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Outlook on Farmland Values, the Ag Economy, and Ag Credit Availability



The views expressed are those of the author and do not necessarily reflect the opinions of the Federal Reserve Bank of Kansas City or the Federal Reserve System.

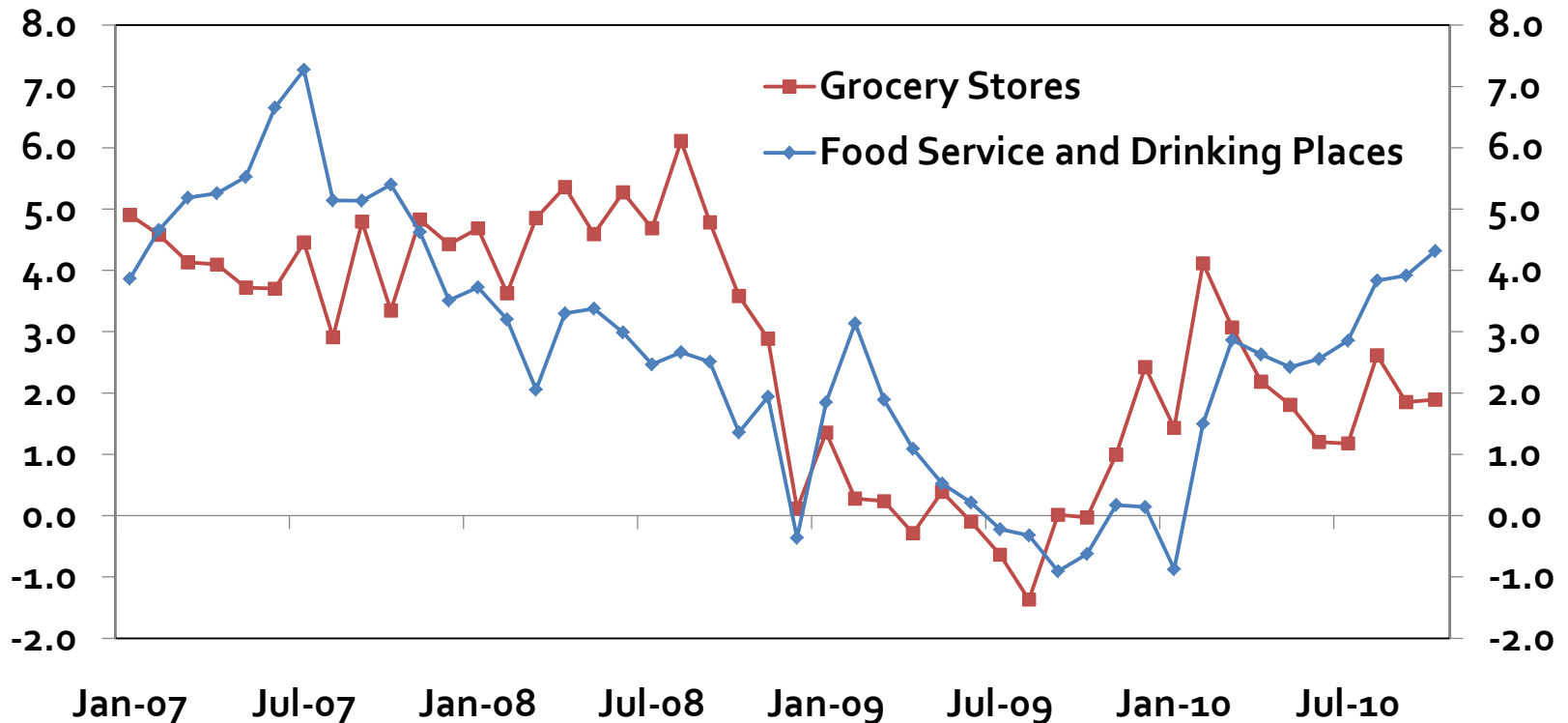
A Booming Farm Economy



U.S. food expenditures have rebounded.

U.S. Retail Sales at Grocery Stores and Restaurants

Percent change from year ago

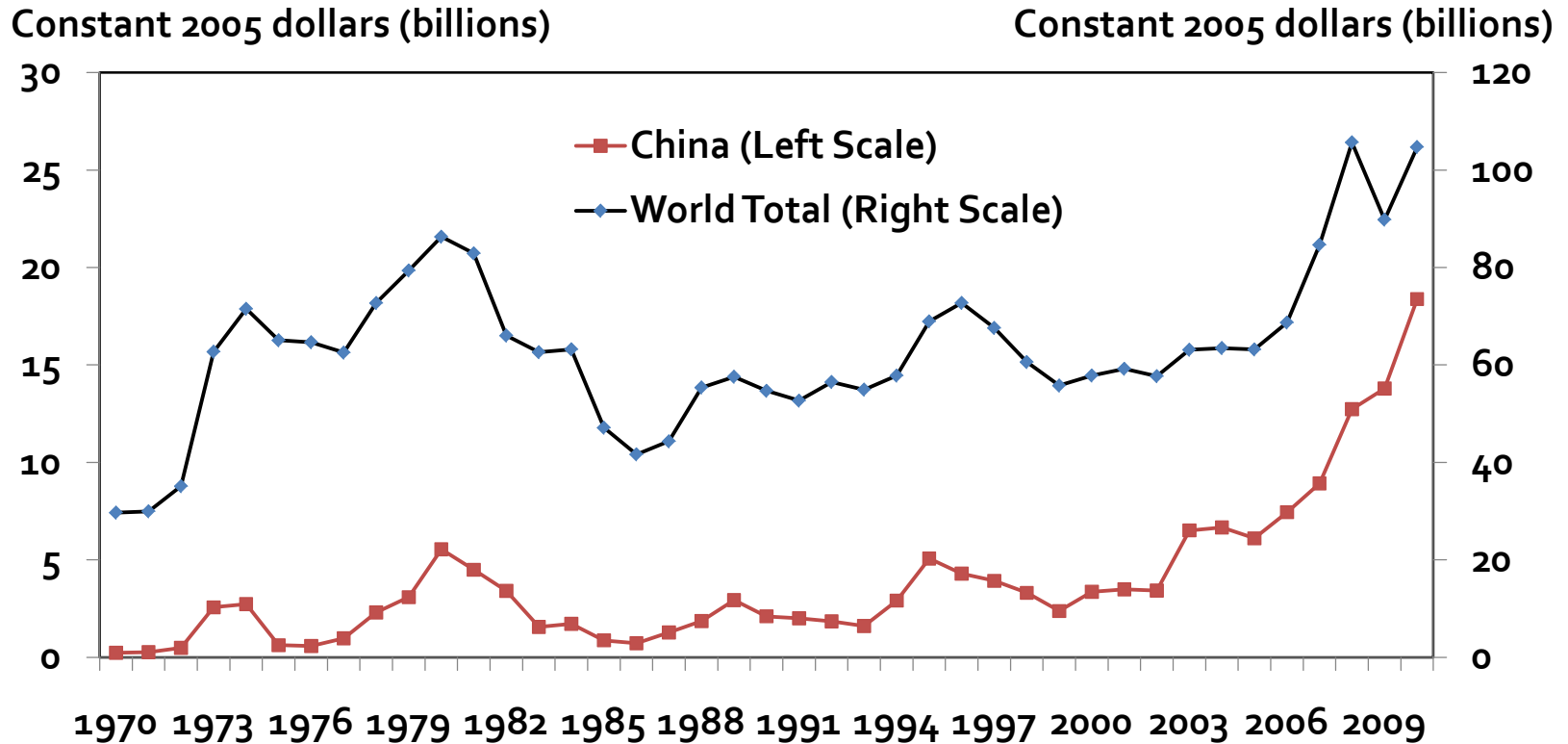


Source: Census Bureau



Exports, primarily to China, surge to record highs.

U.S. Agricultural Exports

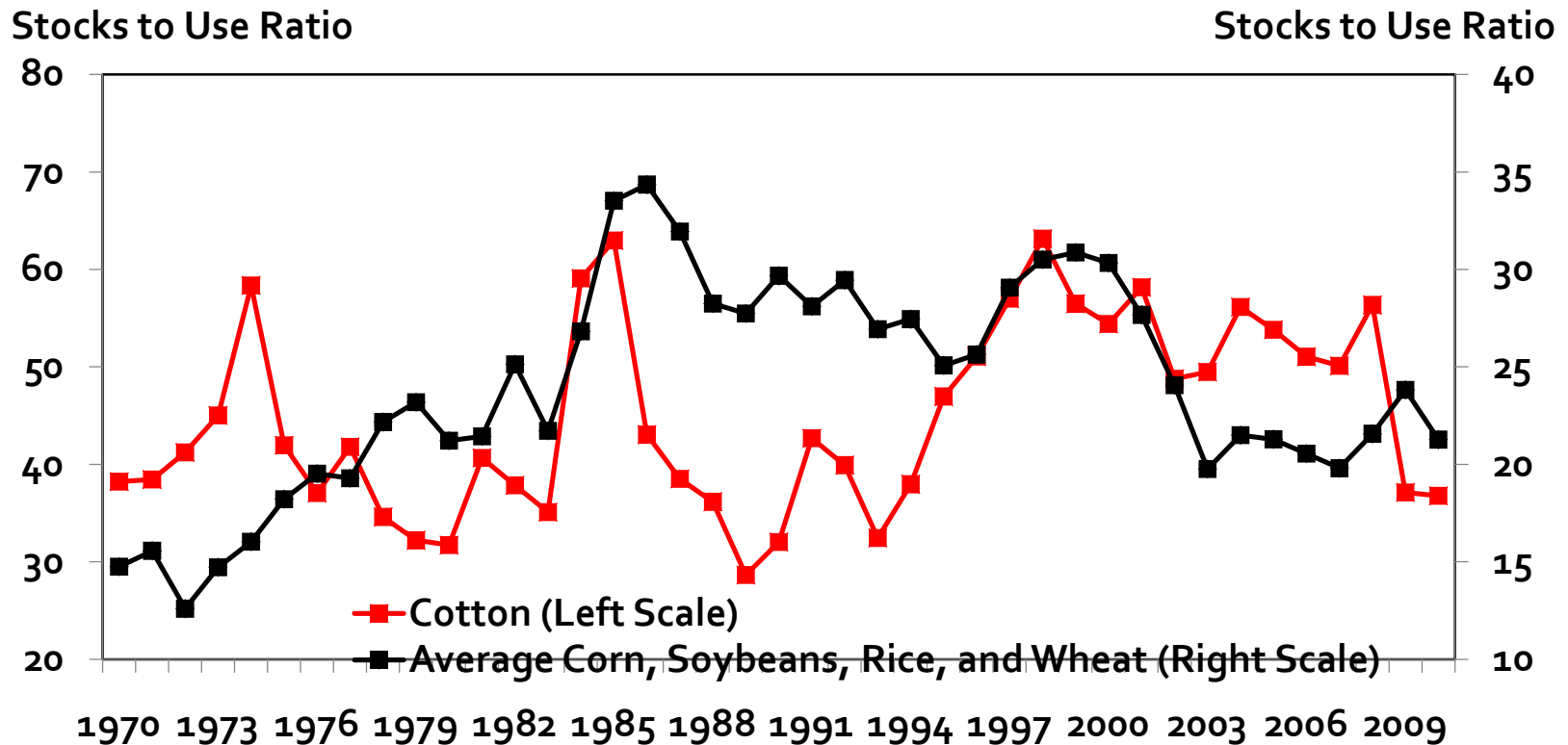


Source: USDA



World crop inventories have fallen to near record lows.

World Crop Inventories

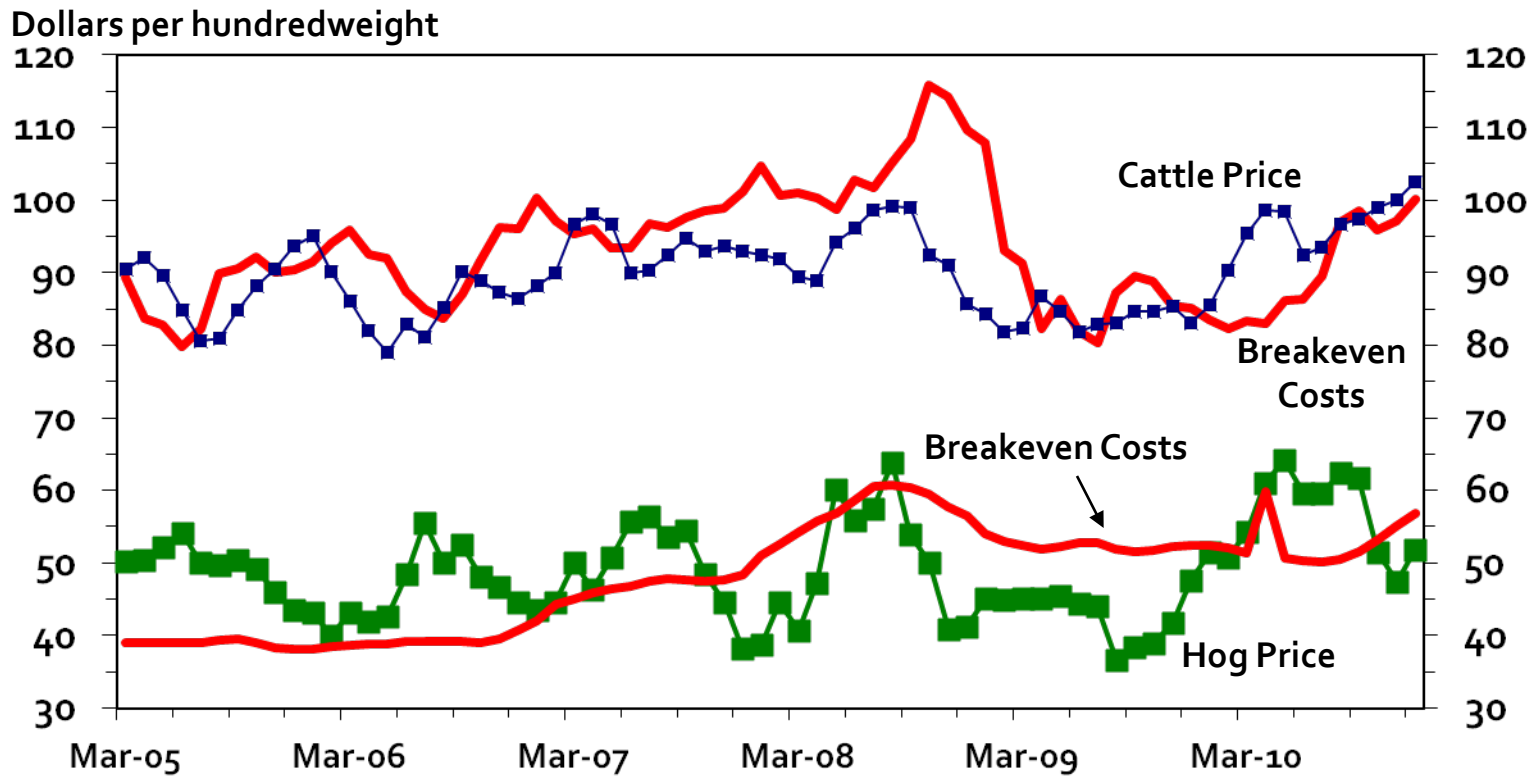


Source: USDA



Rising feed costs strain profit margins.

U.S. Livestock Prices and Breakeven Costs

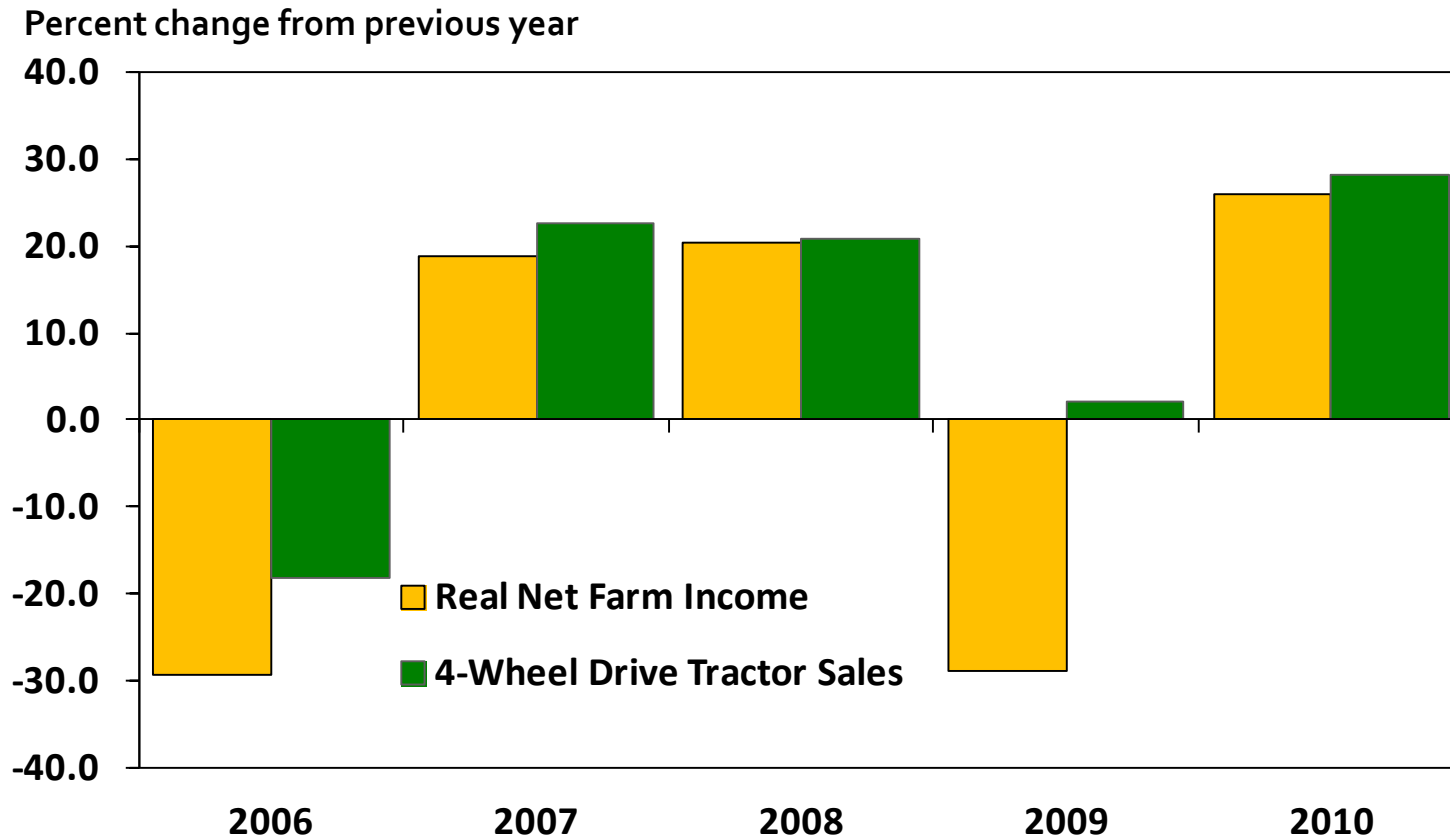


Source: USDA and Iowa State University



Stronger farm incomes boost agricultural equipment sales.

U.S. Real Net Farm Income and Agricultural Equipment Sales

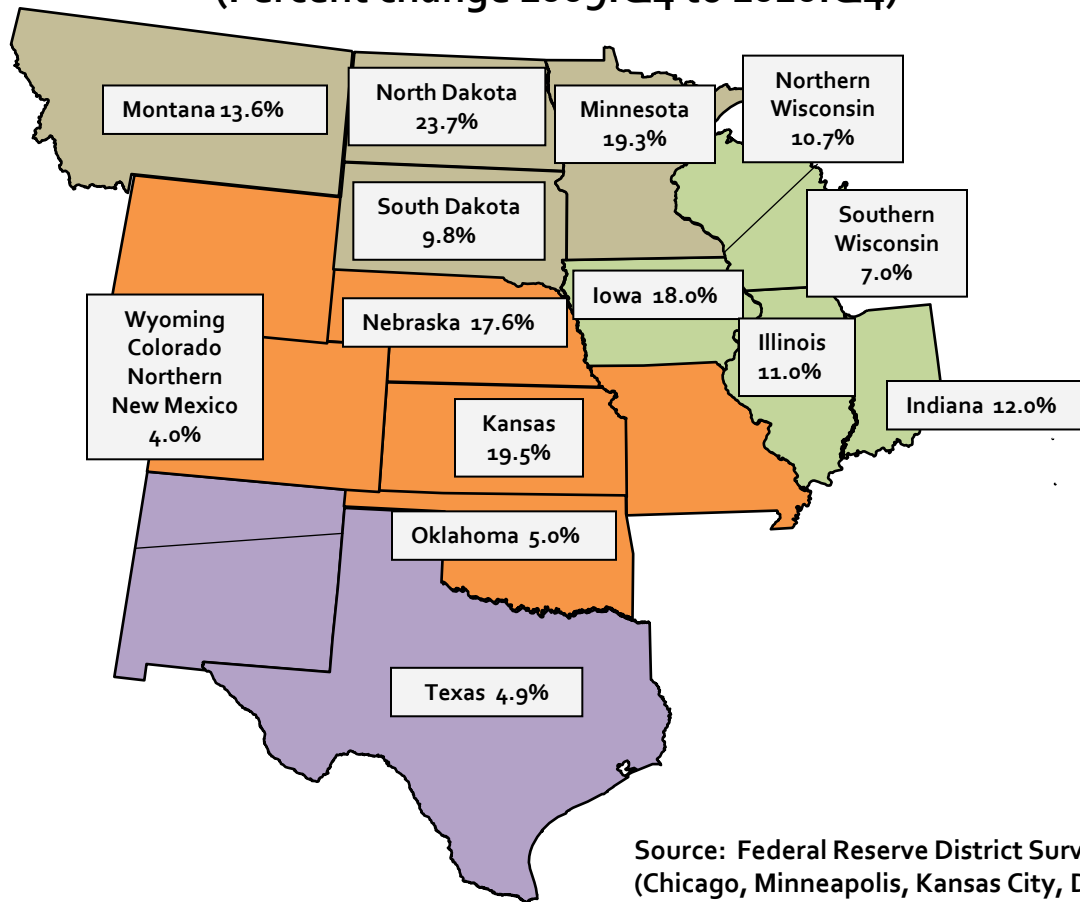


Source: Association of Equipment Manufacturers and USDA



Cropland values surge across the Corn Belt.

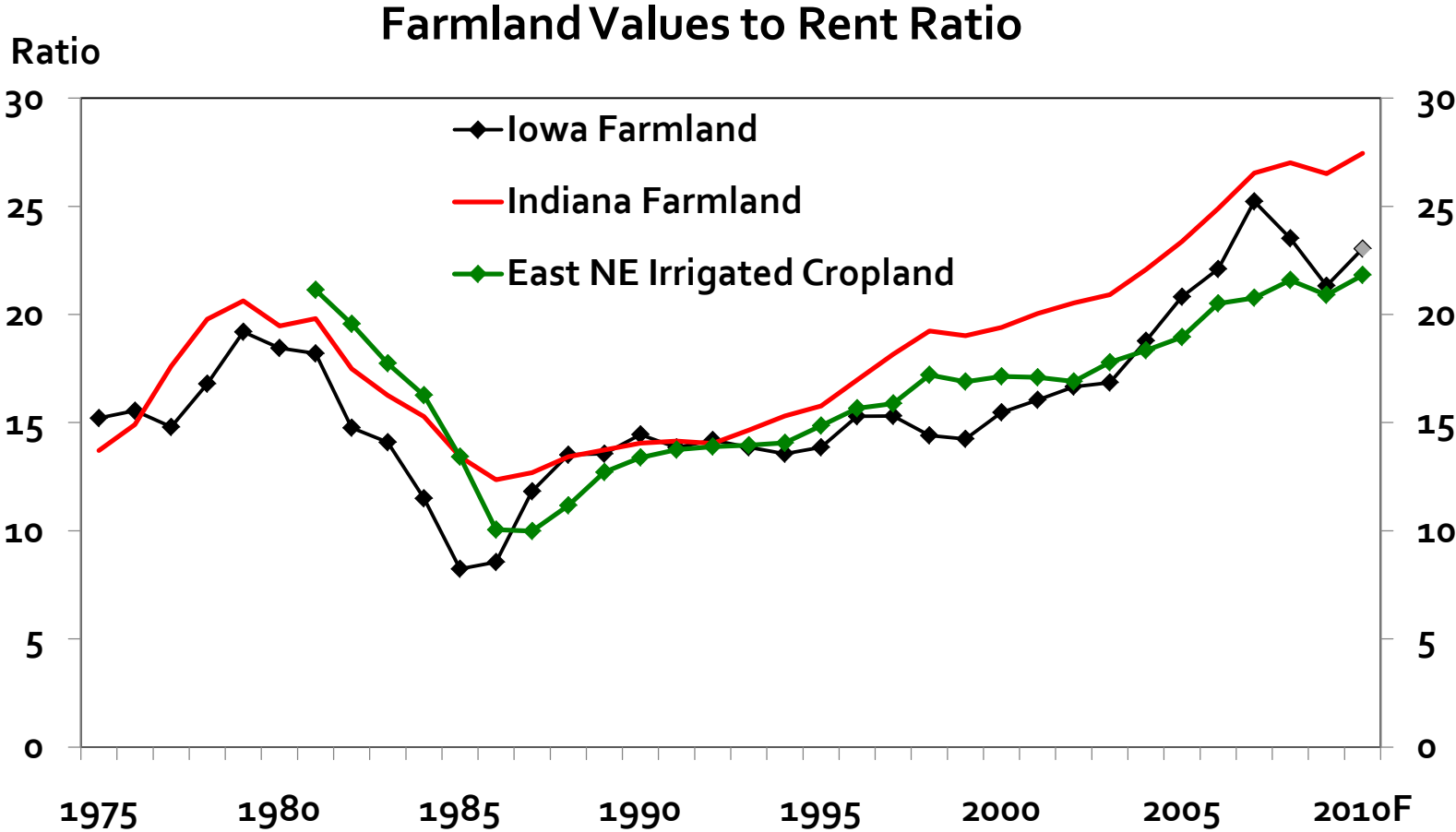
Non-irrigated Cropland Values
(Percent change 2009:Q4 to 2010:Q4)



Source: Federal Reserve District Surveys
(Chicago, Minneapolis, Kansas City, Dallas)



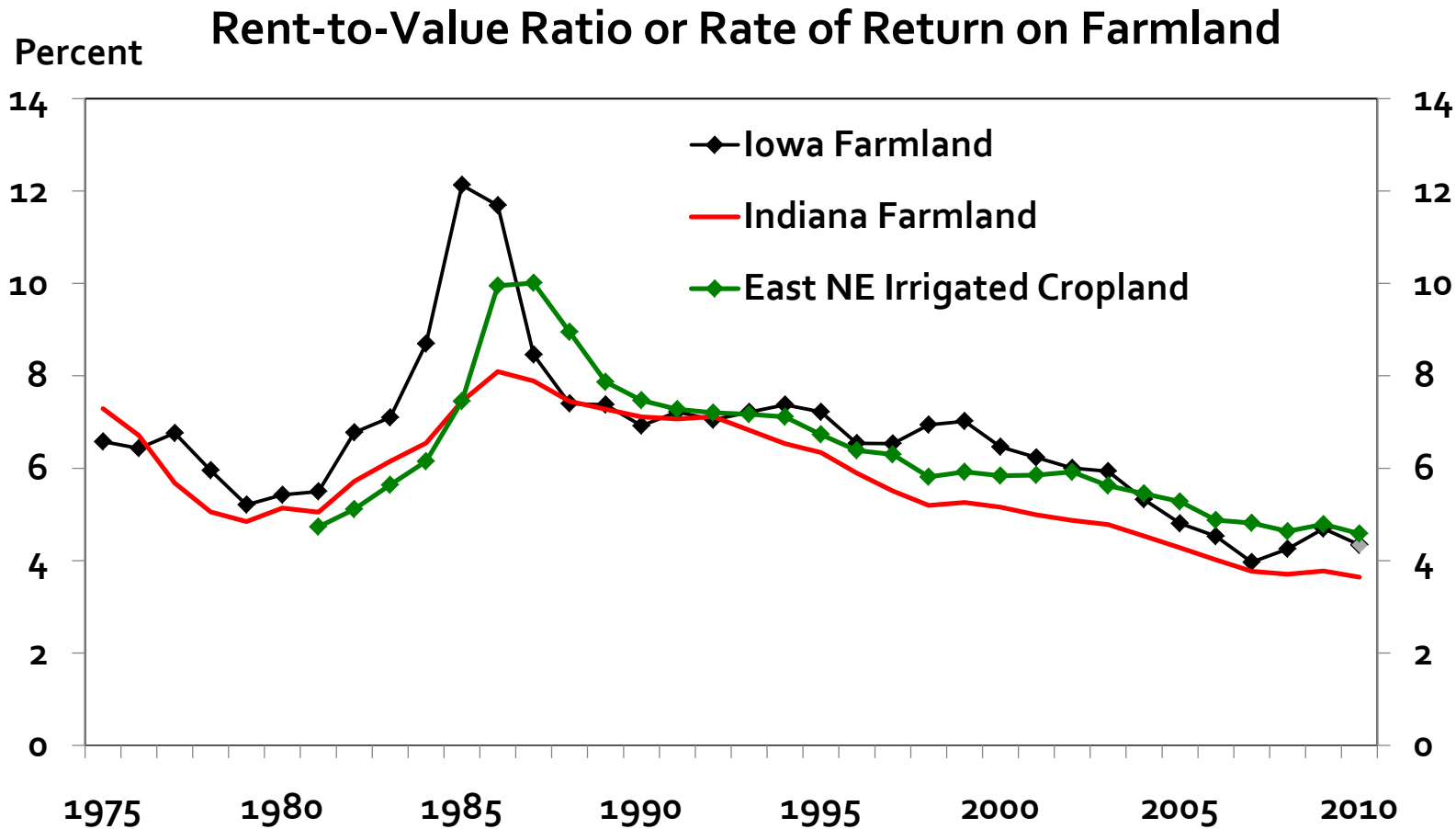
Land values are rising faster than cash rents, pushing farmland multiples to record highs.



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



In other words, returns to farmland have fallen to record lows.



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



Net Present Value Theory

Land values should equal capitalized revenues

$$\text{Land Values} = \frac{\text{Expected Revenues}}{\text{Capitalization Rate}}$$

- 1) Stronger revenues lead to higher land values
- 2) Lower discount or capitalization rate lead to higher land values

How do interest rates affect revenues and capitalization rates?

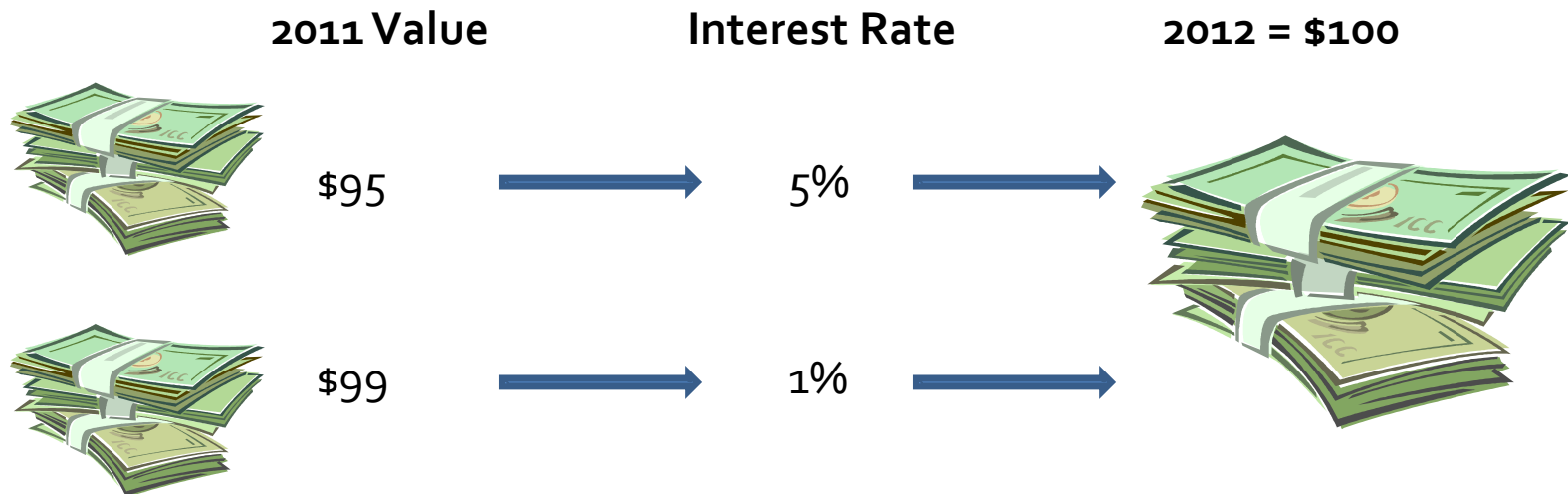


Interest Rates and Capitalization Rates

Interest rates determine the current value of future incomes.

How much is \$100 in 2012 worth today?

Answer: How much money do you need to save today to receive \$100 in 2012?



Capitalized Revenues from Corn Production

Assumptions:

Corn Price: \$5.35 per bushel
25% of gross revenues go to land

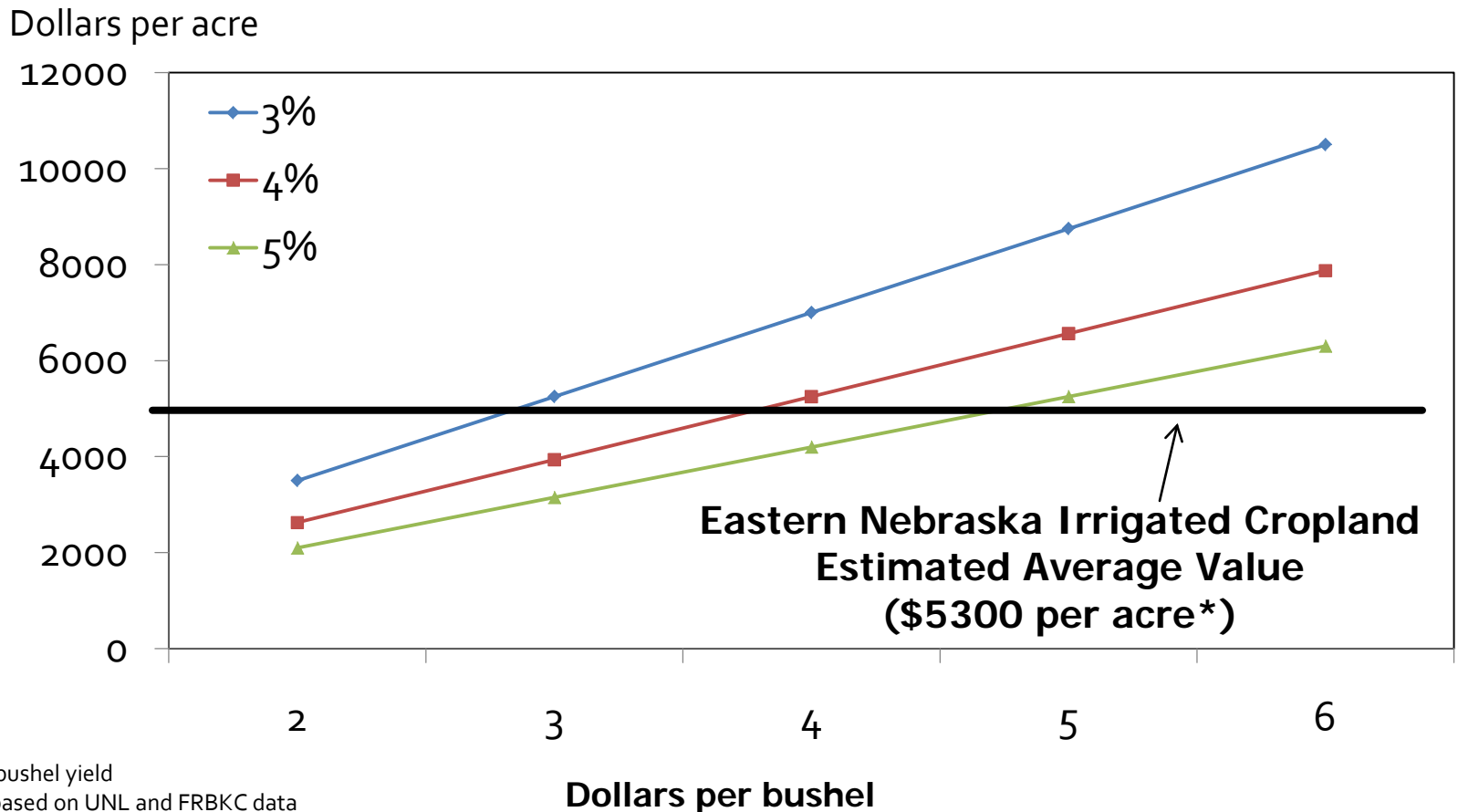
	Yield (bushel per acre)	
	170 bushels	200 bushels
Capitalization rate		
5%	4548	5350
4%	5684	6690
3%	7579	8920

Nebraska's average yield was 164 from 2006 to 2010
U.S. average annual price \$5.35 per bushel in 2010



Current land values assume historically high prices and historically low interest rates.

Capitalized Land Revenues from Corn Production



Agriculture Faces Huge Interest Rate Risk

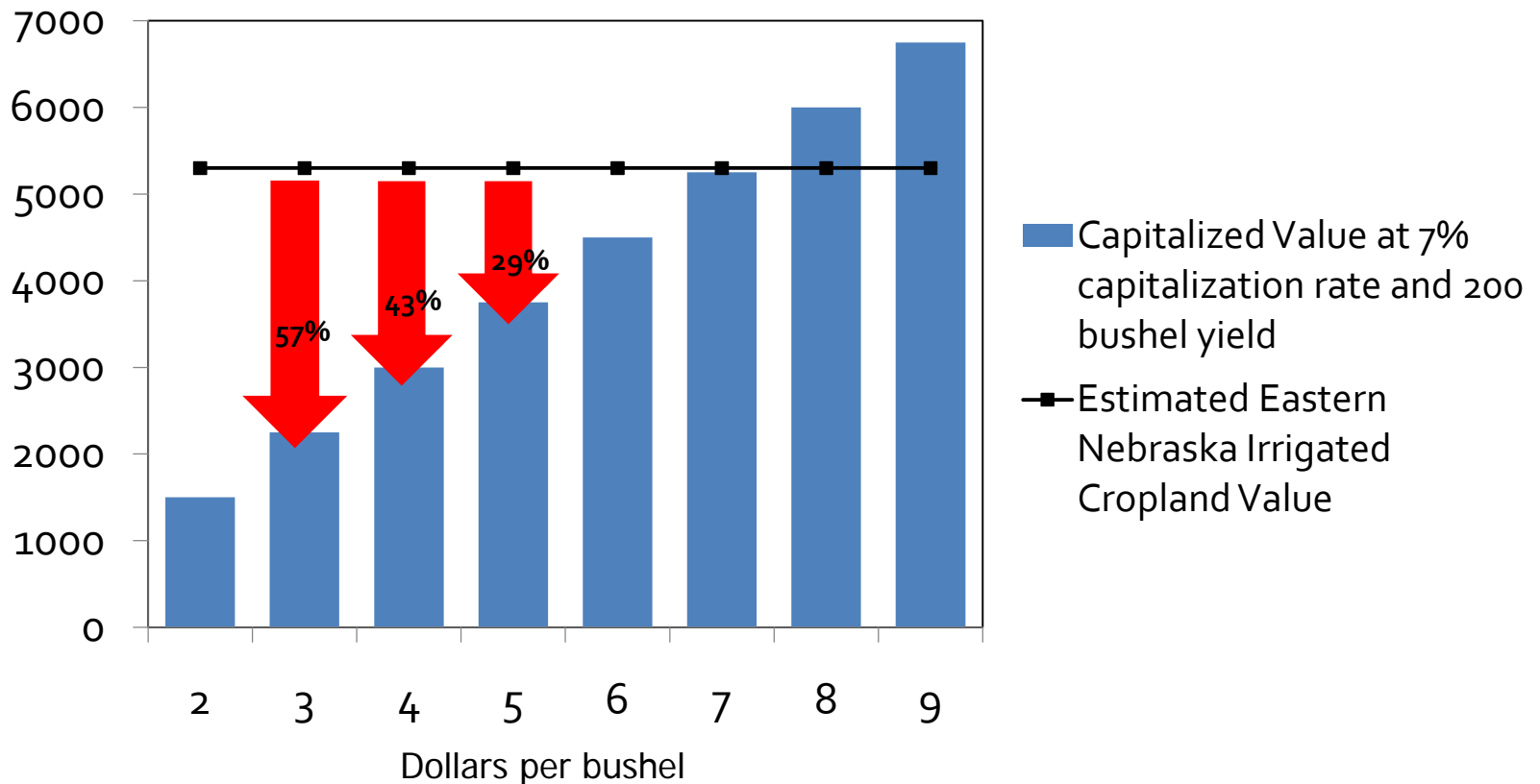
INTEREST RATE RISK



What happens if capitalization rates and interest rates rise?

Capitalized Revenues from Corn Production

Dollars per acre



How do interest rates affect farm incomes?

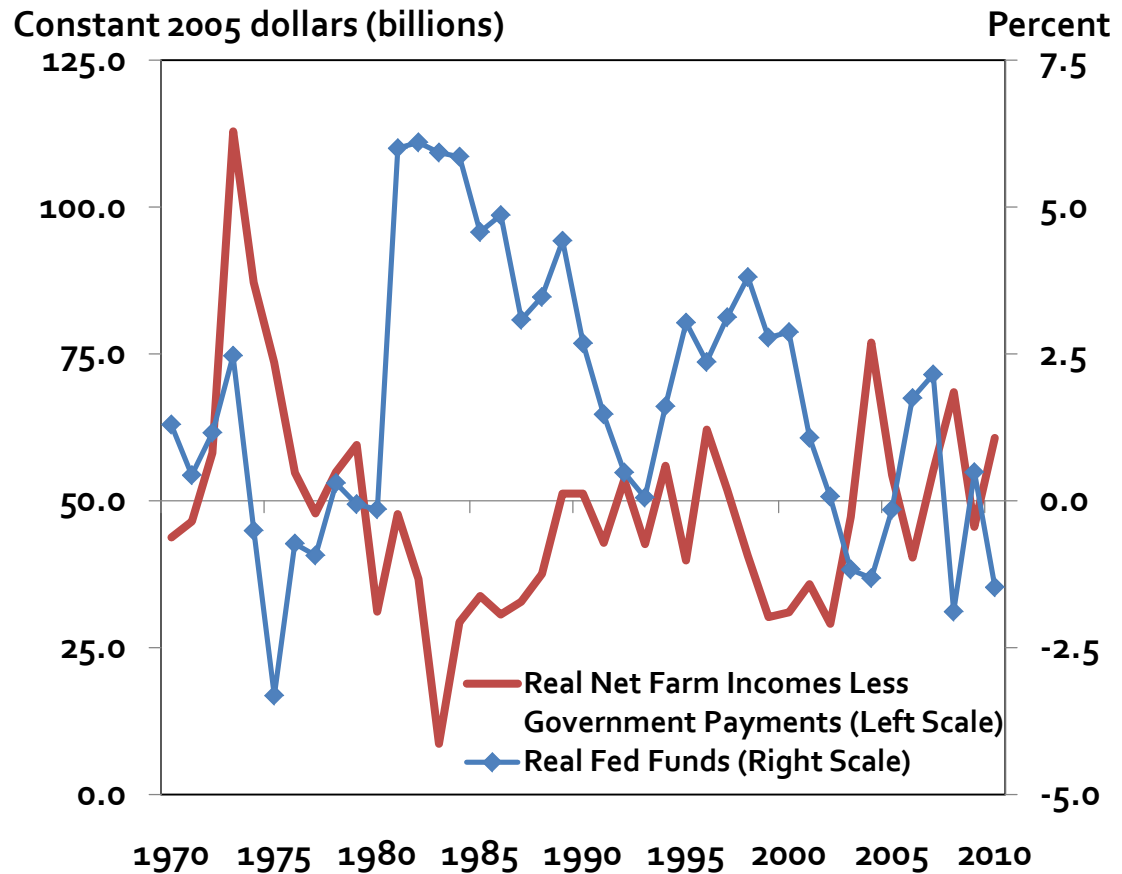
Falling interest rates ...

- Weakens the dollar,
- Lifts exports,
- Raises commodity prices,
- Boosts farm incomes

Rising interest rates ...

- Strengthens the dollar,
- Shrinks exports,
- Lowers commodity prices,
- Cuts farm incomes

Real Fed Funds Rate and Net Farm Incomes



Sources: USDA , Federal Reserve, BLS



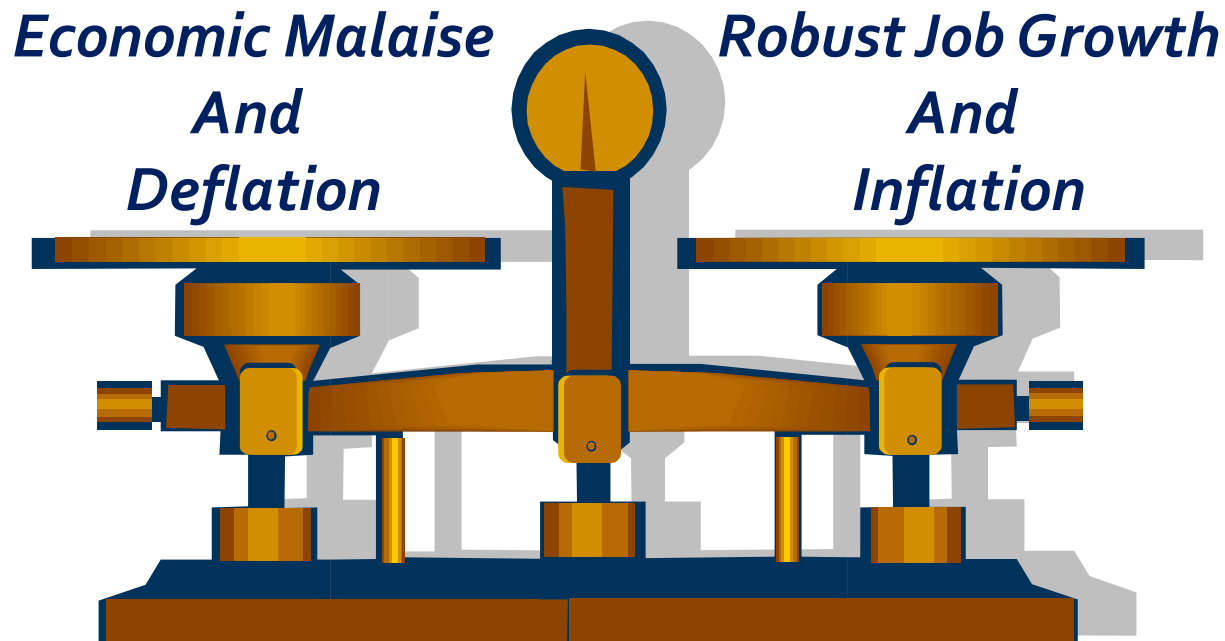
Have the Risks Changed for the Macro Economy?

THE MACRO ECONOMY



U.S. Monetary Policy: A Risk Management Approach

What is the Risk?



Inflation is based on money and velocity.

Quantity Theory of Money

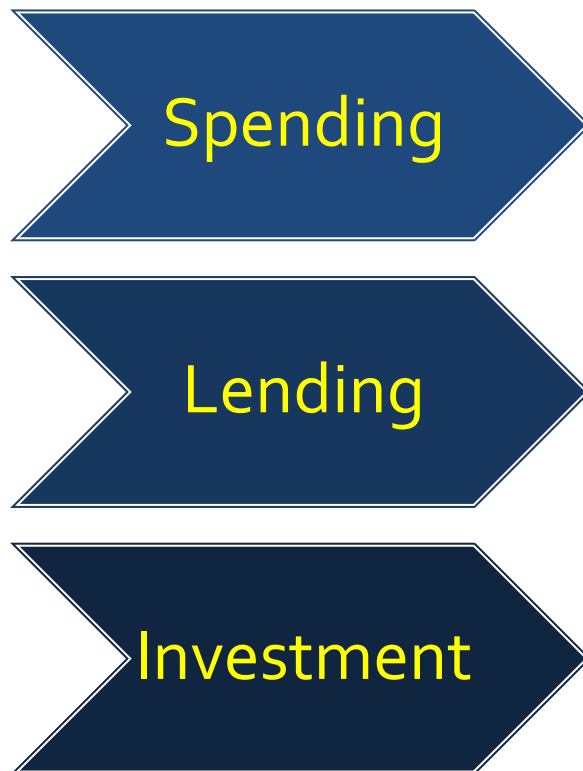
$$\text{Price} = \frac{\text{Money} * \text{Velocity}}{\text{Quantity}}$$

Definition of Inflation:

Too much money $M \uparrow$
chasing $V \uparrow$
too few goods $Q \downarrow$



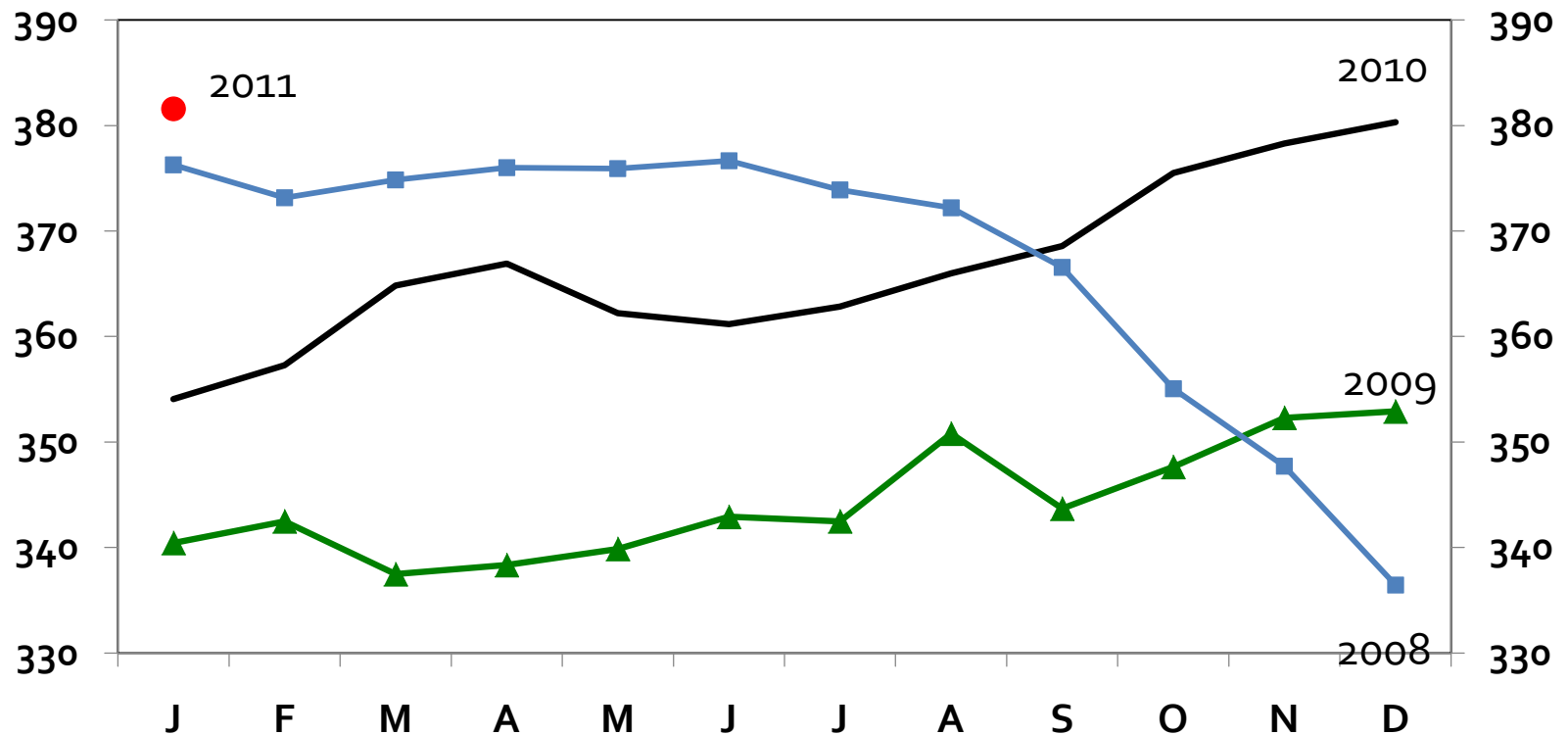
What Shapes Velocity?



After a summer lull, consumer spending is on the rise.

U.S. Monthly Retail and Food Sales

Billion dollars

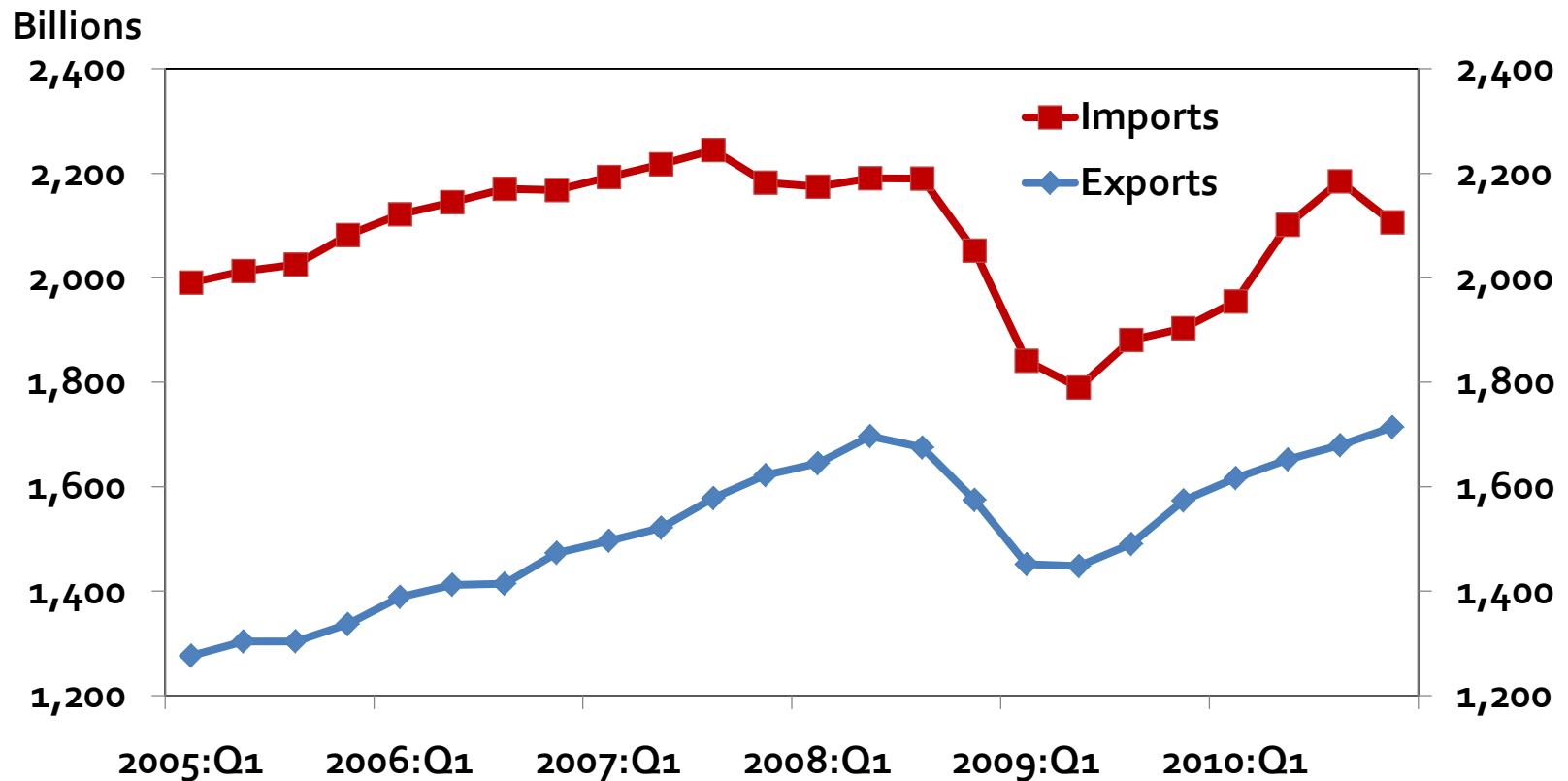


Source: U.S. Census Bureau



The summer export drag was caused by spending and rising imports.

U.S. Exports and Imports



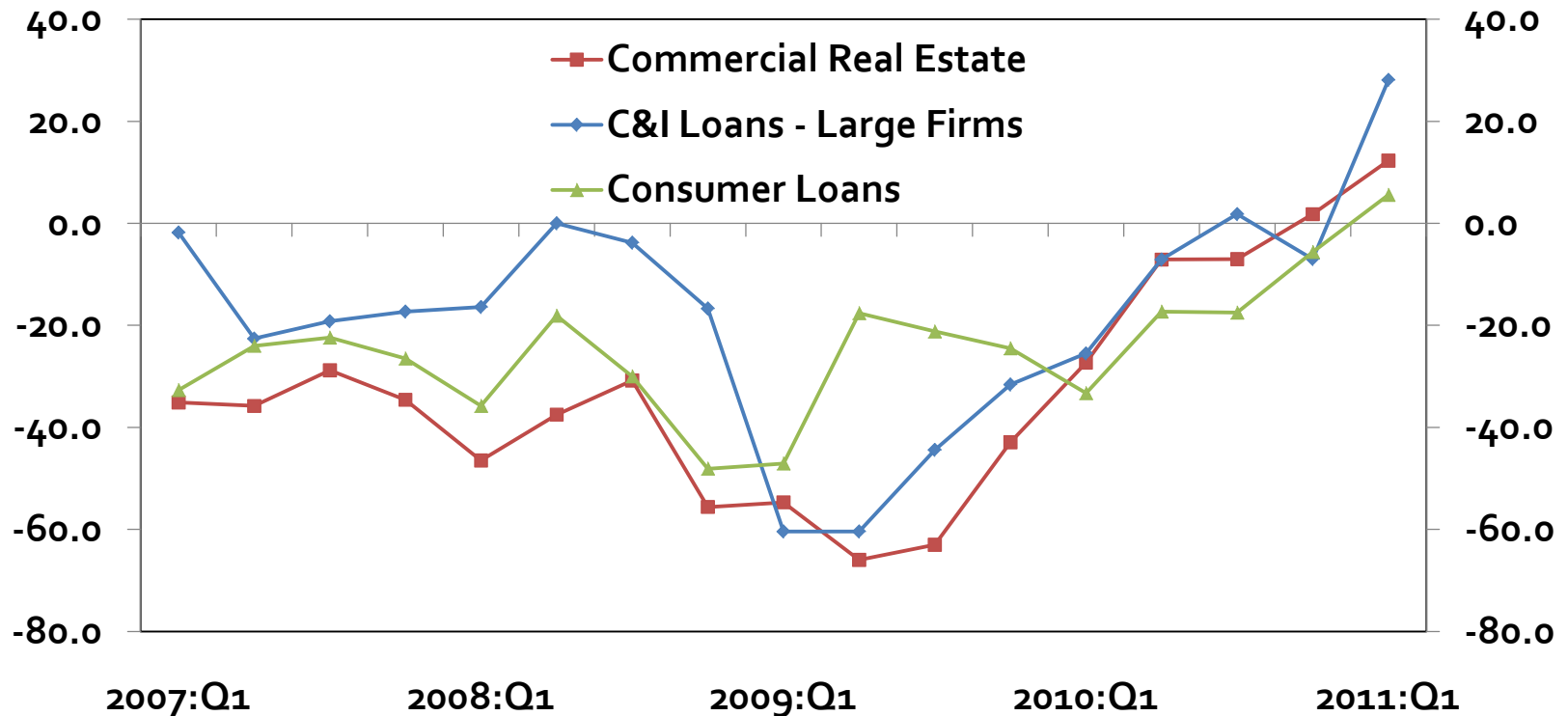
Source: Bureau of Economic Analysis



With rising loan demand and easing credit standards, lending should rise.

Loan Demand at Commercial Banks

Net percent of bankers reporting stronger loan demand

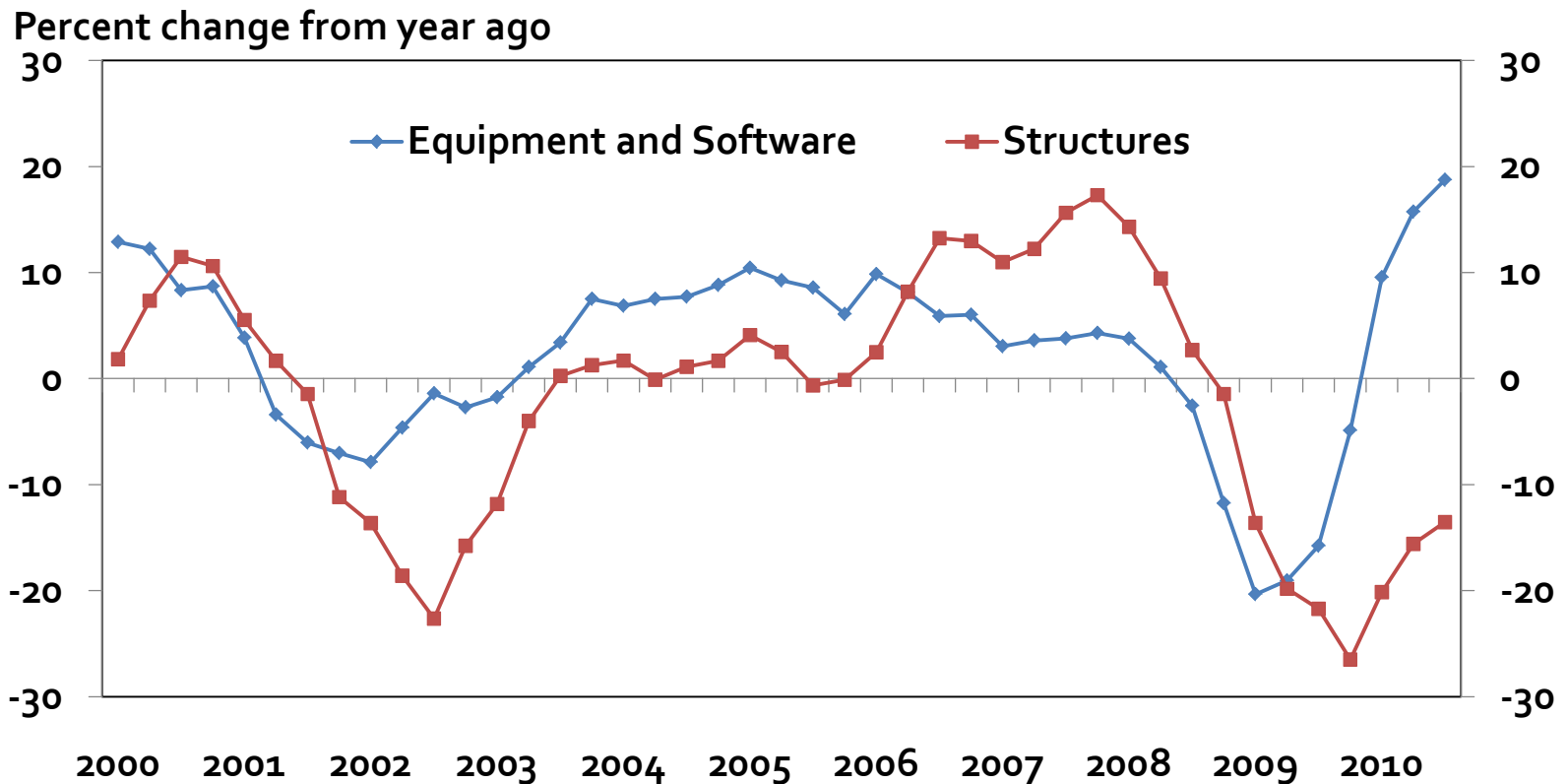


Source: Federal Reserve Board of Governors



Business investment is beginning to rebound.

Nonresidential Fixed Investment



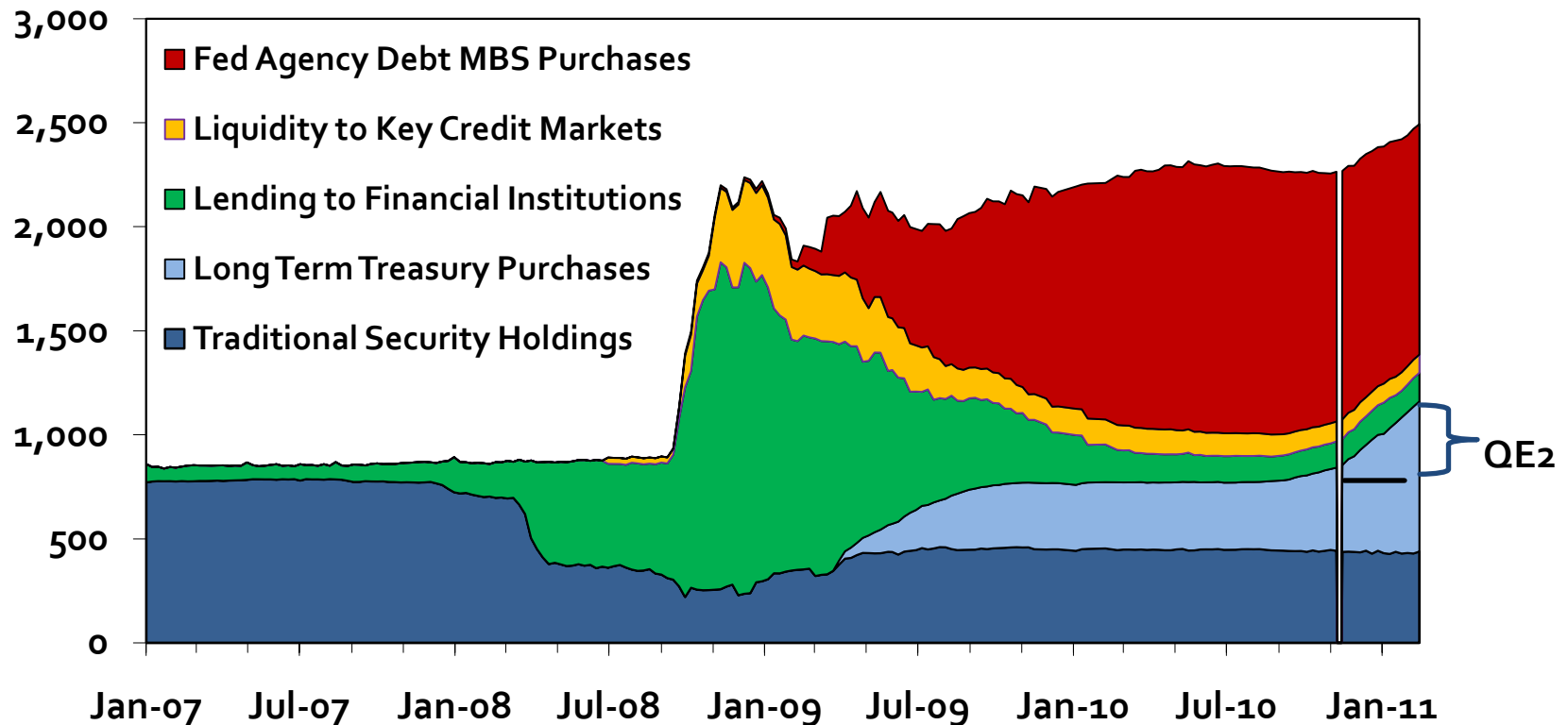
Source: Bureau of Economic Analysis



Quantitative easing (QE) has expanded the Federal Reserve balance sheet.

Federal Reserve Balance Sheet: Assets

Billion Dollars

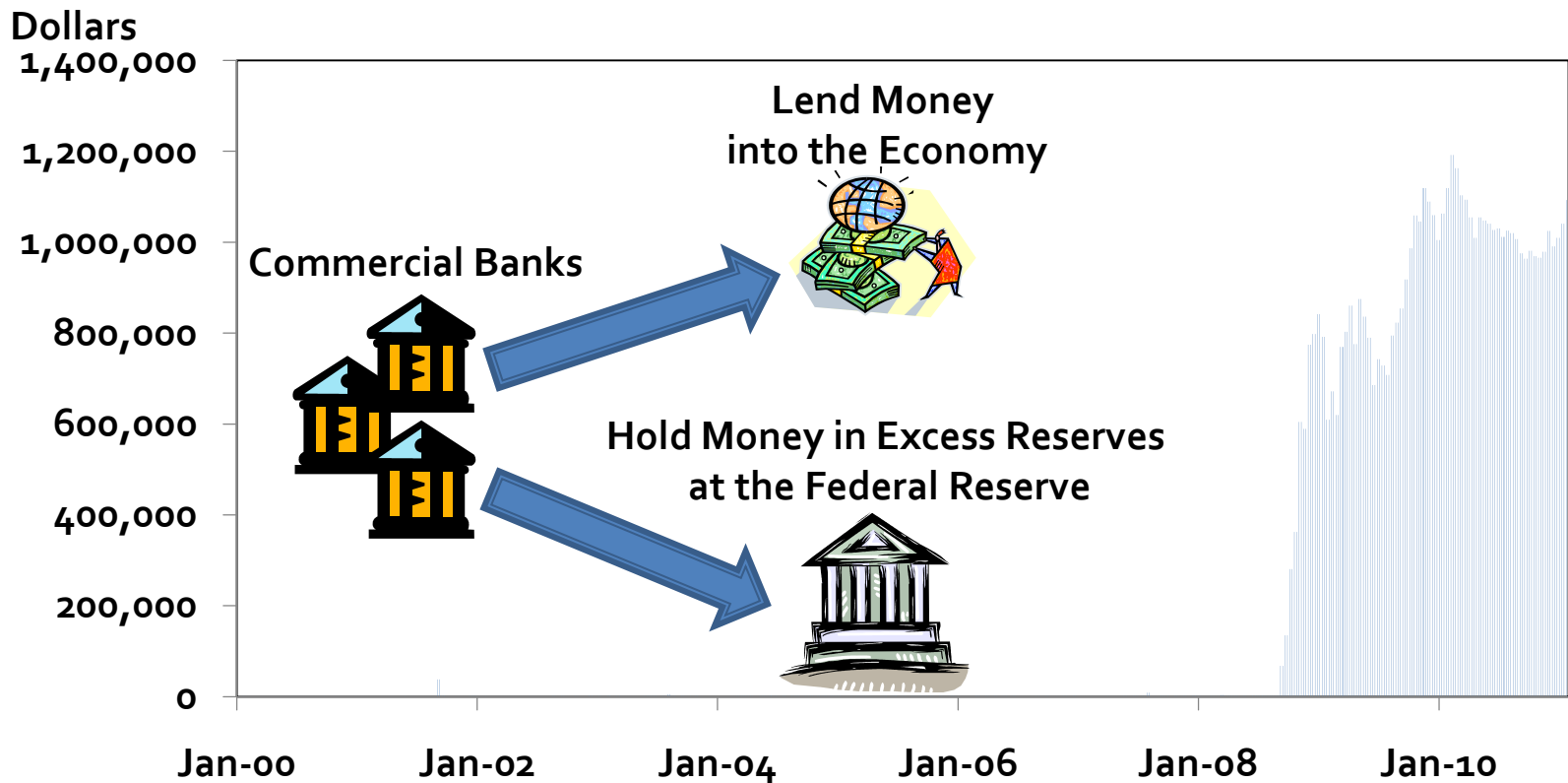


Source: Federal Reserve Bank of Cleveland



Monetary base is being held in excess reserves.

Excess Reserves Held by Depository Institutions



Source: Federal Reserve

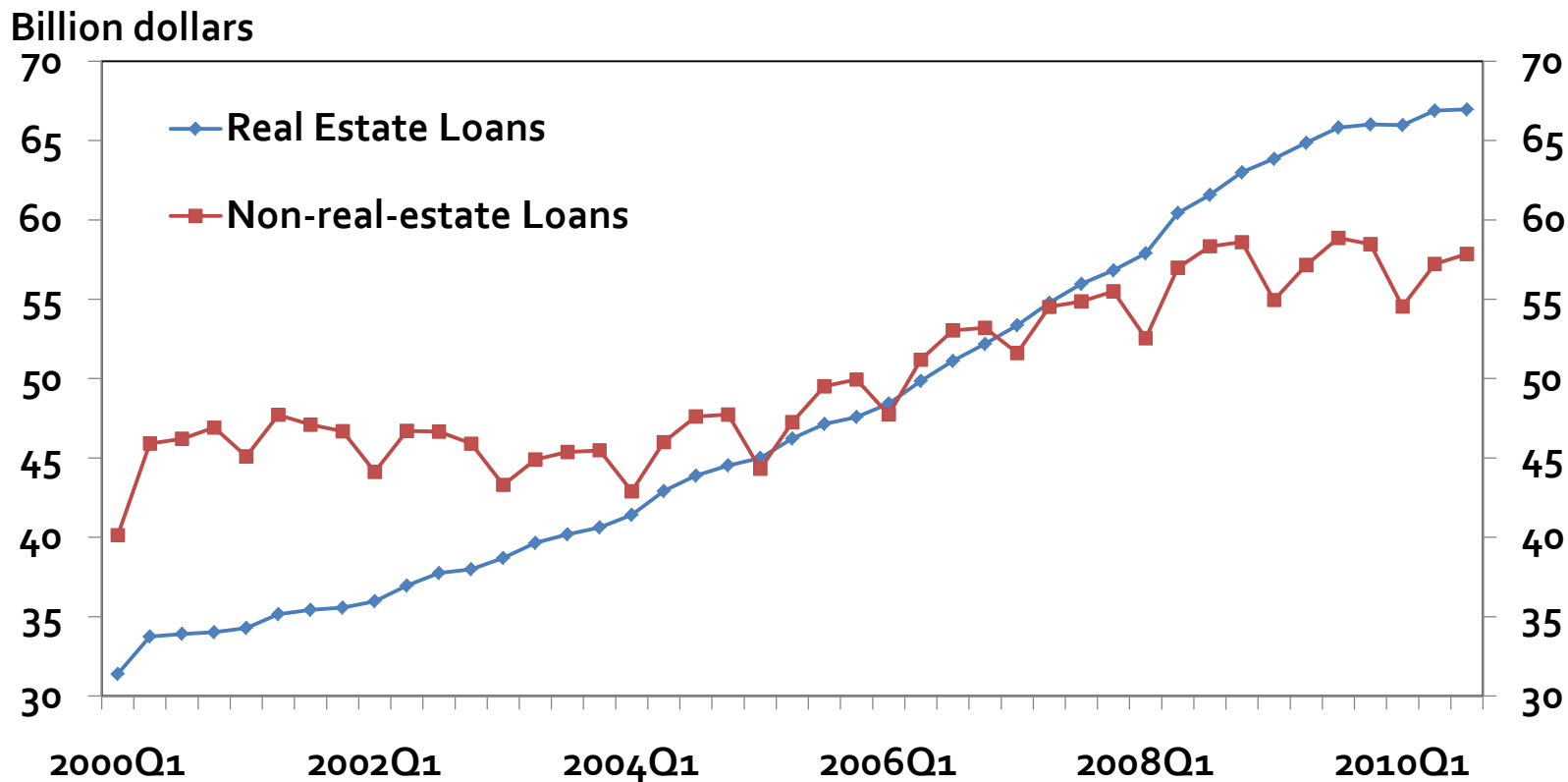


Agricultural Financing



Farm real estate debt continues to rise, with a plateau in non-real-estate debt.

Farm Debt Outstanding at Commercial Banks

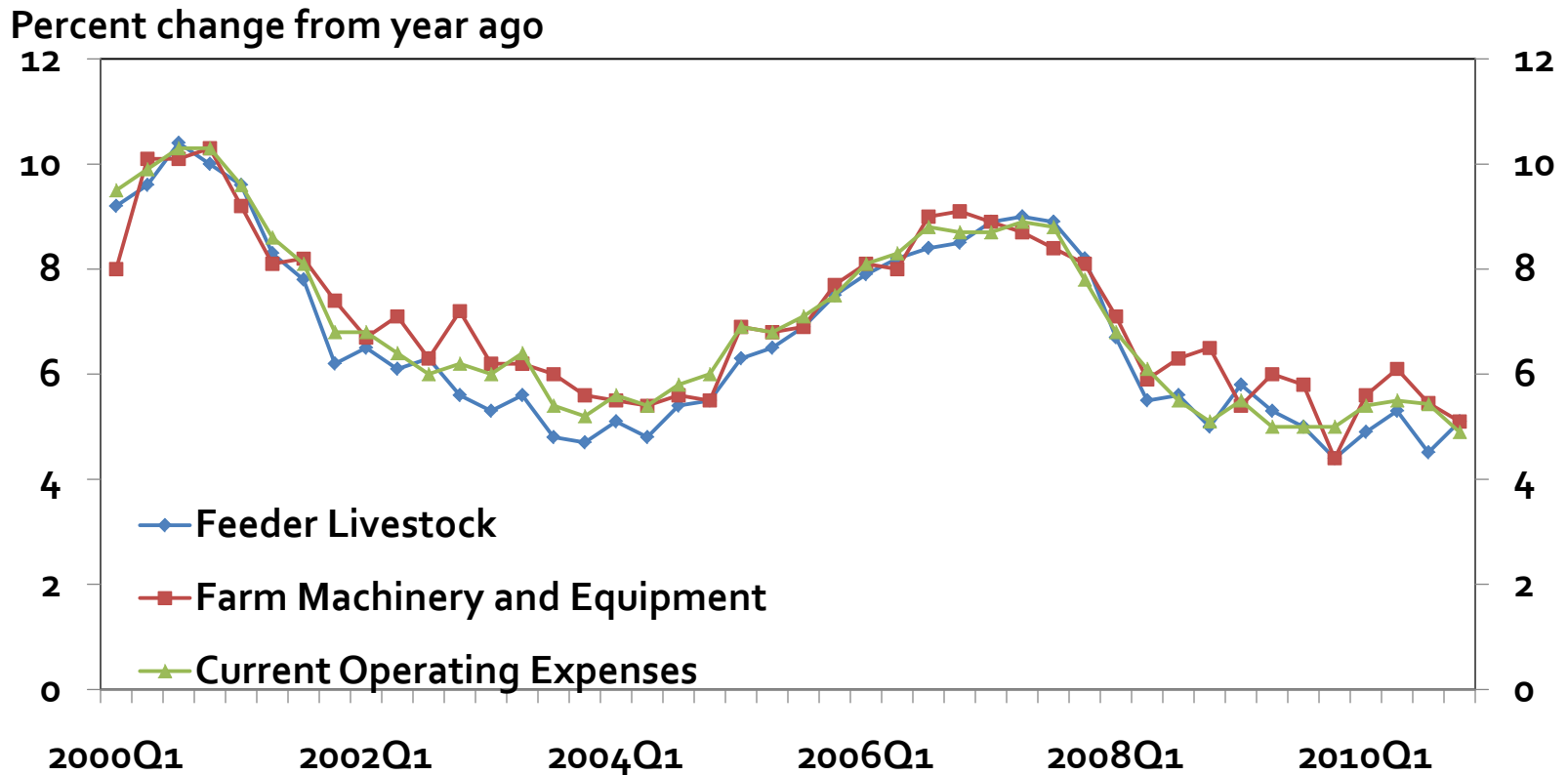


Source: Agricultural Finance Databook, Federal Reserve Bank of Kansas City



Interest rates remain near historical lows.

Average Effective Interest Rate on Non-Real-Estate Farm Loans



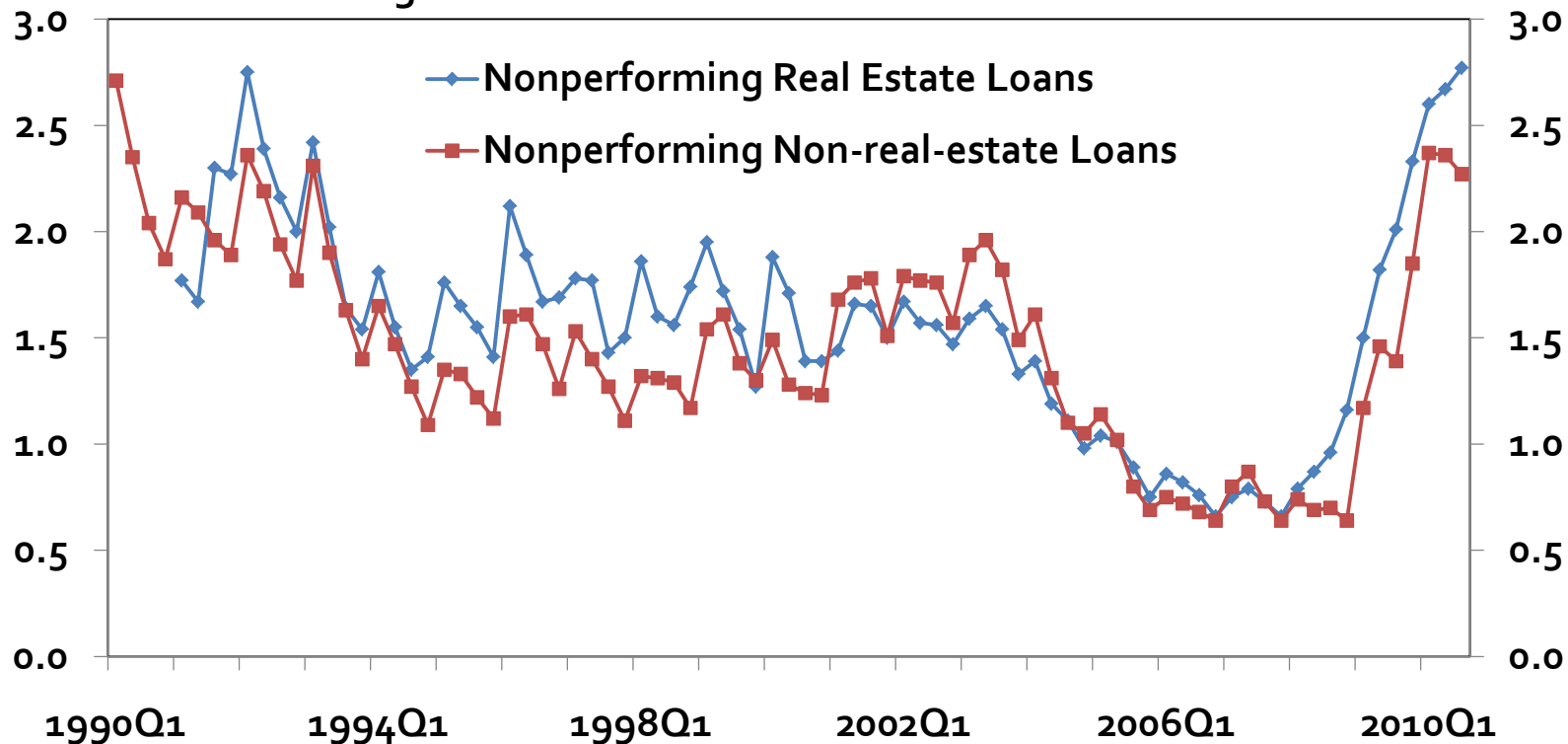
Source: Agricultural Finance Databook, Federal Reserve Bank of Kansas City



Farm loan delinquencies have risen above historical averages, especially for real estate.

Delinquent Farm Loans Held by Insured Commercial Banks

Percent of outstanding loans



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



Conclusions

- Farm incomes are booming and farmers are buying tractors, land, and more.
- Farm real estate markets face major interest rate risk.
- Monetary policy is risk management.
- Inflation depends on velocity:
 spending, lending, and investment.
- Commercial banks are lending to agriculture, even with rising delinquency rates.

***Managing debt wisely and keeping leverage low
is the best way to manage volatility.***



For More Information on Agricultural and Rural Economies

www.kansascityfed.org

