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Macro Overview of Economic Conditions Affecting Agriculture



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.

Today's Roadmap

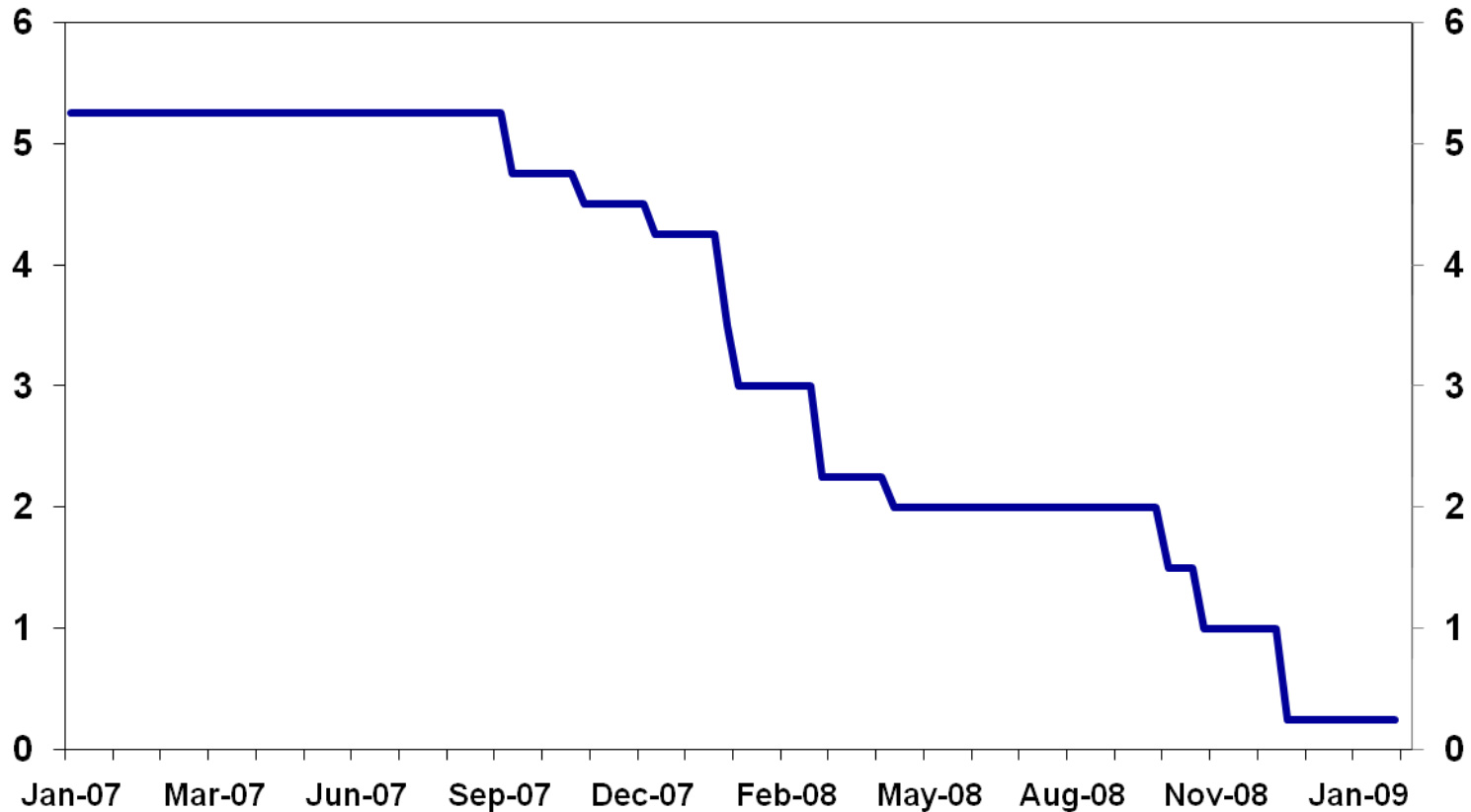
- **Monetary Policy at the Zero Bound**
- **The Recession Deepens**
- **What is the Impact on Agriculture?**



What happens to monetary policy at the zero bound?

Fed Funds Rate

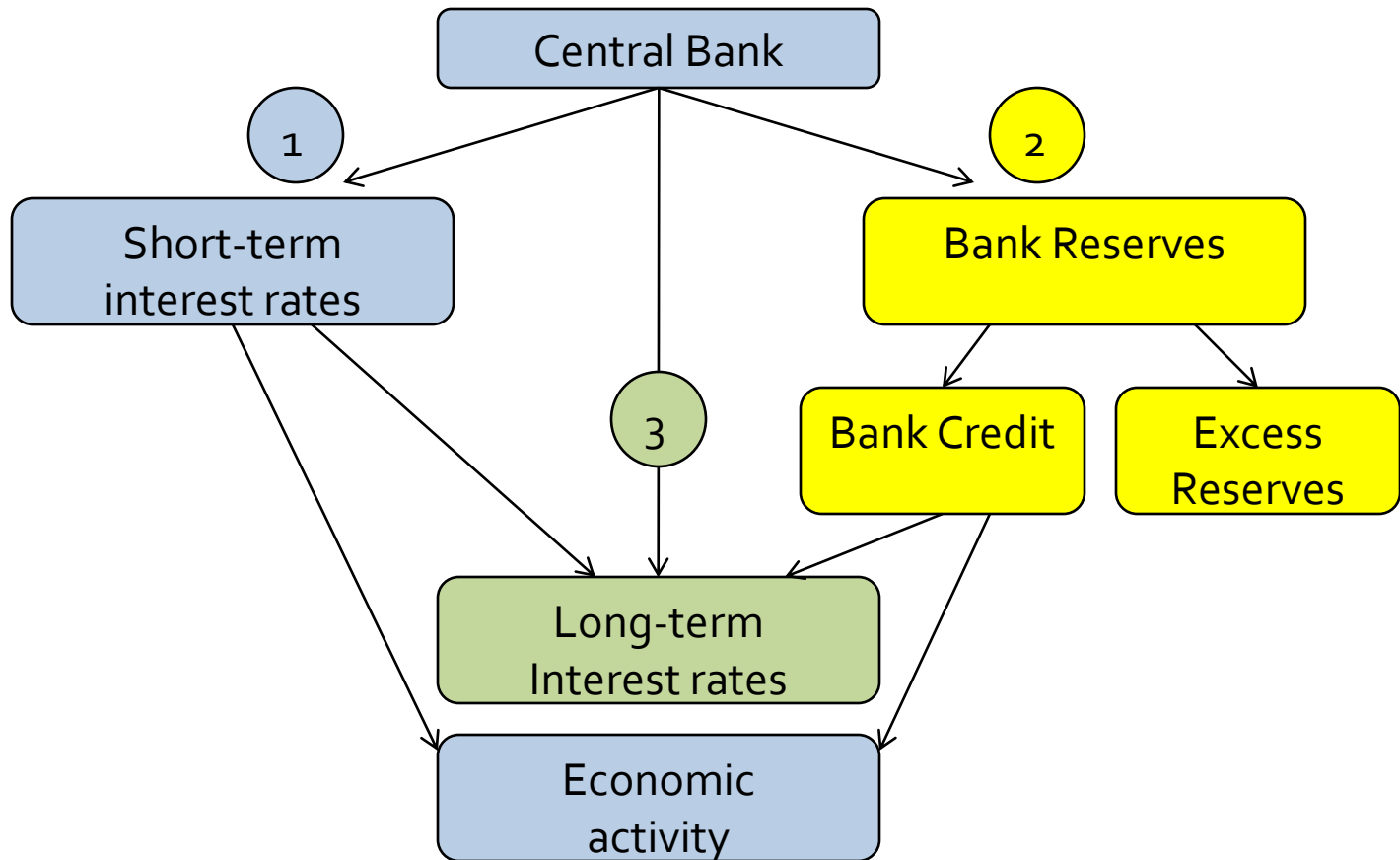
Percent



Source: Federal Reserve Board of Governors



Monetary Policy Transmission Mechanisms



Source: Gordon Sellon (2003) "Monetary Policy and the Zero Bound: Policy Options When Short-Term Rates Reach Zero"
Economic Review <http://www.kansascityfed.org/Publicat/ECONREV/PDF/4q03sell.pdf>



The Fed has expanded its balance sheet to extend credit to banks.

- Prior to September 2008, the Fed was sterilizing liquidity injections to capital markets.

- Expansion of short-term lending through Term Auction Facility (TAF) - **Green**

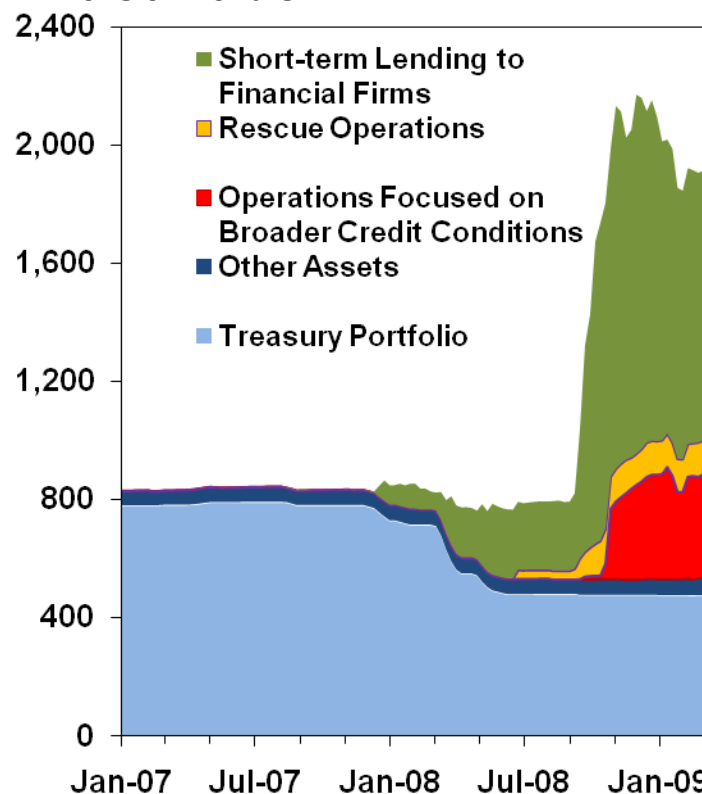
- Offset by lower treasury portfolio - **Blue**

- After September 2008, Fed unable to sterilize liquidity injections through the discount window and various lending facilities.

- The creation of the Term Asset-backed Securities Loan Facility (TALF) to acquire consumer loans could expand the balance sheet even further.

Federal Reserve Balance Sheet

Billions of Dollars



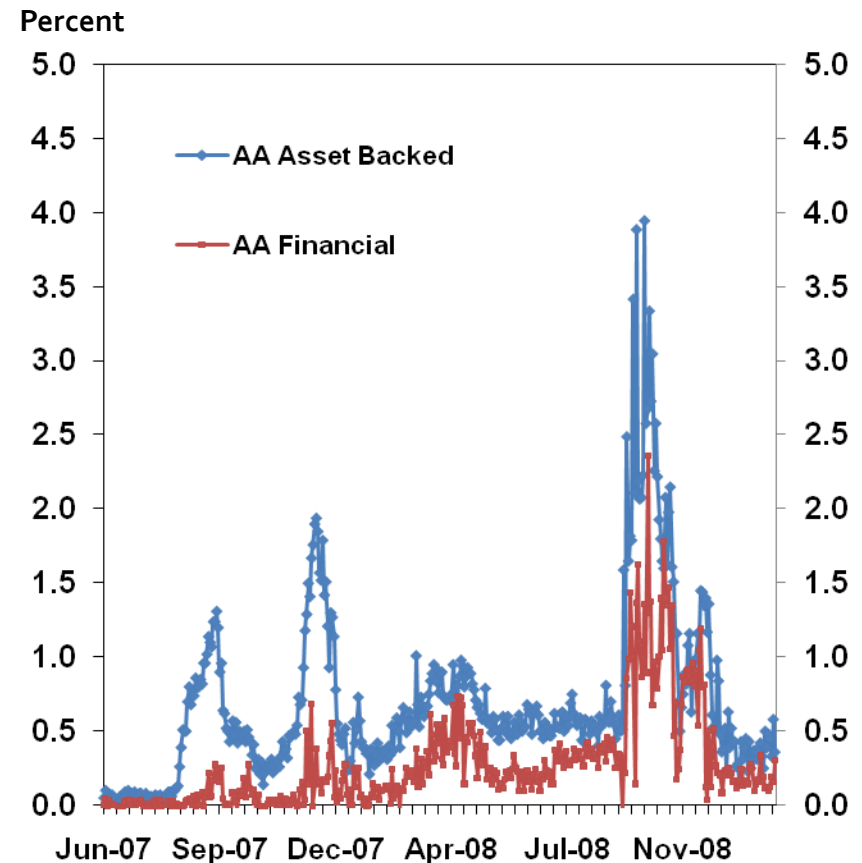
Source: Federal Reserve Board of Governors



Stress in the mortgage market spreads to financial markets in the fall of 2008.

- Interest rate spreads indicate market risk.
 - Higher risk = Higher rates
- In 2007, spreads on asset-based (mortgage) rates rose sharply.
- In Sept. 2008, risks and interest rate spreads rose sharply in financial markets

Commercial Paper Rates Spreads
(Difference from Nonfinancial Commercial Paper)



Source: Federal Reserve Board of Governors

The FOMC is Battling Deflation

- Deflation: *A decline in general price levels,*
 - *often caused by a reduction in the supply of money or credit.*
 - *brought about by direct contractions in spending, either in the form of a reduction in government spending, personal spending or investment spending.*
- “In light of increasing economic slack here and abroad, the Committee expects that **inflation will remain subdued**. Moreover, the Committee sees some risk that **inflation could persist for a time below rates that best foster economic growth and price stability in the longer term.**”

*FOMC Statement
March 18, 2009*



Today's Roadmap

- **Monetary Policy 101**
- **The Recession Deepens**

Consumers



Business Investment



Net Exports



Government



Length of U.S. Recessions

Start	End	Length (Months)
Nov. 1973	Mar. 1975	16
Jan. 1980	Jul. 1980	6
Jul. 1981	Nov. 1982	16
Jul. 1990	Mar. 1991	8
Mar. 2001	Nov. 2001	8
Dec. 2007	???	
Average since World War II		10

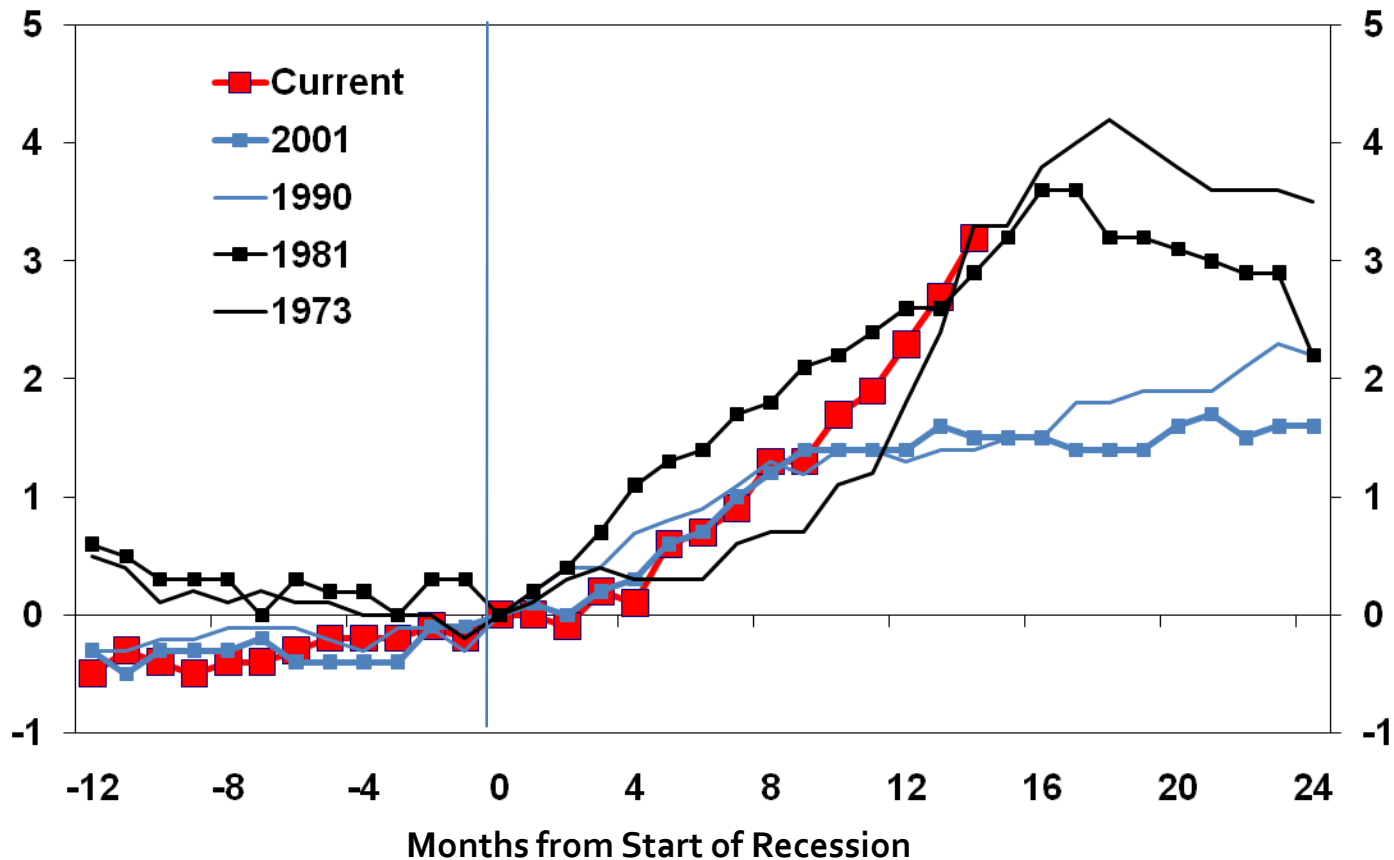
Source: NBER



Job losses are tracking the 1981 and 1973 recessions.

Unemployment Rate Around Business Cycle Peak

Change in unemployment rate



Federal Reserve Economic Projections

(January 28, 2009)

	2009	2010	2011	Longer Run
Real GDP Growth	-1.3 to -0.5	2.5 to 3.3	3.8 to 5.0	2.5 to 2.7
October '08 projection	-.2 to 1.1	2.3 to 3.2	2.8 to 3.6	
Unemployment Rate	8.5 to 8.8	8.0 to 8.3	6.7 to 7.5	4.8 to 5.0
October '08 projection	7.1 to 7.6	6.5 to 7.3	5.5 to 6.6	
PCE Inflation	0.3 to 1.0	1.0 to 1.5	0.9 to 1.7	1.7 to 2.0
October '08 projection	1.3 to 2.0	1.4 to 1.8	1.4 to 1.7	

Source: Summary of Economic Projections, Minutes of the Federal Open Market Committee, January 27-28, 2009.
Available at www.federalreserve.gov



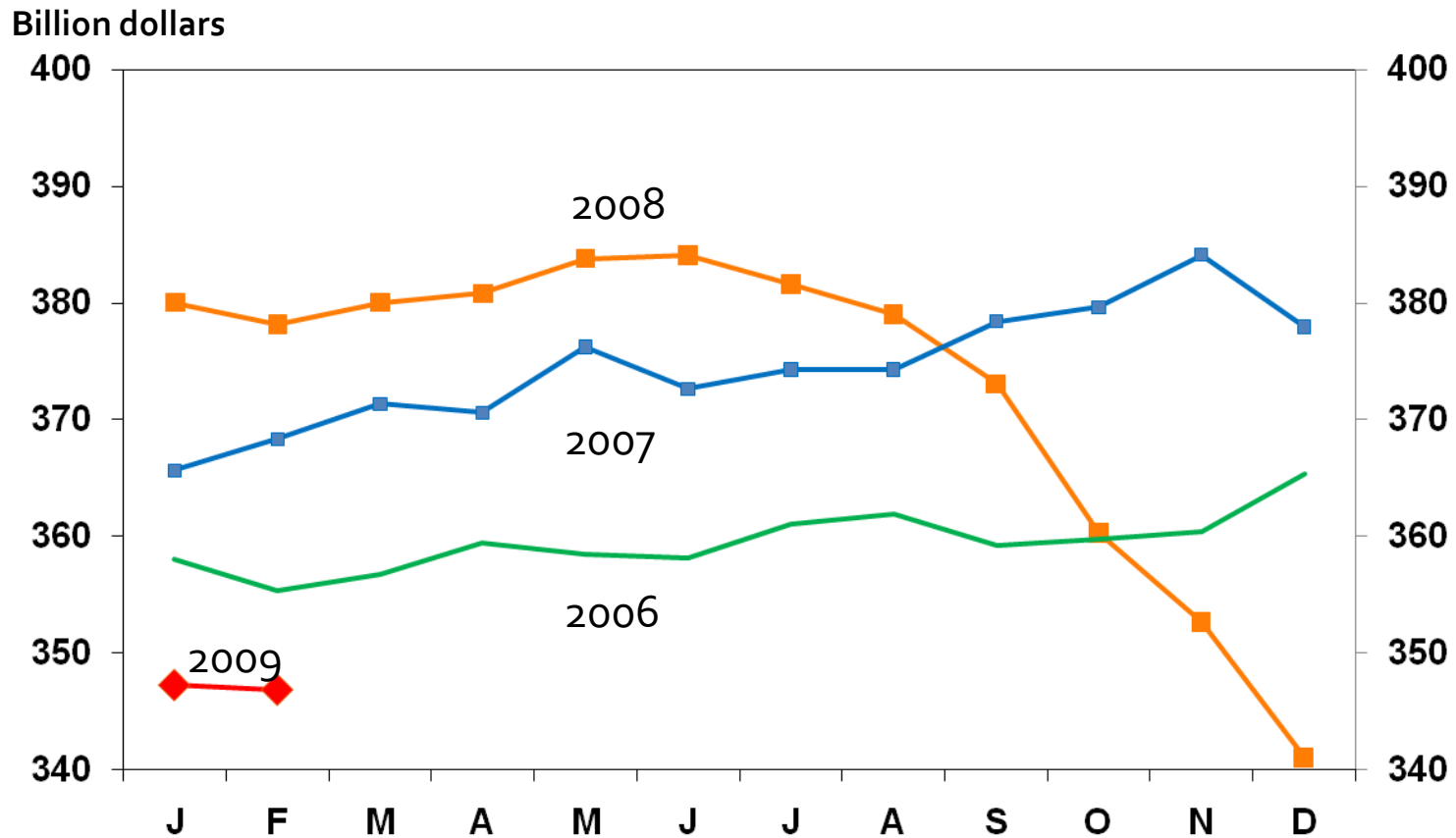
The Recession Intensifies

- Consumer spending drops sharply.



Consumer spending drops sharply.

U.S. Monthly Retail and Food Sales

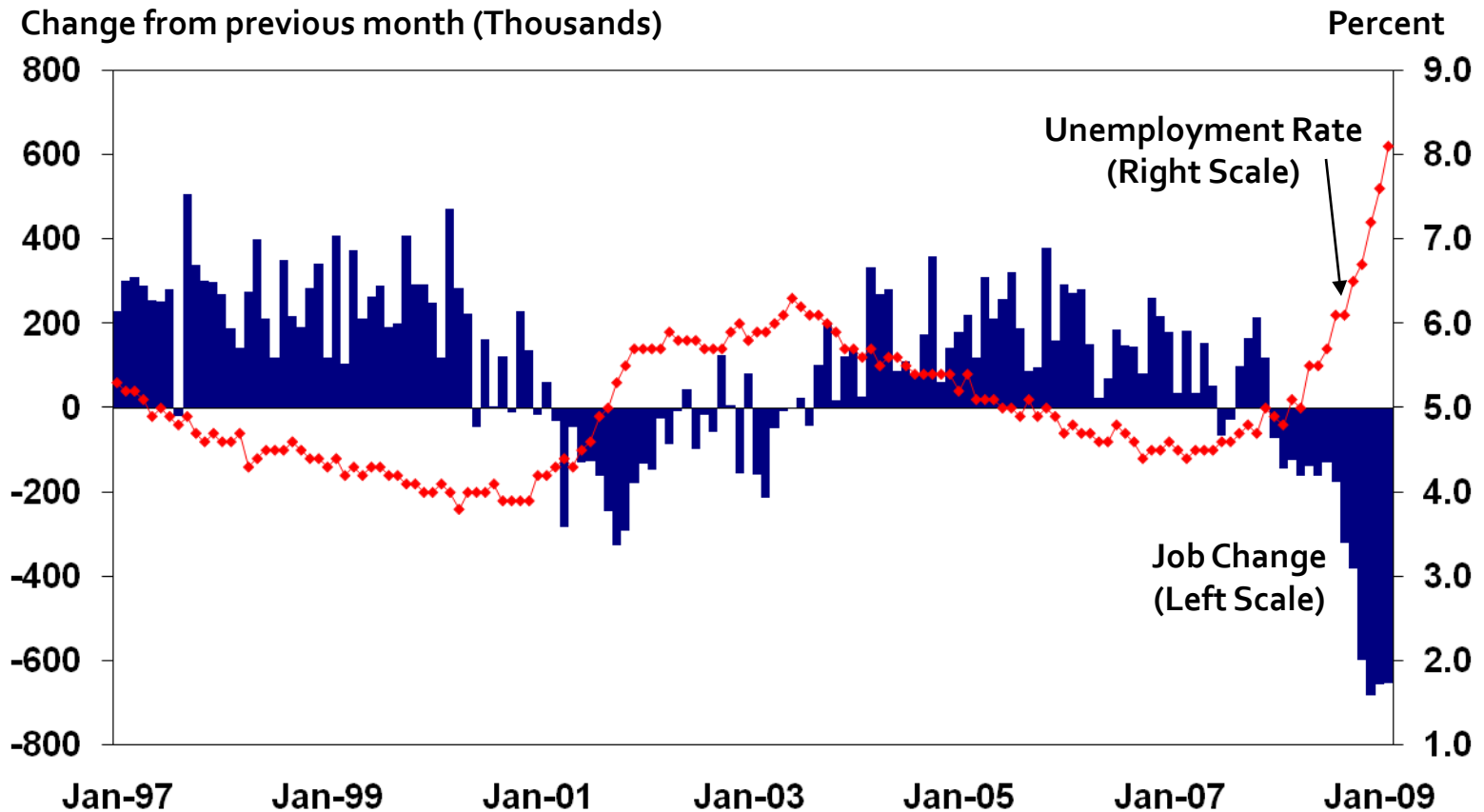


Source: U.S. Census Bureau



Job losses mount.

U.S. Non-farm Job Growth and Unemployment Rate



Source: Bureau of Labor Statistics



The Recession Intensifies

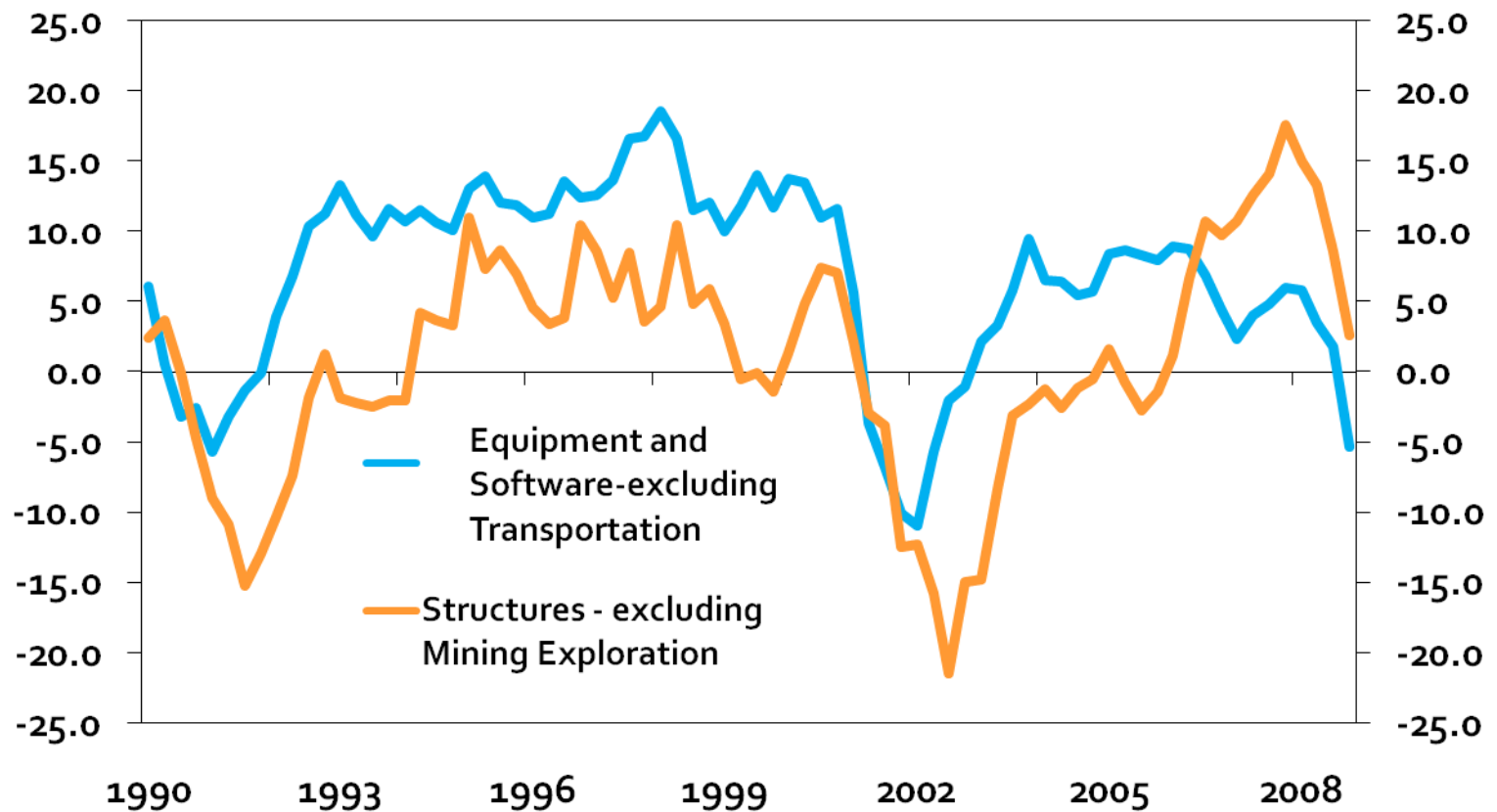
- **Consumer spending drops sharply.**
- **Business activity plummets.**



Business investment has plummeted.

U.S. Non-residential Investment

Percent change from year ago



Source: Census Bureau



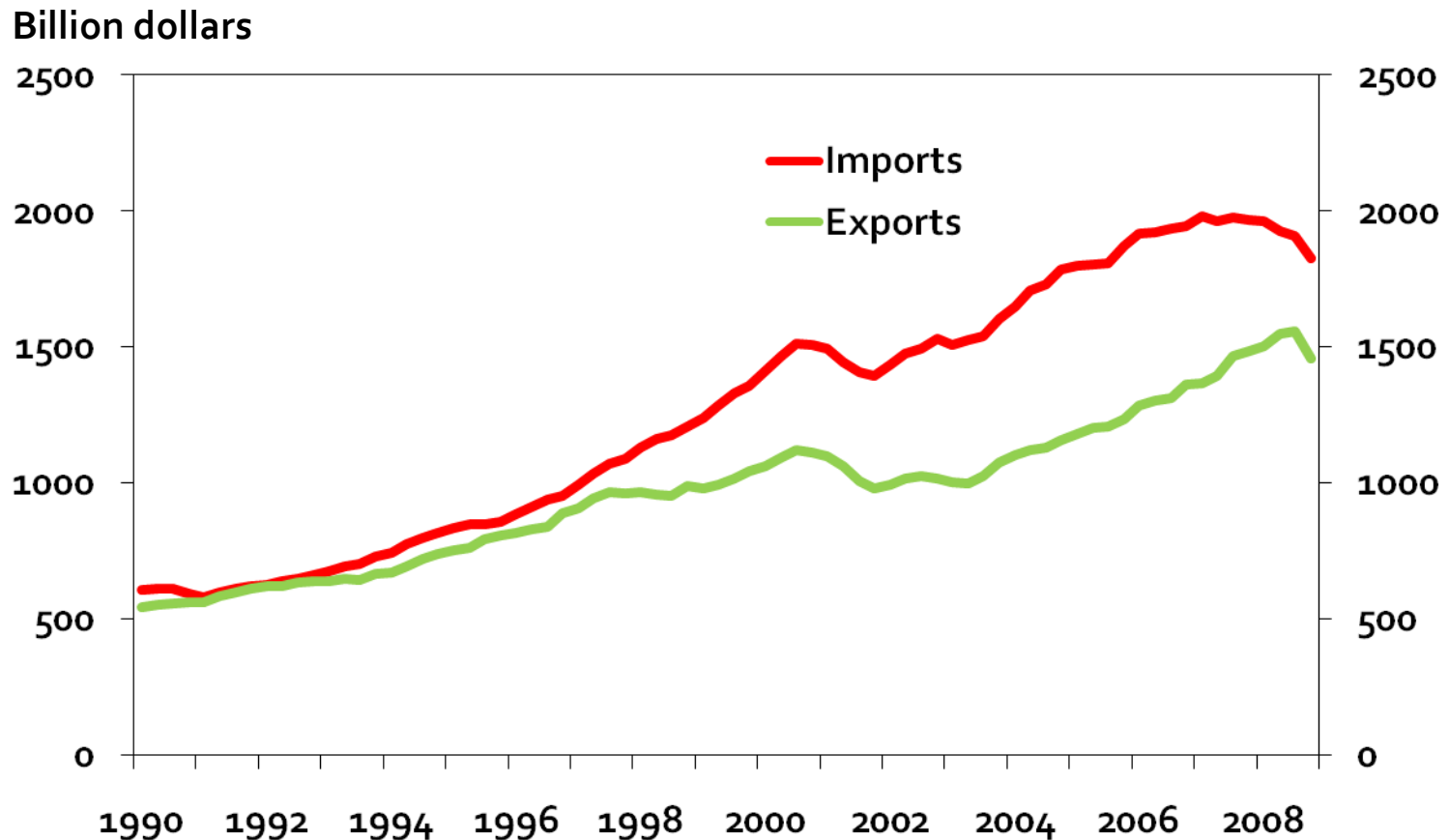
The Recession Intensifies

- **Consumer spending drops sharply.**
- **Business activity plummets.**
- **Export activity wanes with a global recession and a stronger dollar.**



Export activity has slowed.

U.S. Exports and Imports



Source: Bureau of Economic Analysis and Blue Chip Forecast, February 2009



The Recession Intensifies

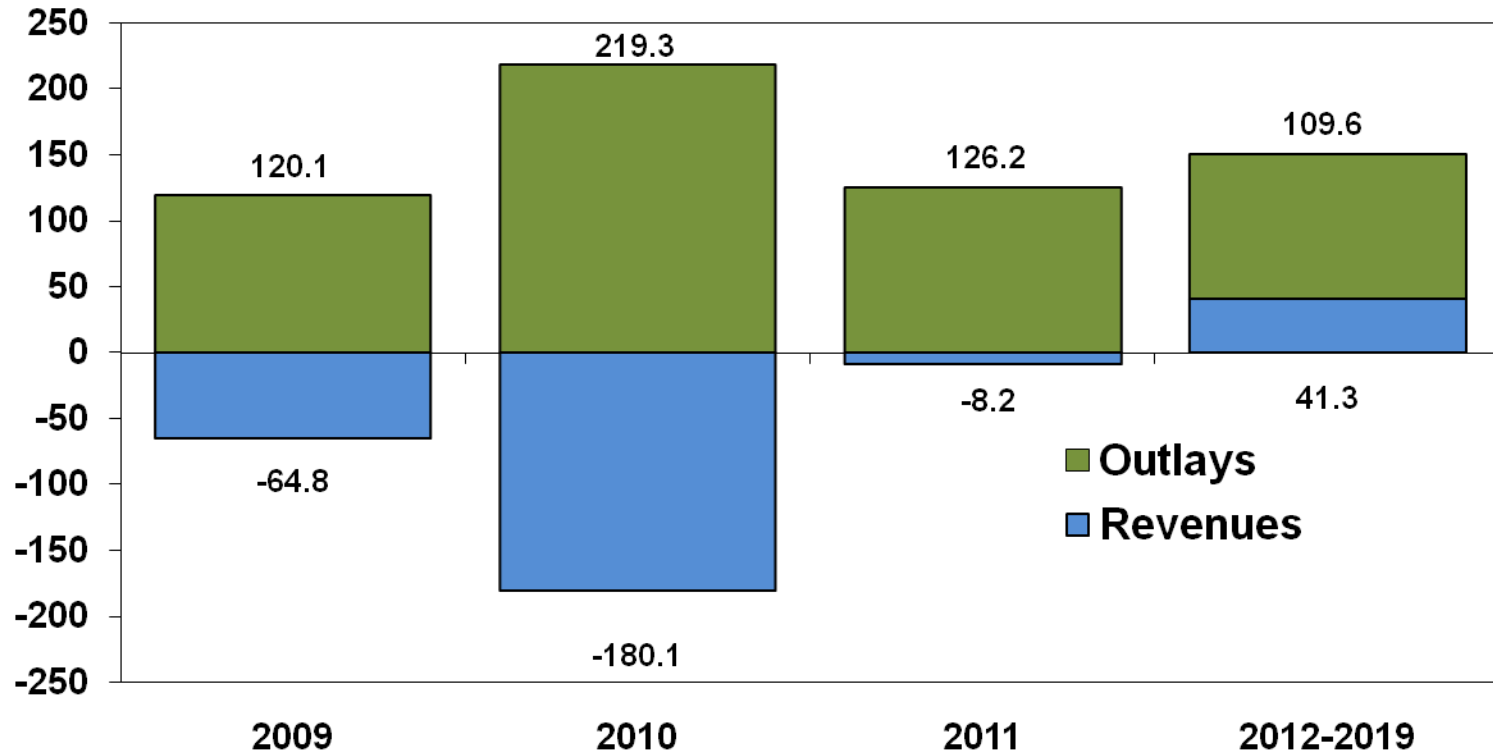
- **Consumer spending drops sharply.**
- **Business activity plummets.**
- **The recession spreads globally.**
- **Will fiscal stimulus jump start the economy?**



Will the stimulus package work?

Estimated Budget Impact of American Recovery and Reinvestment Act (ARRA) of 2009

Billion Dollars



Source: Congressional Budget Office, February 13, 2009



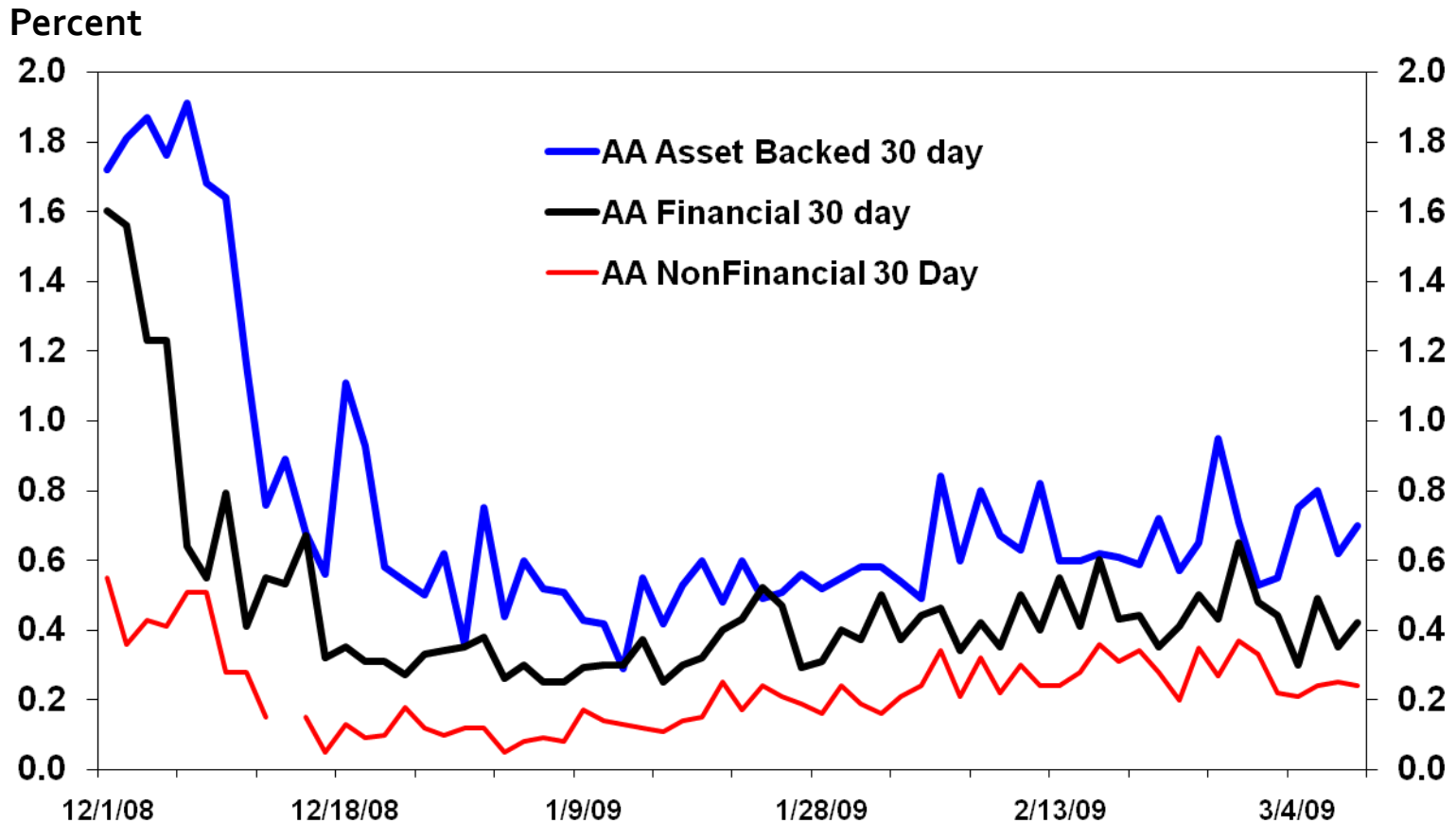
Today's Roadmap

- **The Recession Intensifies**
- **Will Recent Financial Market Improvements Persist?**



Commercial paper rates have crept up.

Commercial Paper Rates



Source: Federal Reserve Board of Governors



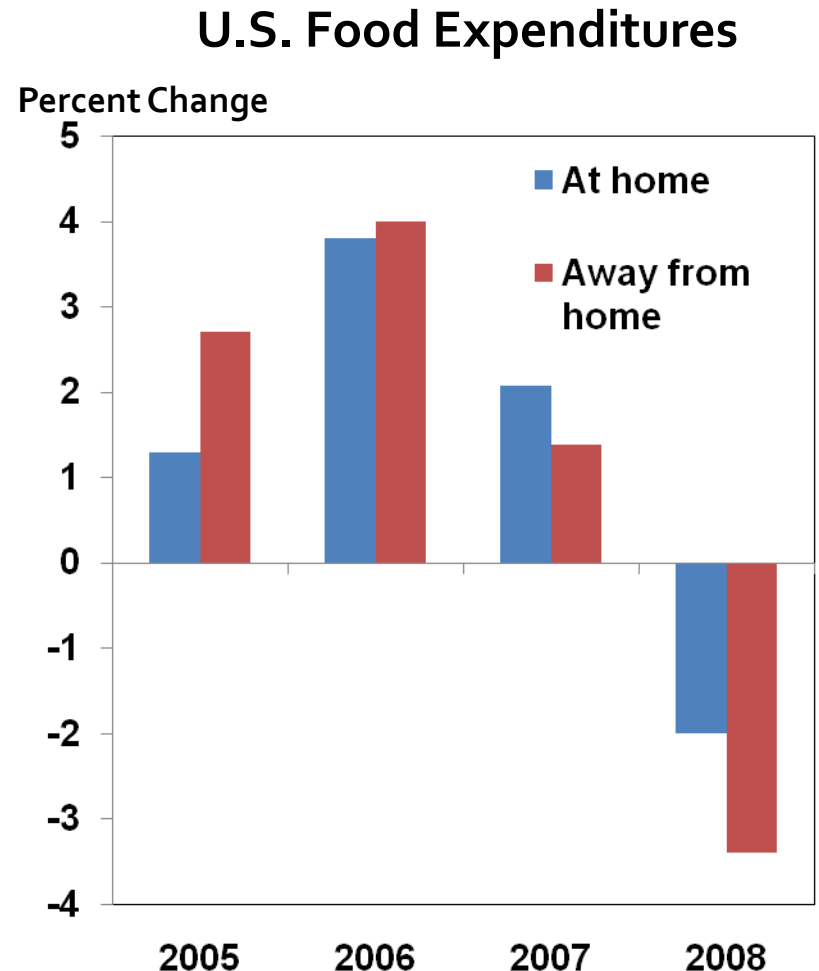
Today's Roadmap

- **Monetary Policy 101**
- **The Financial Crisis Intensifies**
- **The Recession Deepens**
- **What is the Impact on Agriculture?**



1) Food Demand Falls in the Recession

- Food is a necessity good.
- During economic downturns, people reduce the cost of food not the quantity of food.
- Eat more meals at home instead of restaurants.
 - January 2009 food expenditures
 - At-home spending up 1.4%
 - Away-from home spending down 1.3%
- Eat more lower prices foods.
 - 2008 food demand
 - Beef demand down 4.0%
 - Poultry demand up 0.7%

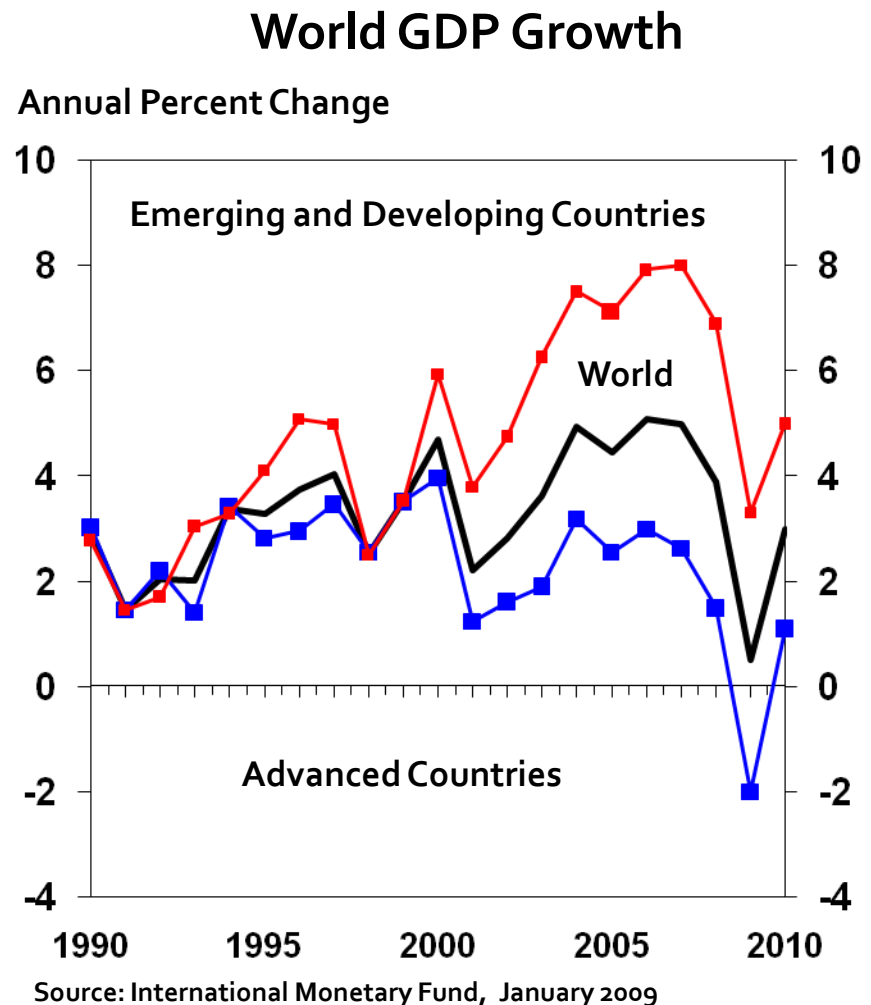


Source: USDA



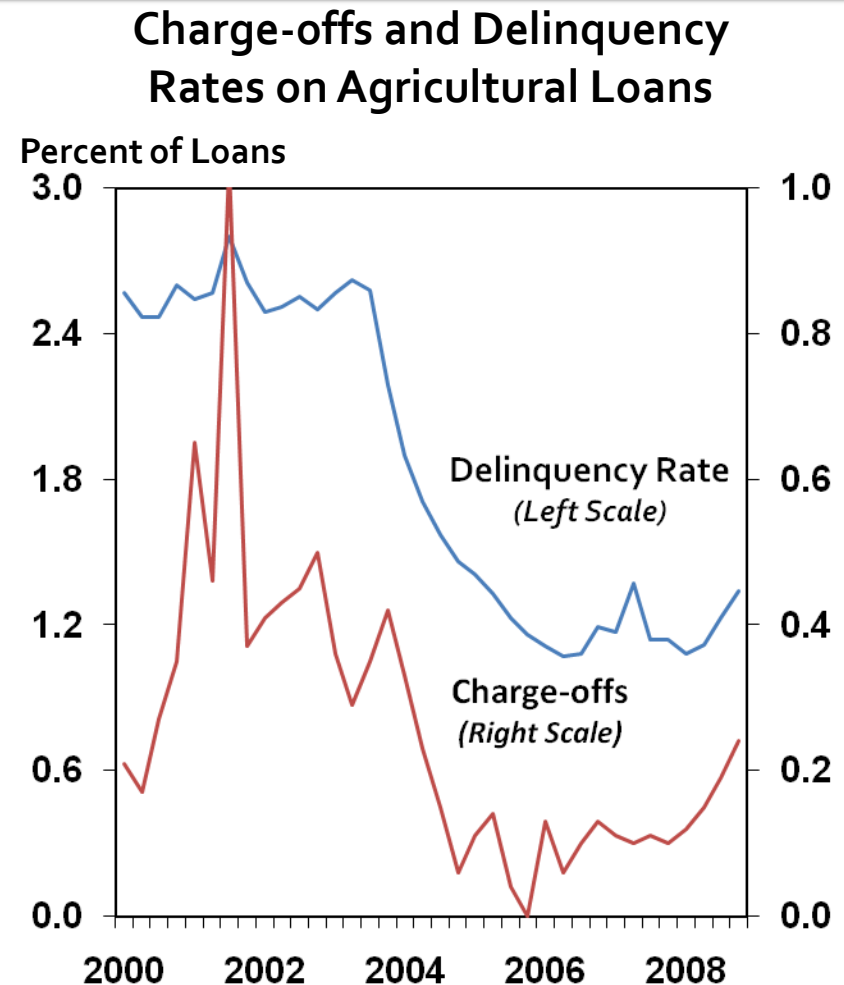
2) A Global Recession Limits Agricultural Export Activity.

- The recent farm boom coincides with strong economic growth in developing countries.
- An emerging middle class alters world food consumption. Urban incomes in China rose from \$1100 in 2000 to \$2616 in 2006.
- A global recession slashes ag export forecast by 15% in 2009.
- Will global demand and export activity rebound in 2010?



3) Will The Financial Crisis Limit Funds for Ag Loans?

- Carry-over debt has risen with lower repayment rates and increased renewals and extensions.
- Funds are available for ag loans at historically low rates.
- Low interest rates limit bank deposits, which are the primary source of funds at smaller agricultural banks.
- Delinquency and charge-off rates on ag loans are historically low, but rising.
- In response to higher risk, ag banks have raised collateral requirements and reduced loan maturities



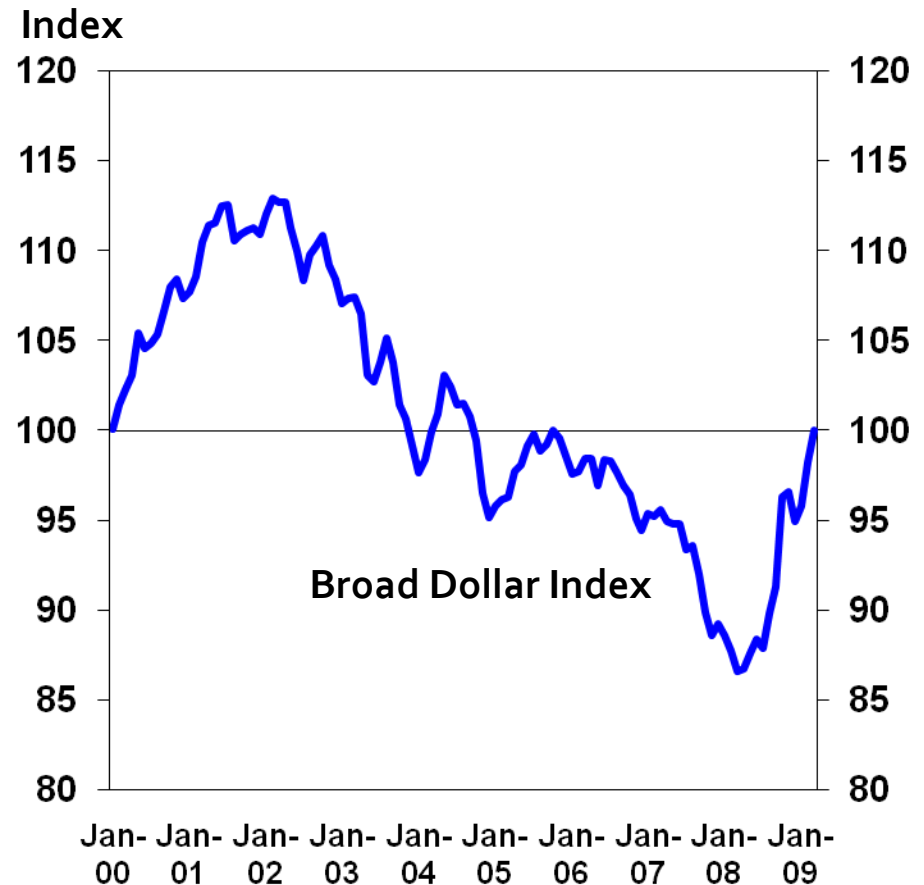
Source: Board of Governors of the Federal Reserve System



4) What is the Future Path of Exchange Rates and Interest Rates?

- In 2008, a weaker dollar contributed to a stronger farm economy.
- The dollar rose in September due to a global search for a safe haven investment.
- What is the impact of monetary stimulus on commodity prices?
- What happens to the demand for dollars as the financial crisis moderates?
- How will the Fed respond to an economic rebound and higher inflation?

Value of the Dollar



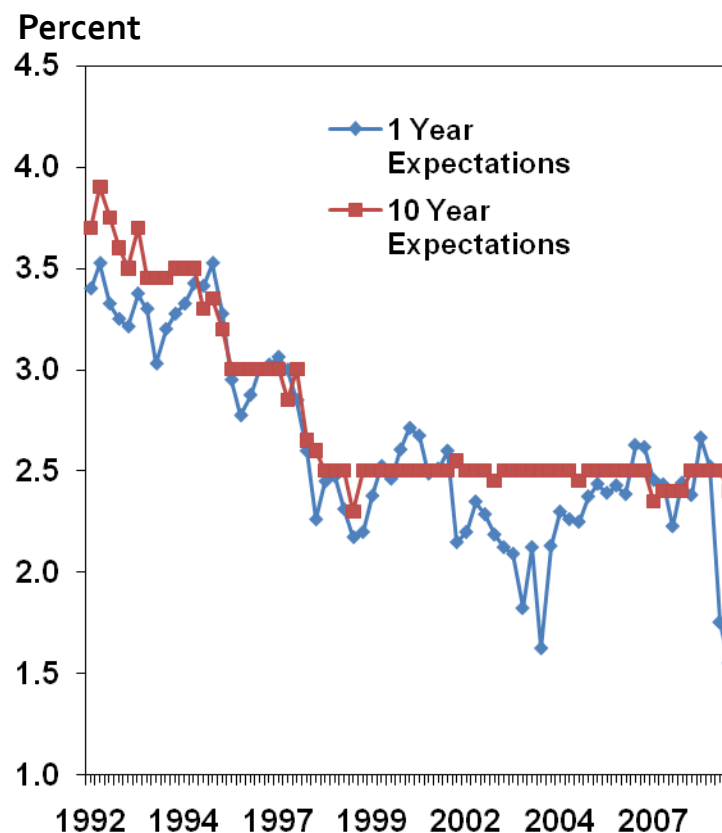
Source: Federal Reserve Board of Governors



5) Deflation is a short-term risk. Is inflation a long-term risk?

- Inflation expectations reveal
 - A lower inflation rate 1 year out.
 - Stable inflation long-term
- Monetary stimulus – the Fed has expanded its balance sheet to stimulate growth and fight deflation.
- Inflation definition:
“To much money chasing too few goods”
- The monetary base has surged with the Fed balance sheet.
- In the long term, inflation will depend on the Fed’s ability to remove monetary stimulus.

Inflation Expectations



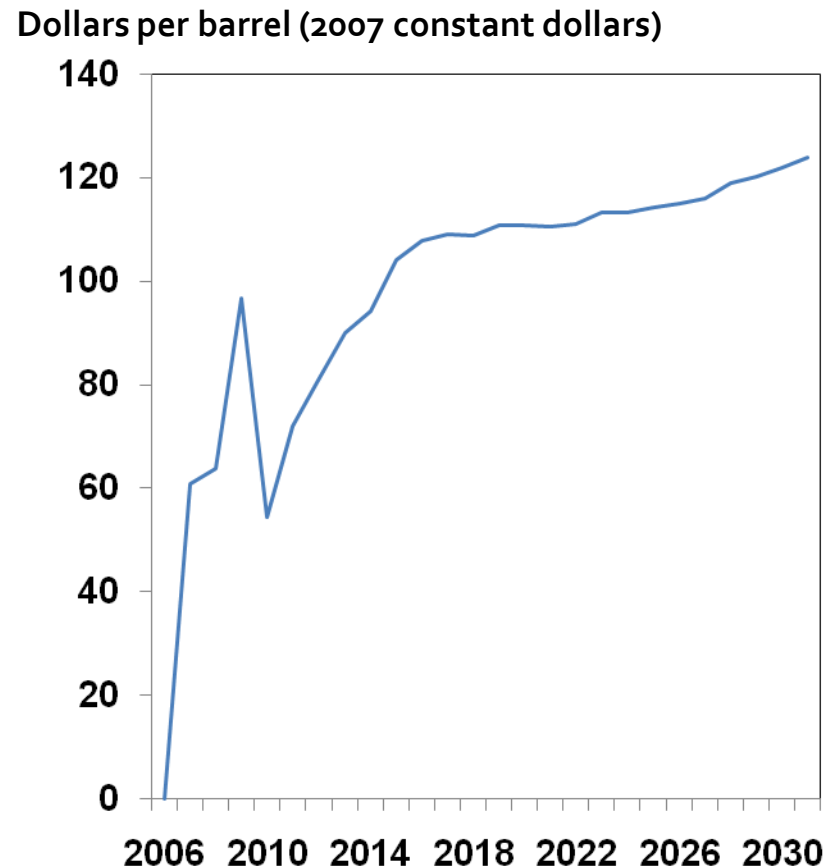
Source: Survey of Professional Forecasters



6) Energy Prices: A Boon or Bane for Ag?

- Traditionally, high energy prices were a bane for agriculture.
- Still, high energy prices raise production costs and limit profits.
- Today, higher energy prices boost ethanol and corn prices.
- High prices are an incentive to invest in bio-fuels.
- What is the supply and demand for energy?

Imported Crude Oil Price



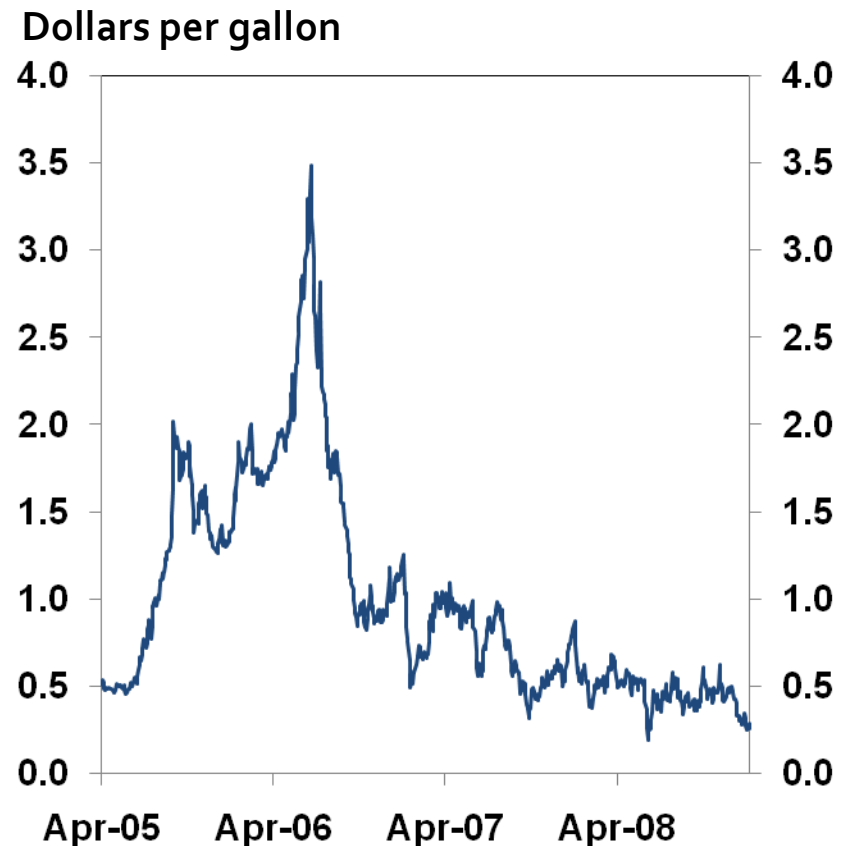
Source: Energy Information Administration



7) Can Ethanol Emerge as a Market-Based Industry?

- The ethanol boom fades.
- Ethanol is supported by various public policies:
 - MTBE limitations
 - Renewable Fuels Standards
 - Tariffs
 - Blenders Credits
 - State incentives
- Profitability rests on new technologies that reduce production costs.
 - Boost corn to ethanol conversion
 - Surging corn yields that cuts corn prices

Ethanol Corn Price Spread



Calculation based on Commodity Research Bureau data.
One bushel of corn is assumed to yield 2.8 gallons of ethanol.
(Spread = ethanol price – corn price/2.8)



9) *Technological Innovations Focus on Efficiency, Not Necessarily Productivity*

Productivity

$$\begin{array}{ccccc} \text{Value} & & \text{Value} & & \text{Output} \\ \text{per} & = & \text{per} & \times & \text{Per} \\ \text{Input} & & \text{Output} & & \text{Input} \end{array}$$

- **Efficiency: Output per Input**
The ability to create more things with fewer inputs.
(Bushels per acre)
- **Value: Value per Output**
The ability to create things of higher value.
(Dollars per bushel)

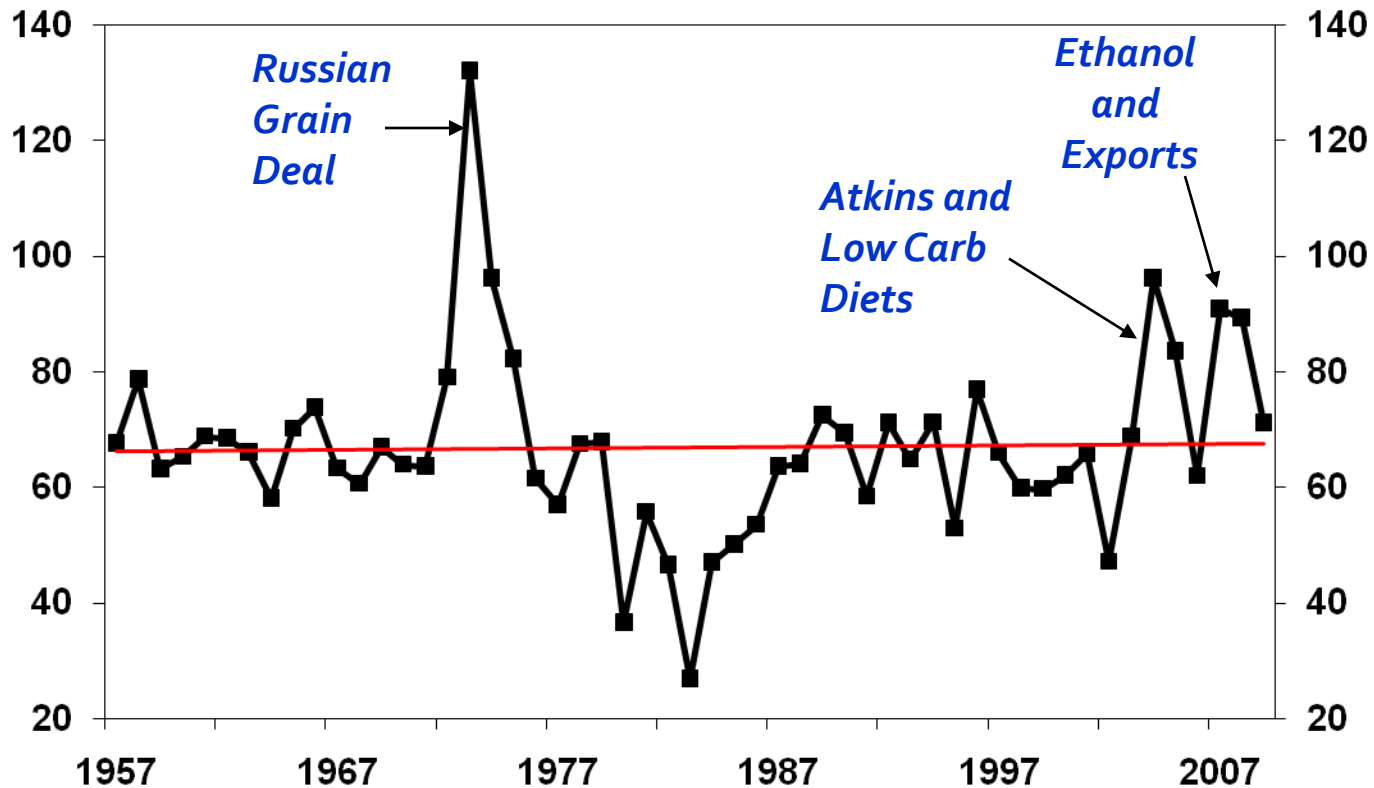
***Which part of productivity does
U.S. agriculture struggle with?***



Lessons From The Past: What Boosts Real Farm Incomes?

U.S. Real Net Farm Income

Billion dollars (2000 = 100)



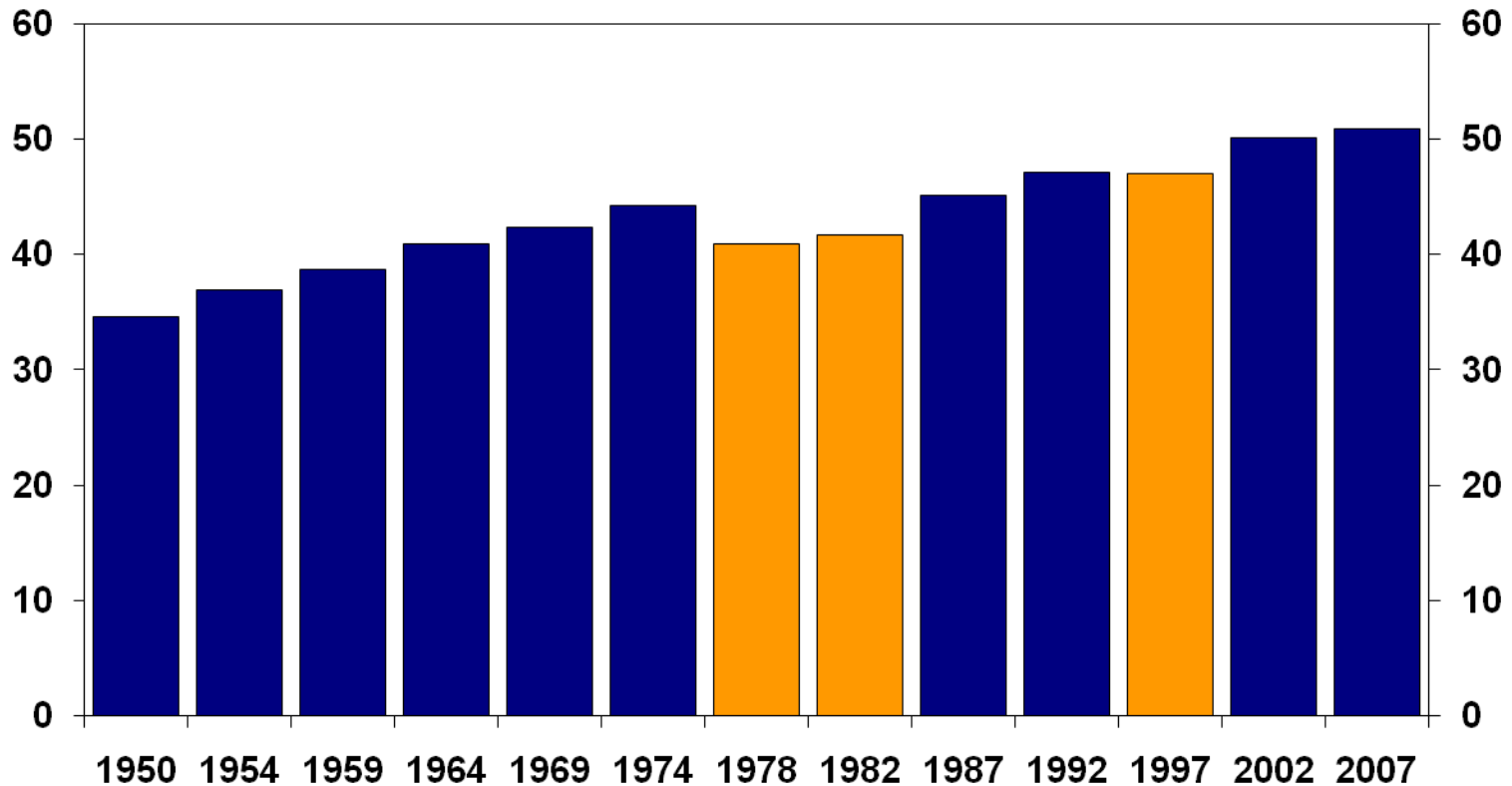
Source: USDA



10) Where Will Agriculture's Next Generation of Leaders Emerge?

Age Demographics of U.S. Farmers

Percent 55 or older



Source: USDA



Conclusions

- The recession has trimmed domestic and foreign demand for food and other agricultural products.
- Agricultural lending risks are elevated given turbulent financial markets and higher production costs.
- Economic stimulus and the fight against deflation could lead to volatile commodity prices. Agriculture has higher interest rates and exchange rate risks.
- Long-term, the risks surrounding energy, water, technological innovation, and people will shape 21st century agriculture.

