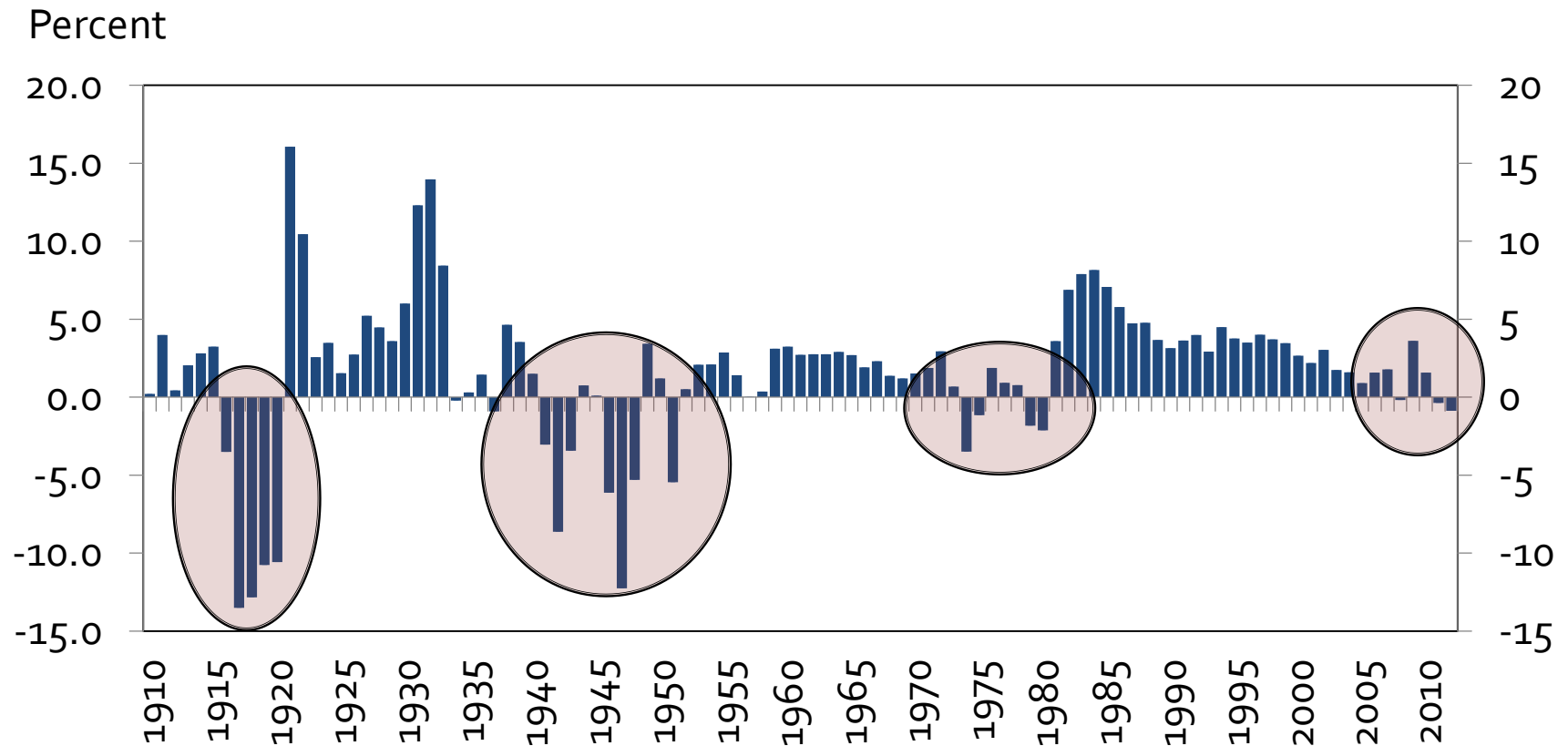


Calculations based on U.S. Census Bureau and U.S. Department of Agriculture data deflated with consumer price index from the Federal Reserve Bank of Minneapolis and USDA inflation expectations.



# Real interest rates were negative or zero during 1910s, 1940s, 1970s, and today.

## Real Yield on 10-year Treasury Security



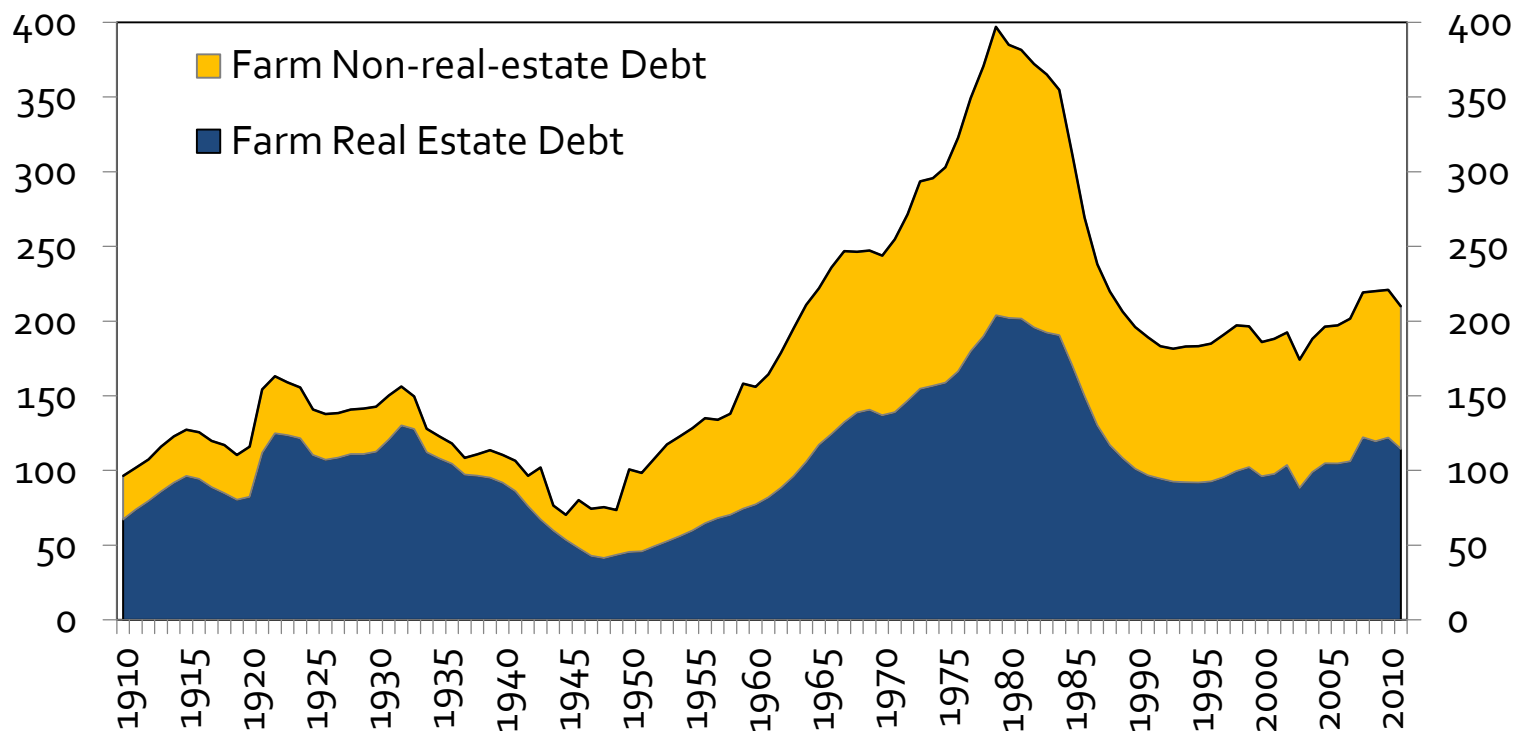
Calculations based on U.S. Department of Treasury data deflated with consumer price index from the Federal Reserve Bank of Minneapolis.



# What made the 1940s different? The lack of leverage.

## U.S. Farm Debt

Billion dollars (2005 constant dollars)



Calculations based on U.S. Census Bureau and U.S. Department of Agriculture data deflated with consumer price index from the Federal Reserve Bank of Minneapolis.

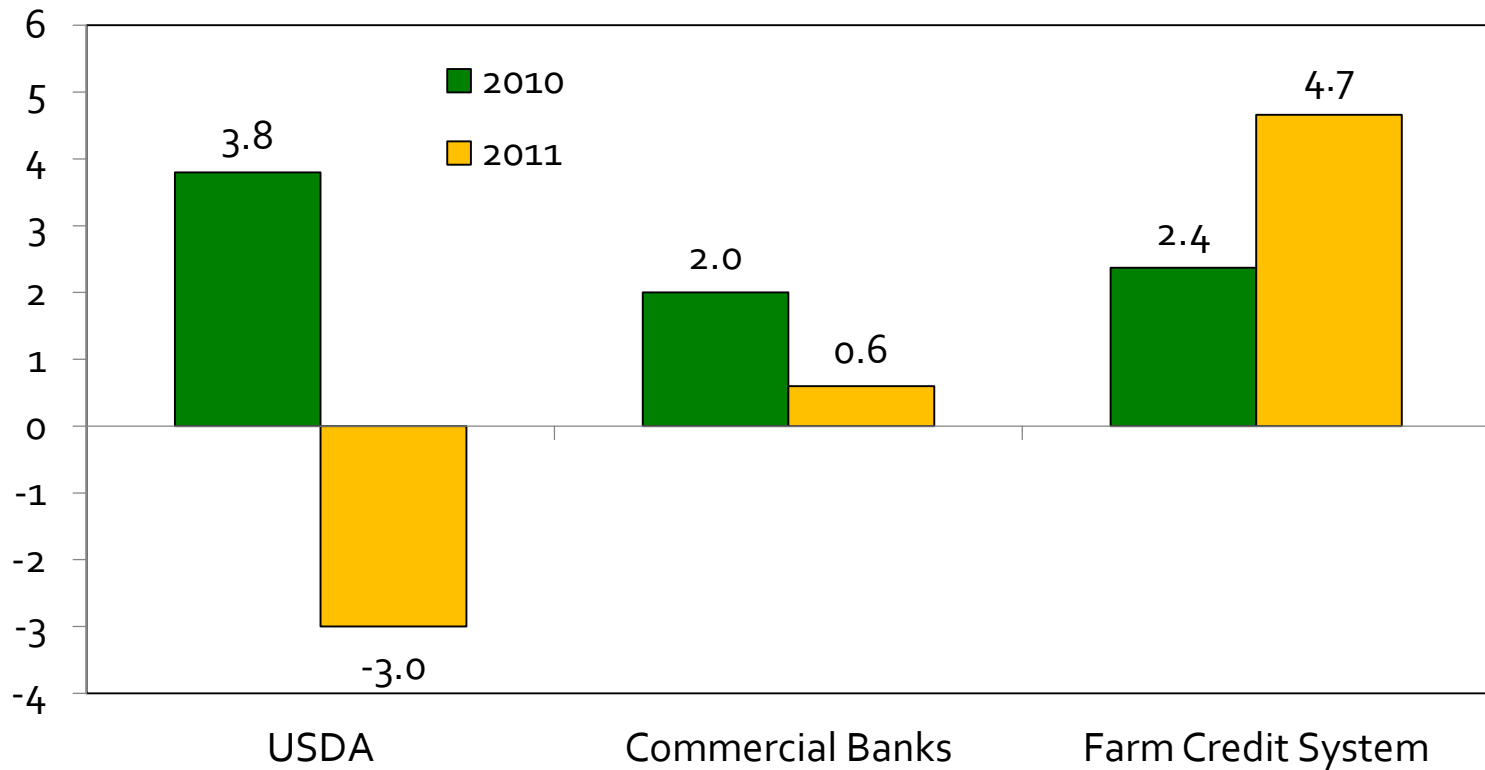




# How much debt is in the system?

## Farm Real Estate Debt

Percent change from previous year



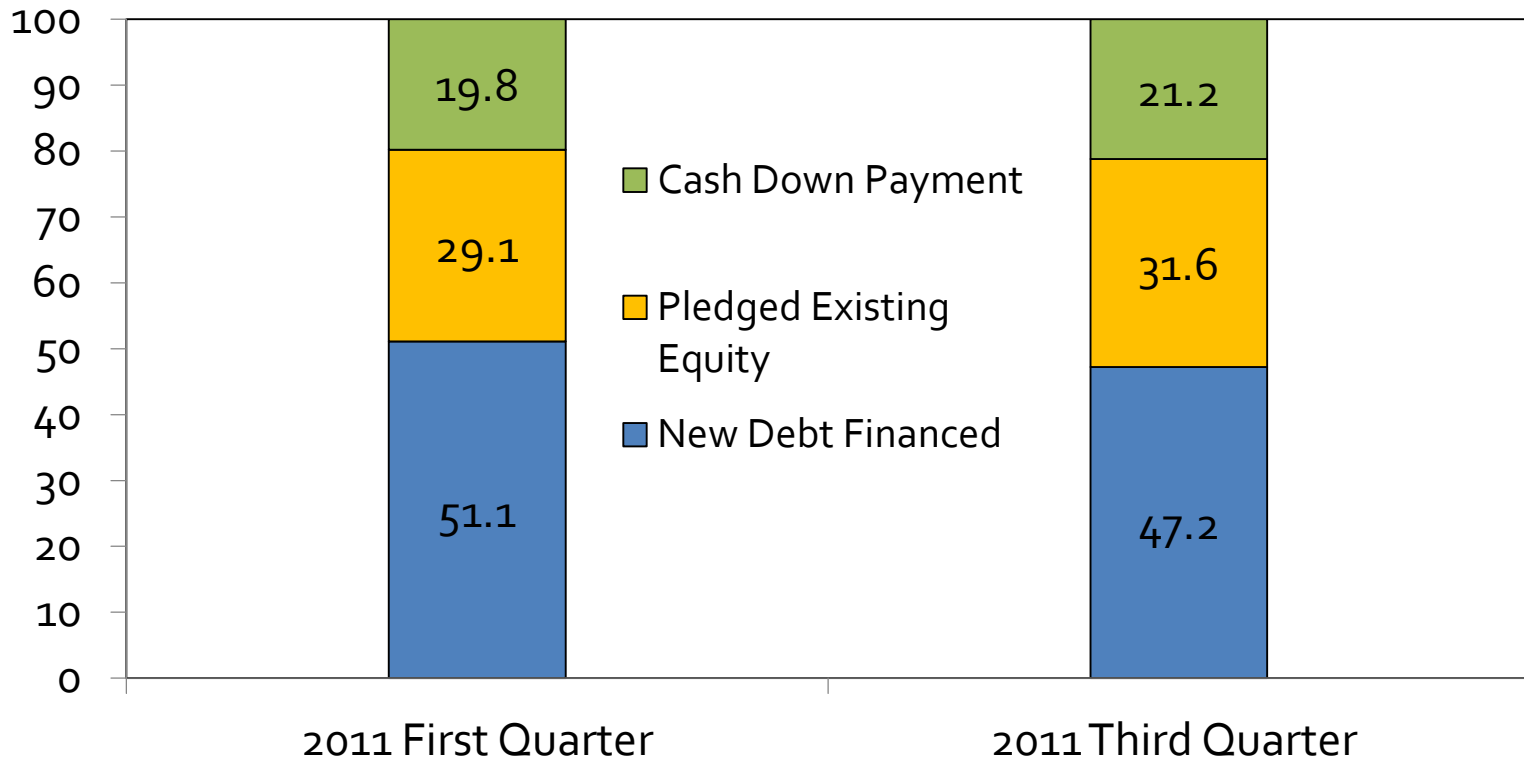
Source: USDA, Federal Reserve Bank of Kansas City, Federal Farm Credit Banks Funding Corporation



# Debt is being used to finance land purchases.

## Financing Farmland Purchases in the Tenth District

Percent of total financing



Source: Federal Reserve Bank of Kansas City



# Agriculture faces significant interest rate risk.



- **Higher interest rates ...**
  - boost debt service costs,
  - can trigger lower farm incomes if the value of the dollar rises and exports fall, and
  - raise capitalization rates, which lowers farmland values.



# What happens to farmland values if prices decline?

$$\text{Net Present Value} = \frac{30\% \text{ of Expected Gross Revenue}}{\text{Expected Capitalization Rate}}$$

## Corn Price (dollars per bushel)

	\$3.00	\$4.00	\$5.00	\$6.00	\$7.00	\$8.00
3%	6,000	8,000	10,000	12,000	14,000	16,000
4%	4,500	6,000	7,500	9,000	10,500	12,000
5%	3,600	4,800	6,000	7,200	8,400	9,600
6%	3,000	4,000	5,000	6,000	7,000	8,000
7%	2,571	3,429	4,286	5,143	6,000	6,857
8%	2,250	3,000	3,750	4,500	5,250	6,000

Assumption corn yields 200 bushels per acre



# Conclusions

- Booming farm incomes allowed farmers to pay off debts and boost capital spending.
- Competition for loans intensifies amid weak loan demand and liquidity.
- Surging farm land values raise concerns about interest rate risk.
- How farmers respond to tighter margins will determine if leverage turns today's "New Golden Era" into fool's gold?





**To Receive an Invitation to the  
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