

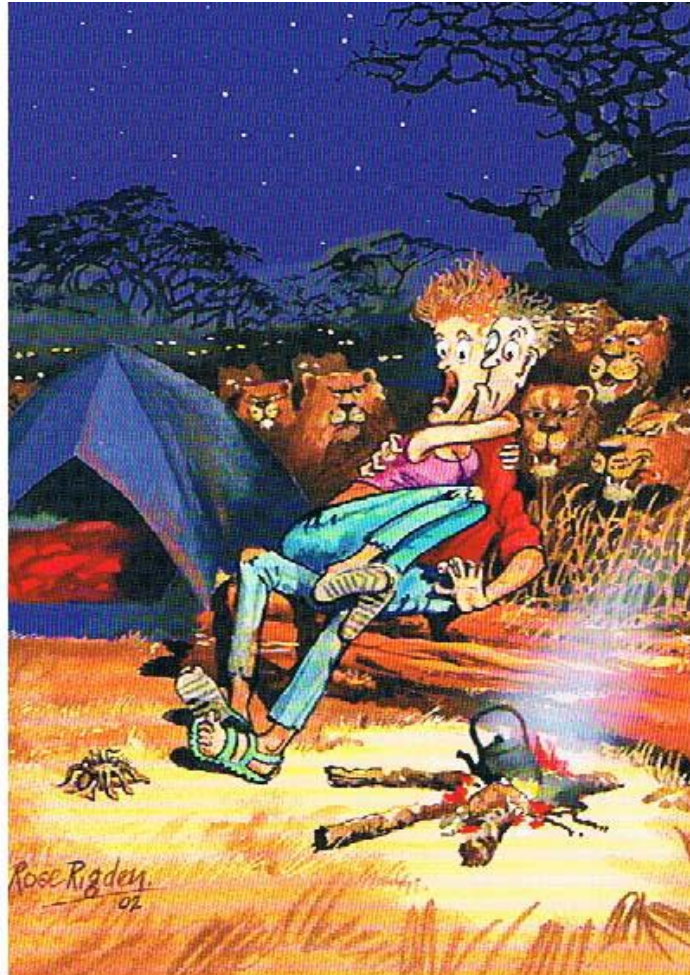
Jason Henderson
Vice President and Branch Executive
Federal Reserve Bank of Kansas City – Omaha Branch
www.kansascityfed.org/omaha
May 26, 2011

Agricultural Risks



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.

What are Agriculture's Risks?



The Goal: Foster Maximum Employment and Stable Prices

Economic Projections of Federal Open Market Committee Members, Central Tendency, April 2011

	Longer Run	2011	2012
Real GDP Growth	2.5 to 2.8	3.1 to 3.3	3.5 to 4.2
		3.4 to 3.9	3.5 to 4.4
Unemployment Rate	5.2 to 5.6	8.4 to 8.7	7.6 to 7.9
		8.8 to 9.0	7.6 to 8.1
PCE Inflation	1.7 to 2.0	2.1 to 2.8	1.2 to 2.0
		1.3 to 1.7	1.0 to 1.9

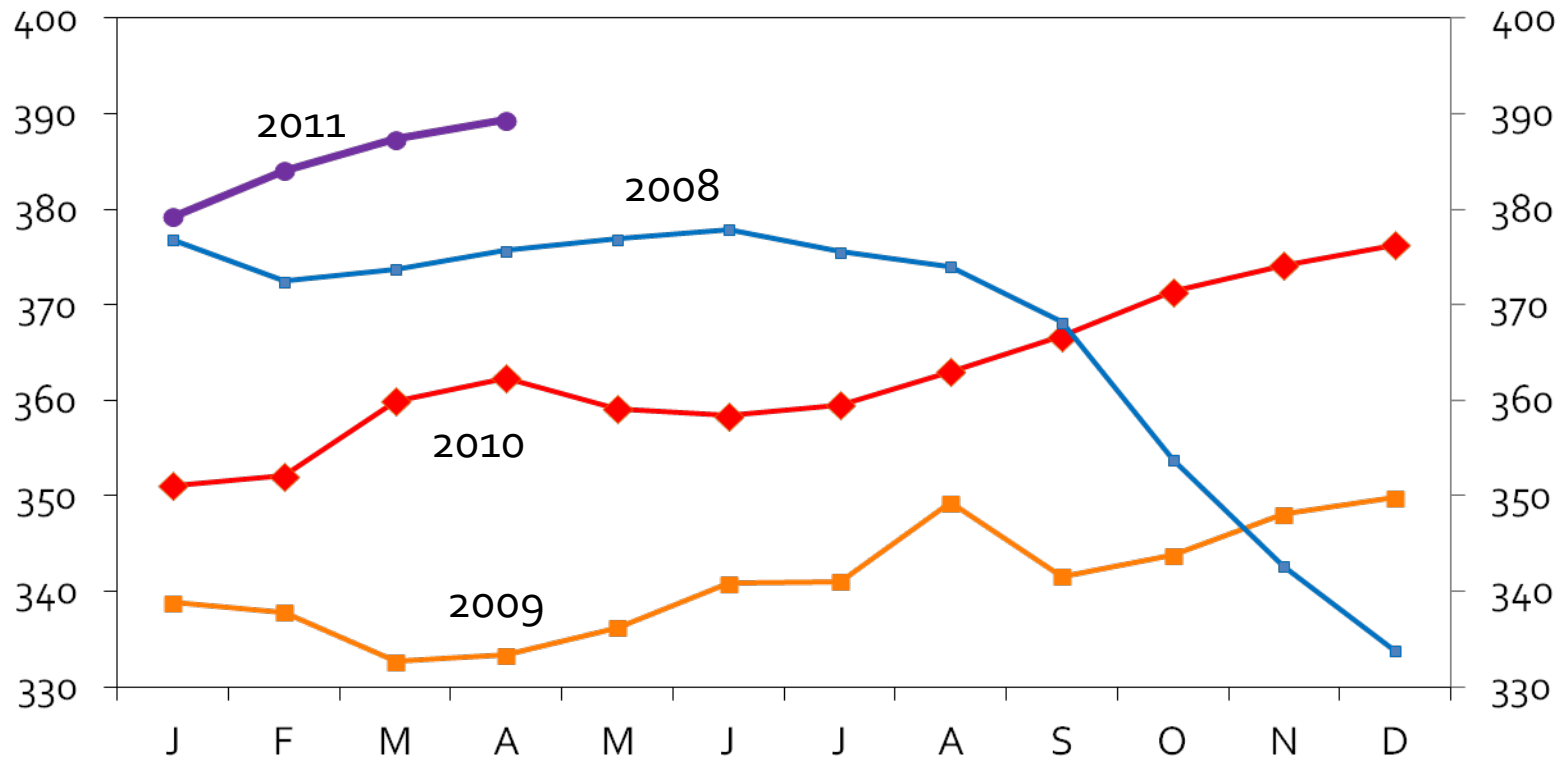
Source: Federal Reserve Board of Governors



Consumer spending rises further.

U.S. Monthly Retail and Food Sales

Billion dollars

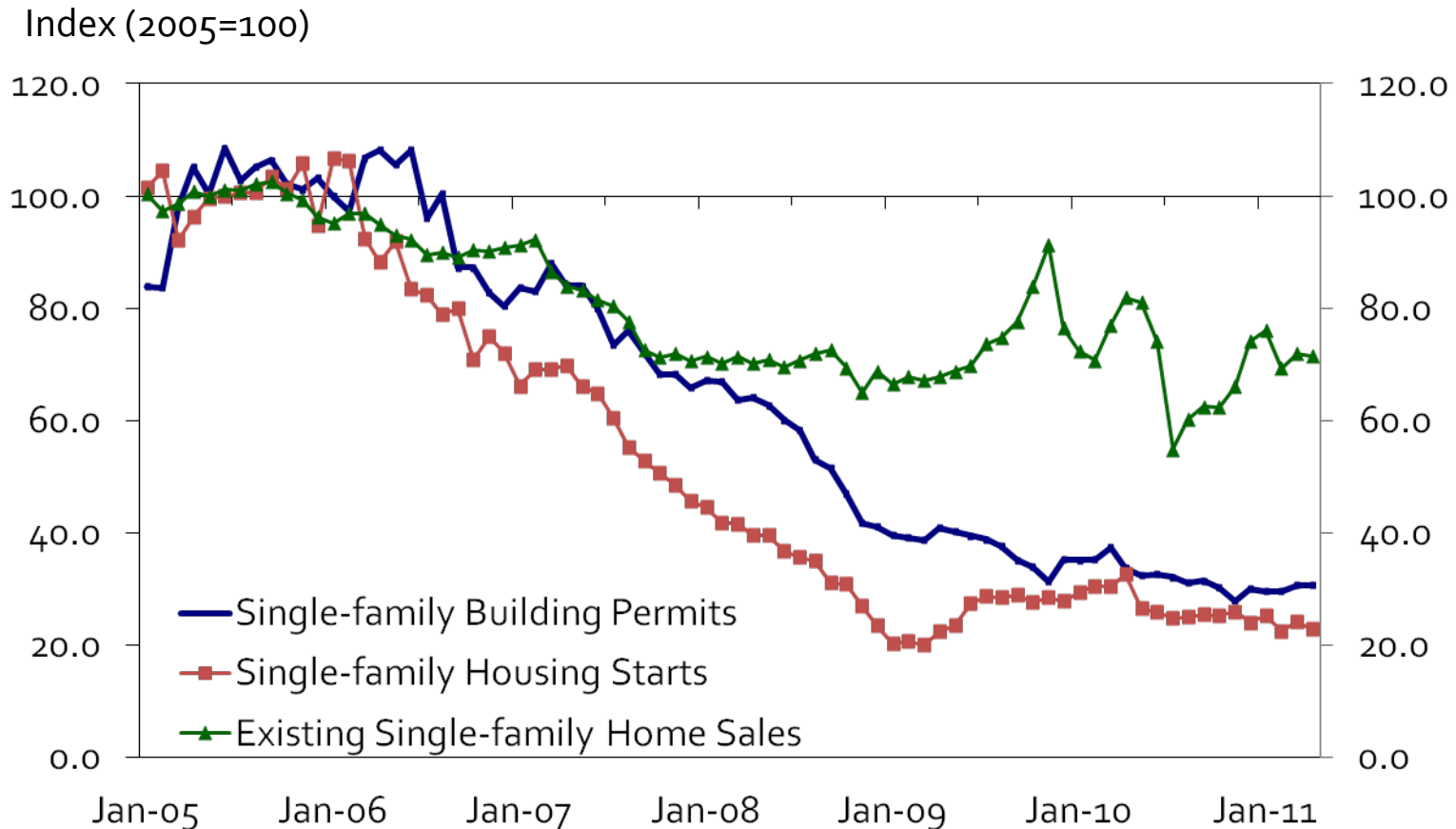


Source: U.S. Census Bureau



Will stronger home sales be enough to lift residential building activity?

Single-family Housing Activity

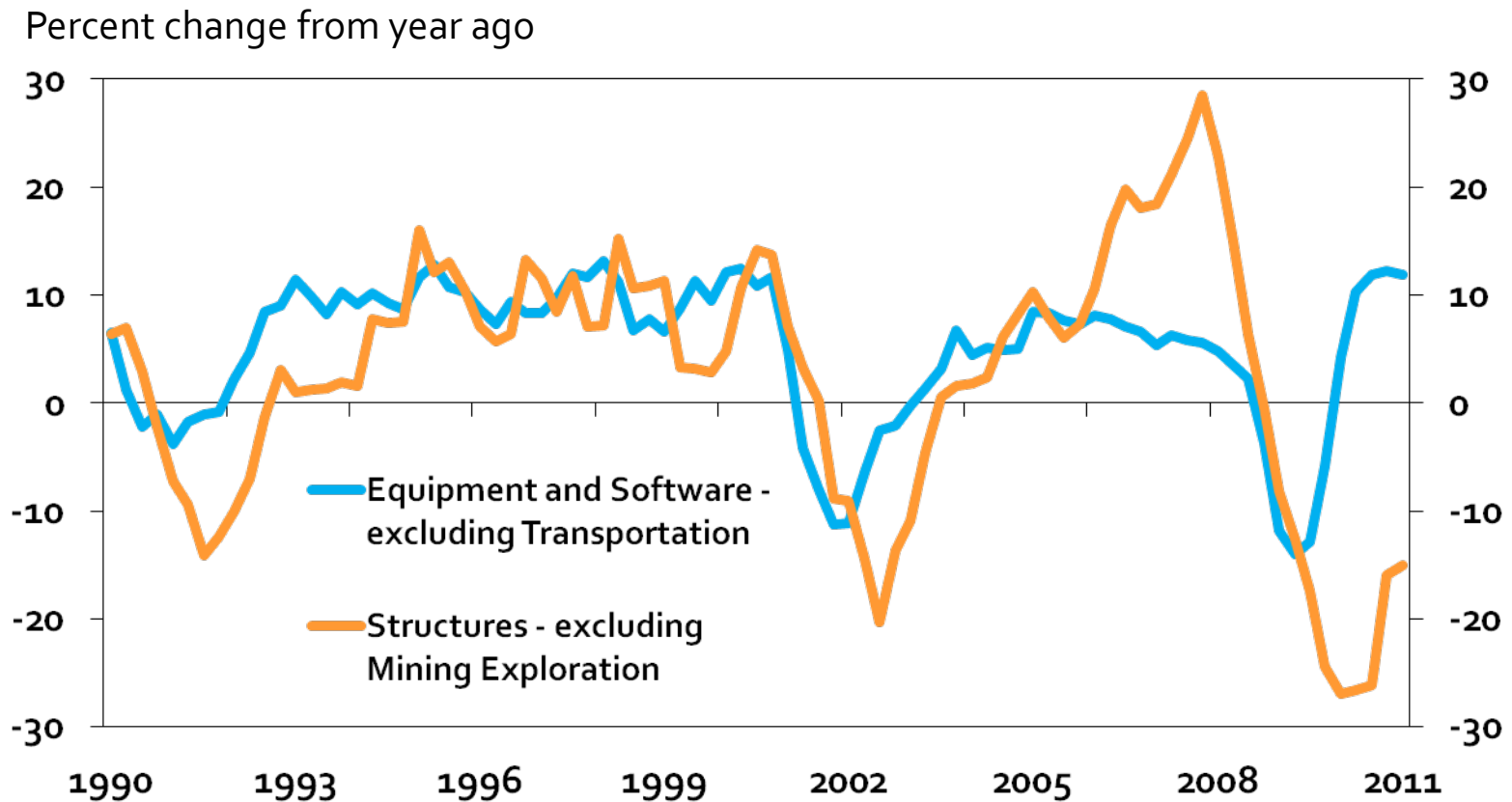


Source: Census Bureau



Business investment strengthens for equipment and software.

U.S. Non-residential Investment

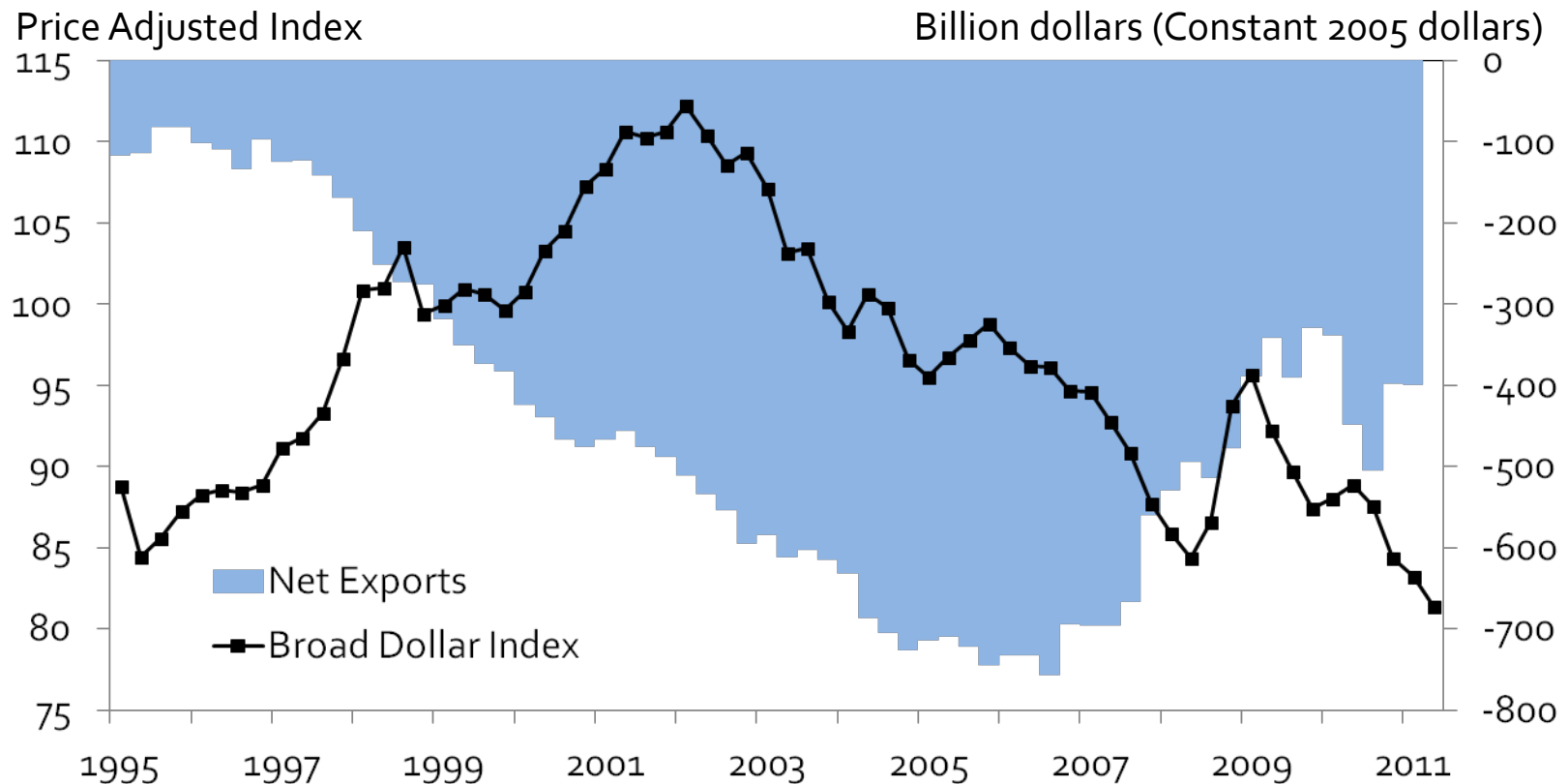


Source: Census Bureau



U.S. exports have strengthened and the dollar has weakened.

U.S. Net Exports and Value of the Dollar

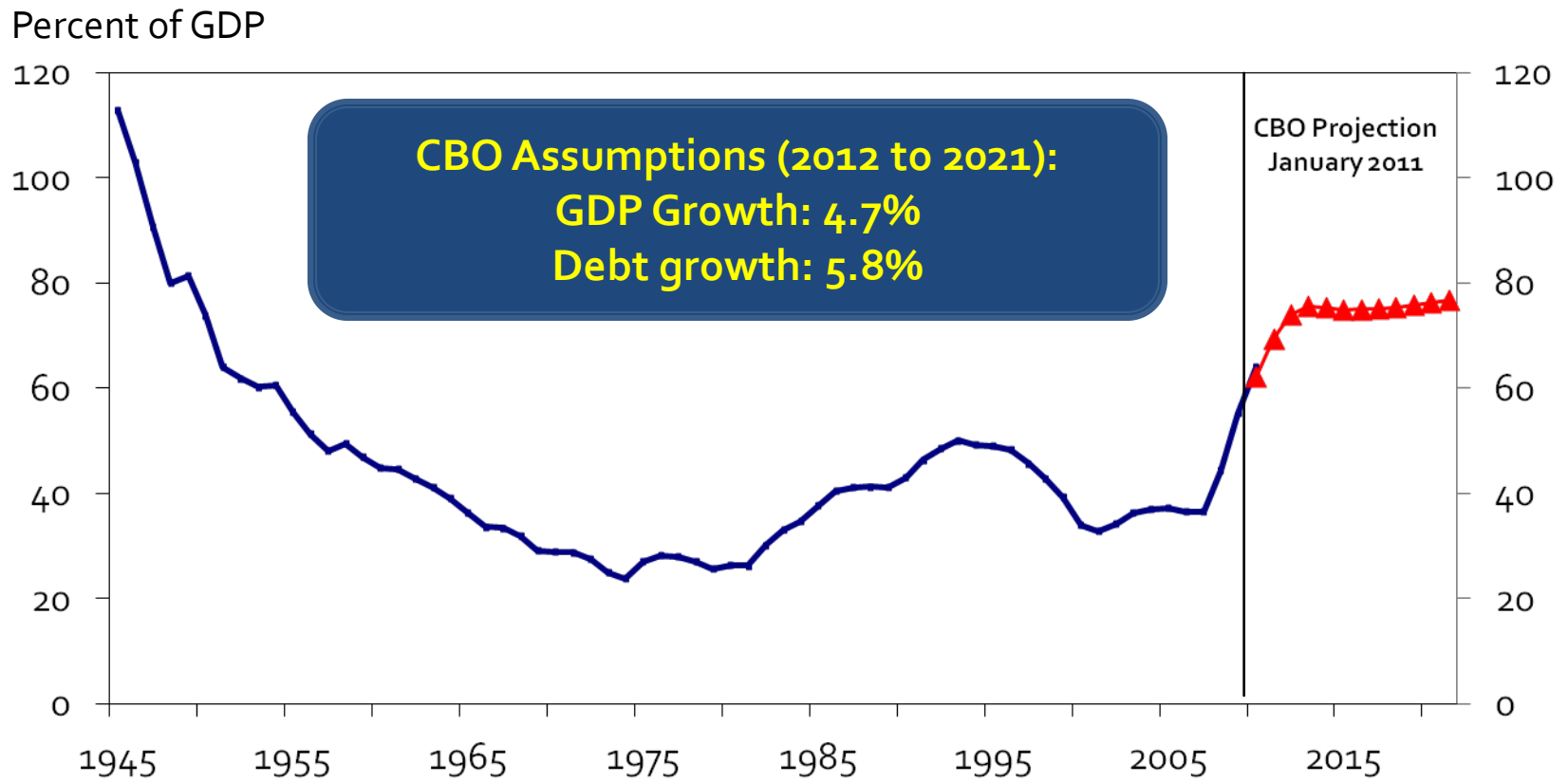


Source: Bureau of Economic Analysis and Federal Reserve



Will the federal government be able to control U.S. debt accumulation?

Federal Government Debt as a Percent of GDP



Source: Federal Reserve Board of Governors and Congressional Budget Office



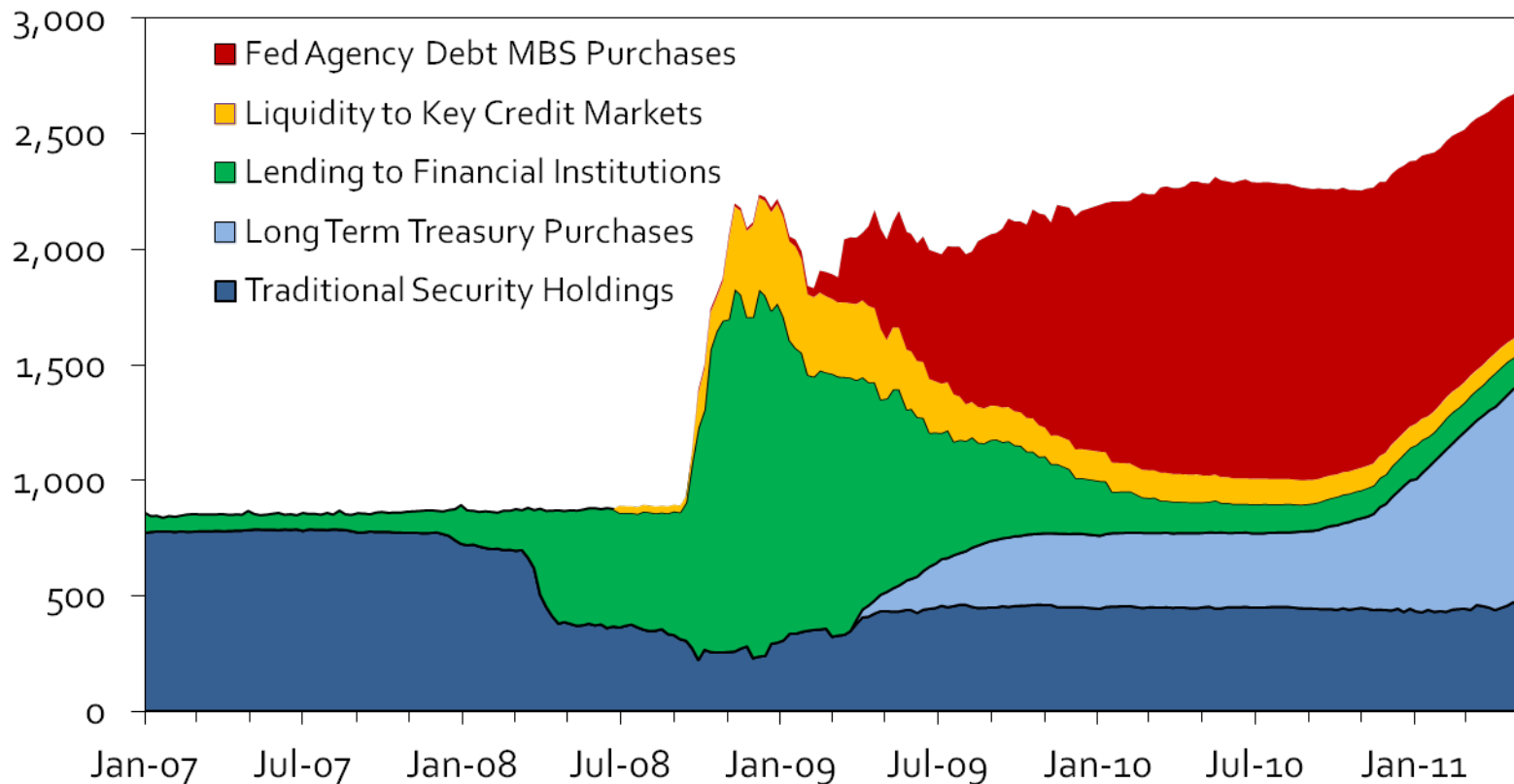
Have Inflation Risks Changed?



The Federal Reserve has expanded the monetary base.

Federal Reserve Balance Sheet: Assets

Billion Dollars



Source: Federal Reserve Bank of Cleveland



Inflation is based on money and velocity.

Quantity Theory of Money

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

Definition of Inflation:

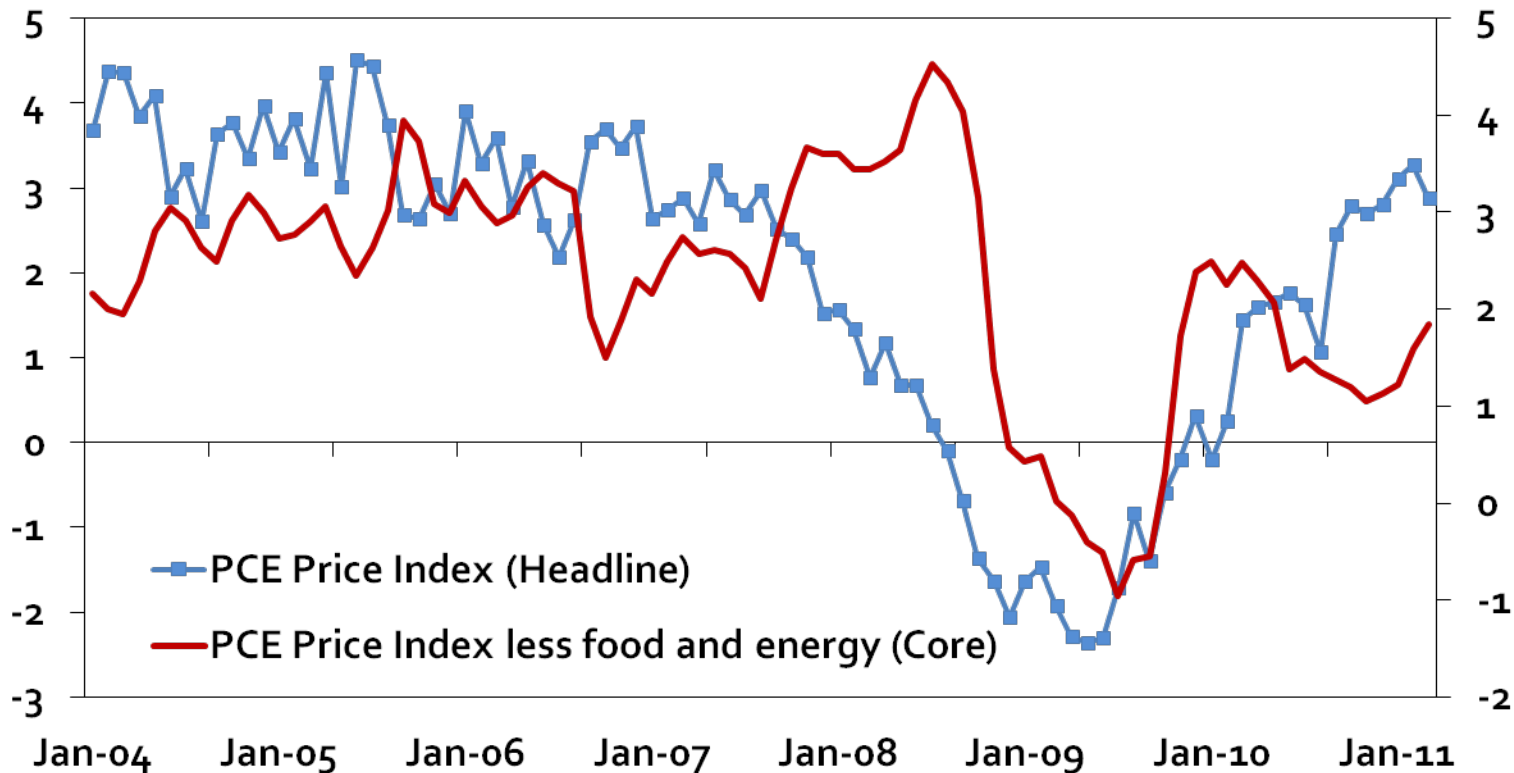
Too much money $M \uparrow$
chasing $V \uparrow$
too few goods $Q \downarrow$



Consumers prices are rising, especially for food and energy.

Personal Consumption Expenditures Price Index

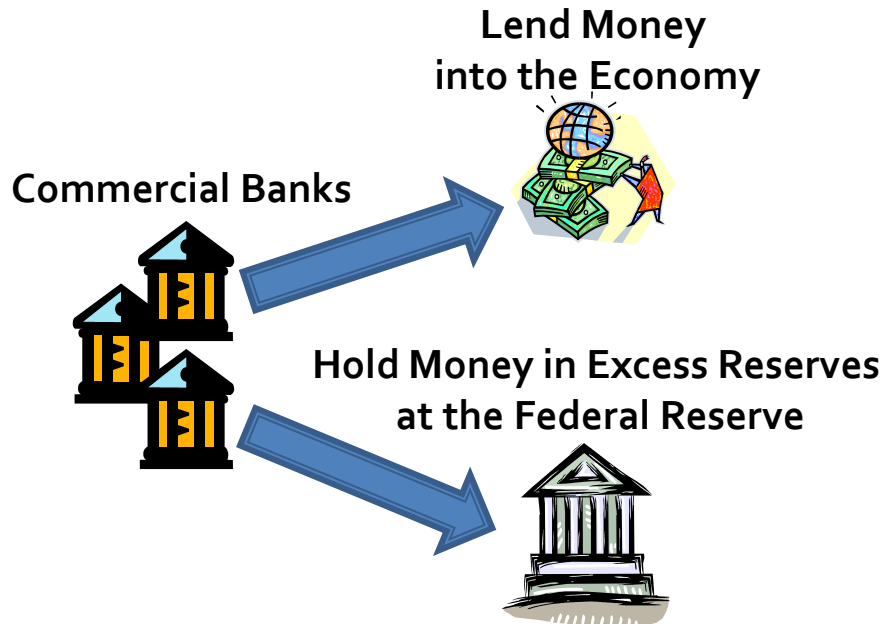
Percent change from previous year



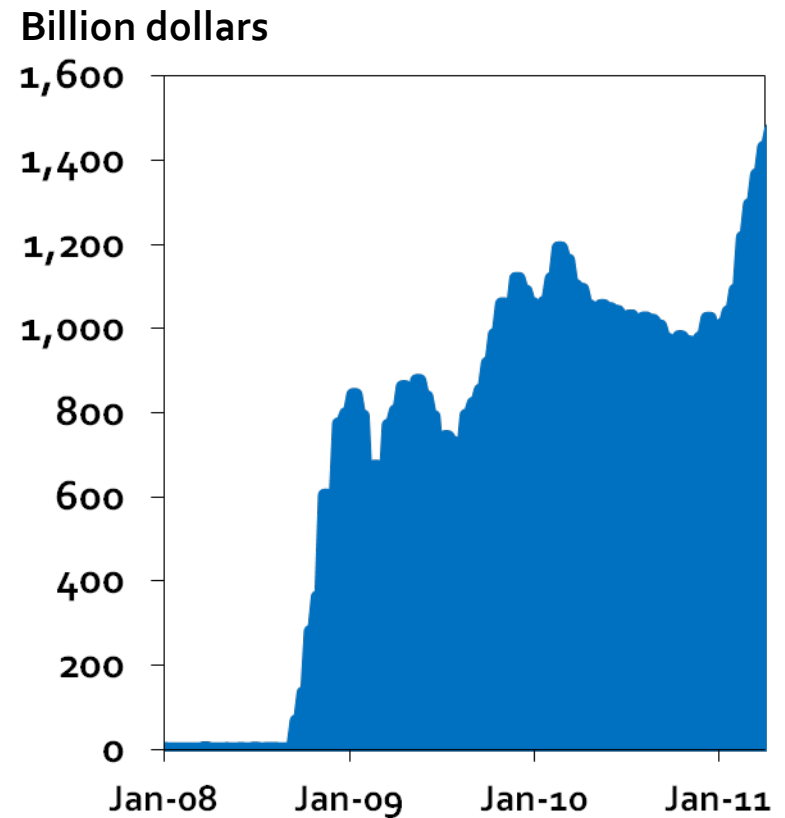
Source: Bureau of Economic Analysis



When will excess reserves begin to decline?



Excess Reserves of Depository Institutions

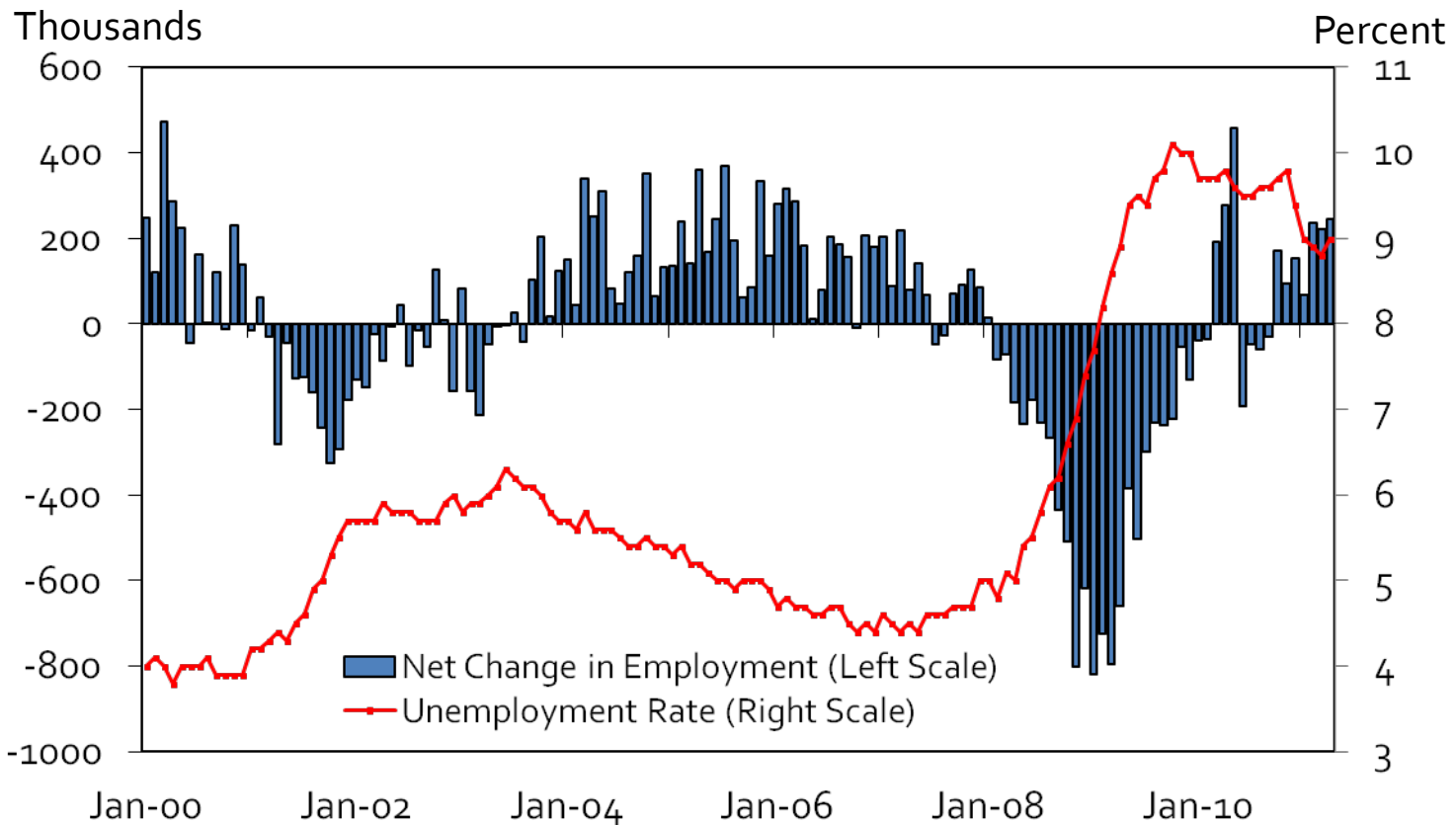


Source: Federal Reserve Board of Governors



Labor markets need to strengthen further for additional "chasing".

Nonfarm Employment Change and Unemployment Rate



Source: Bureau of Labor Statistics



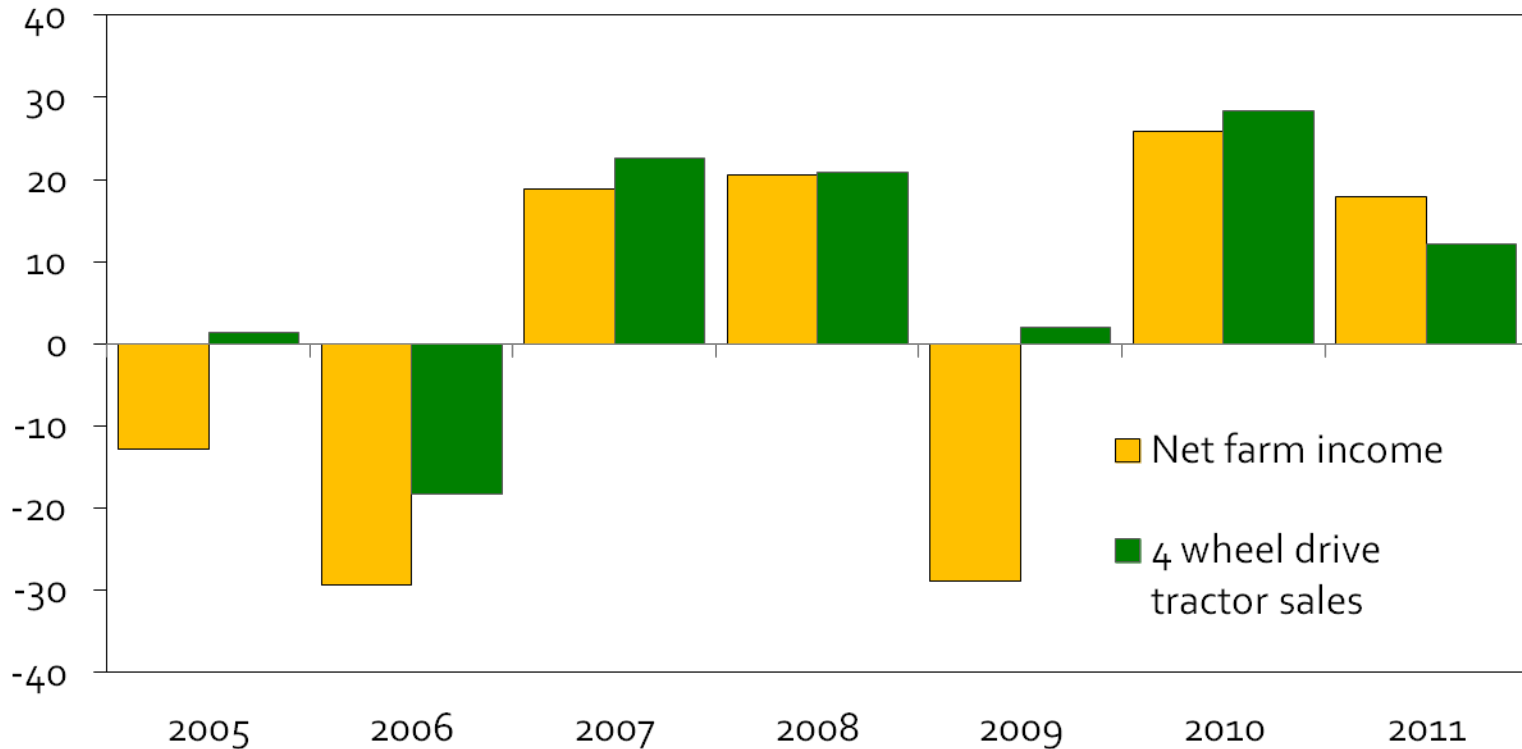
What Does It Mean for Agriculture?



Rising farm incomes spur capital spending.

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

Percent change from year ago

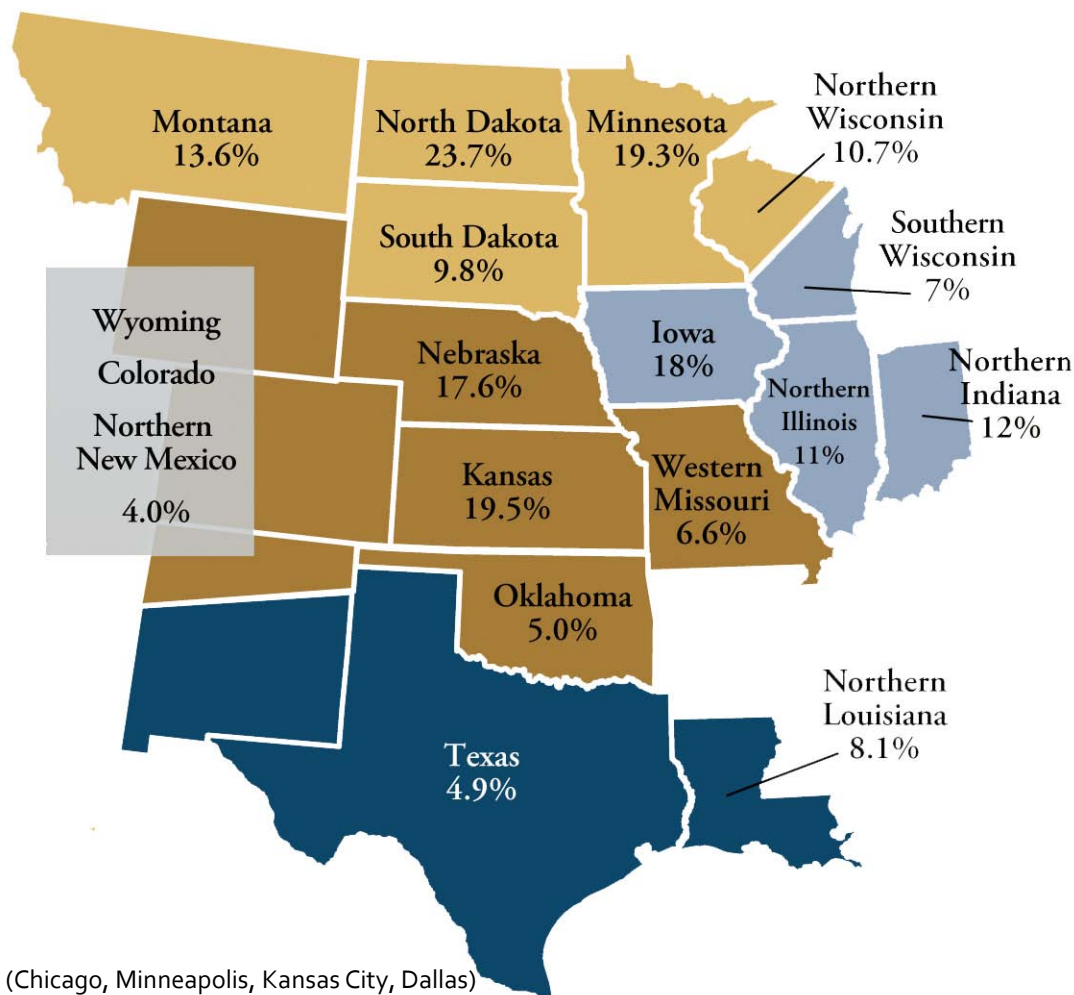


Source: USDA and Association of Equipment Manufacturers
Note: 2011 Agricultural Equipment Sales are YTD through March



Good Quality (Non-irrigated) Farmland Values

(Percent change fourth quarter 2009 to fourth quarter 2010)

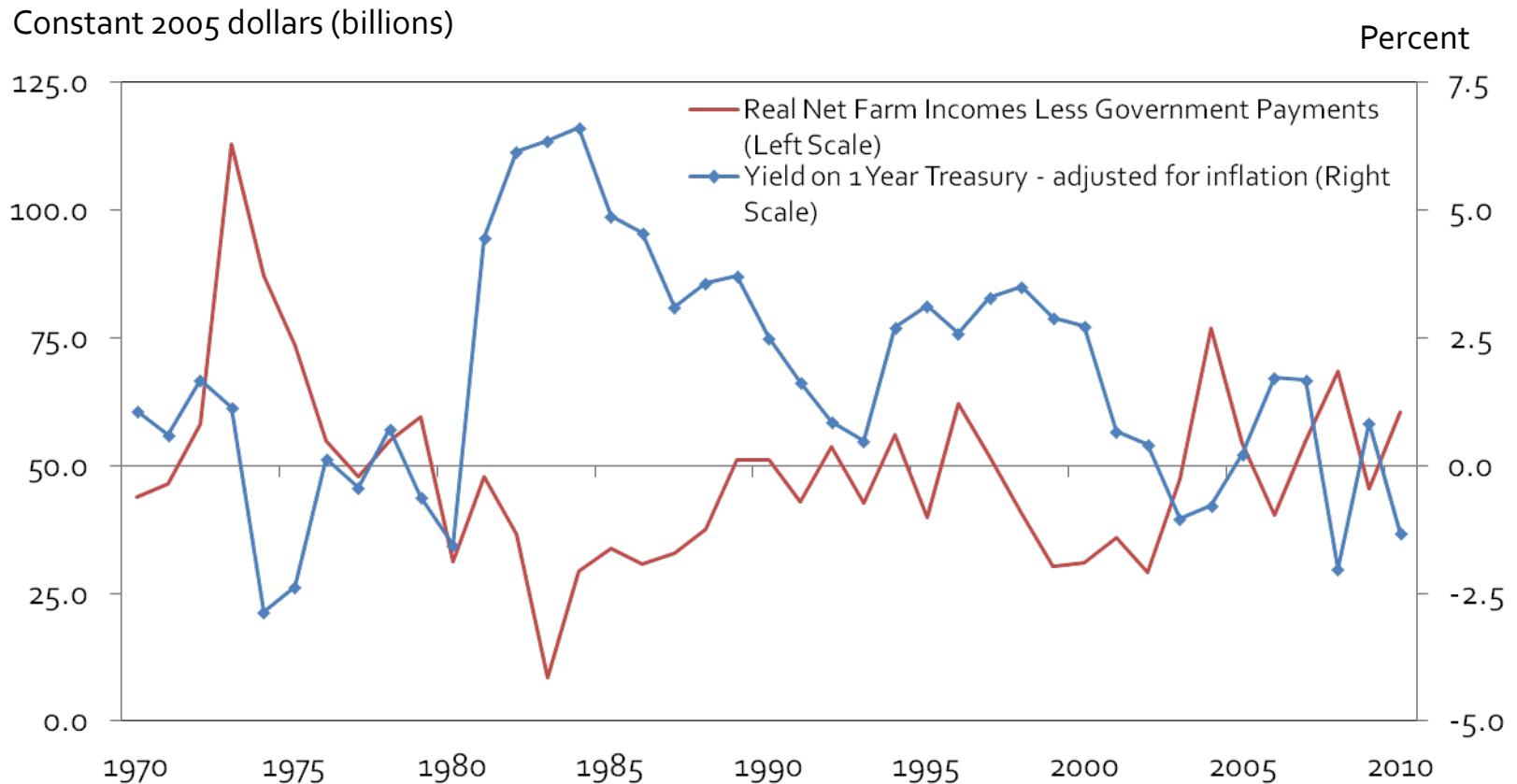


Source: Federal Reserve District Surveys (Chicago, Minneapolis, Kansas City, Dallas)



Agriculture faces huge interest rate risk – Incomes rise in low interest rate environments.

Farm Incomes and Interest Rates

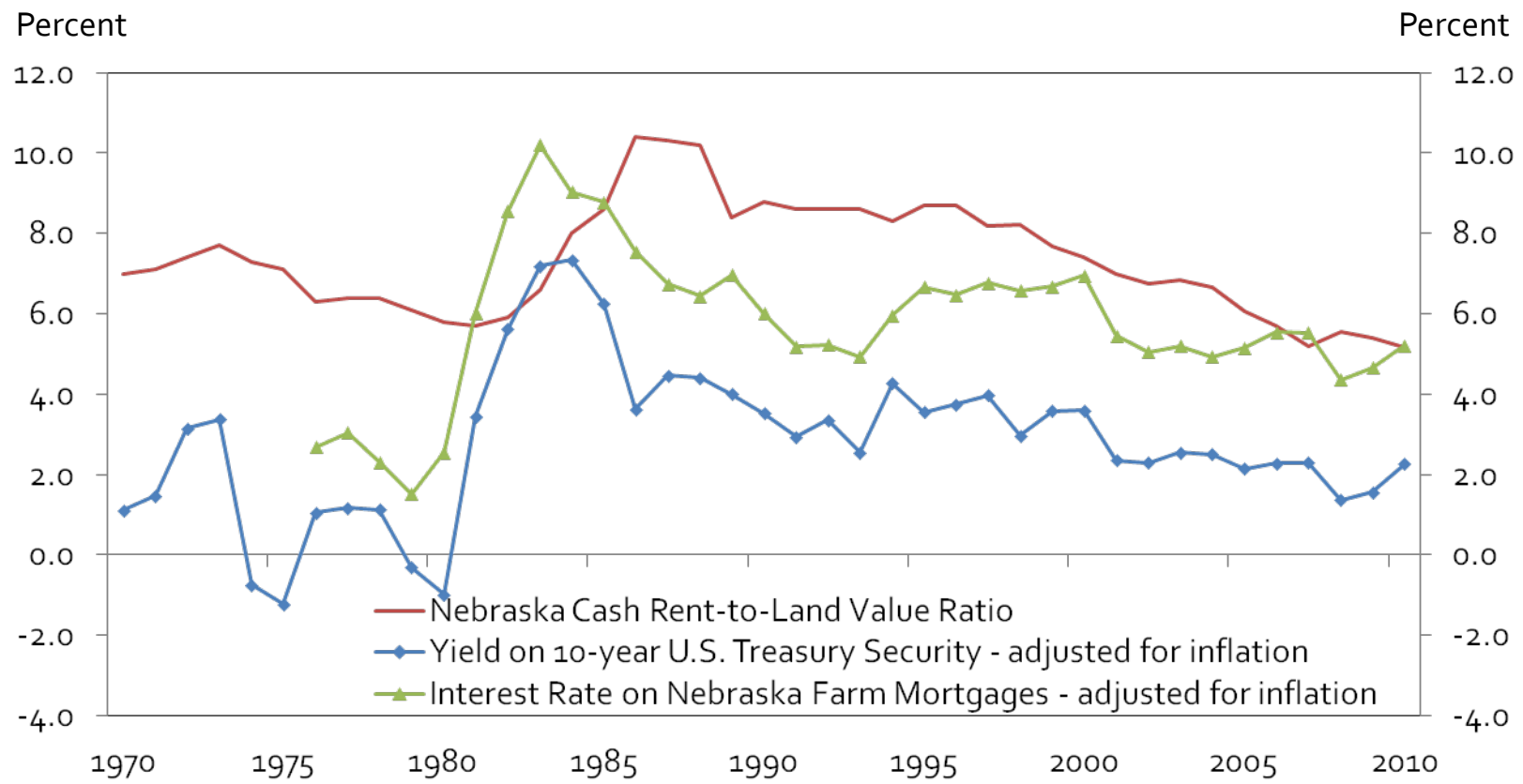


Sources: USDA , Federal Reserve, BLS



Agriculture faces huge interest rate risk – capitalization rates move with interest rates

Interest Rates and Implied Capitalization Rates



Sources: USDA , Federal Reserve, BLS



Agriculture faces huge interest rate risk – farmland values fall under higher interest rates

$$\text{Capitalized Land Values} = \frac{\text{Expected Incomes}}{\text{Expected Discount Rates}}$$

Farm Incomes Rise with
Lower Interest Rates

Discount Rates Fall with
Lower Interest Rates

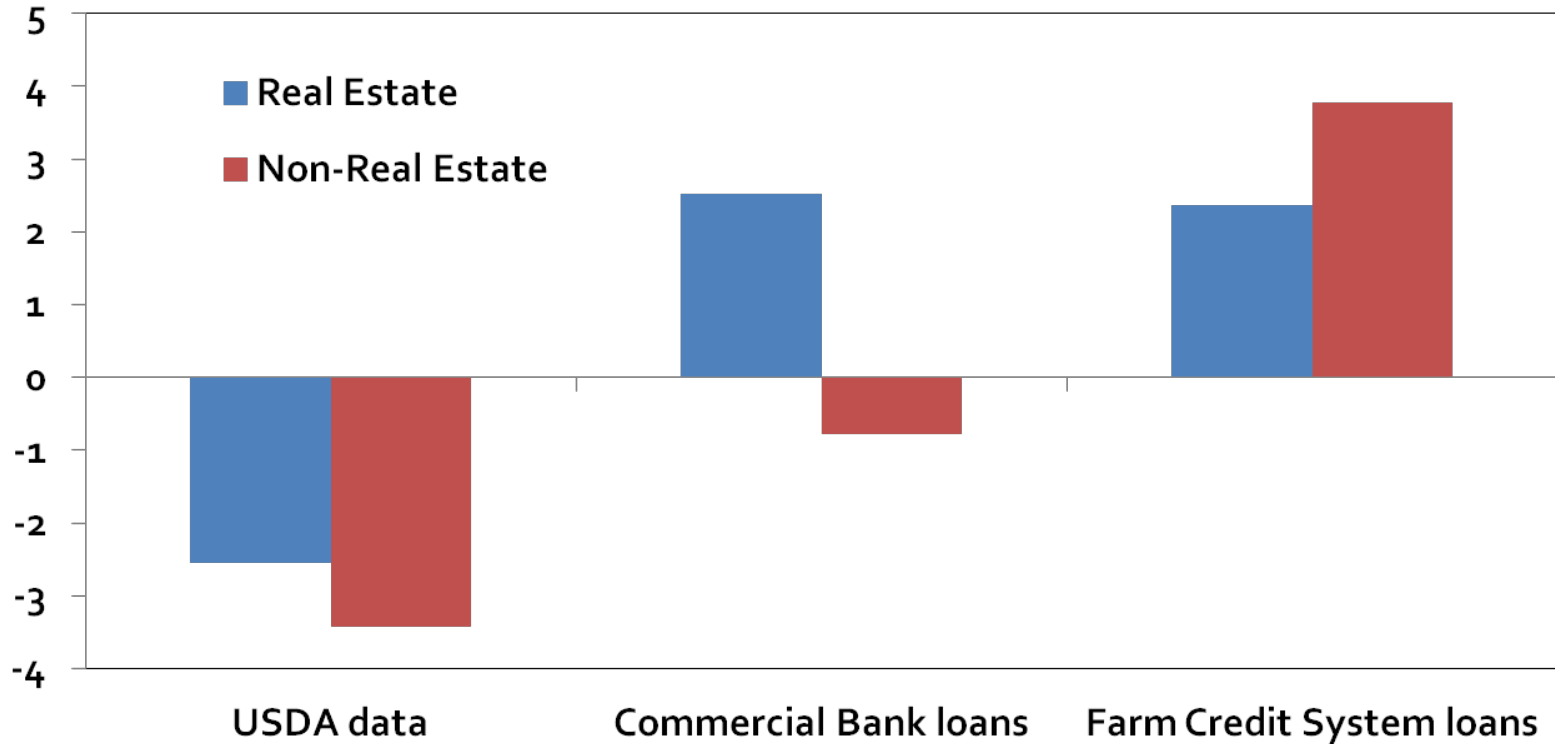
What Happens to Farmland Values
Under Higher Interest Rates?



How much debt do farmers really have?

Growth in Farm Real Estate and Non-Real Estate Debt (2009 to 2010)

Percent change from previous year

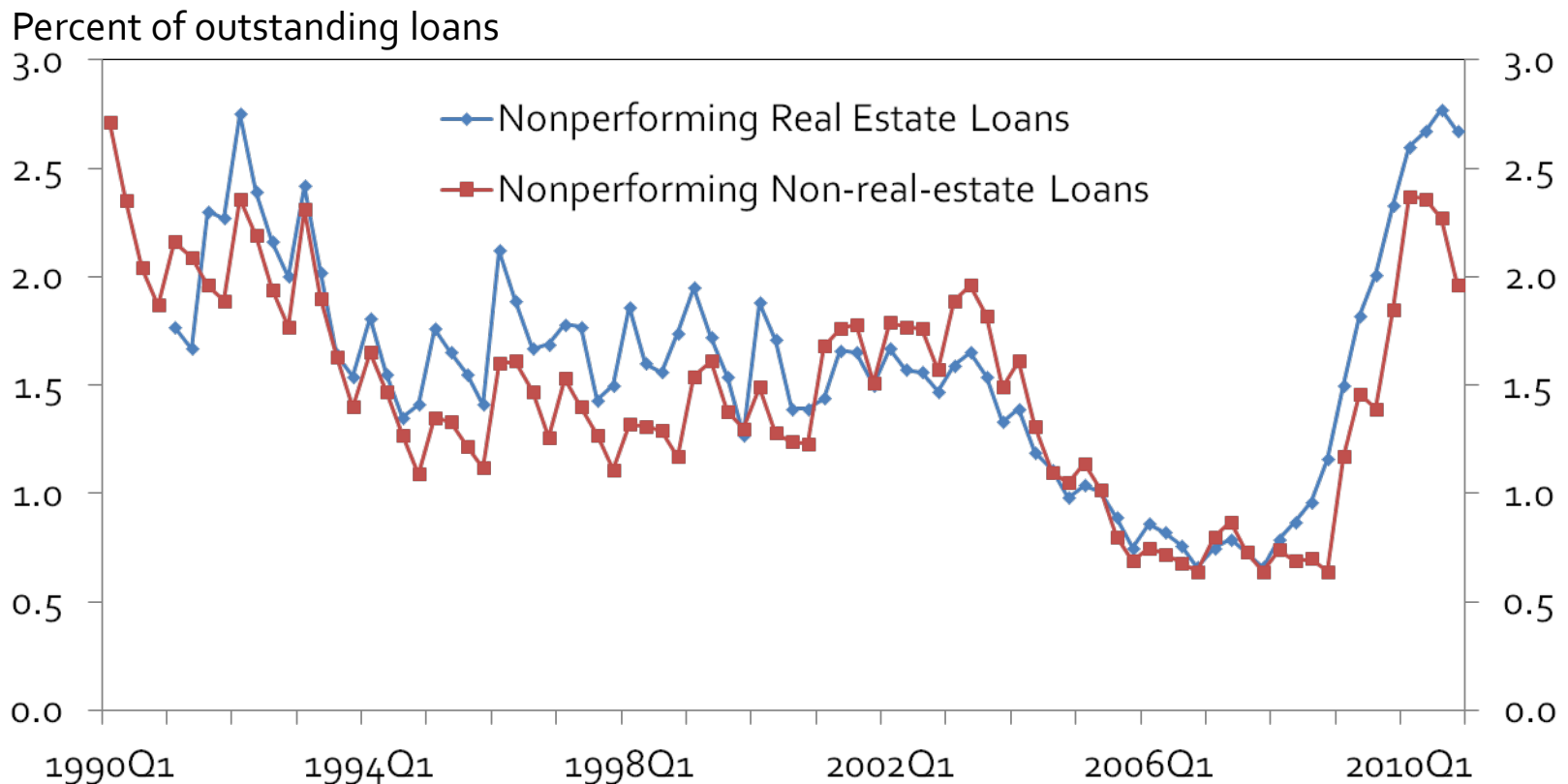


Source: USDA, Agricultural Finance Databook, Federal Farm Credit Banks



Agricultural financing will be constrained if delinquency rates remain elevated.

Delinquent Farm Loans Held by Insured Commercial Banks

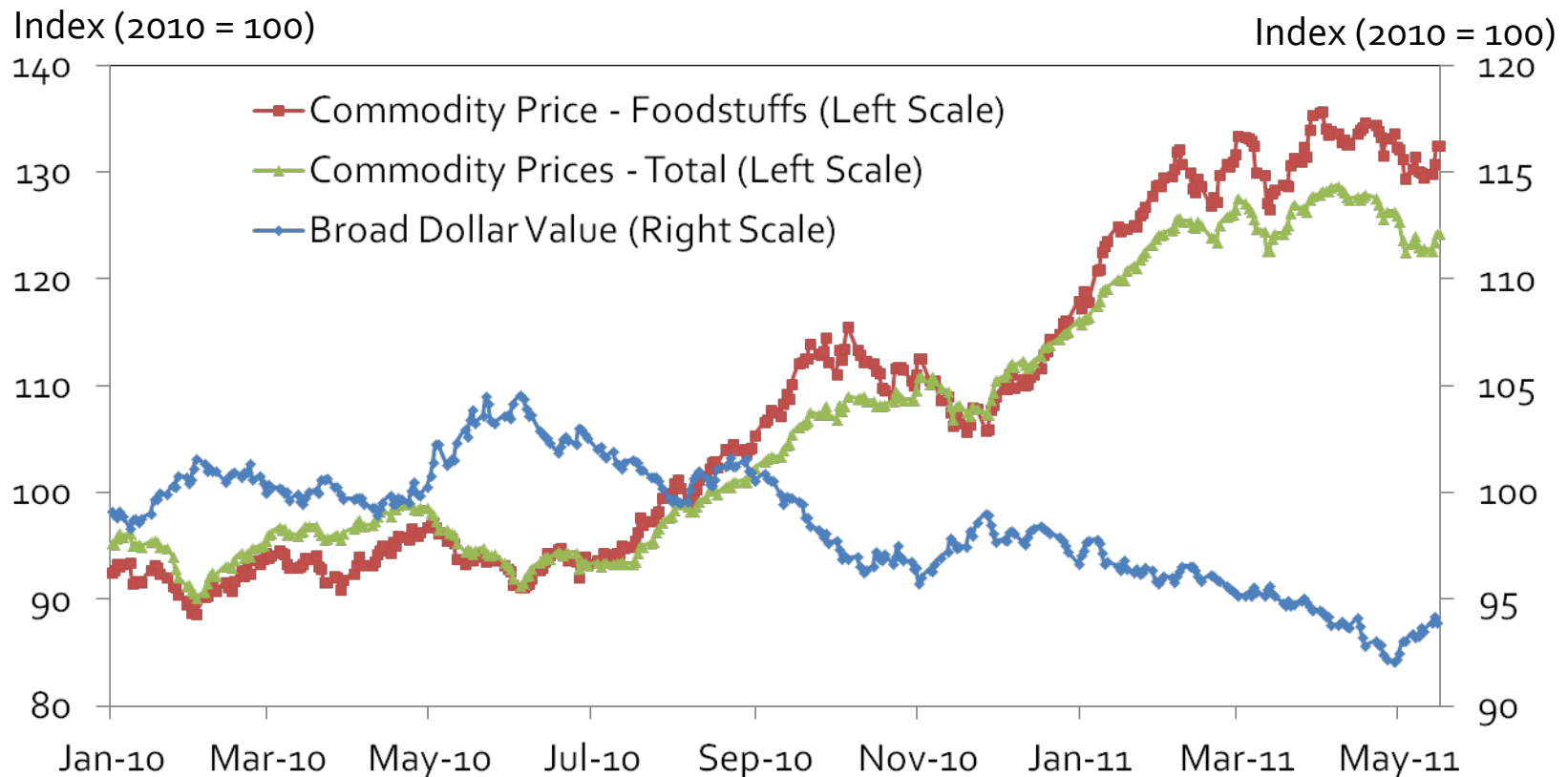


Source: Agricultural Finance Databook, Federal Reserve Bank of Kansas City



Exchange rate movements affect commodity prices.

Commodity Prices and the Dollar

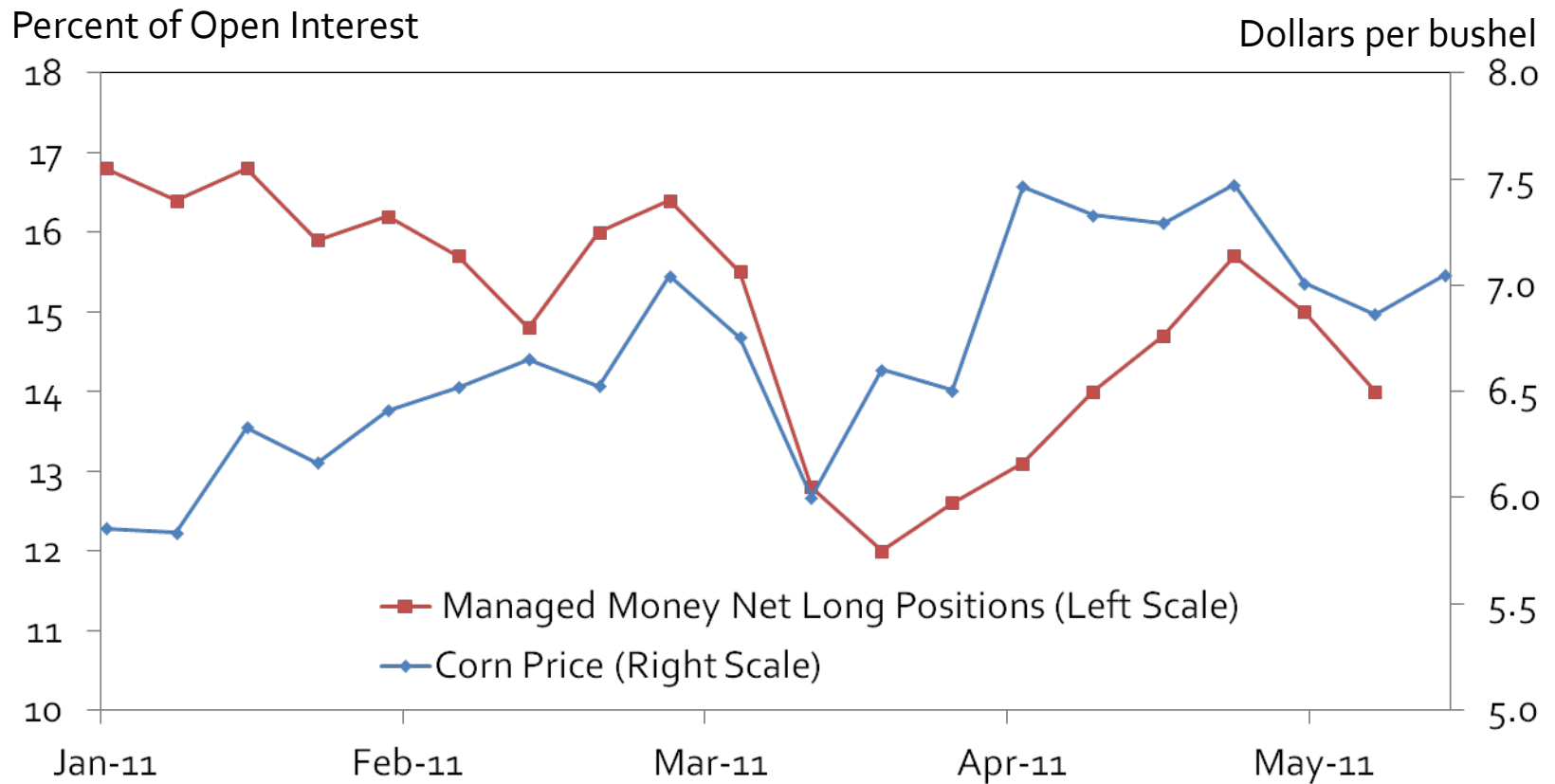


Source: Commodity Research Bureau and Federal Reserve



What is the role of the funds in the market?

Net Long Positions of Money Managers and Corn Prices

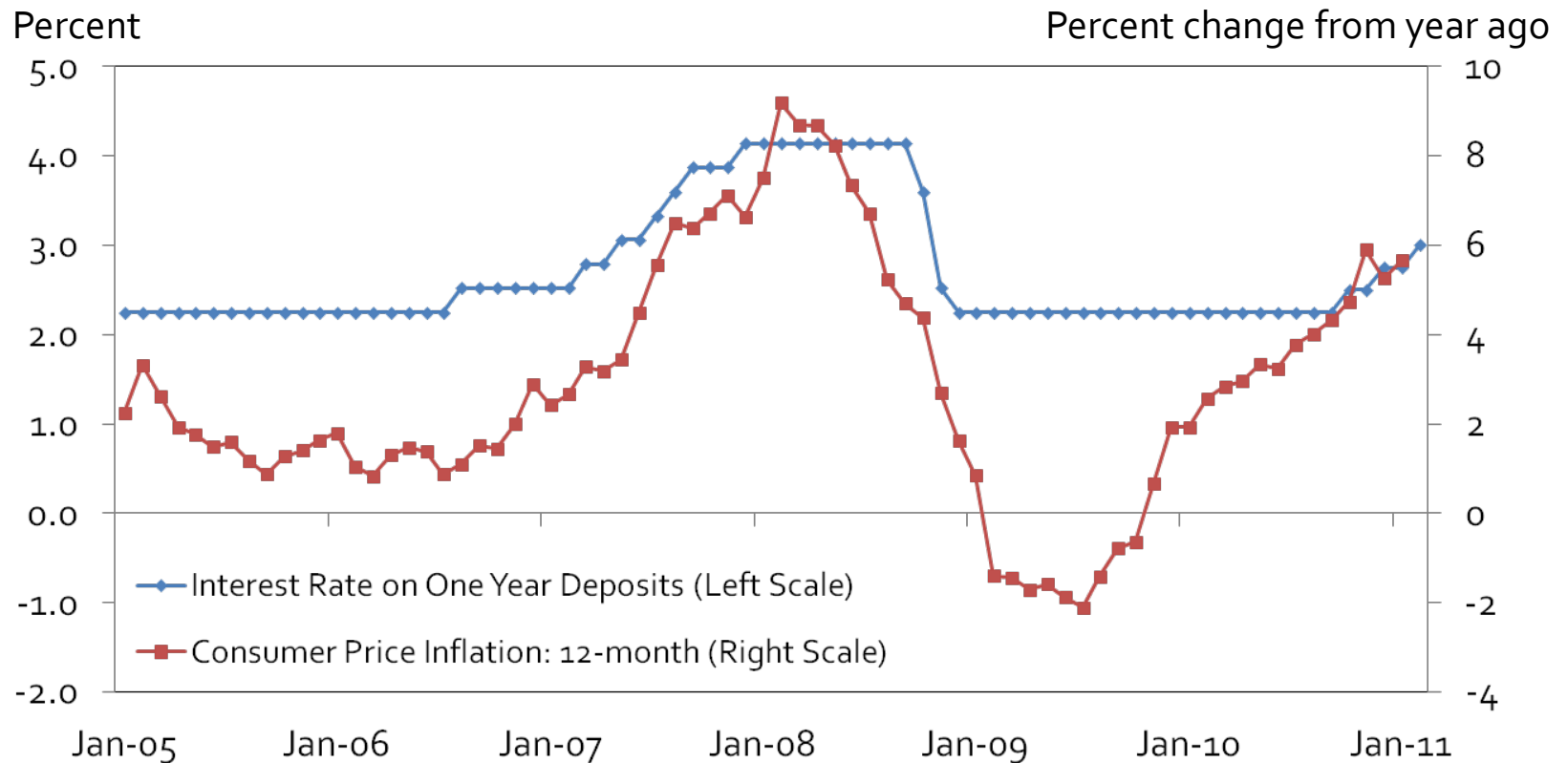


Source: USDA and CFTC



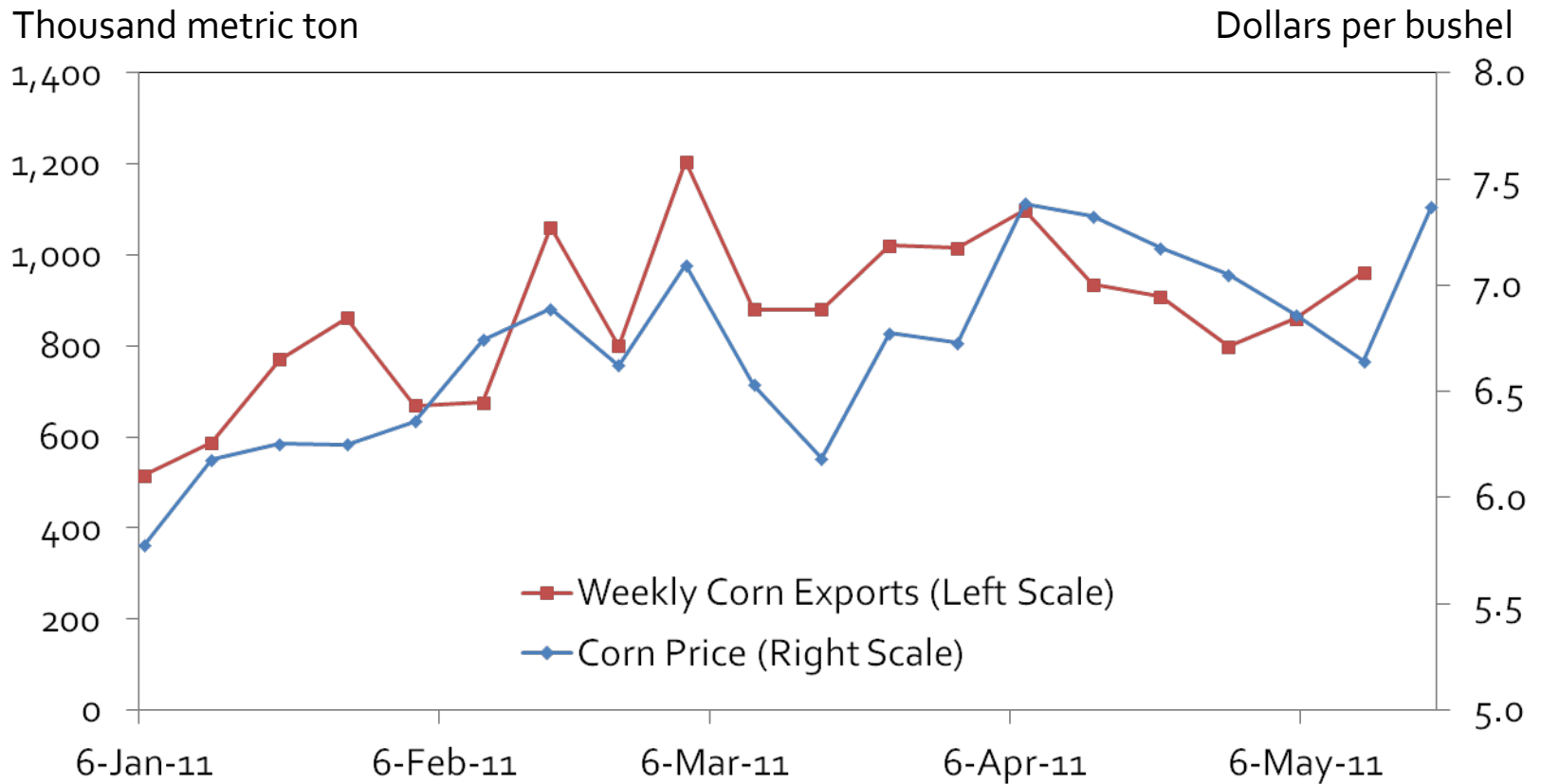
Will China be effective in slowing their economy with higher interest rates?

China's Inflation and Interest Rates



Export activity shapes agricultural prices.

U.S. Corn Exports and Prices



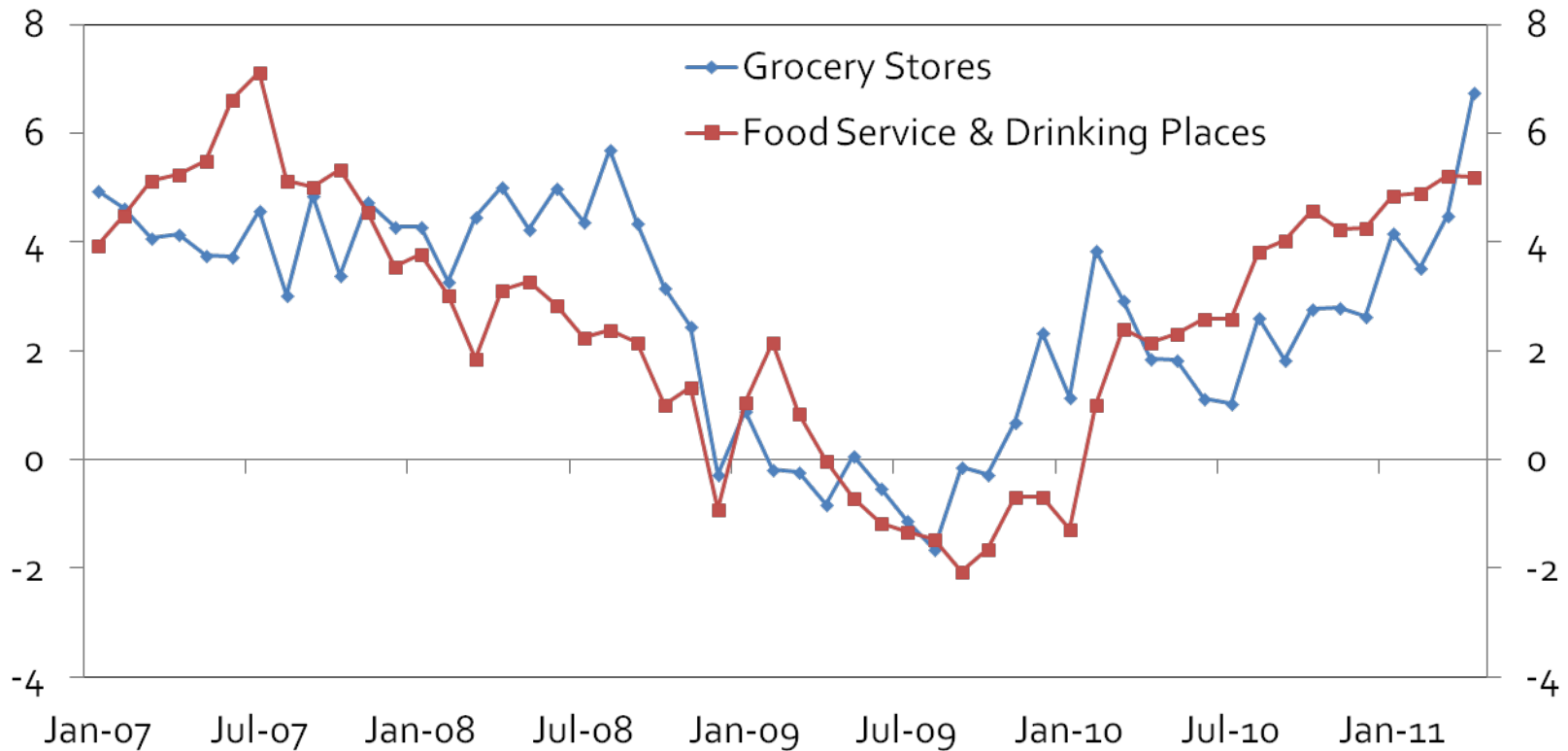
Source: USDA and Commodity Research Bureau



How does U.S. consumers respond to higher food prices?

Retail Sales at Grocery Stores and Restaurants

Percent change from previous year

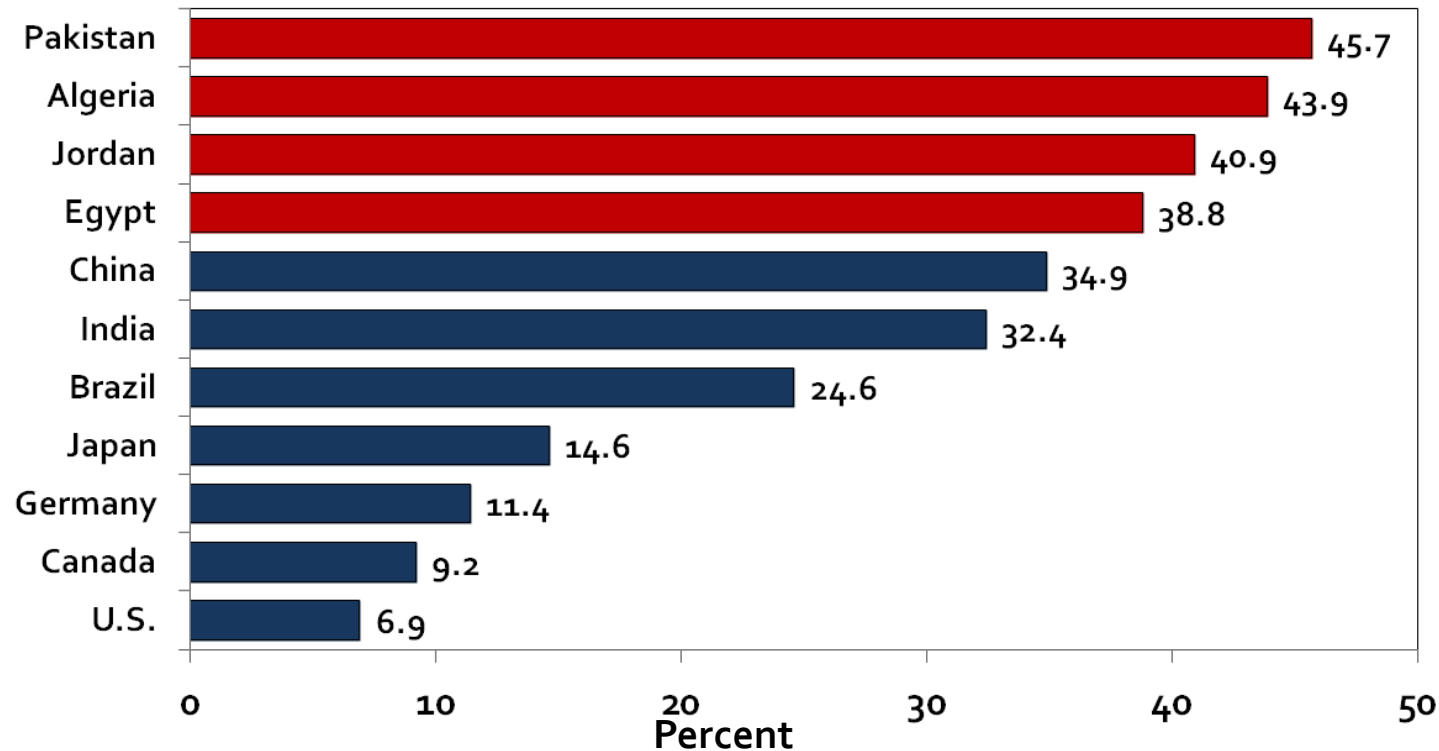


Source: Census Bureau



Poorer nations and low-income populations struggle under high food prices.

Food Share of Household Expenditure by Country, 2009

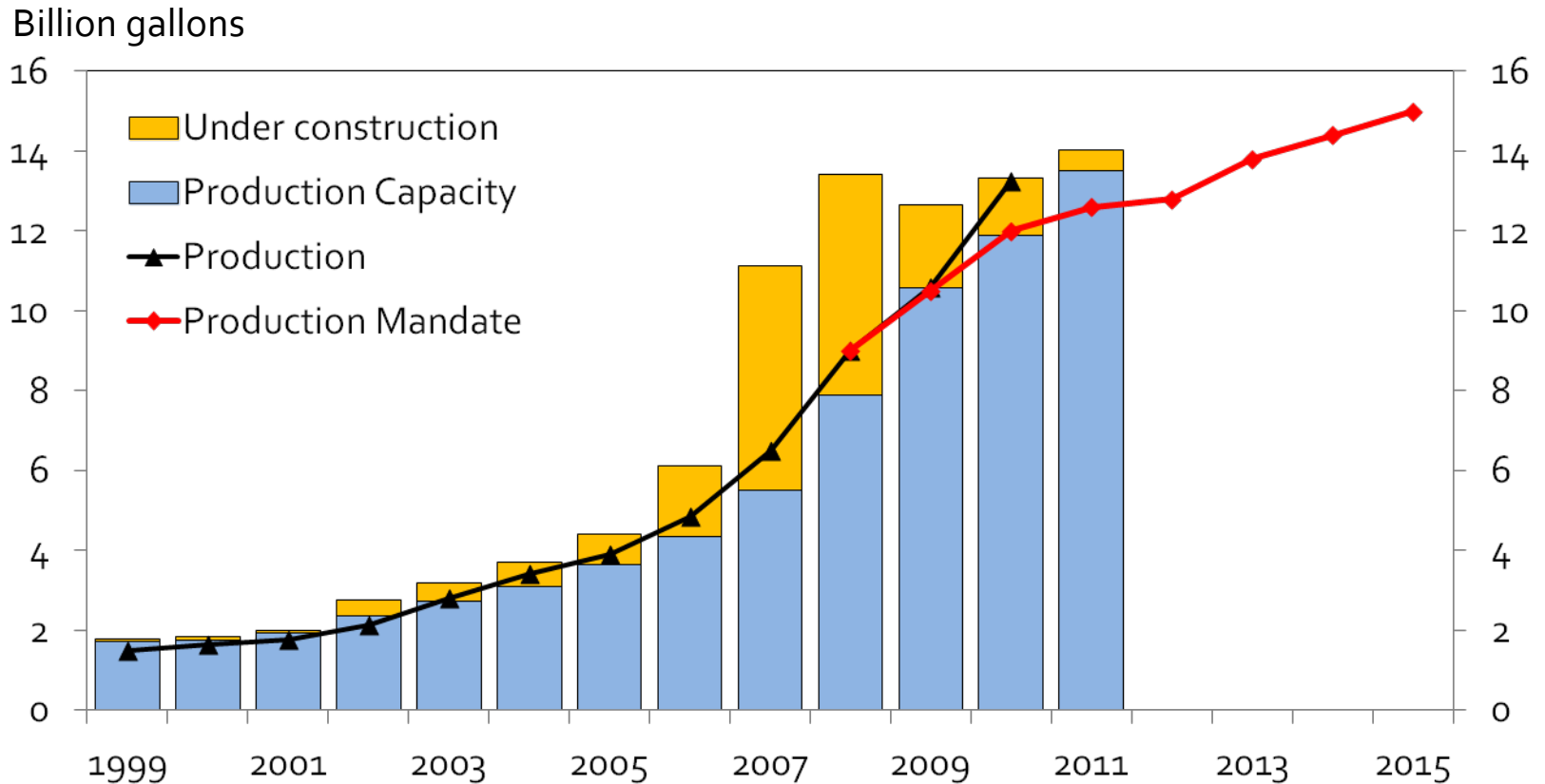


Source: USDA



What is the future for bio-fuels?

U.S. Ethanol Production Capacity and Production



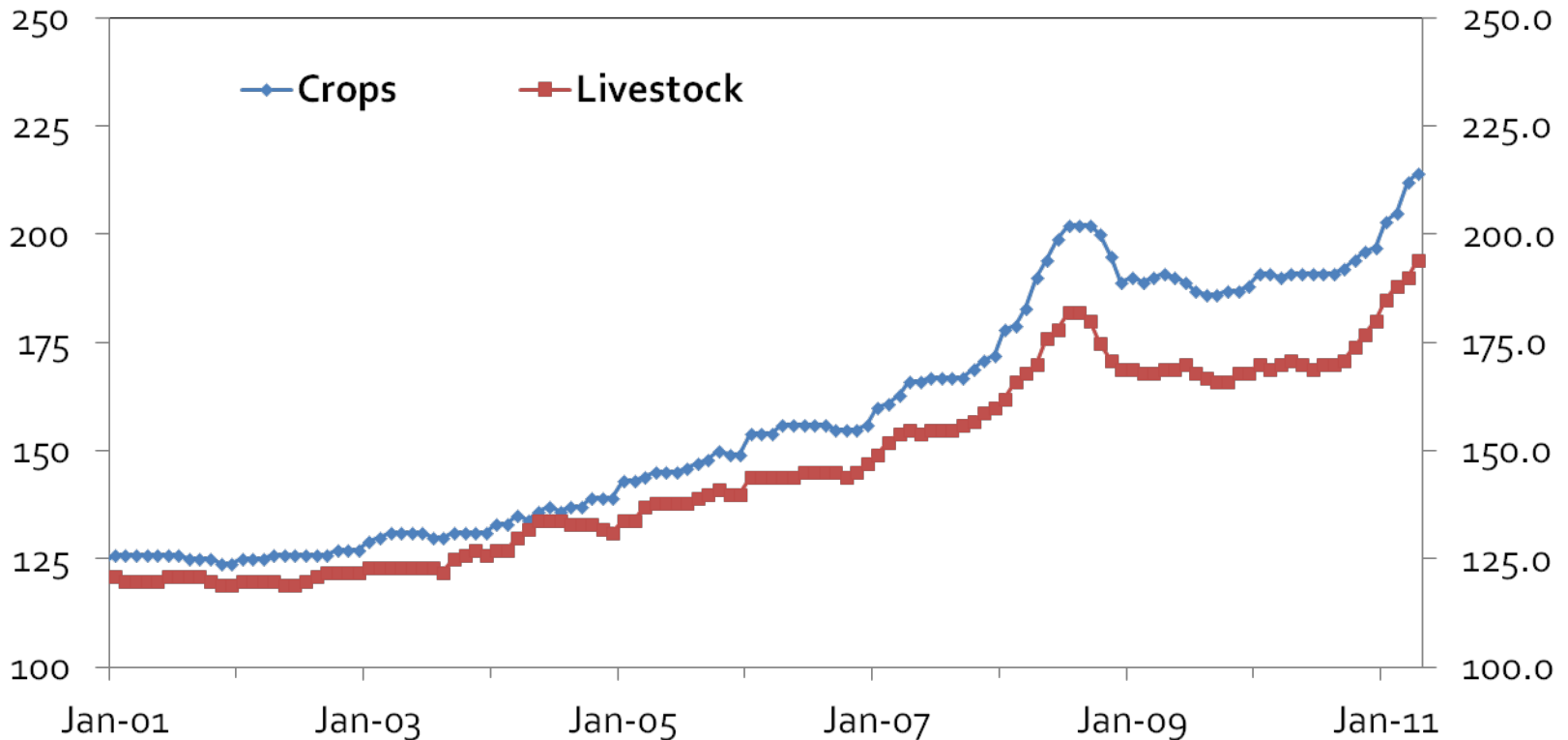
Source: Renewable Fuels Association, capacity data based on January information



What happens to agricultural production costs with higher commodity prices?

Prices Paid by Farmers

Index (1990 to 1992 average = 100)



Source: USDA



The Best Cure for High Prices is High Prices

Farmers Always Produce Themselves Out of Prosperity

- 2011: U.S. Acres Planted to Corn Up 4.3%
- 2020: U.S. Corn Yields Up 17 Percent

How Quickly Could Farm Incomes Fall?

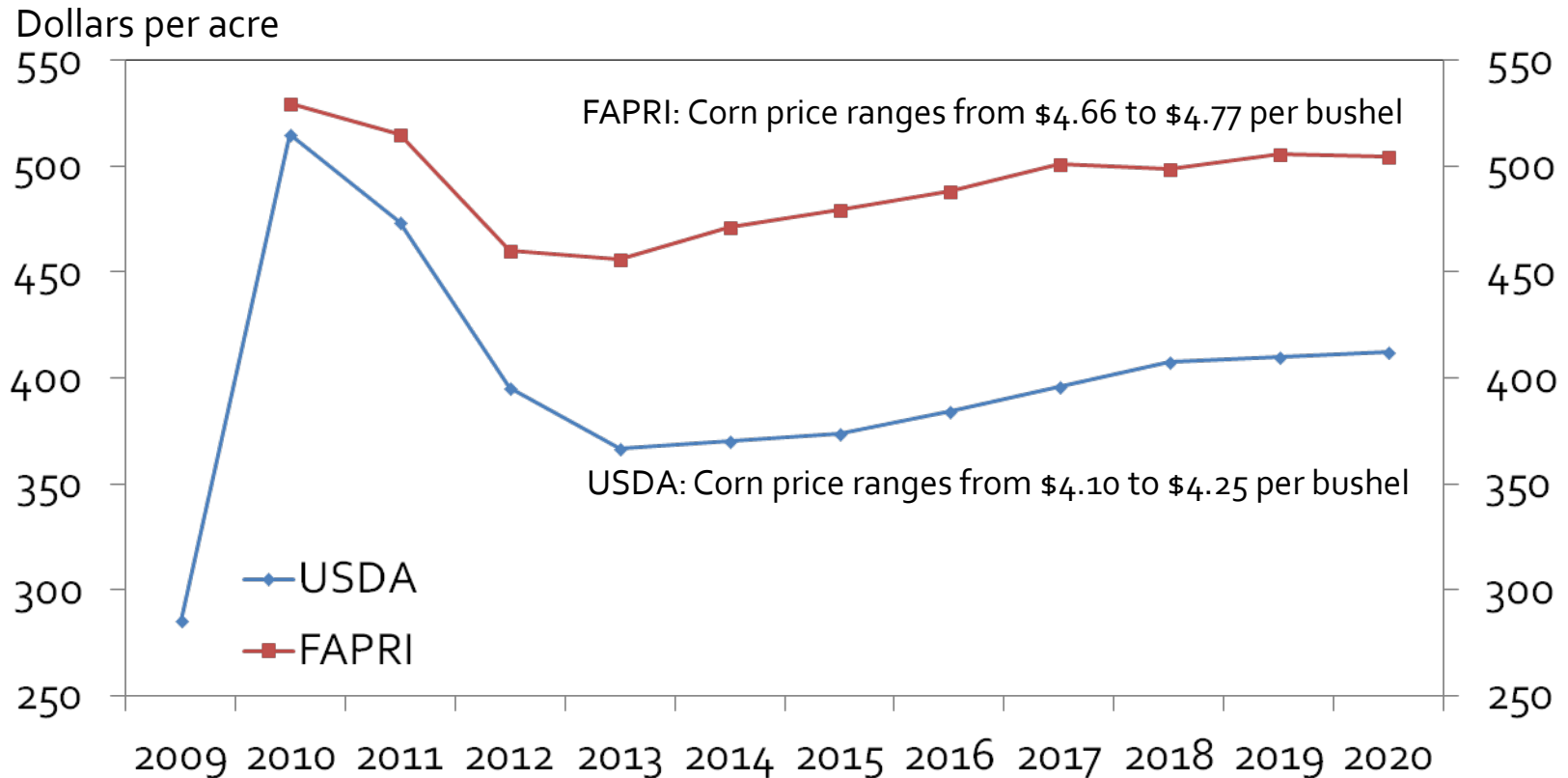
- 2013: Average Annual Corn Price is \$4.10
- 2013: Net returns above variable costs for corn fall 40% below today's levels.

Source: USDA



What is the long-term profits from agricultural production?

Net Returns to Corn Production



Source: USDA and FAPRI



Conclusions

- The economic recovery is underway.
- Agriculture faces two types of risks:
 - Agricultural market risks
 - Financial market risks.
- The risk are large and constantly shifting
- Agriculture will continue to face volatile markets.

Low leverage ratios and strong working capital are the best way to manage through volatile times.

