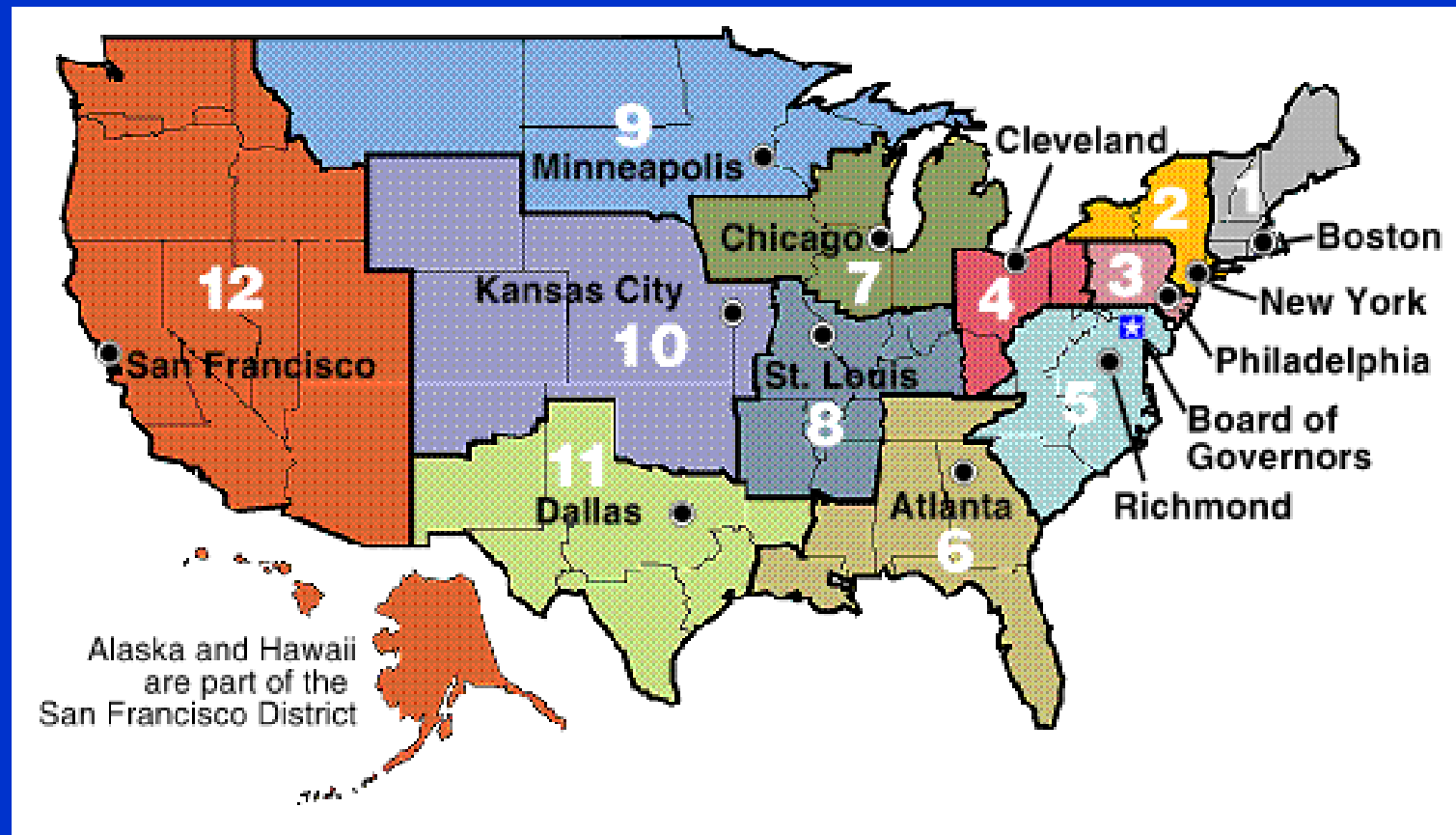

The Impact of a Dynamic Banking Industry on Midwestern Agriculture

November 21, 2014
Indianapolis, Indiana

David Oppedahl
Senior Business Economist
312-322-6122
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Federal Reserve System



Federal Reserve System

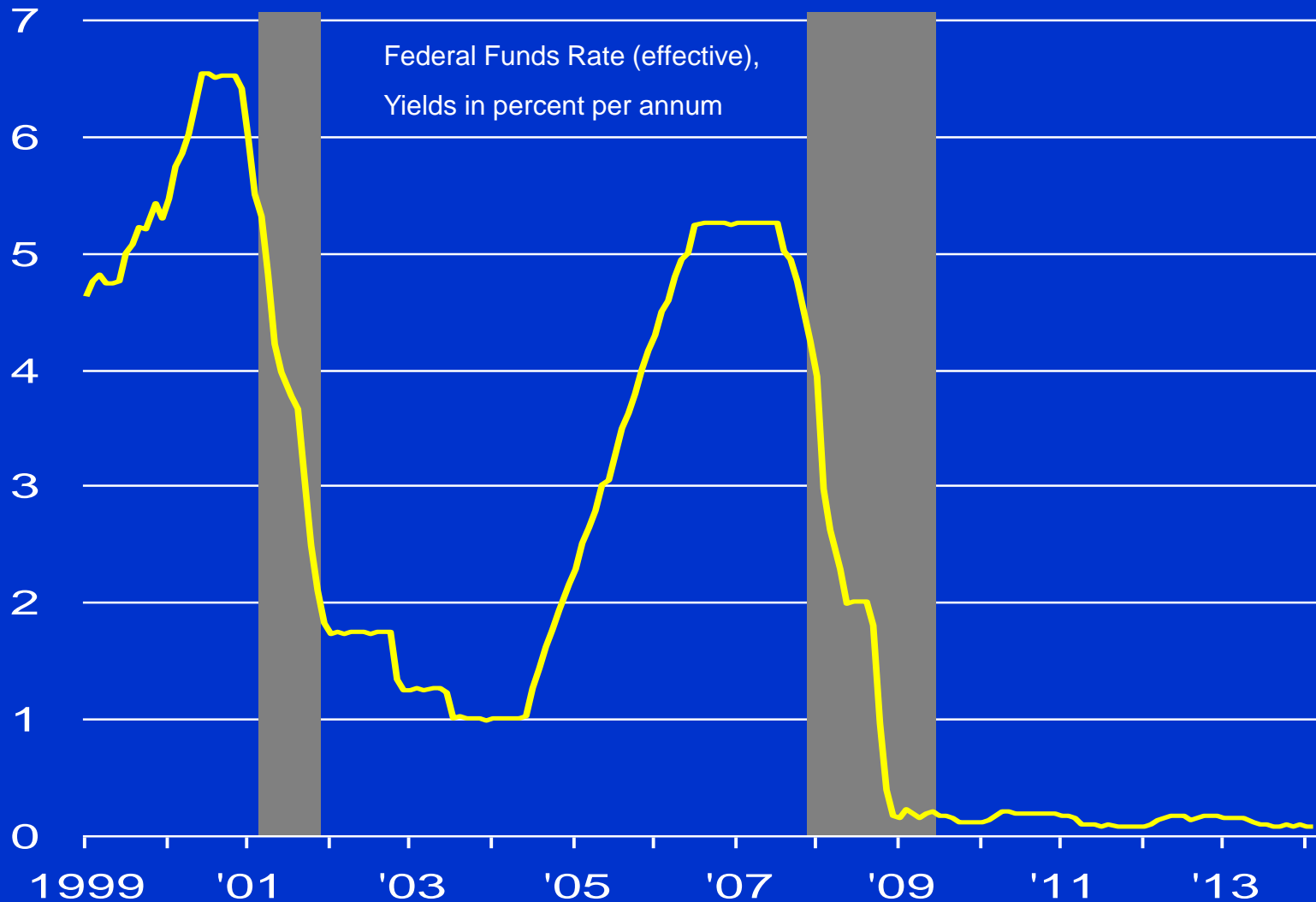
- **Twelve District Banks**
- **Board of Governors**
- **Federal Open Market Committee (FOMC)**

- **Functions of the Fed**
 - **Monetary policy**
 - **Commercial bank regulator**
 - **Provides banking services for U.S. government**
 - **Electronic funds transfer**
 - **Administers consumer credit laws**

How does the Fed affect agriculture?

- **Interest rates**
- **Price level**
- **National income (GDP)**
- **Exchange rates (indirectly)**

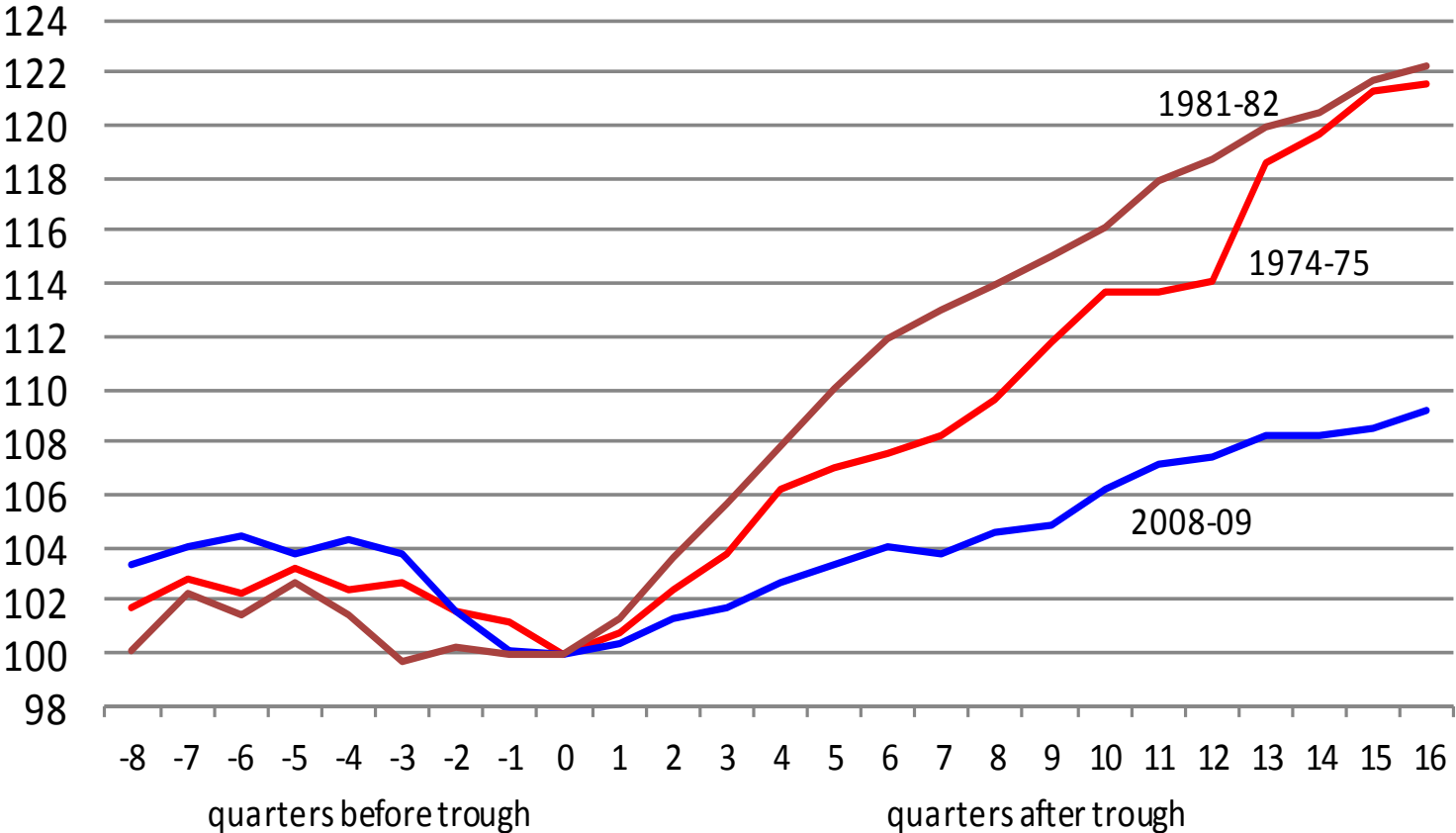
In December 2008, the FOMC lowered the Fed Funds rate target to a range up to 0.25%



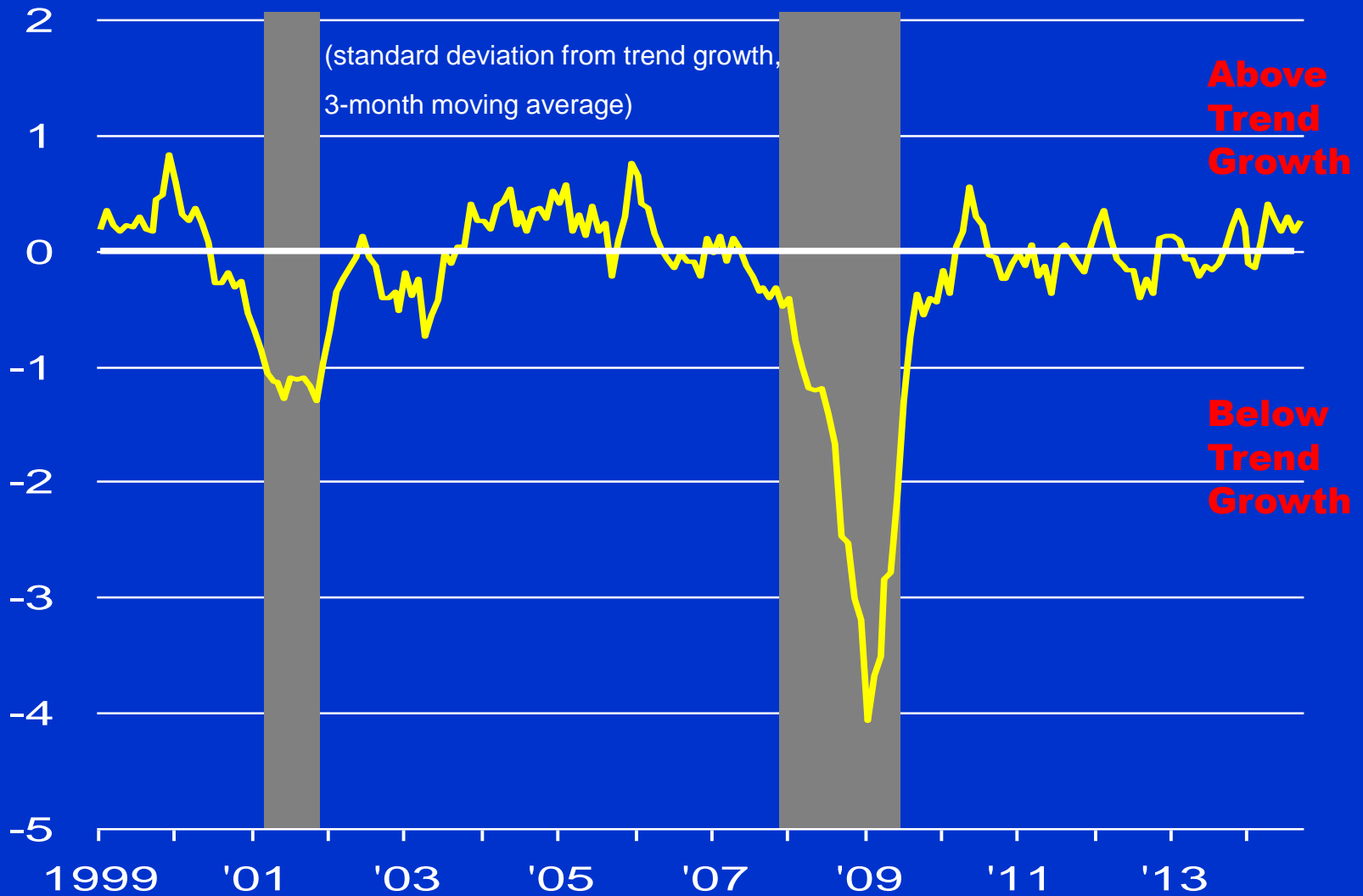
The path of this recovery has been below past deep recession recovery cycles

Business cycle recovery path

index - business cycle trough = 100

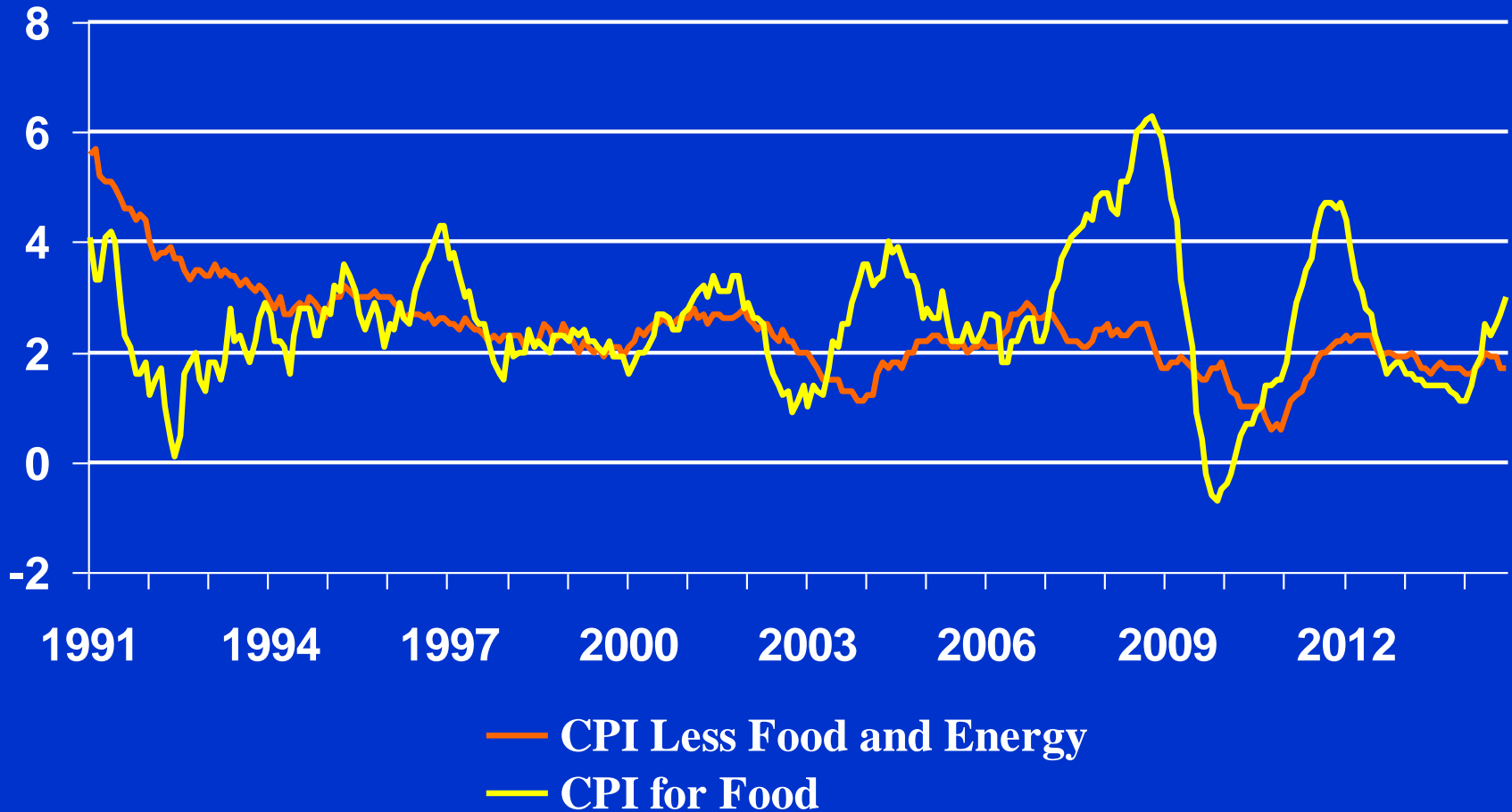


Chicago Fed National Activity Index shows hesitant growth since 2009



Food price increases again larger than core inflation (less food and energy)

(Consumer Price Index, percent change from year ago)

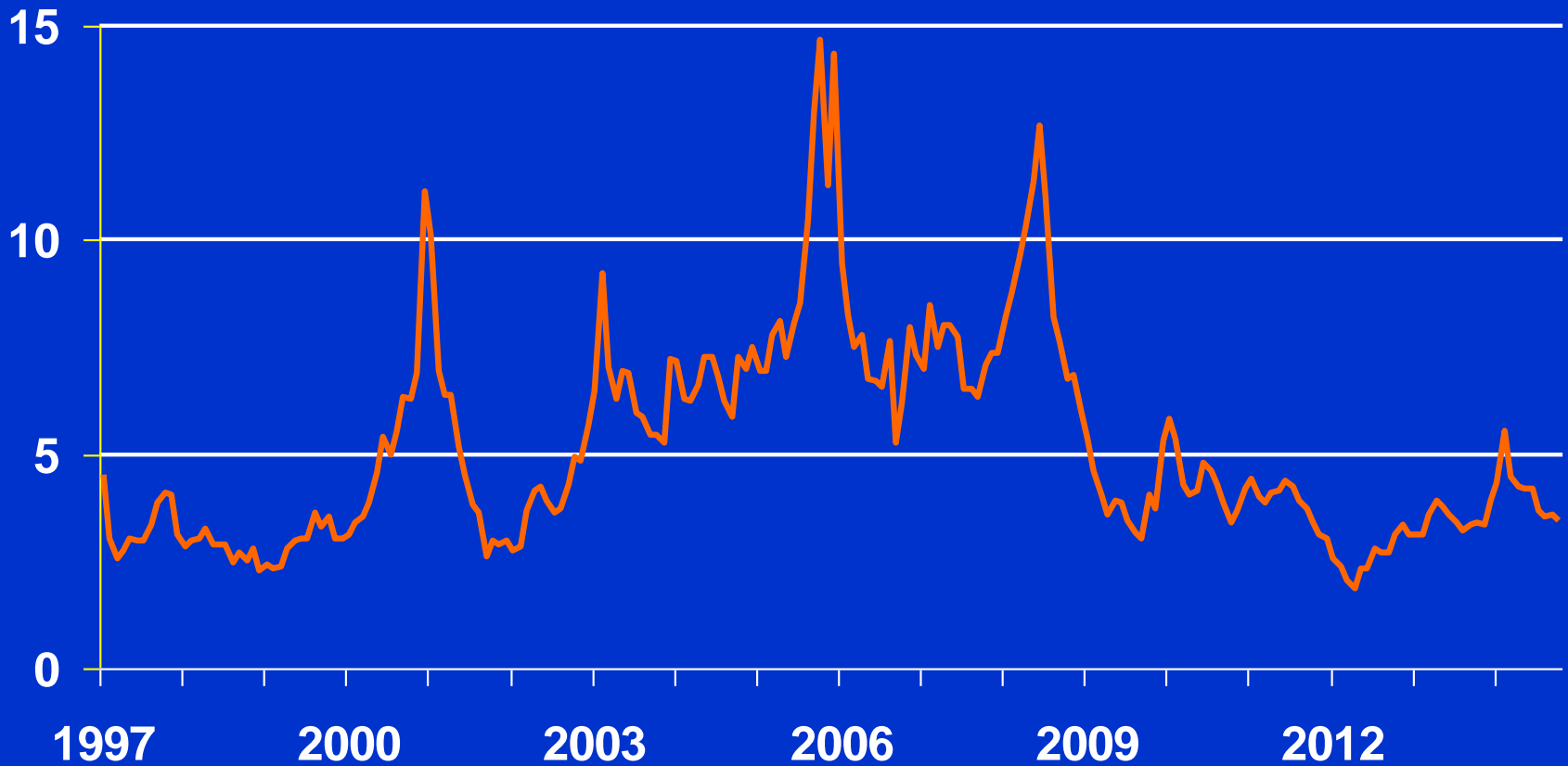


**Oil prices getting higher again
and gas prices hitting consumer spending**
(2010 \$/barrel)

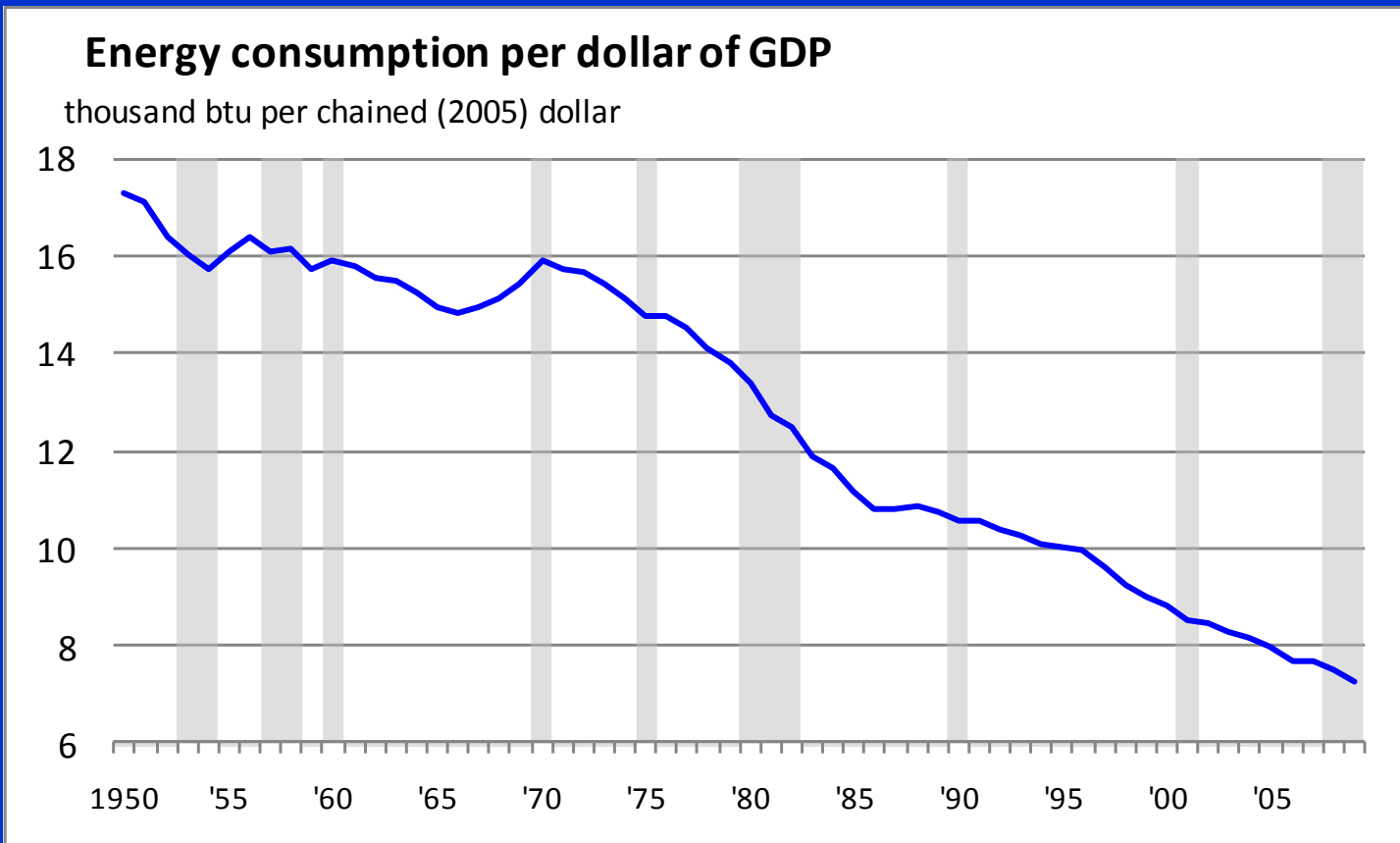


Natural gas prices have moderated

Real Natural Gas Price
{2010 \$/mmbtu}



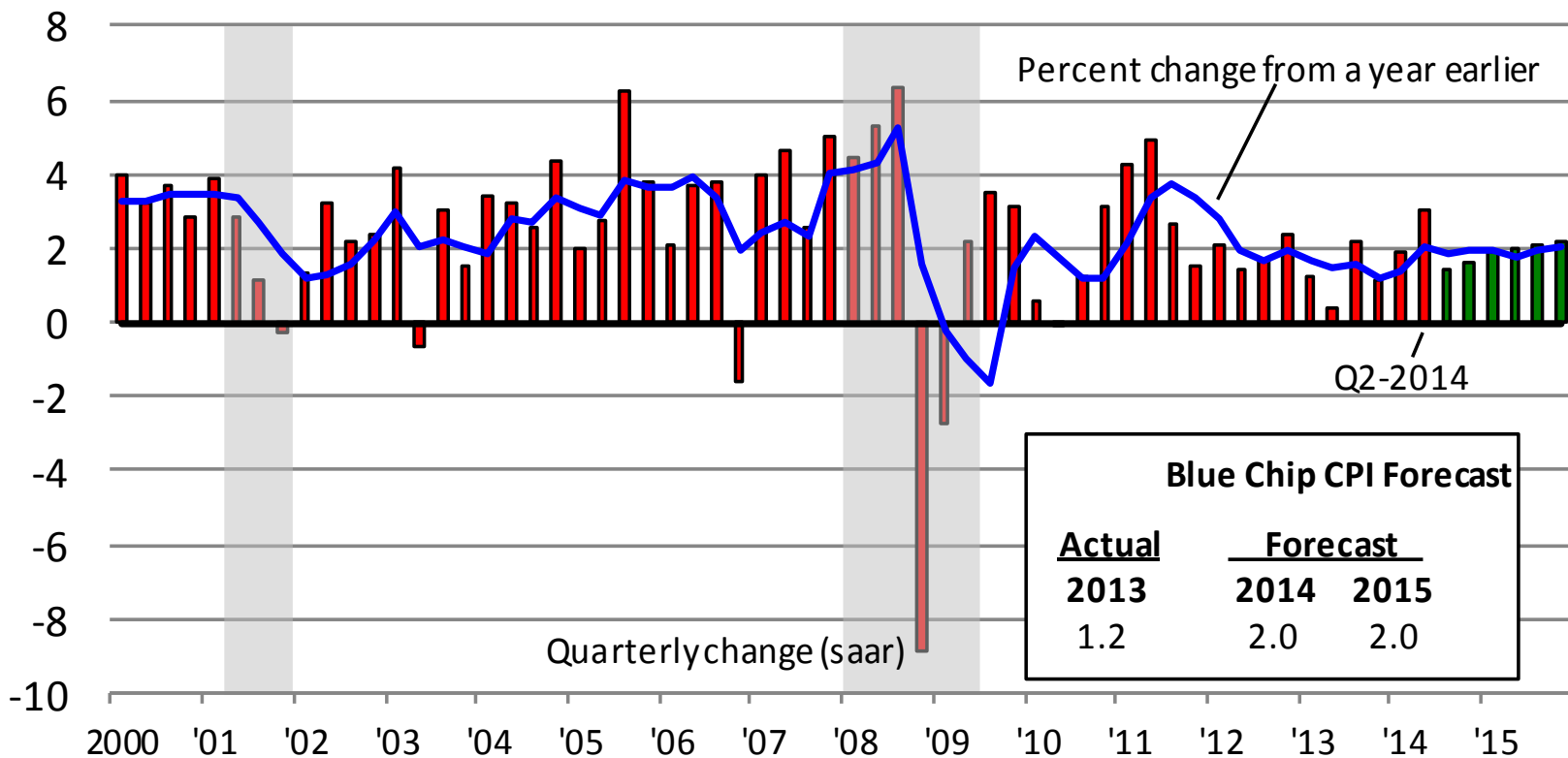
The United States has become more efficient in the use of energy over the past 50 years



Even including the volatile food and energy components, inflation remains contained

Consumer price index

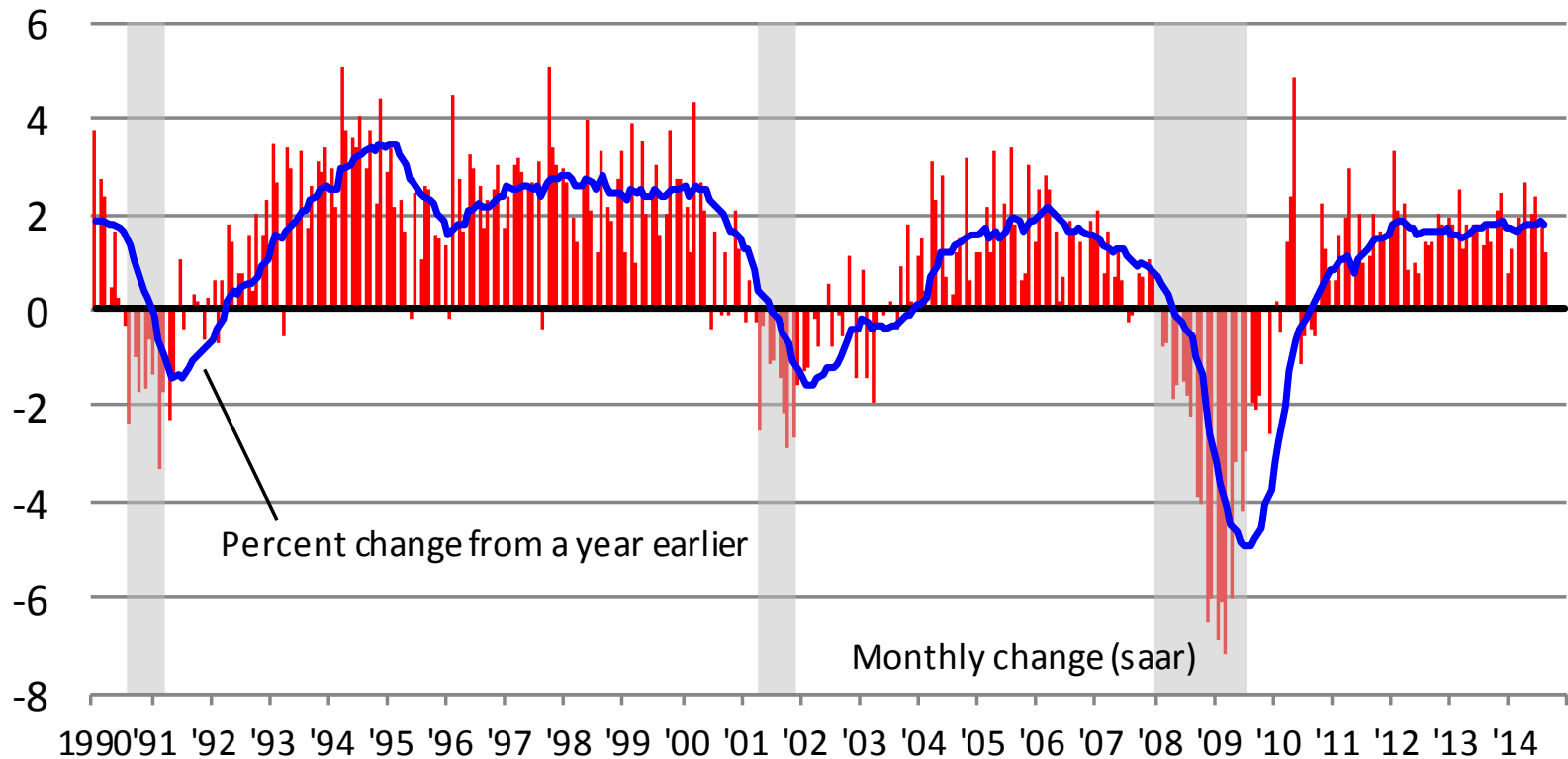
percent



Employment fell by over 8.7 million jobs between December 2007 and February 2010, and finally recovered all the lost jobs in May 2014

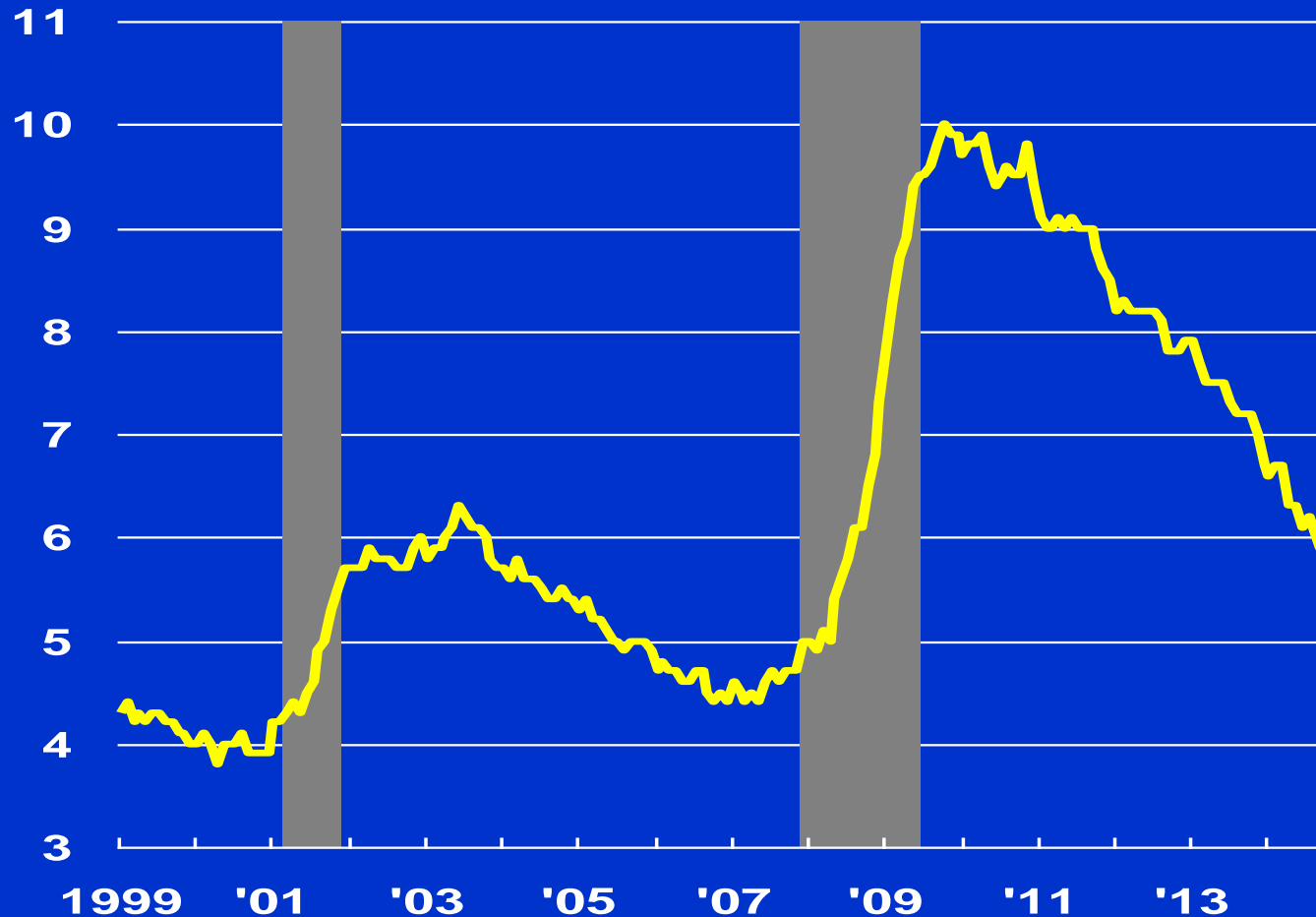
Total employment

percent



Unemployment has fallen from its peak

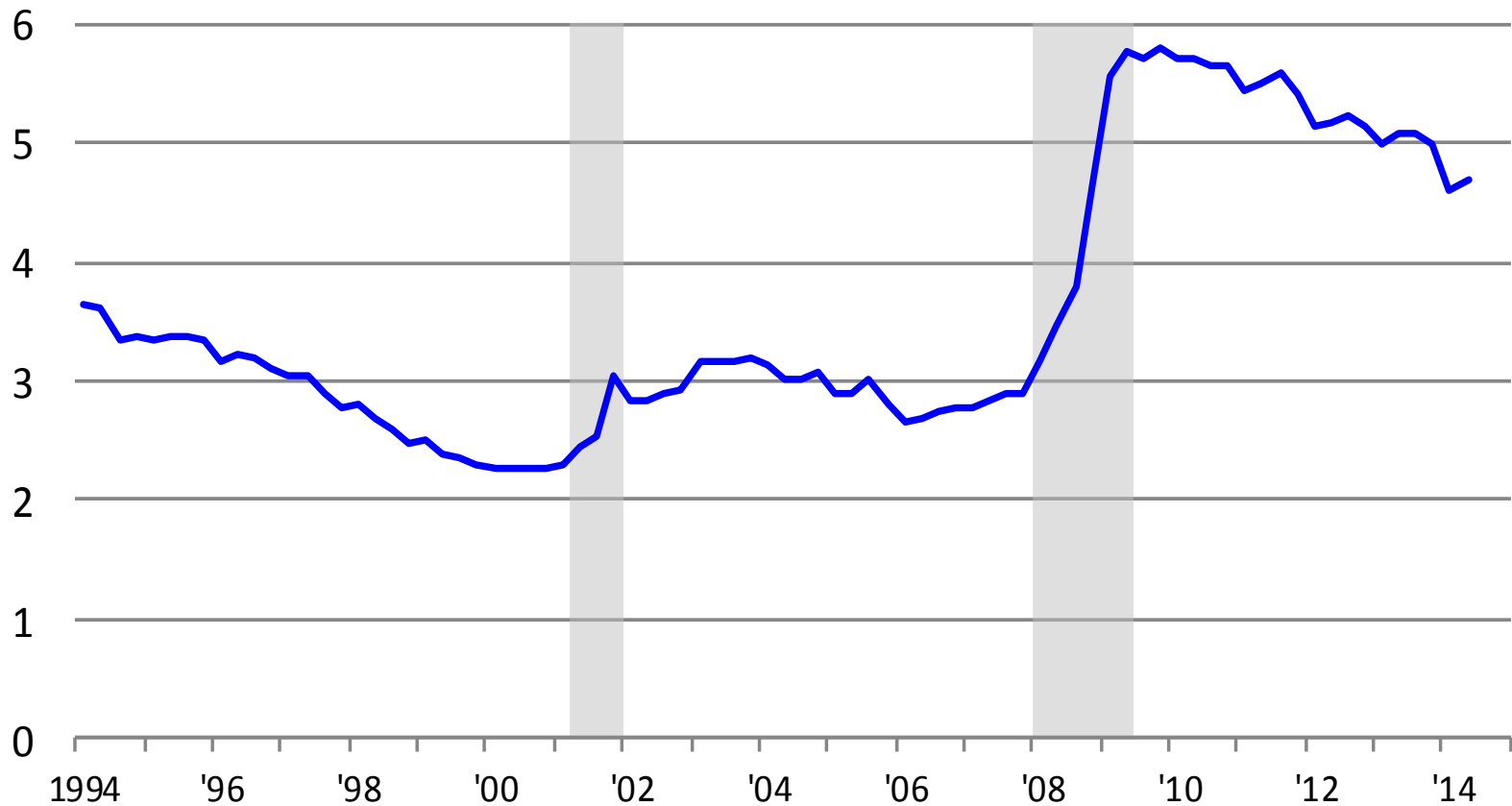
(civilian unemployment rate, percent SA)



Employees working part time for economic reasons has remained high

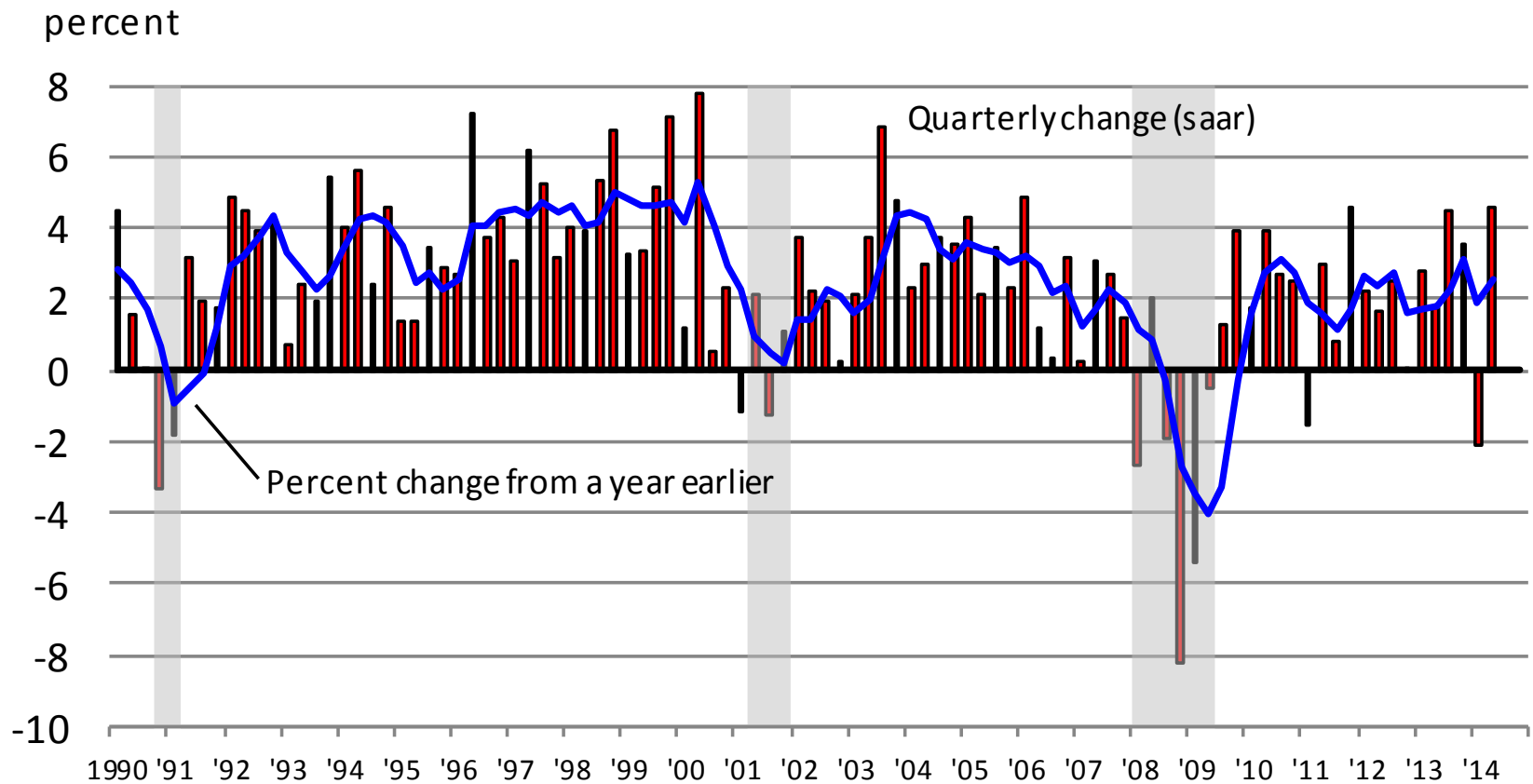
Unemployment rate - part-time workers for economic reasons

percent



Gross Domestic Product has been unsteady since the “Great Recession,” rising 2.6% over the past year

Real gross domestic product

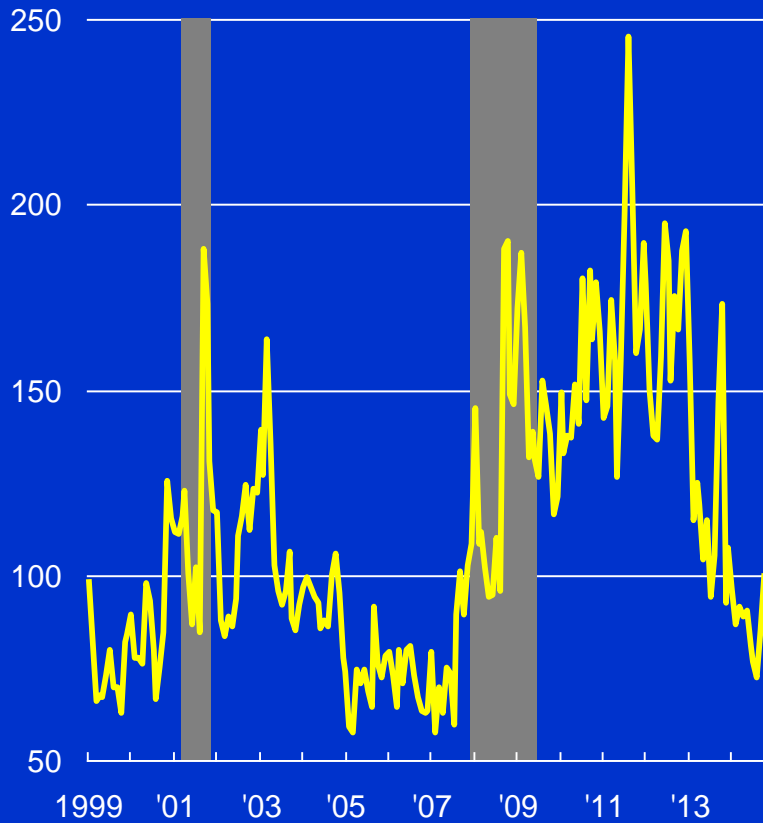


Contributions to real GDP growth of 3.5% in the 3rd quarter of 2014

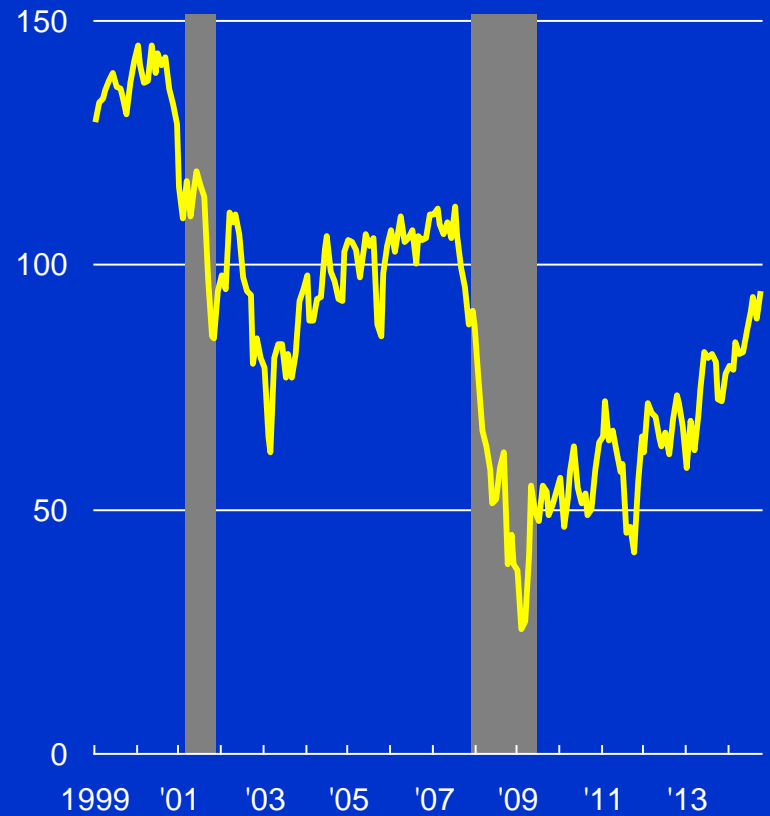
- Consumption 1.2%
- Residential Investment 0.1%
- Business Investment 0.7%
- Net Exports 1.3%
- Government 0.8%
- Inventories -0.6%

Confidence gains as uncertainty drops

Economic Policy Uncertainty Index



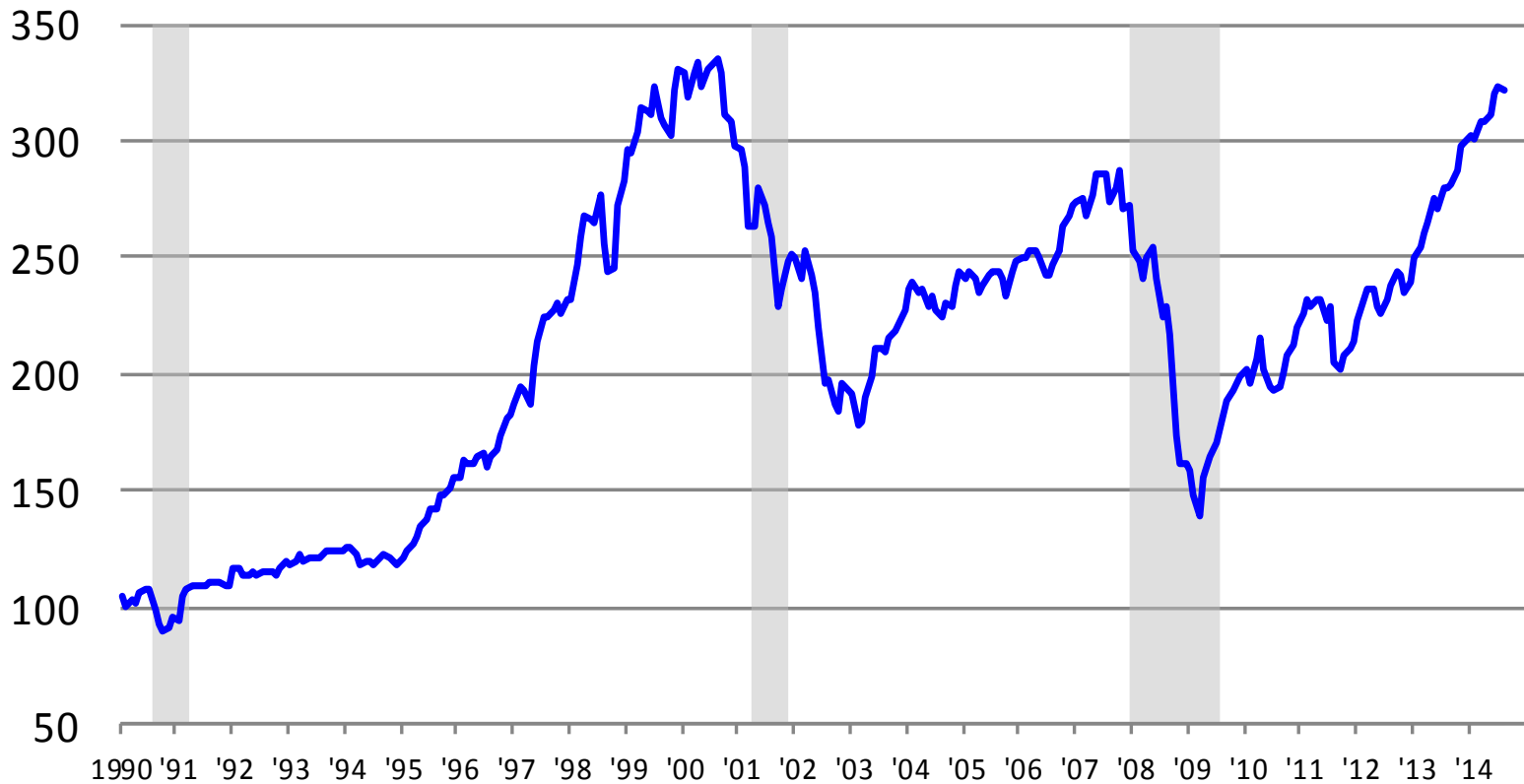
Consumer Confidence (Conf. Board)



Stock markets have improved since March 2009, and are near historical peaks

Real S&P 500 stock index

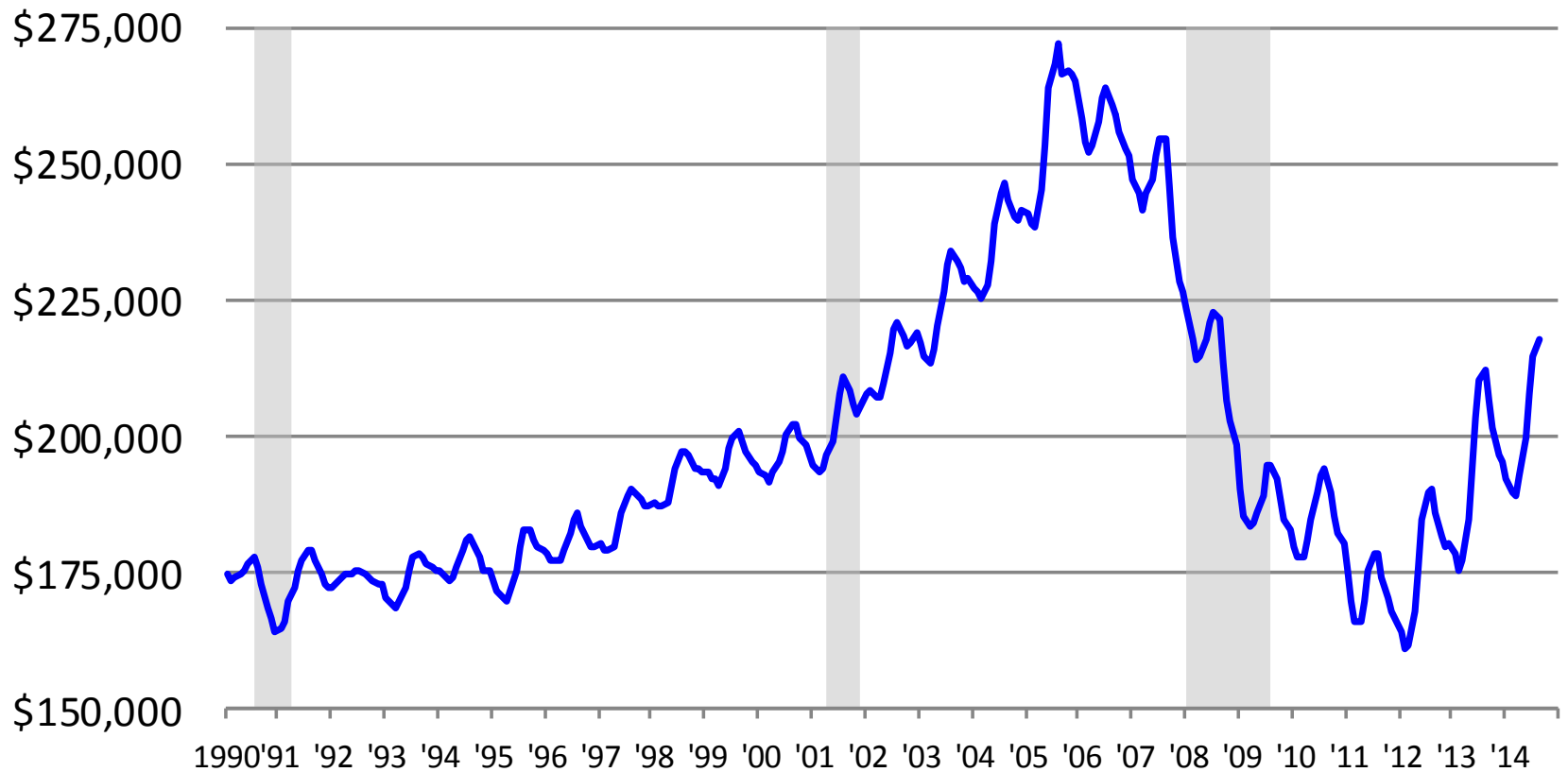
Index: 1990 = 100



Real existing home prices fell by 40%, but have begun to rise

Real Median sales price - existing single family home

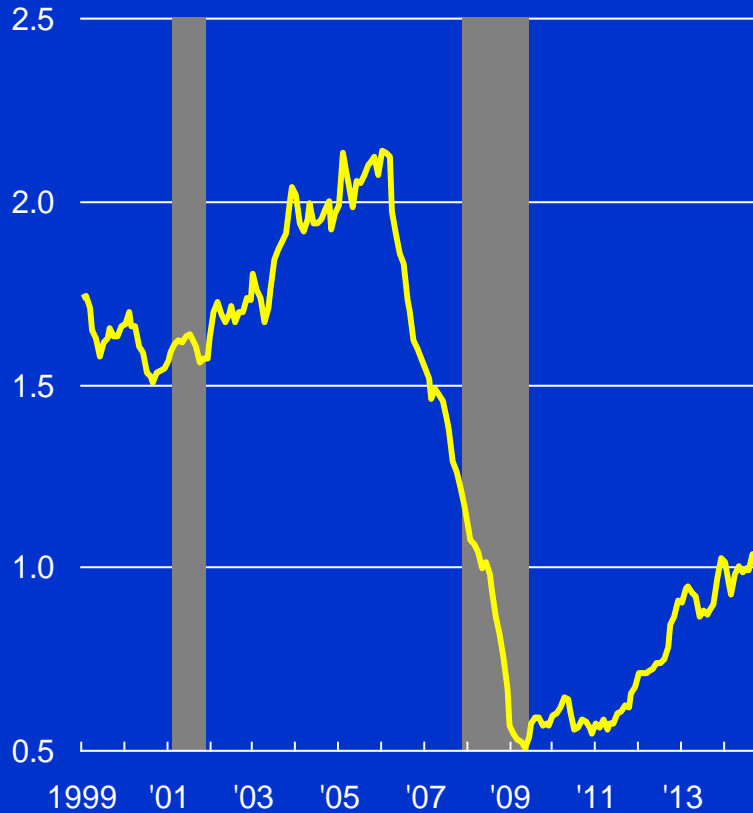
3-month smoothed (2013 dollars)



Housing market tanked and moving up from bottom

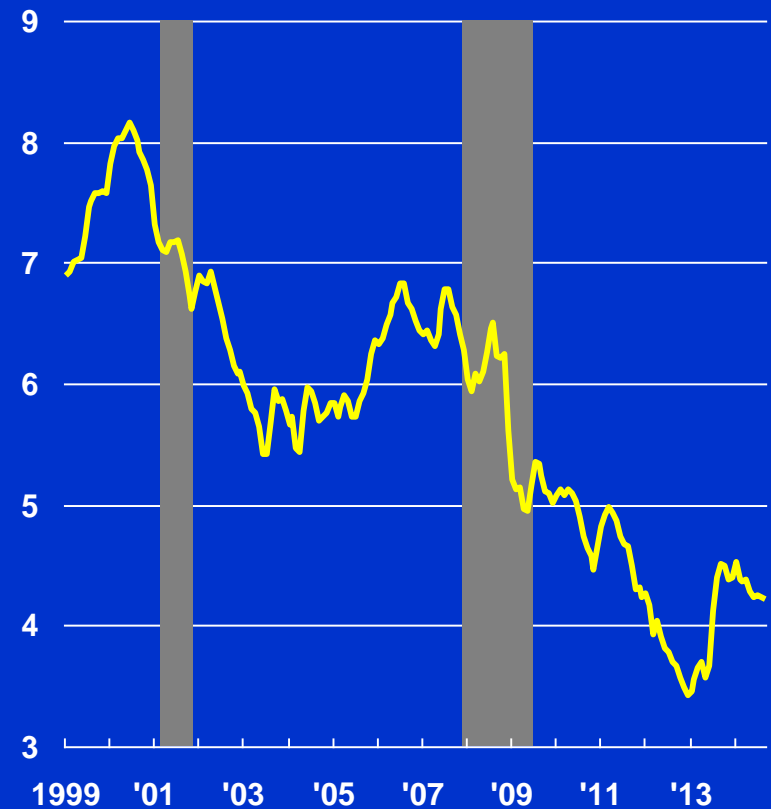
Housing starts

(millions of units, 3-month moving average, SAAR)



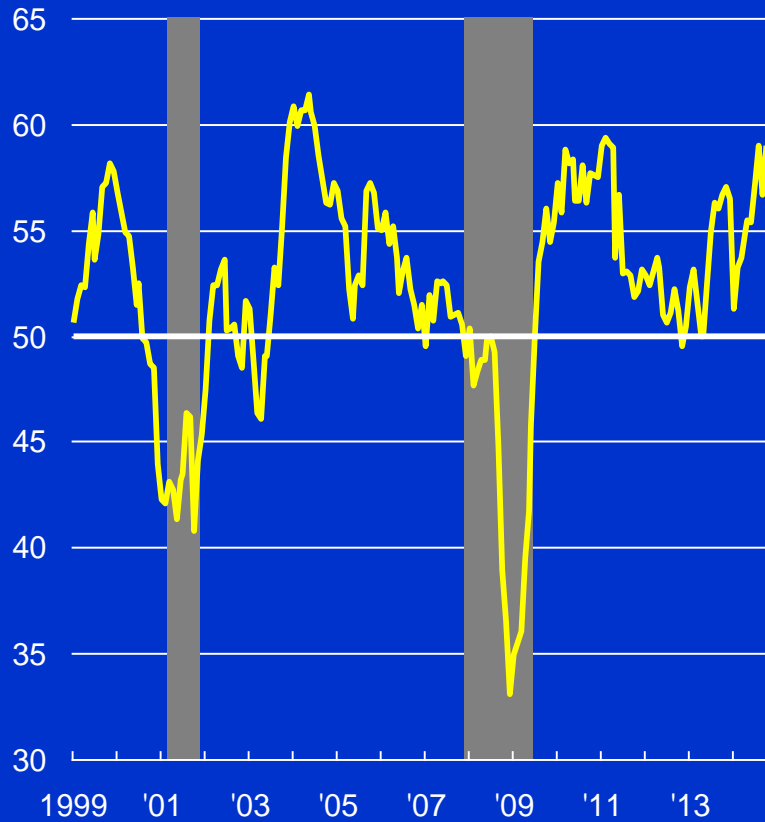
Home mortgage rate

(percent, effective rate for all loans closed)

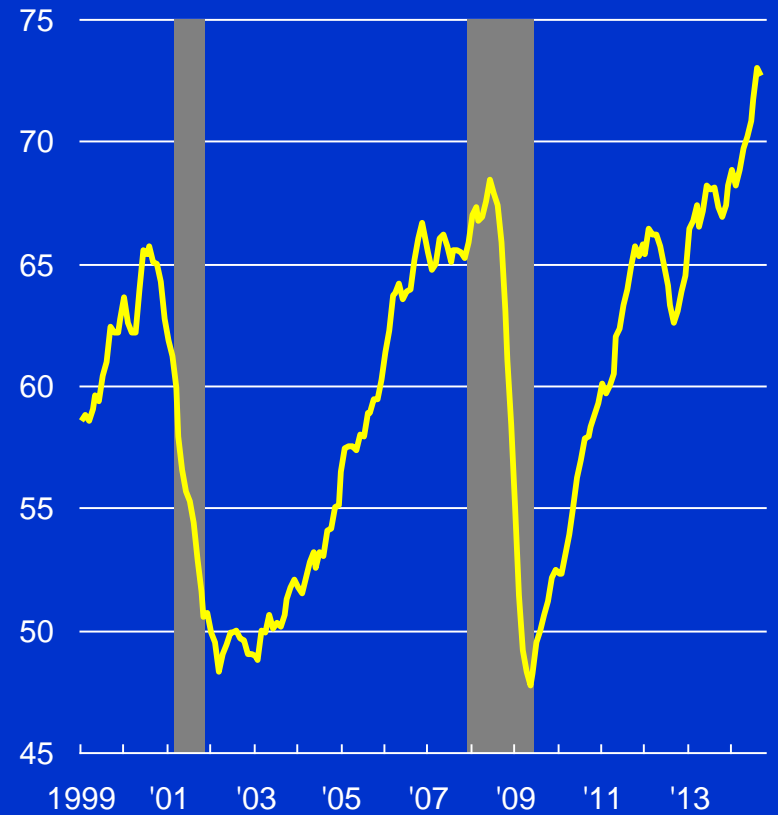


Manufacturing is looking up; orders for capital goods picking up

ISM purchasing managers index
(net percent reporting increase)

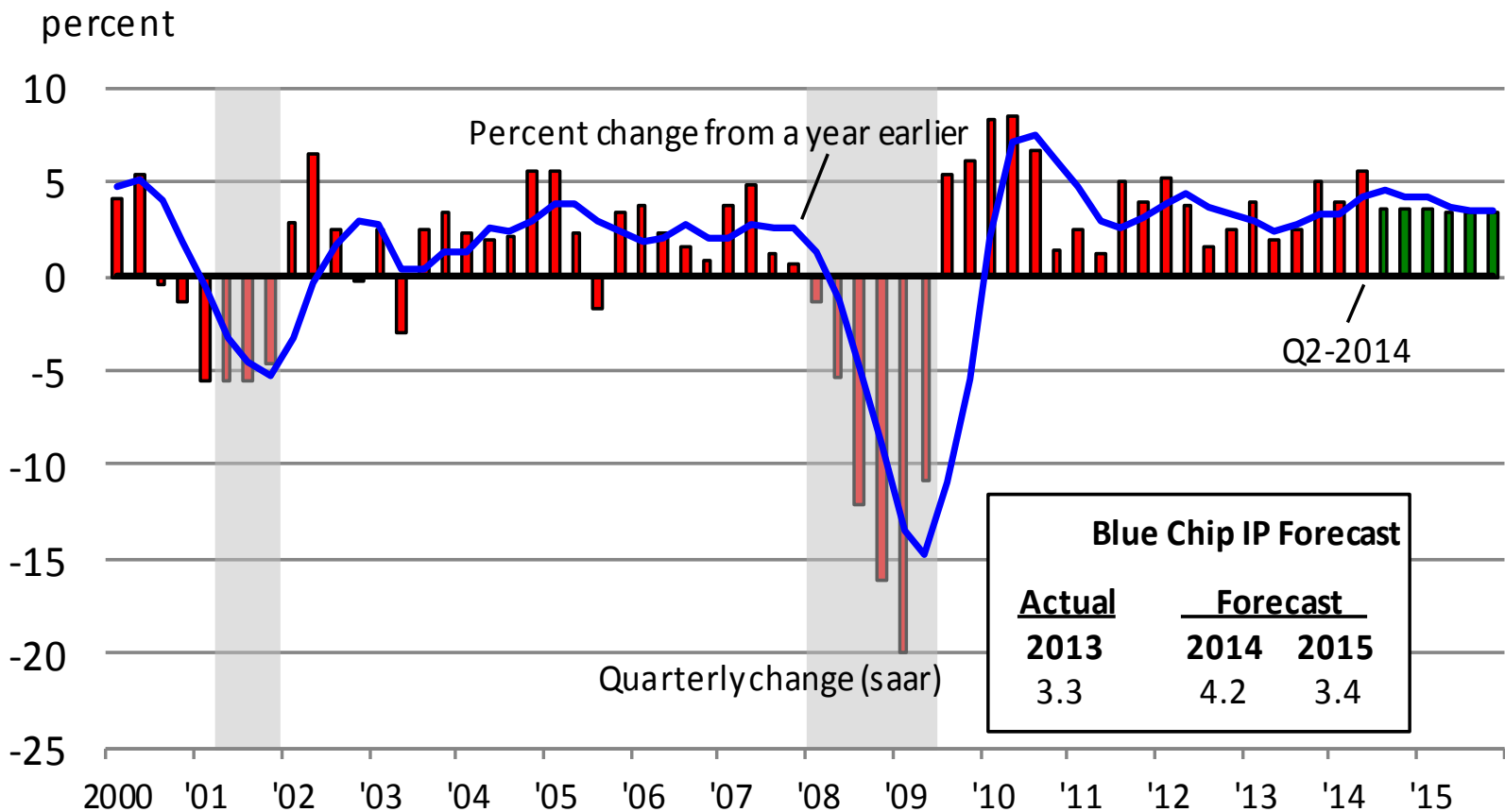


Nondefense capital goods ex. aircraft
(orders in millions of dollars, 3-month moving average)



Industrial production is forecast to rise at a pace slightly above trend in 2014 and 2015

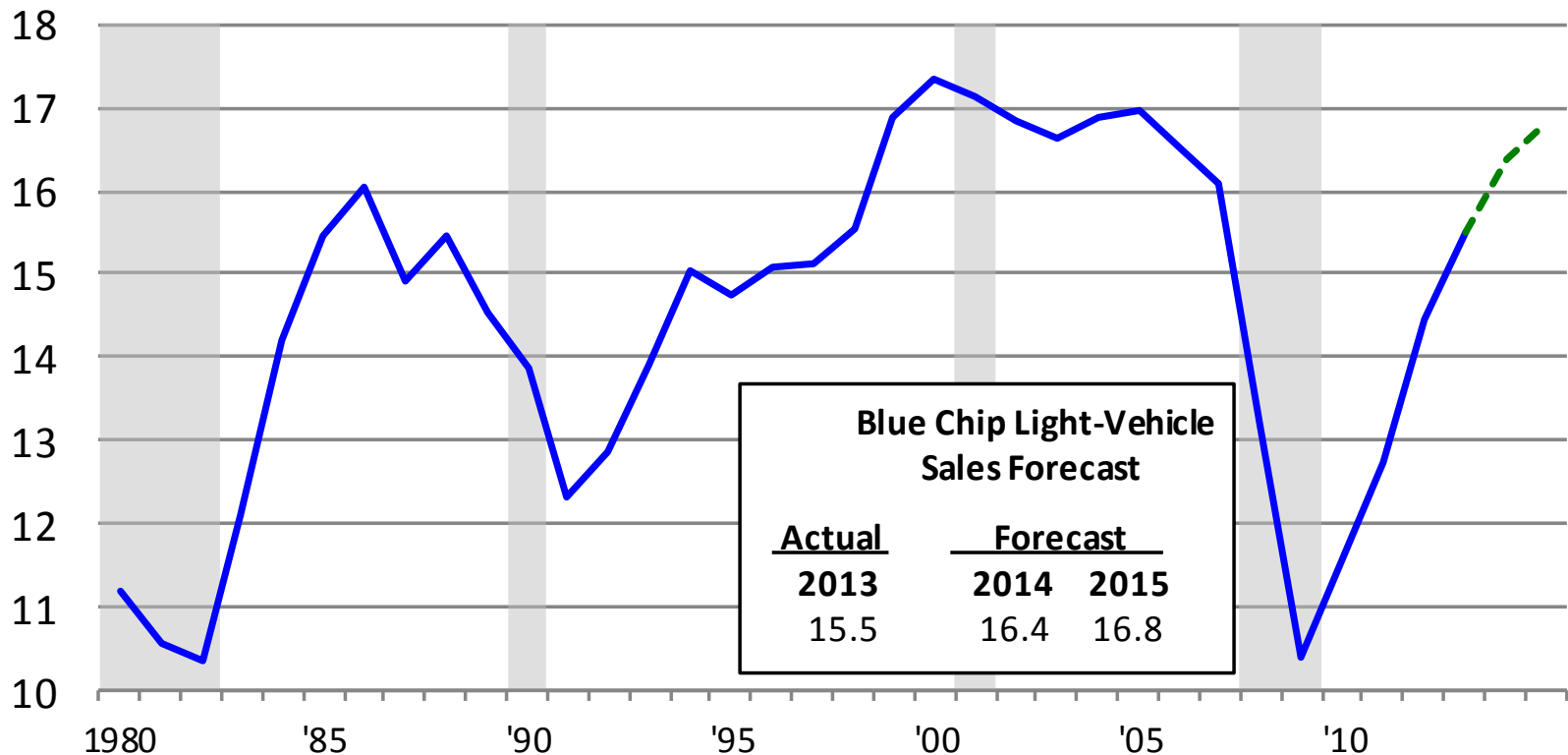
Total industrial production



After rising by 13% in 2012, vehicle sales rose 7% in 2013 and are forecast to rise around 6% this year

Vehicle sales

millions of units



The dollar's exchange value peaked in 2002, before falling below earlier range

(Real Broad Trade-Weighted Exchange Value of the US\$)
{March 1973=100}

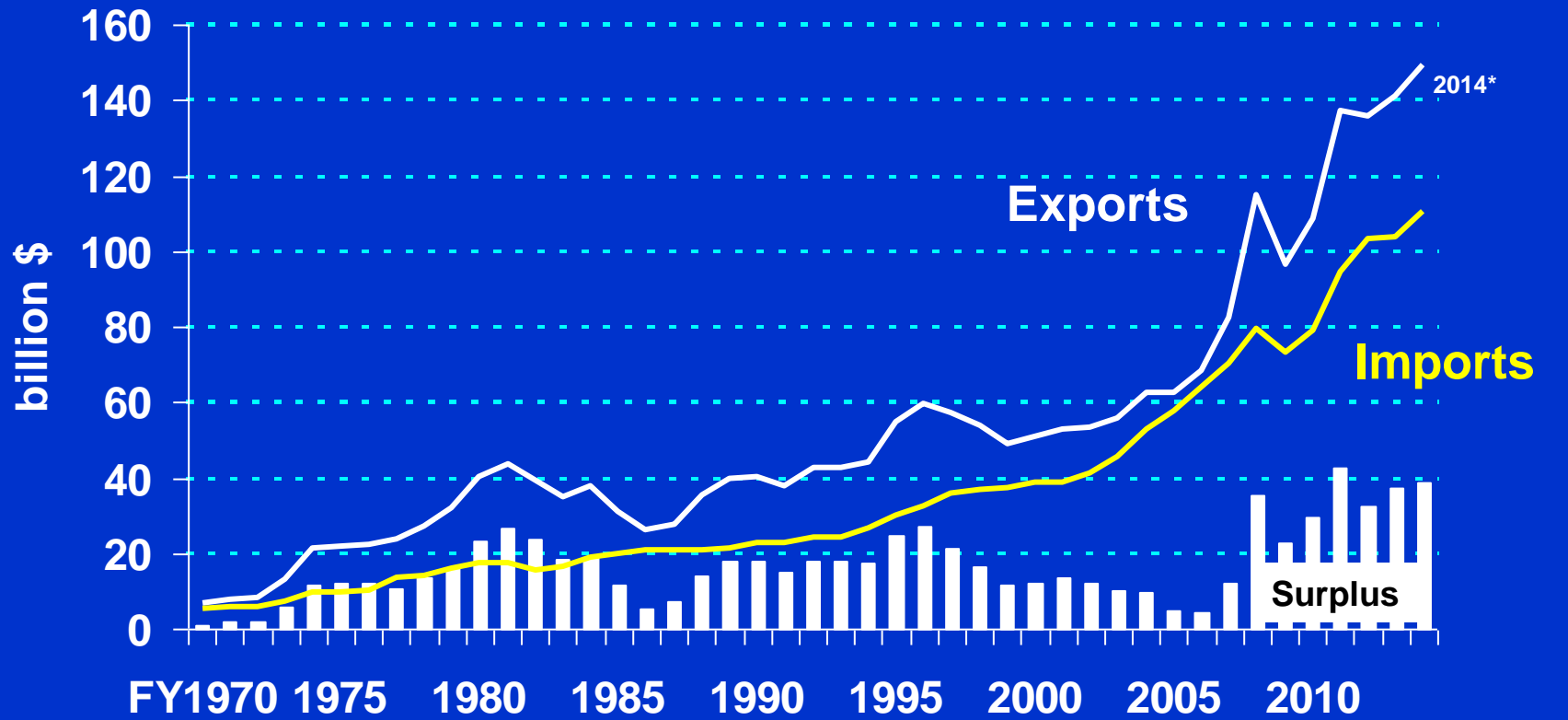


U.S. trade exceeds earlier peaks

(billions of dollars, SA)

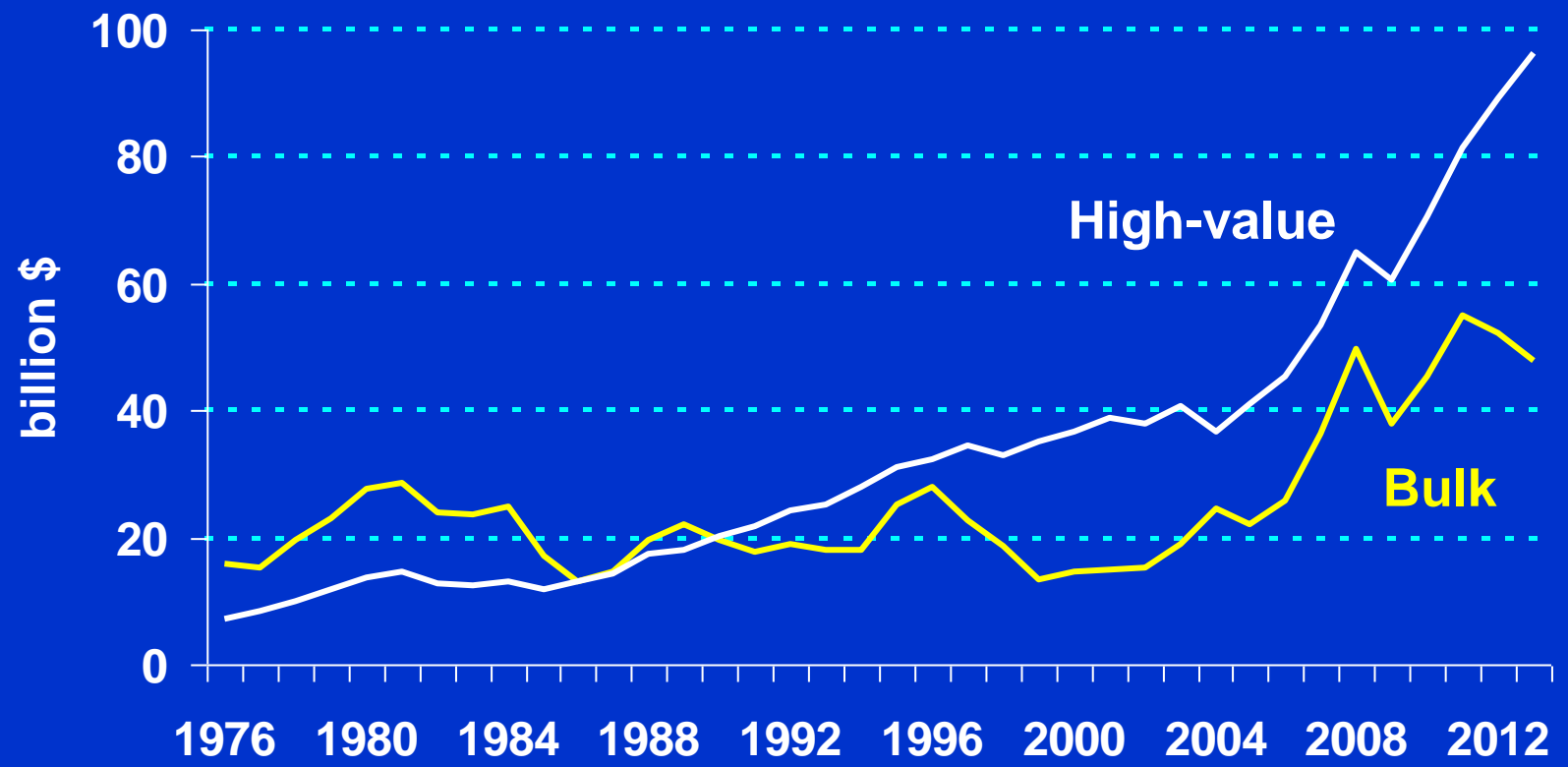


Value of agricultural exports expected to rise in 2014

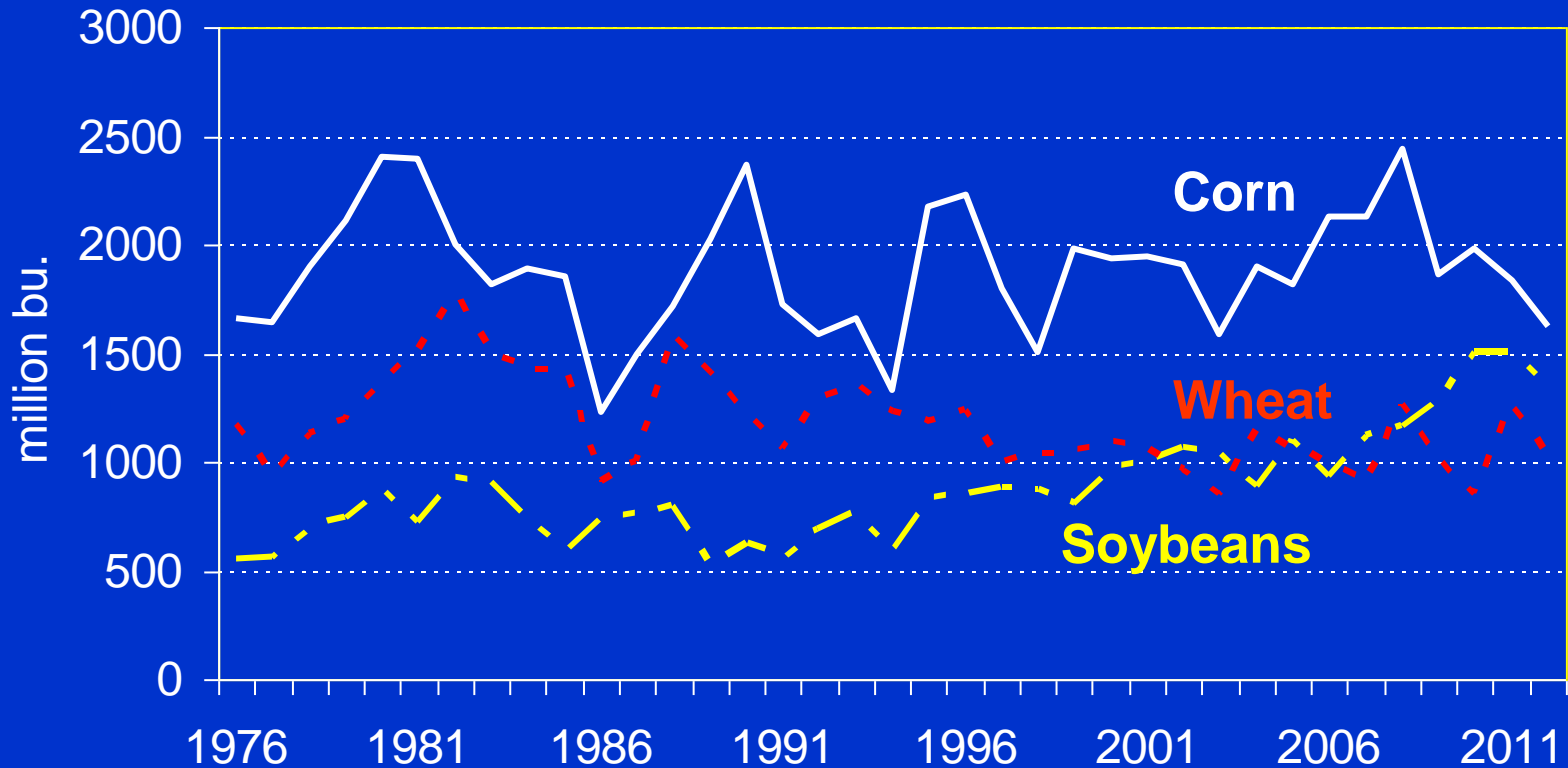


(*USDA projection)

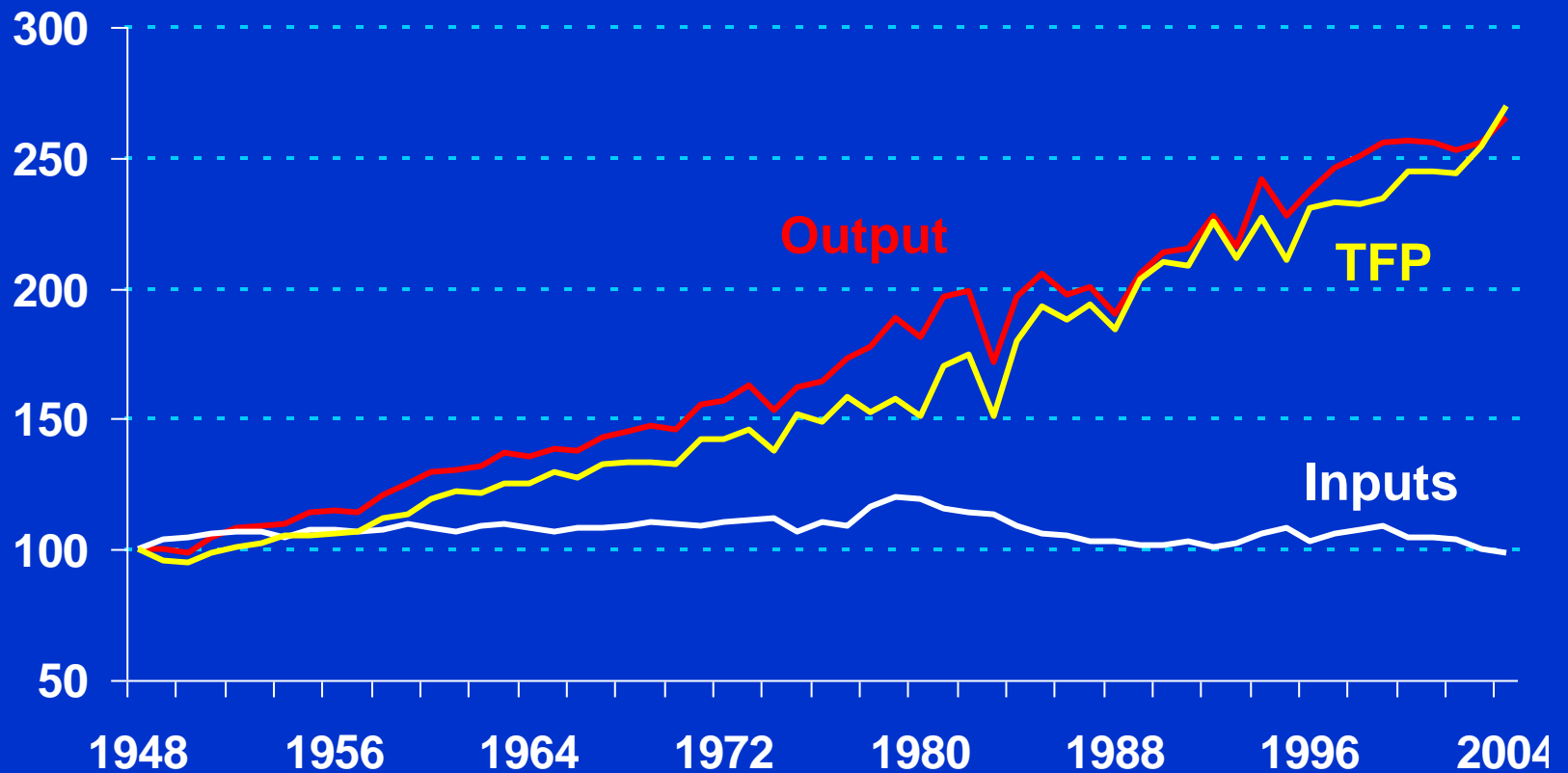
High-value agricultural exports have outpaced more variable bulk exports



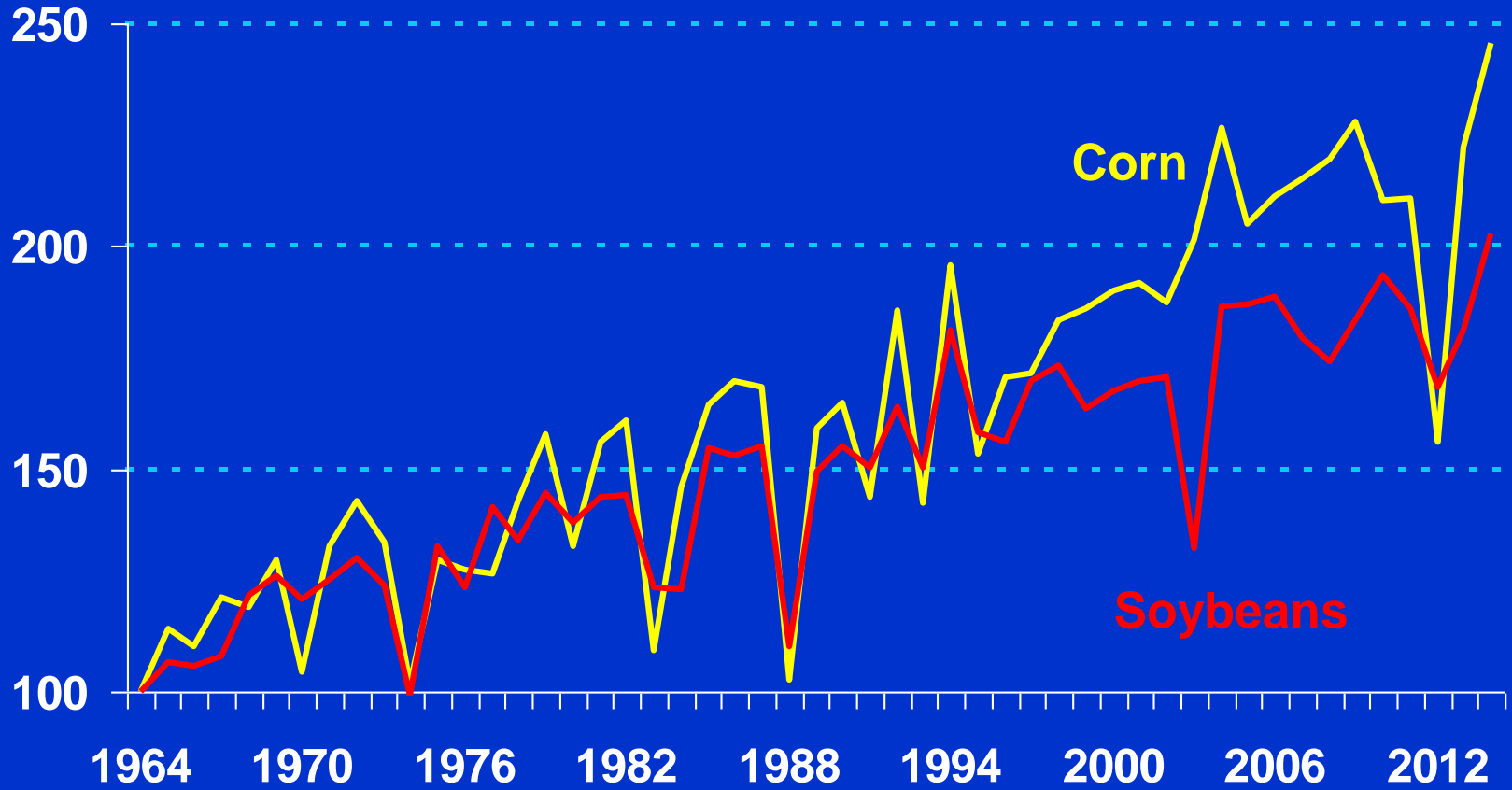
Trade agreements won't repeal the variability of bulk exports



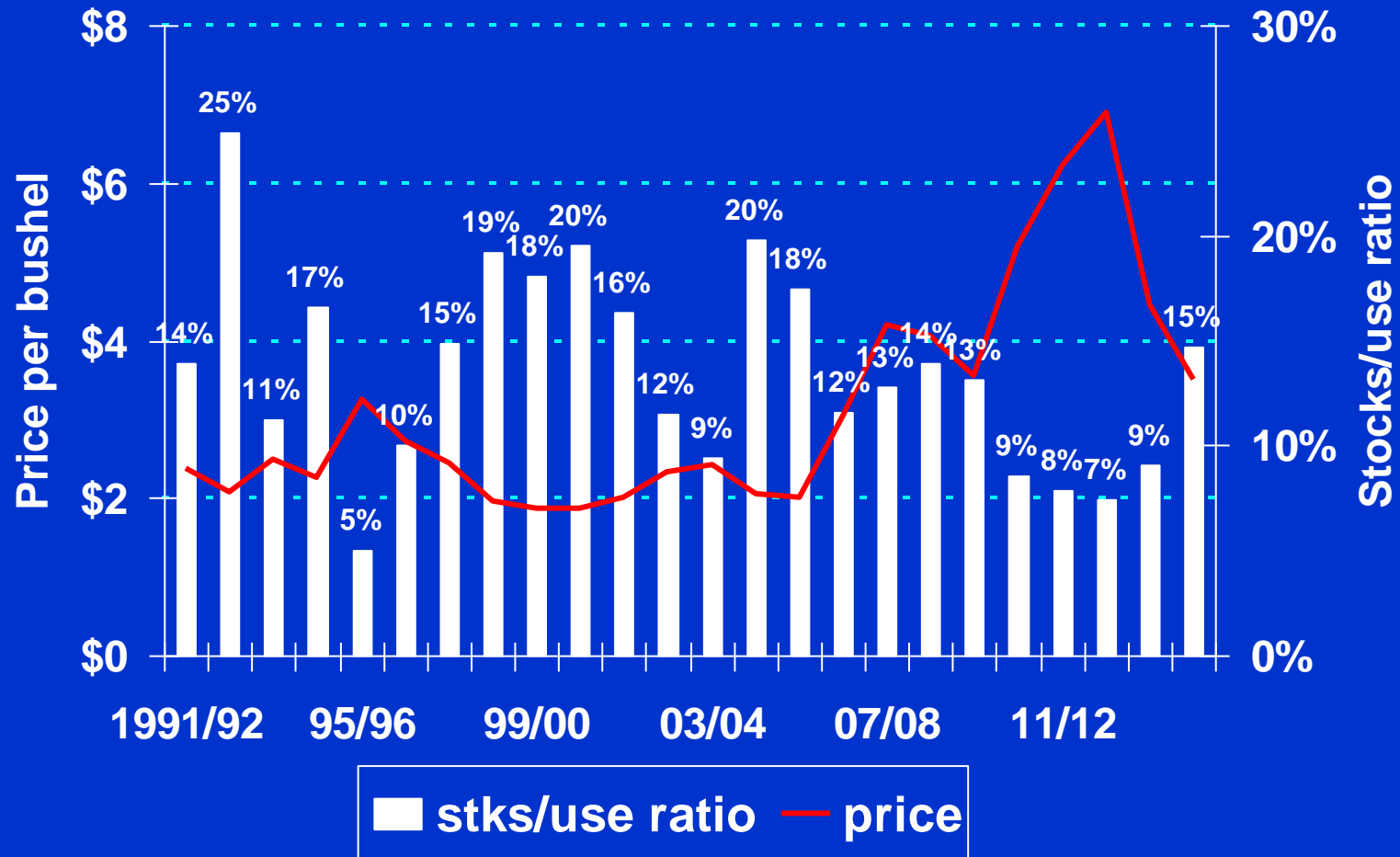
U.S. agricultural output, inputs, and total factor productivity (TFP) (1948=100)



7th District Crop Yield Indexes (1964=100)



Higher corn stocks and lower prices expected for 2014/15

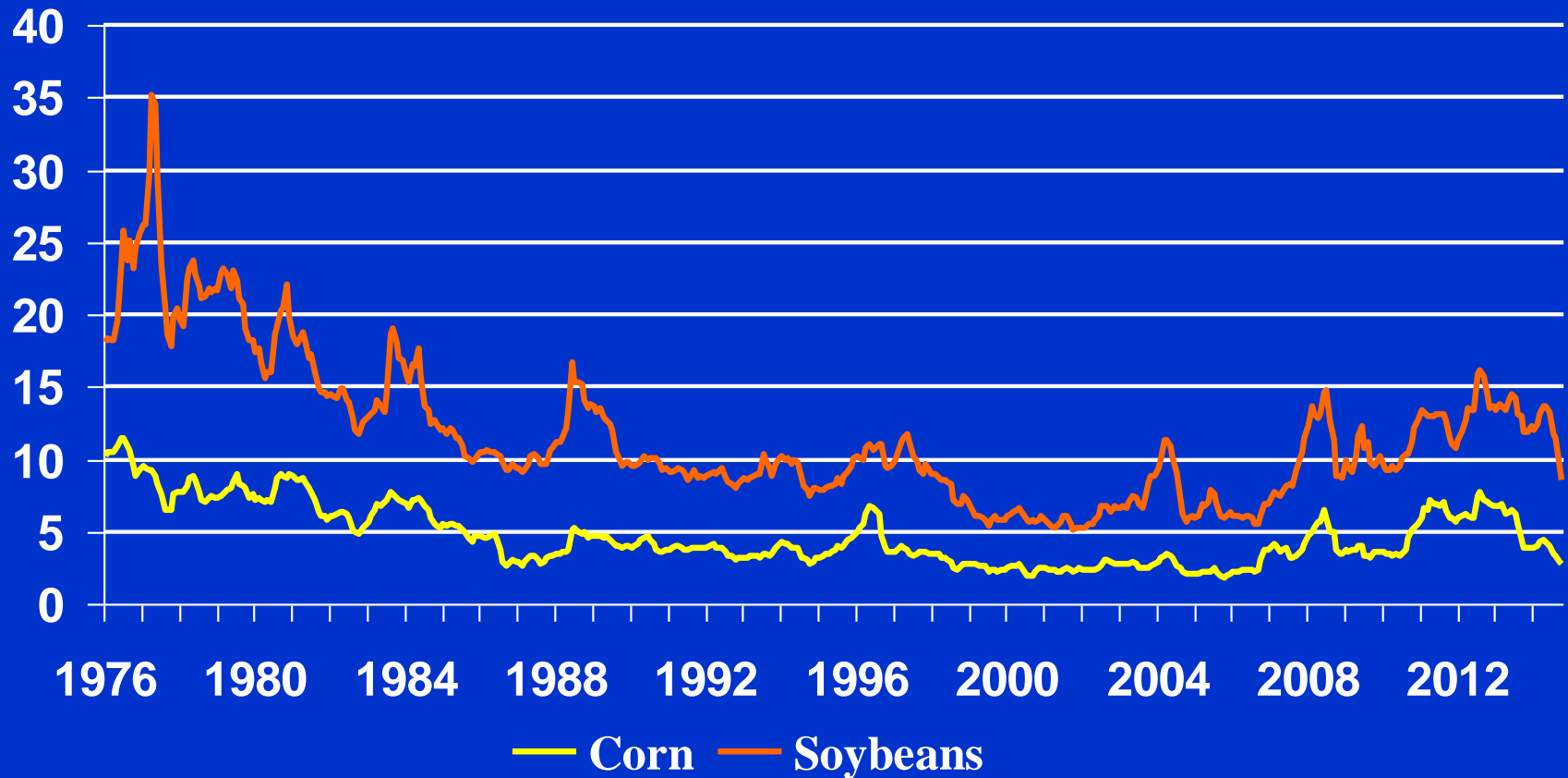


Prices moved higher in response to tight soybean stocks, but stocks should be up in 2014/15



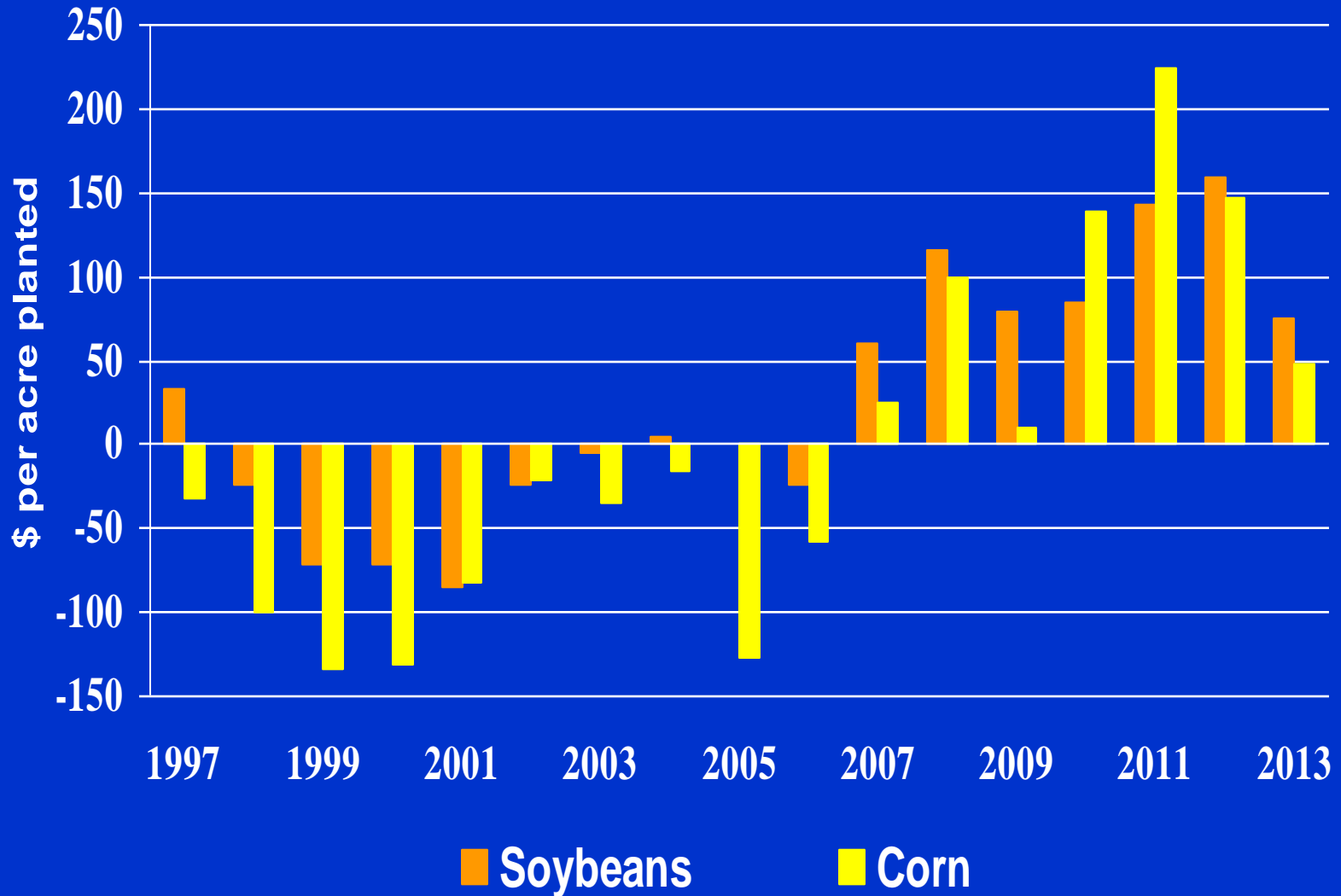
Real Cash Crop Prices

(\$/bushel, adjusted by CPI-U for January 2010)



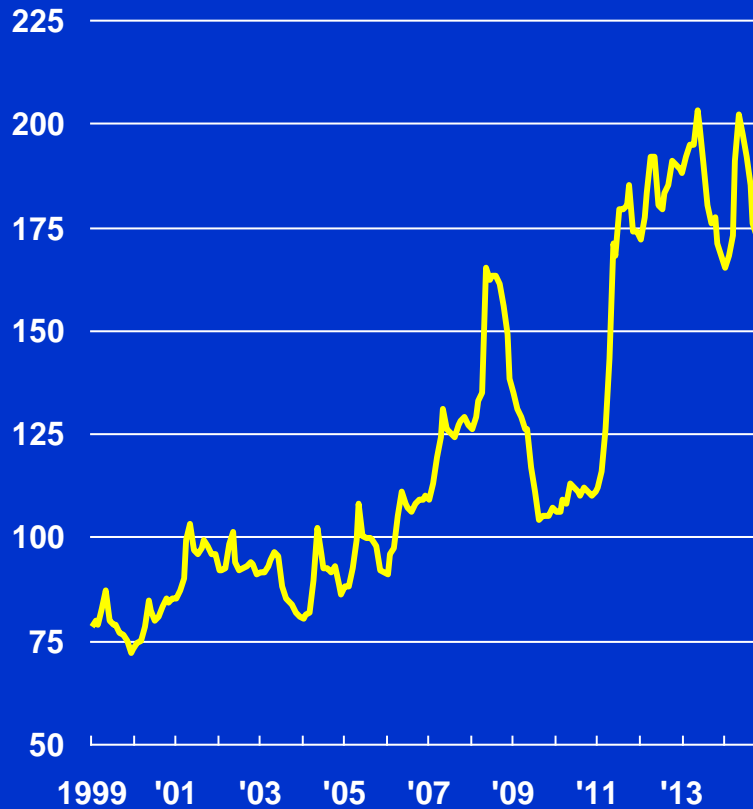
Value of production less operating costs and allocated overhead

(for small U.S. farm with near average yields)

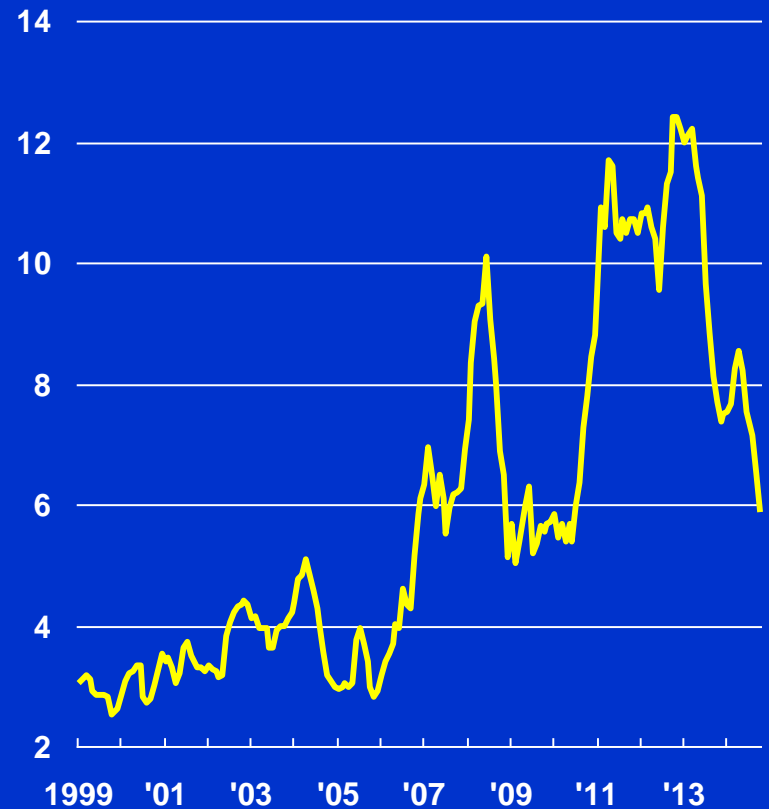


Feed Costs Rose and Fell

Baled hay (\$/ton)

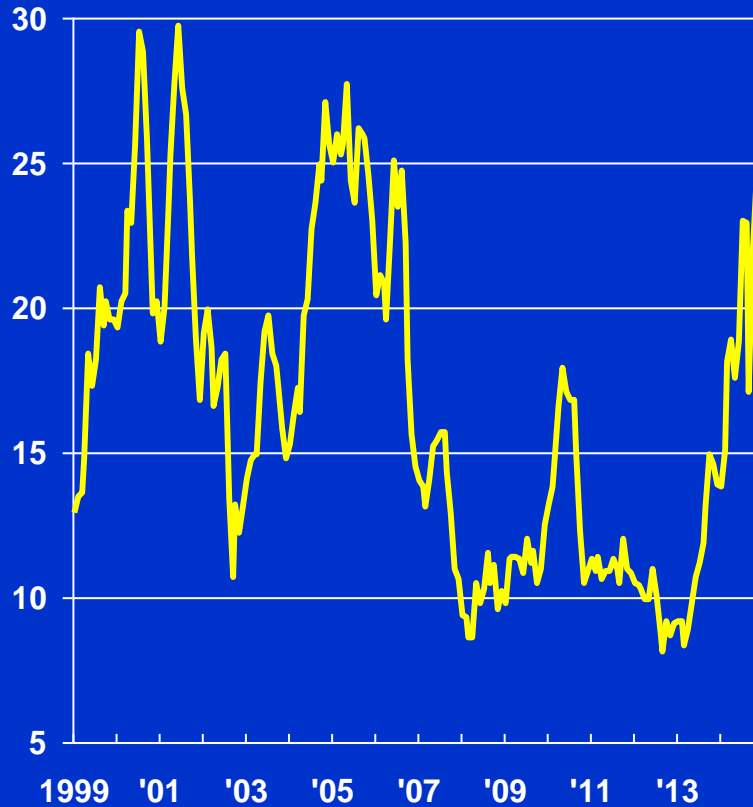


Sorghum for grain (\$/cwt)

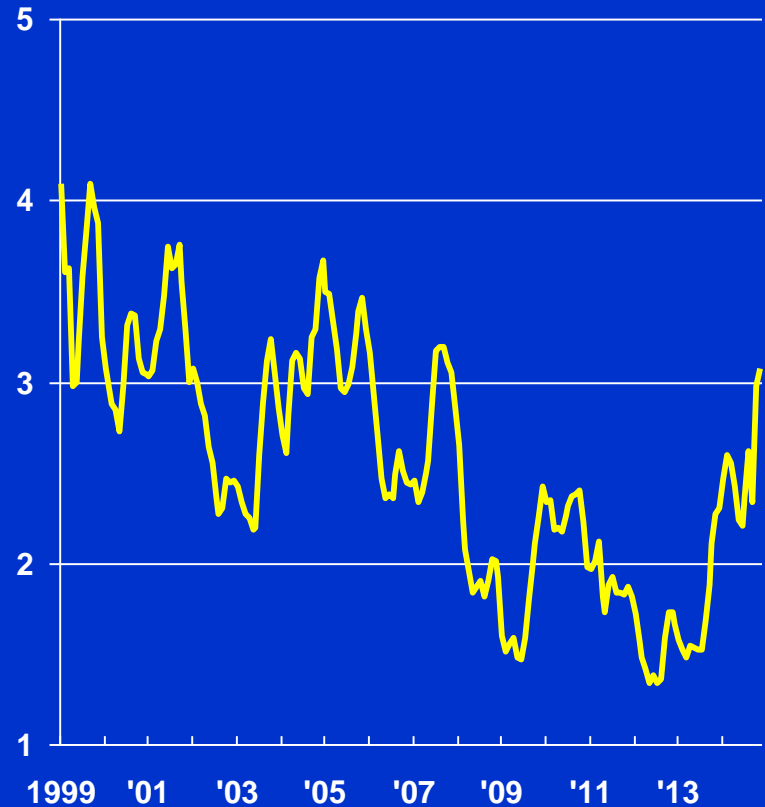


Hog and Dairy Profitability Measures

Hog-corn price ratio

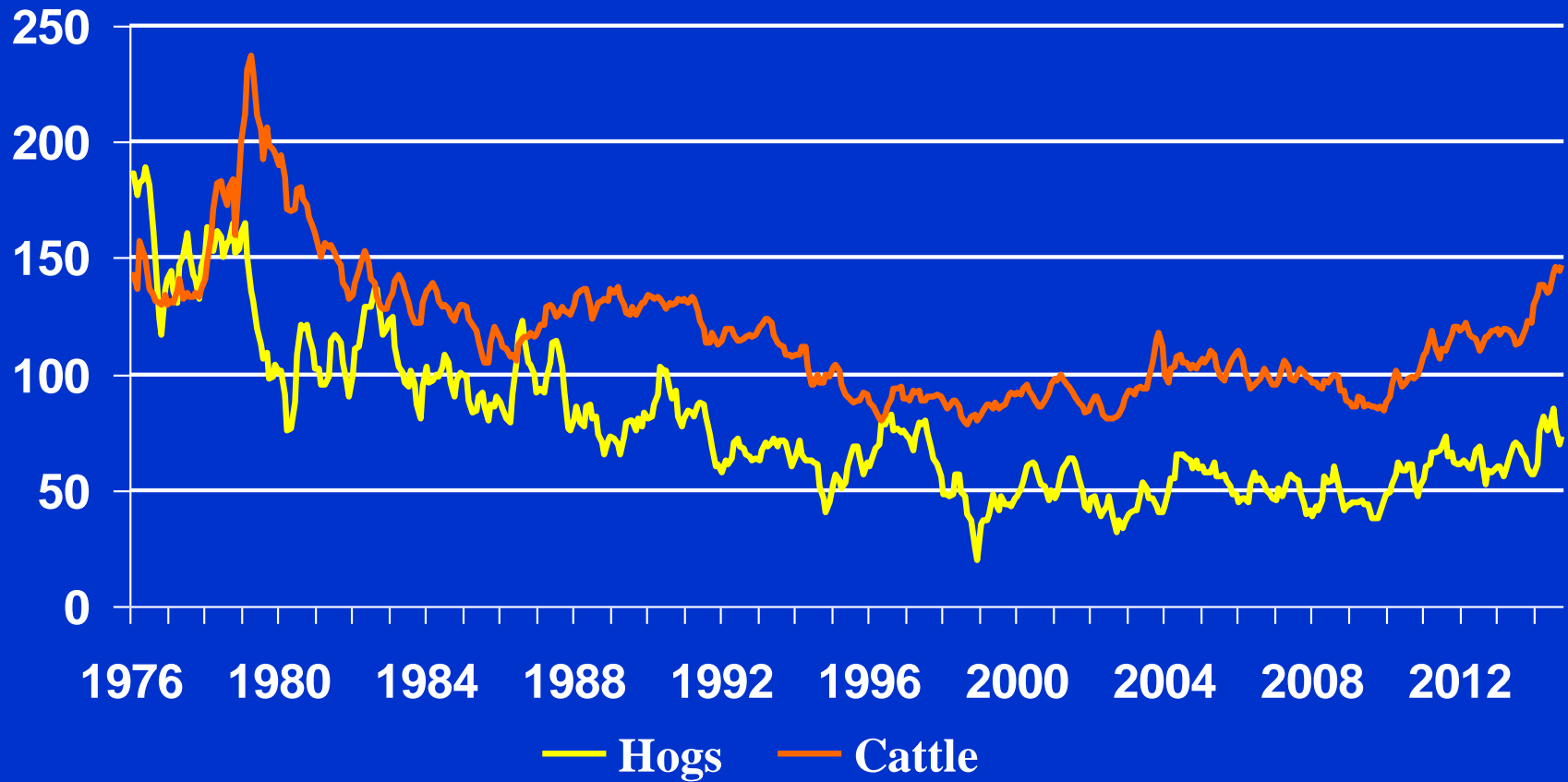


Milk-feed price ratio

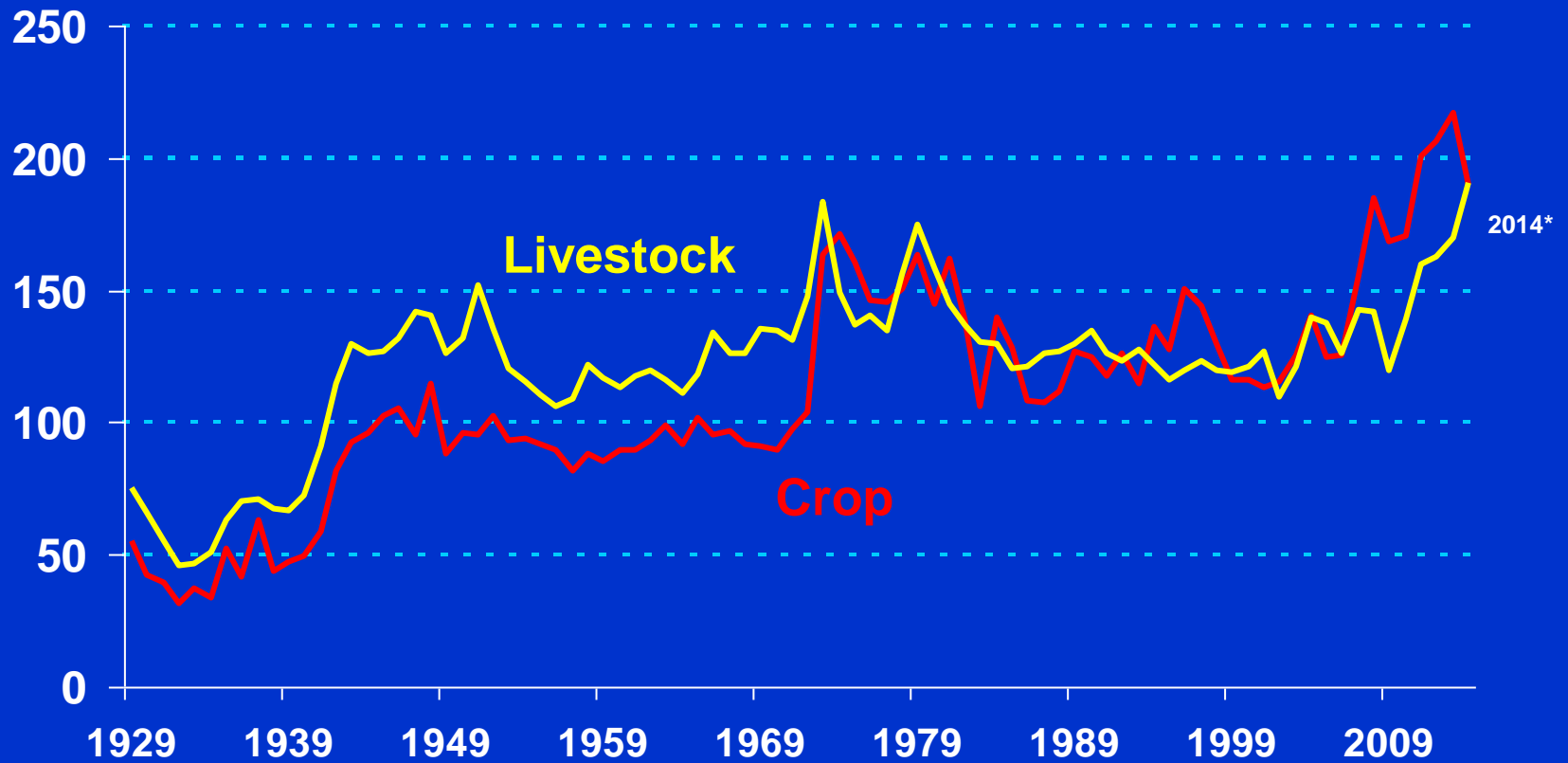


Real USDA Livestock Prices

(\$/hundredweight, adjusted by CPI-U for January 2010)



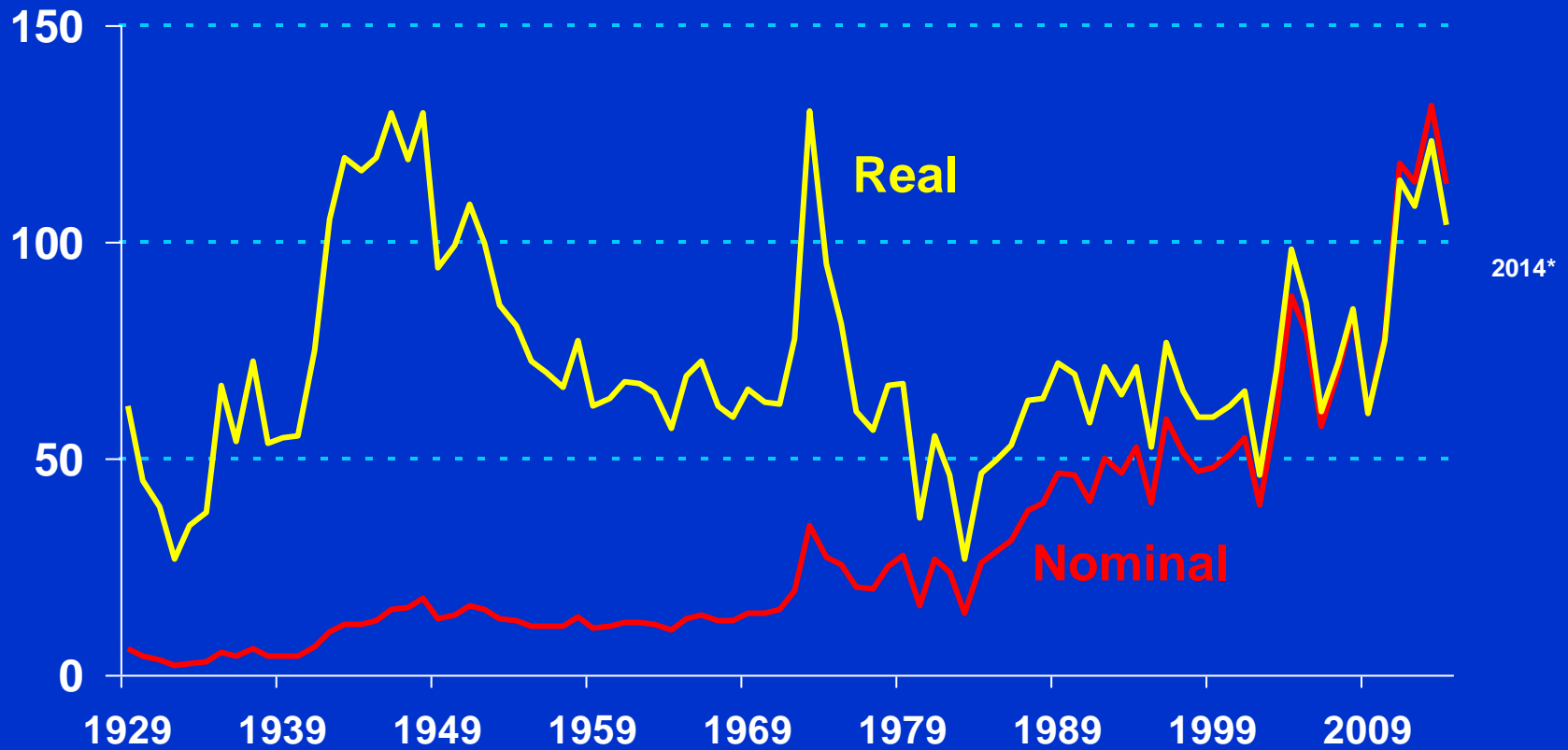
U.S. Farm Production Value (billion dollars, 2009 \$ for inflation adjustment)



*USDA forecast

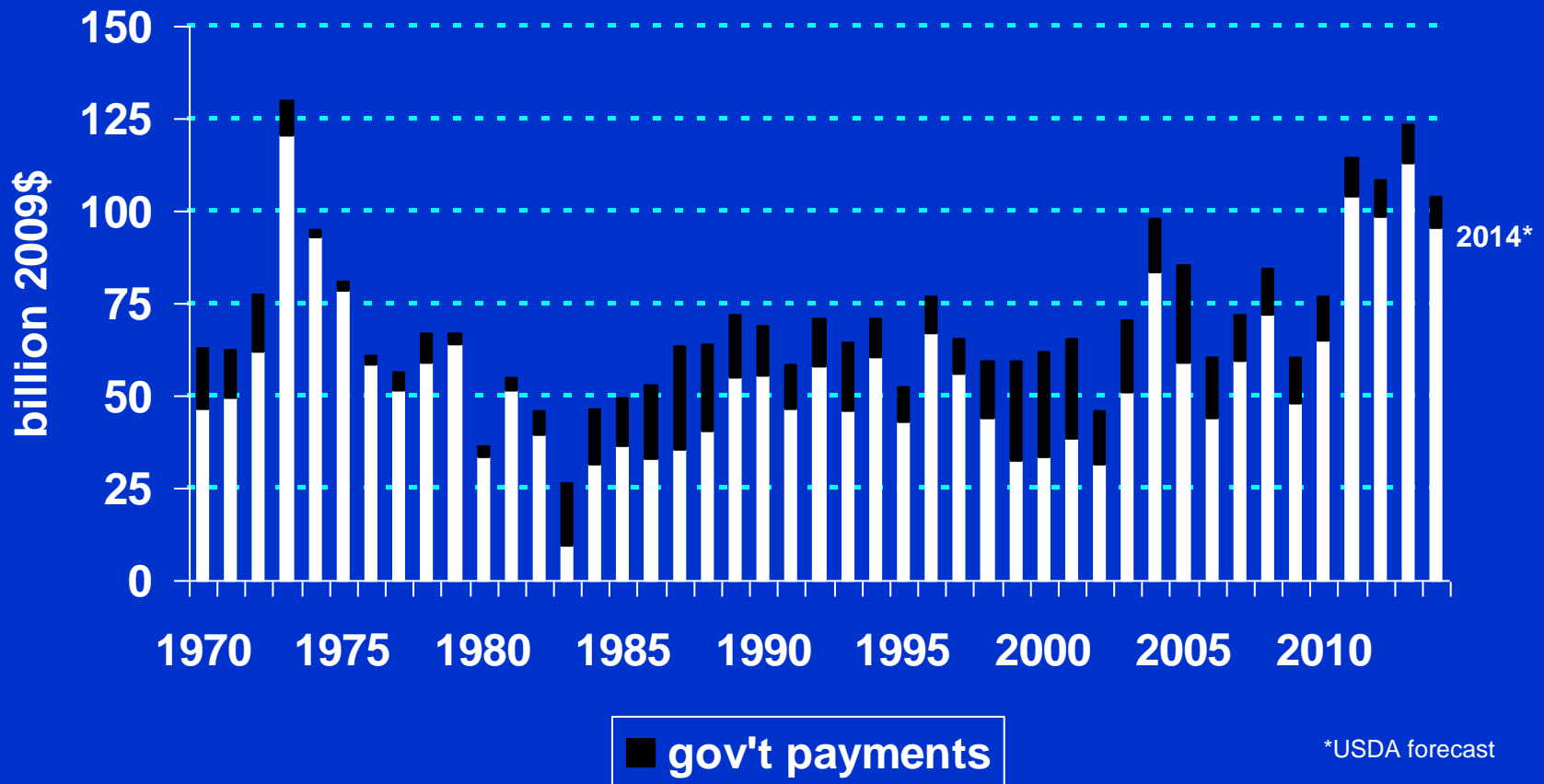
U.S. Net Farm Income

(billion dollars, 2009 \$ for inflation adjustment)

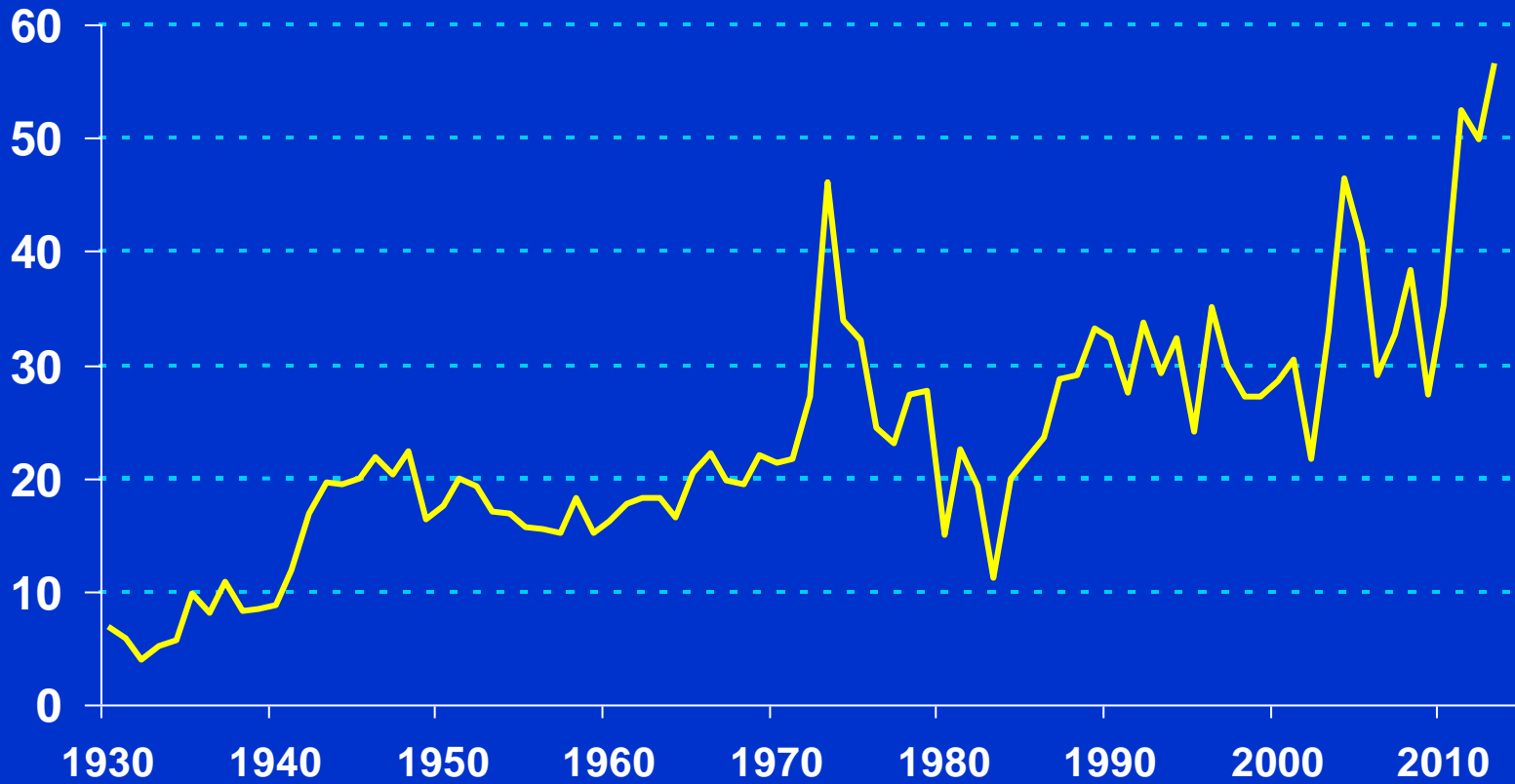


*USDA forecast

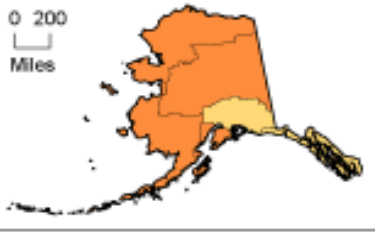
Real net farm income boosted by direct government payments to farmers, but the regional impact varies



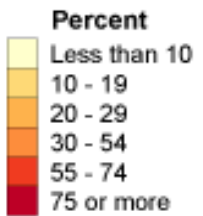
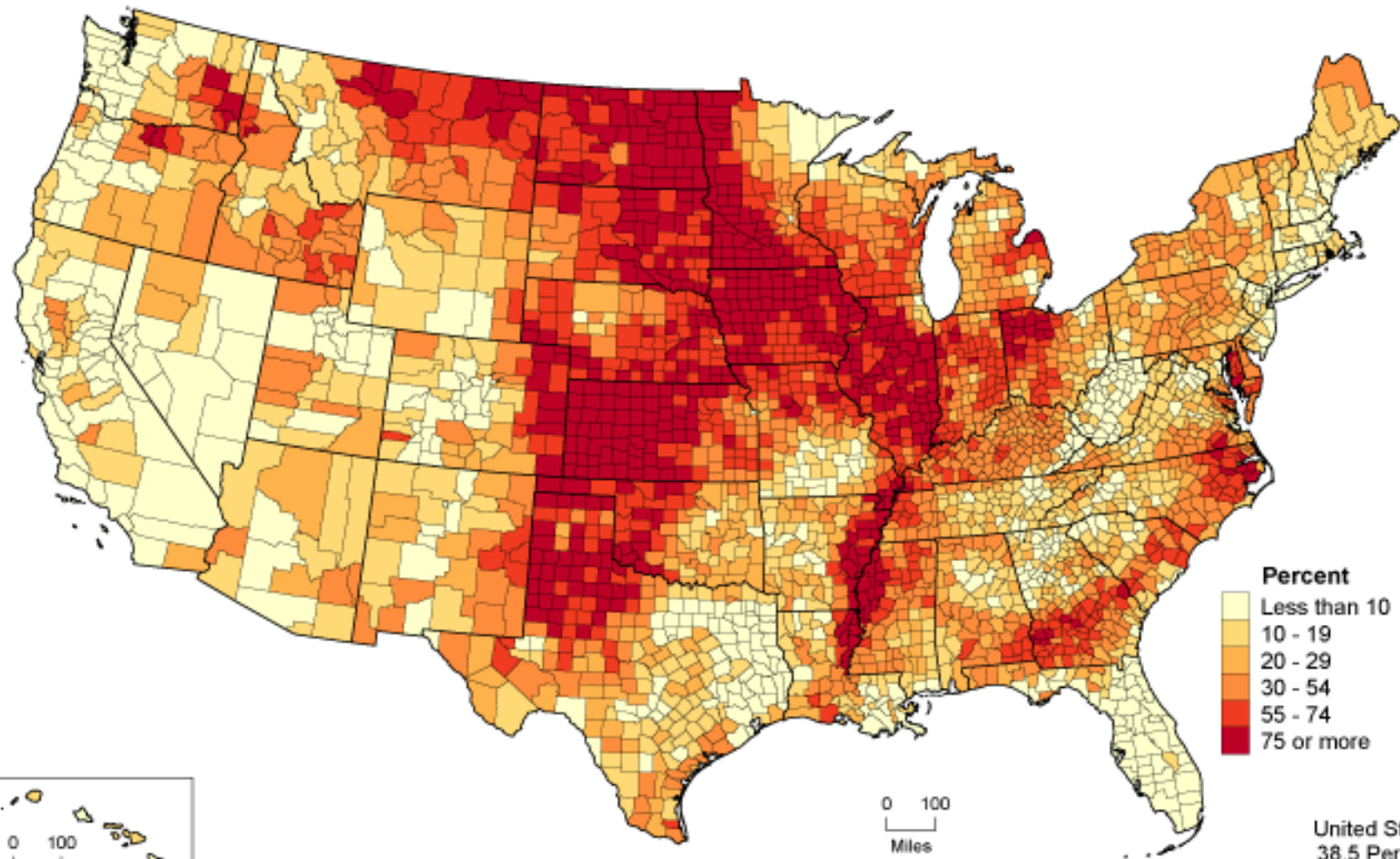
U.S. Net Farm Income Per Farm *(thousand 2009 \$)*



0 200
Miles

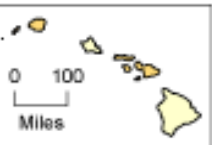


Percent of Farms Receiving Government Payments: 2012



United States
38.5 Percent

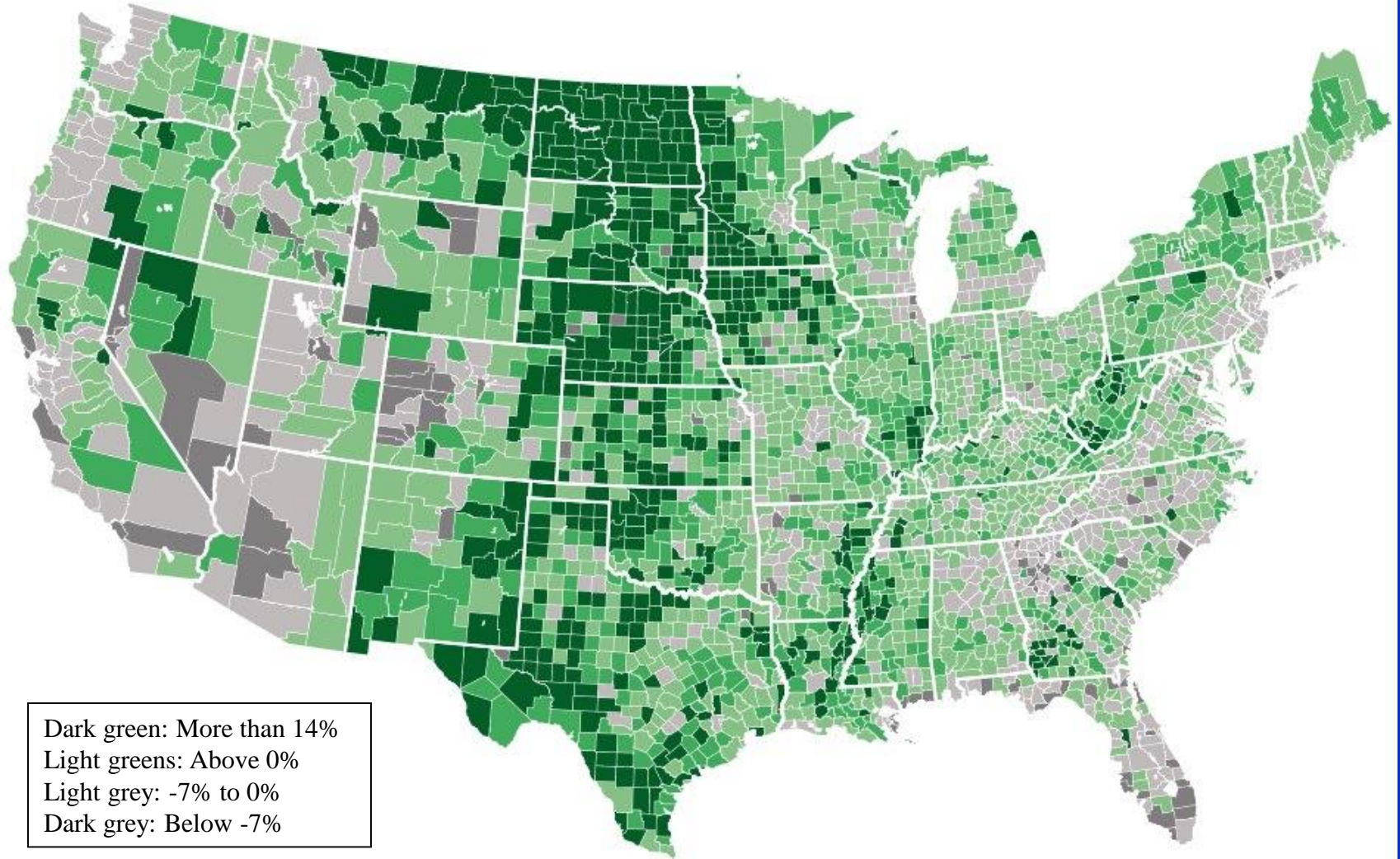
0 100
Miles



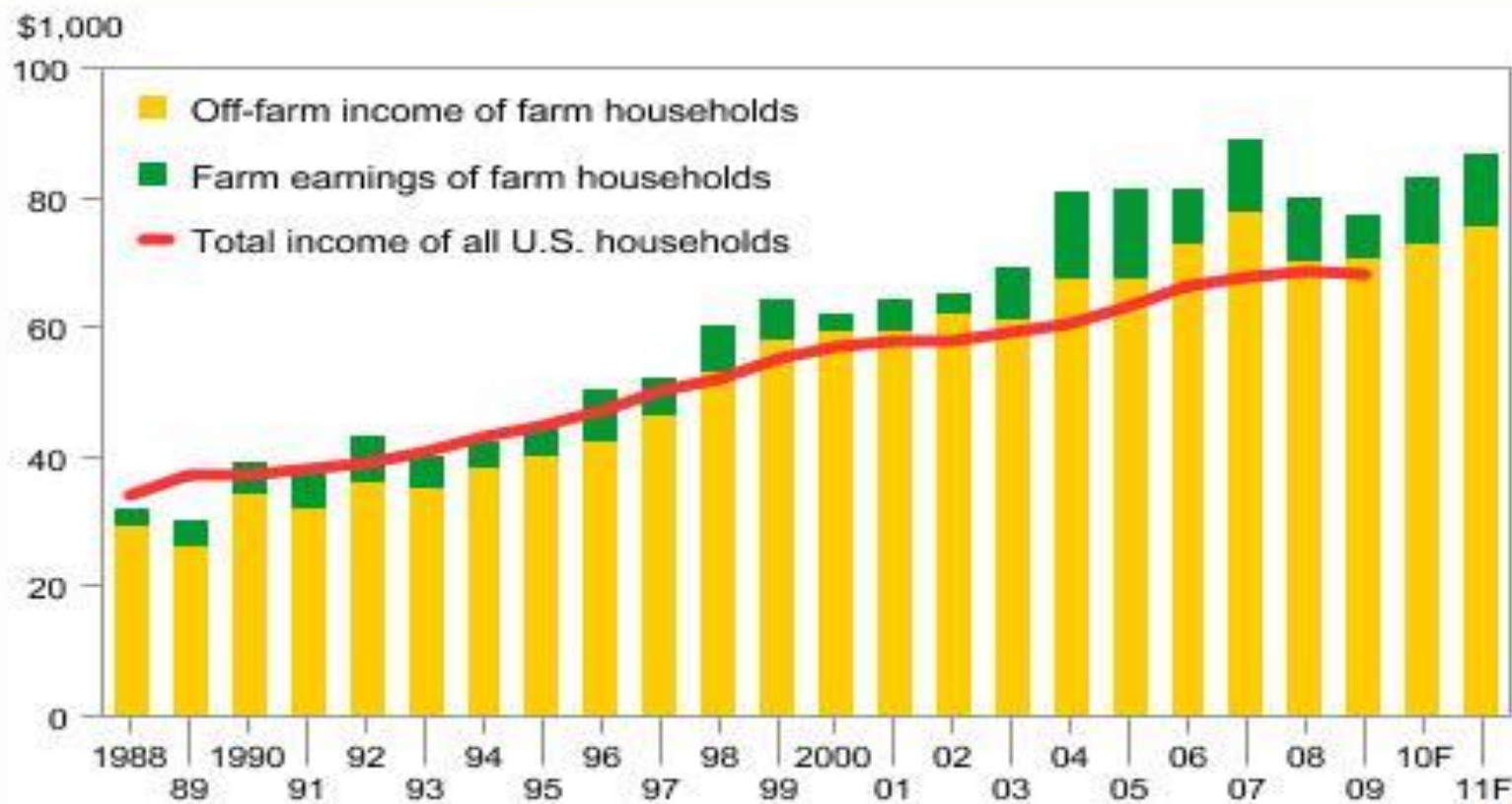
12-M040
U.S. Department of Agriculture, National Agricultural Statistics Service

2012 Census of Agriculture

Growth in Real Per Capita Personal Income from 2007-12 by County



Average farm operator household income, by source, compared with U.S. household income, 1988-2011F

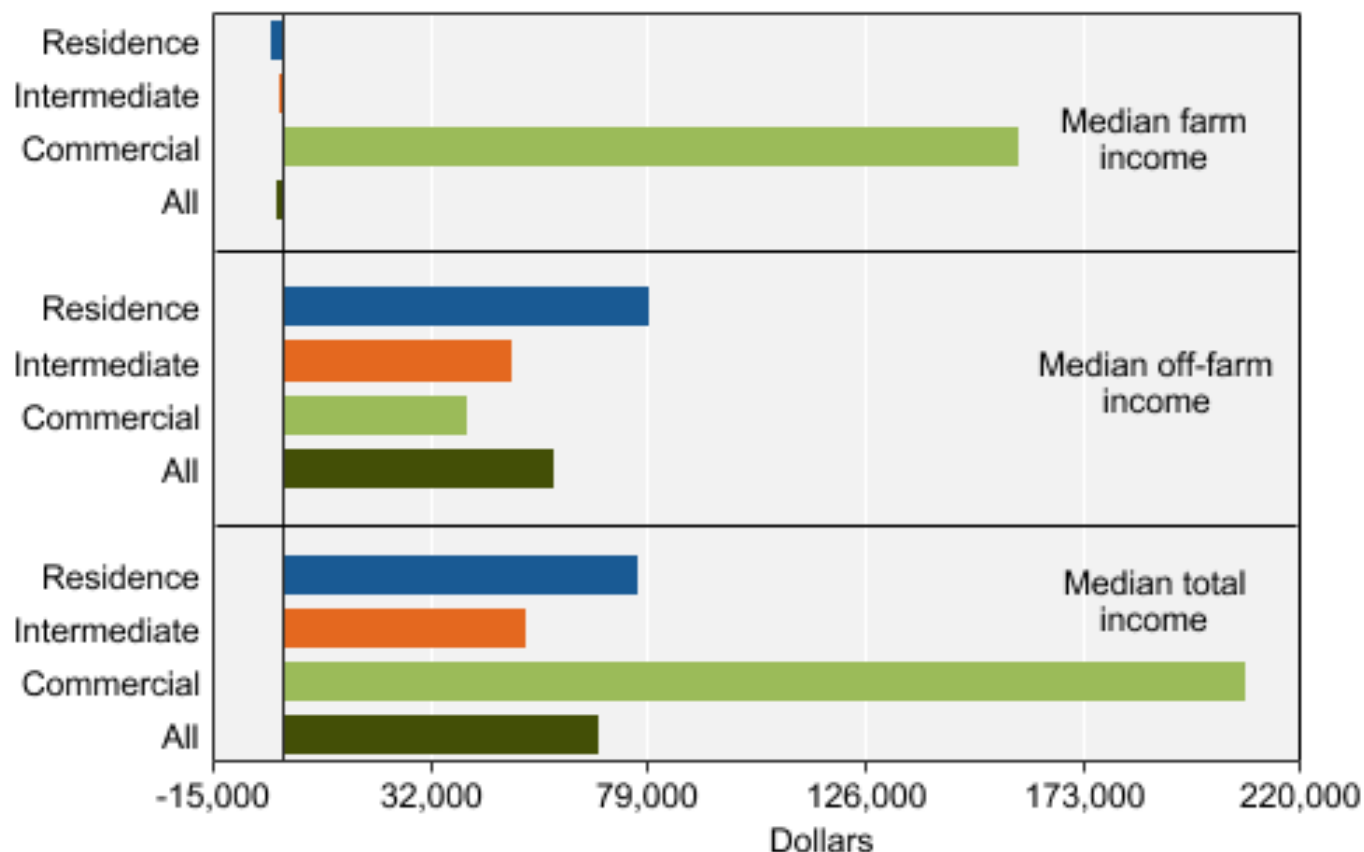


Source: Agricultural Resource Management Survey, ERS and NASS, USDA and the Current Population Survey, U.S. Bureau of the Census.



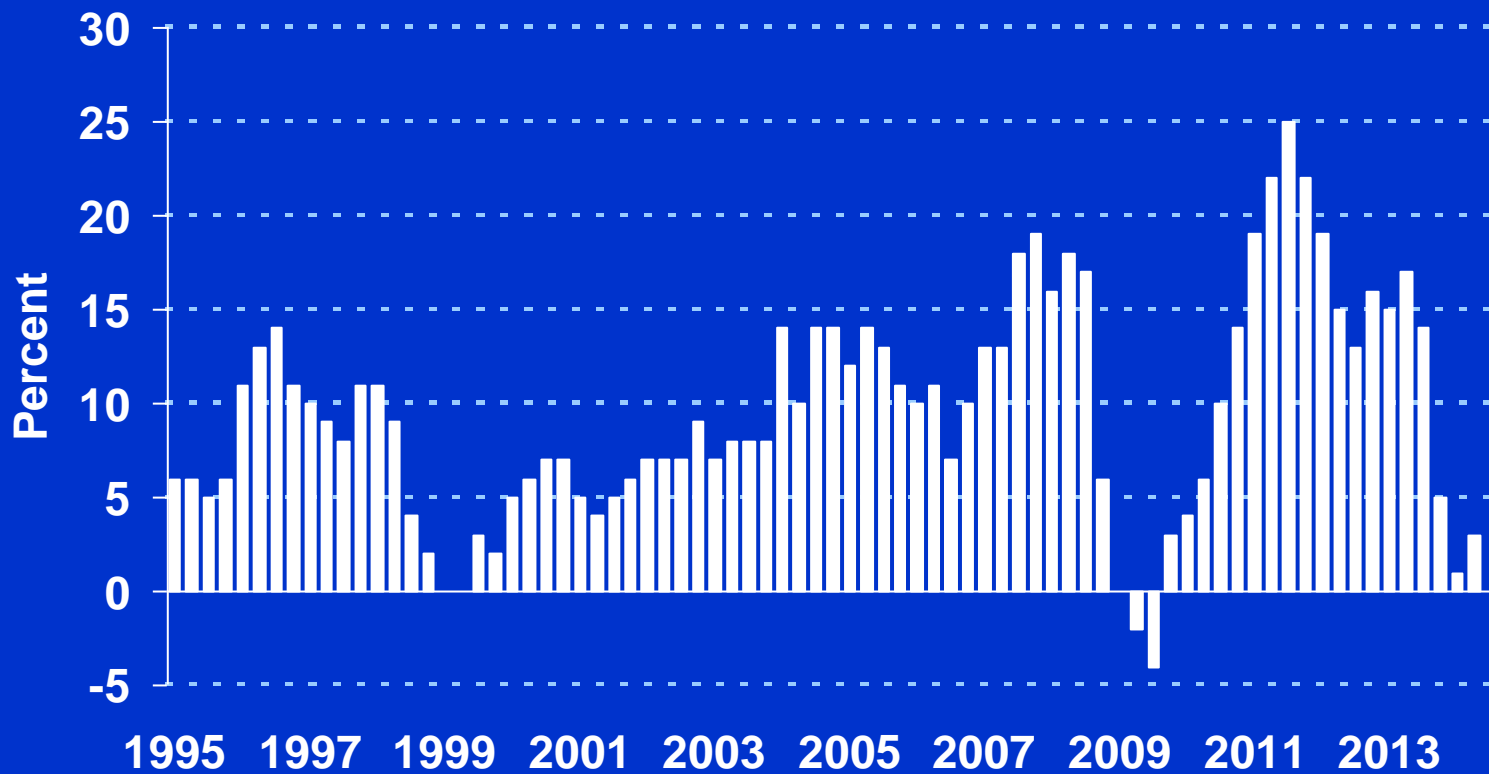
Commercial farms generate income, while the median farm loses money

Median farm income, median off-farm income, and median total income of farm operator households, by farm typology, 2012

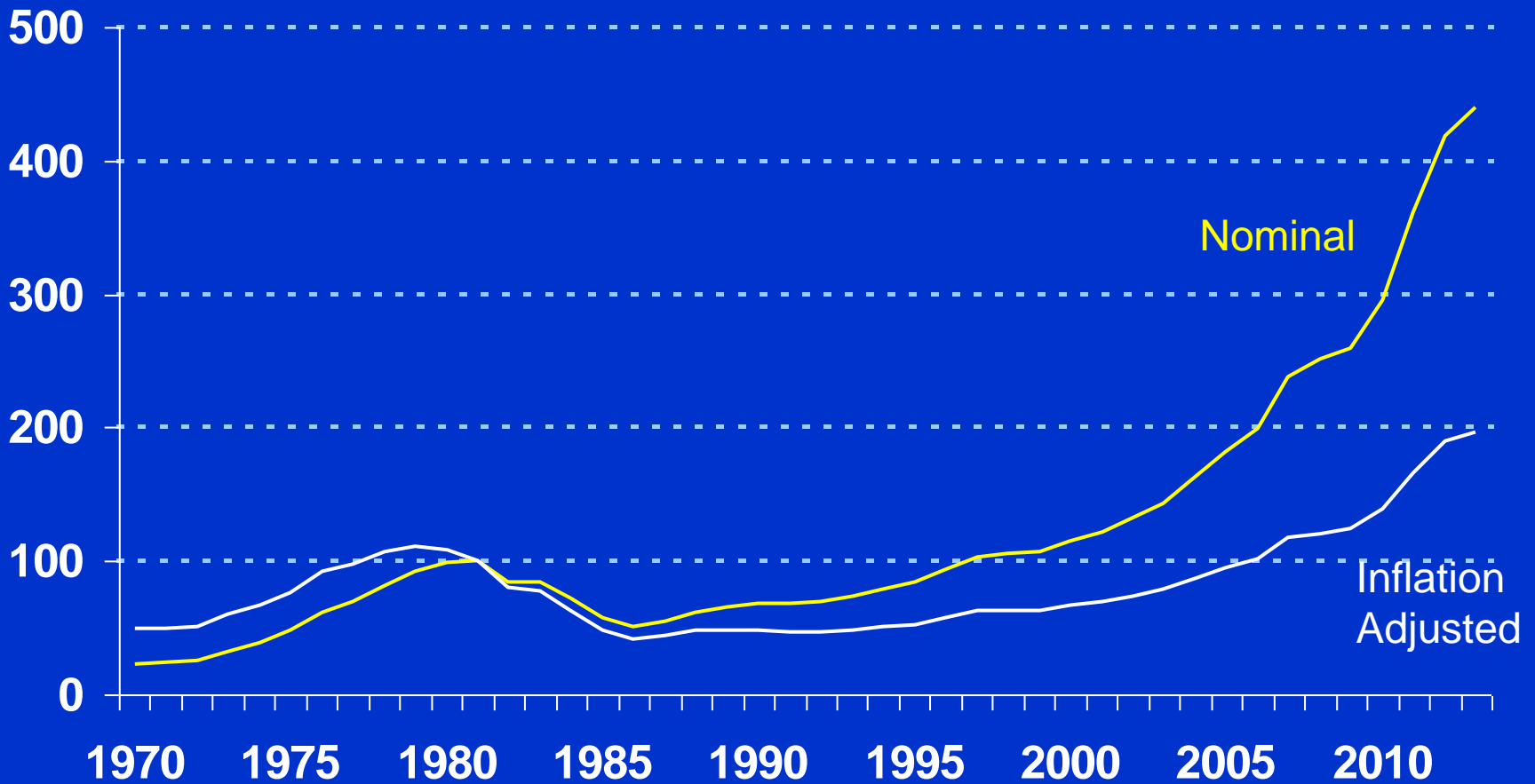


Source: USDA, Economic Research Service and National Agricultural Statistics Service, Agricultural Resource Management Survey. Data as of November 26, 2013.

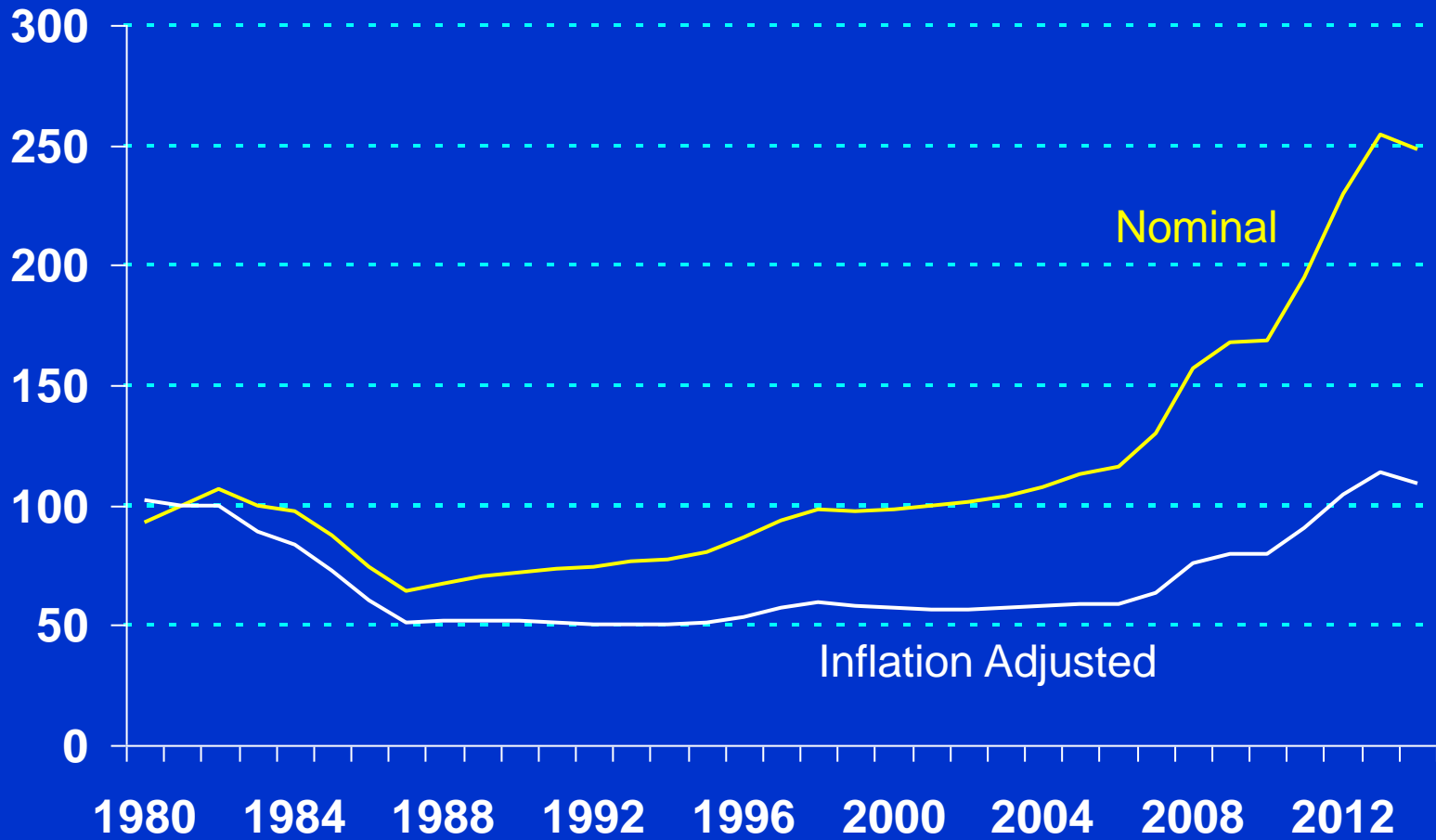
Year over year changes by quarter in farmland values in the Seventh Federal Reserve District



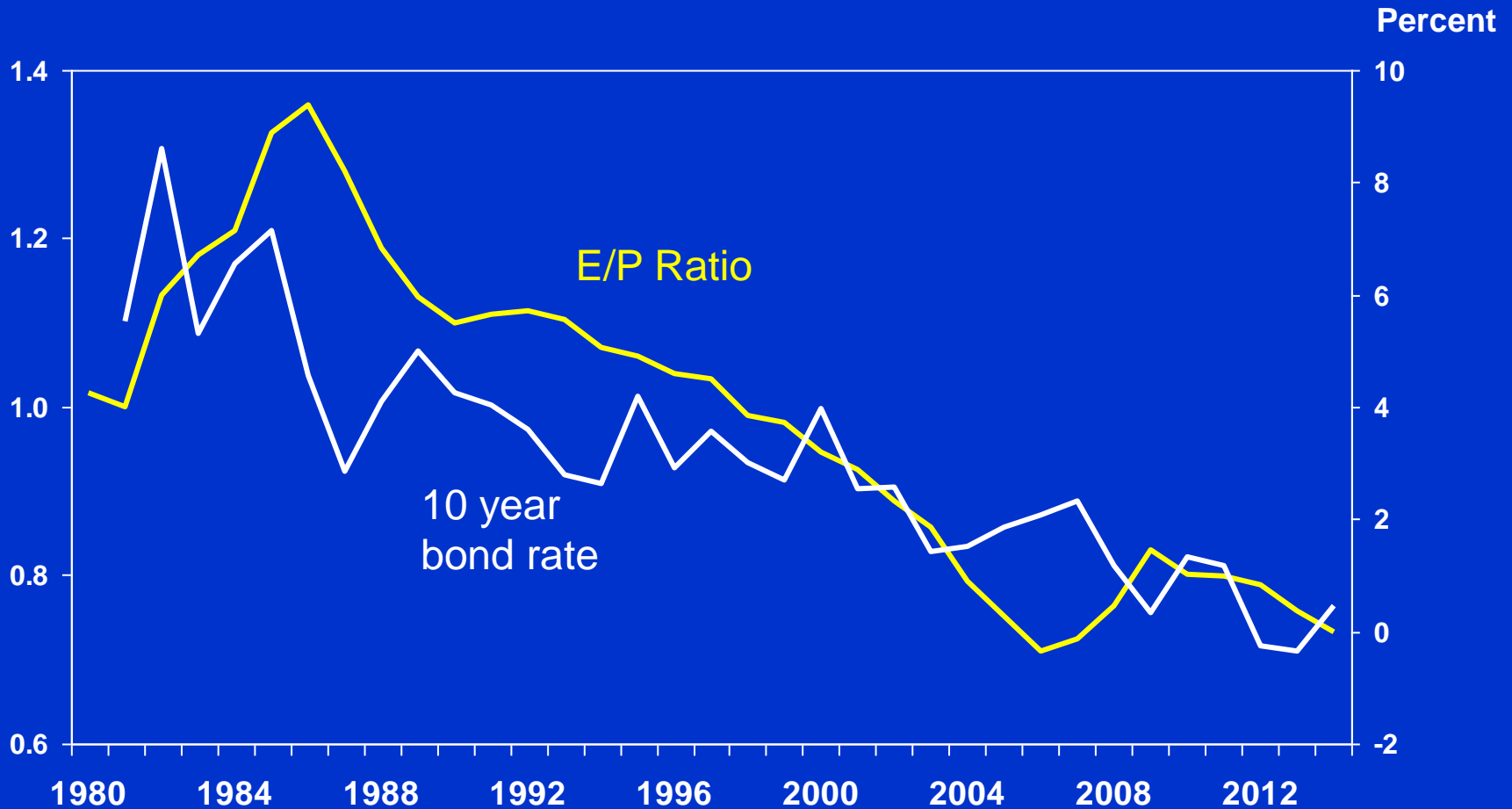
Index of Seventh District farmland values *(1981=100)*



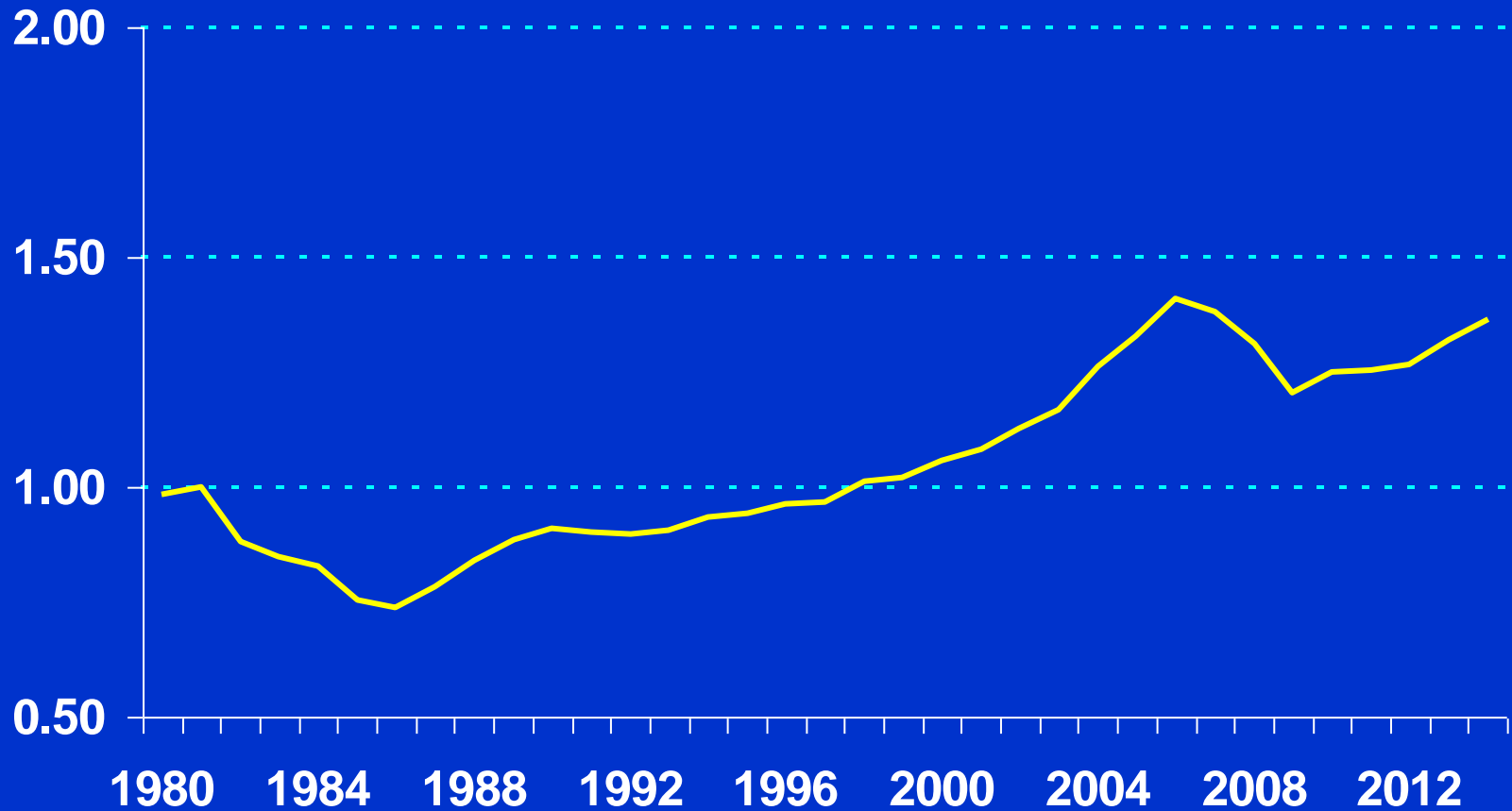
Index of Seventh District Cash Rents Nominal vs. Inflation Adjusted (1981=100)



7th District Earnings to Price Ratio (left axis, 1981=1) vs. Real Return on 10 Year Treasury Bonds



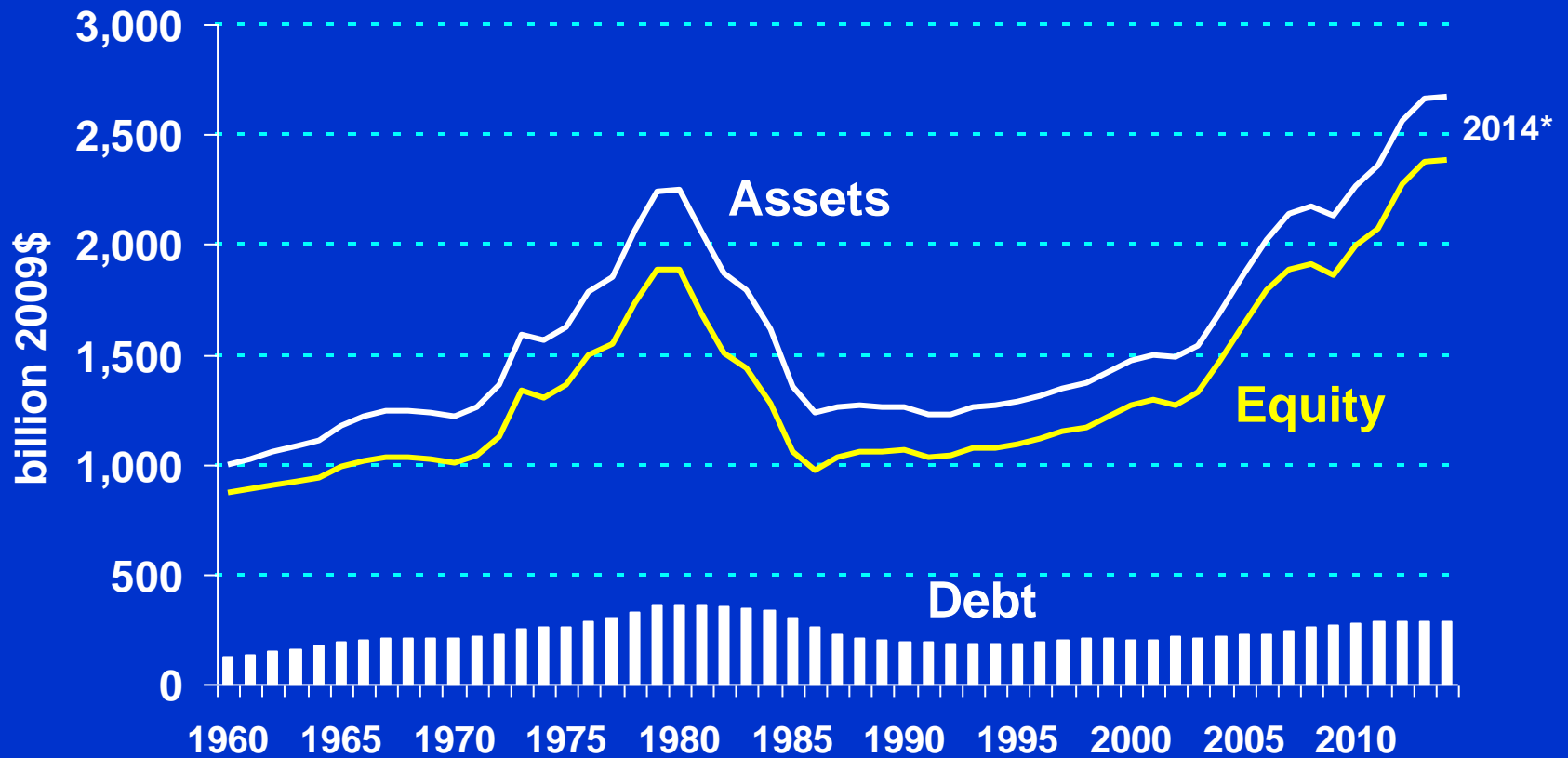
*Farmland Price to Earnings Ratio
for the Seventh District (1981=1)*



Financial indicators for the farm sector

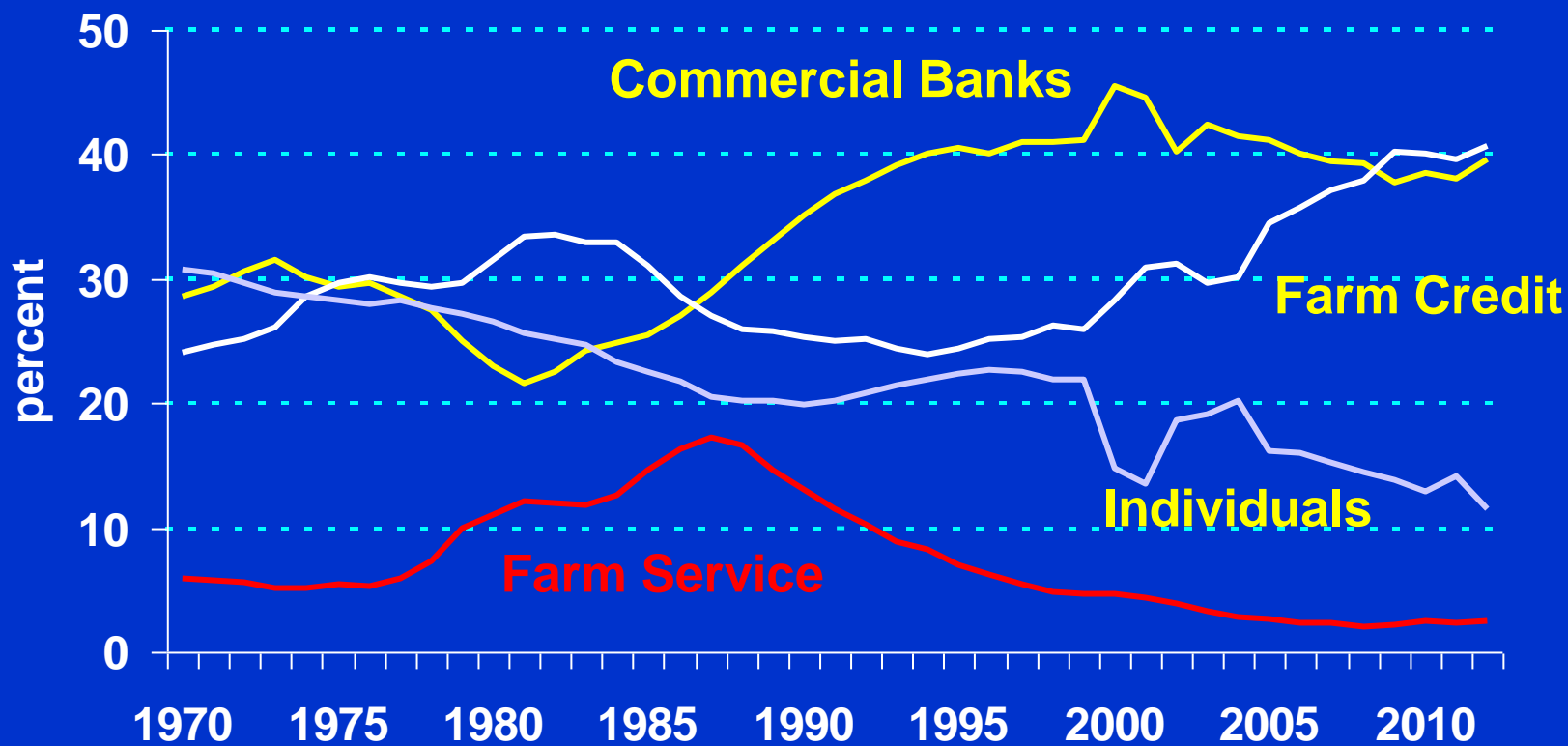
- **Net farm income lower for crops**
- **Farm program spending**
- **Farm balance sheet**
- **Interest rates are still relatively low**
- **Credit conditions improved in recent years**
 - **About 2% of loans with “major” or “severe” repayment problems**
 - **But in 2014 conditions worsening**

Real growth in farm sector assets and equity, as debt remained more level

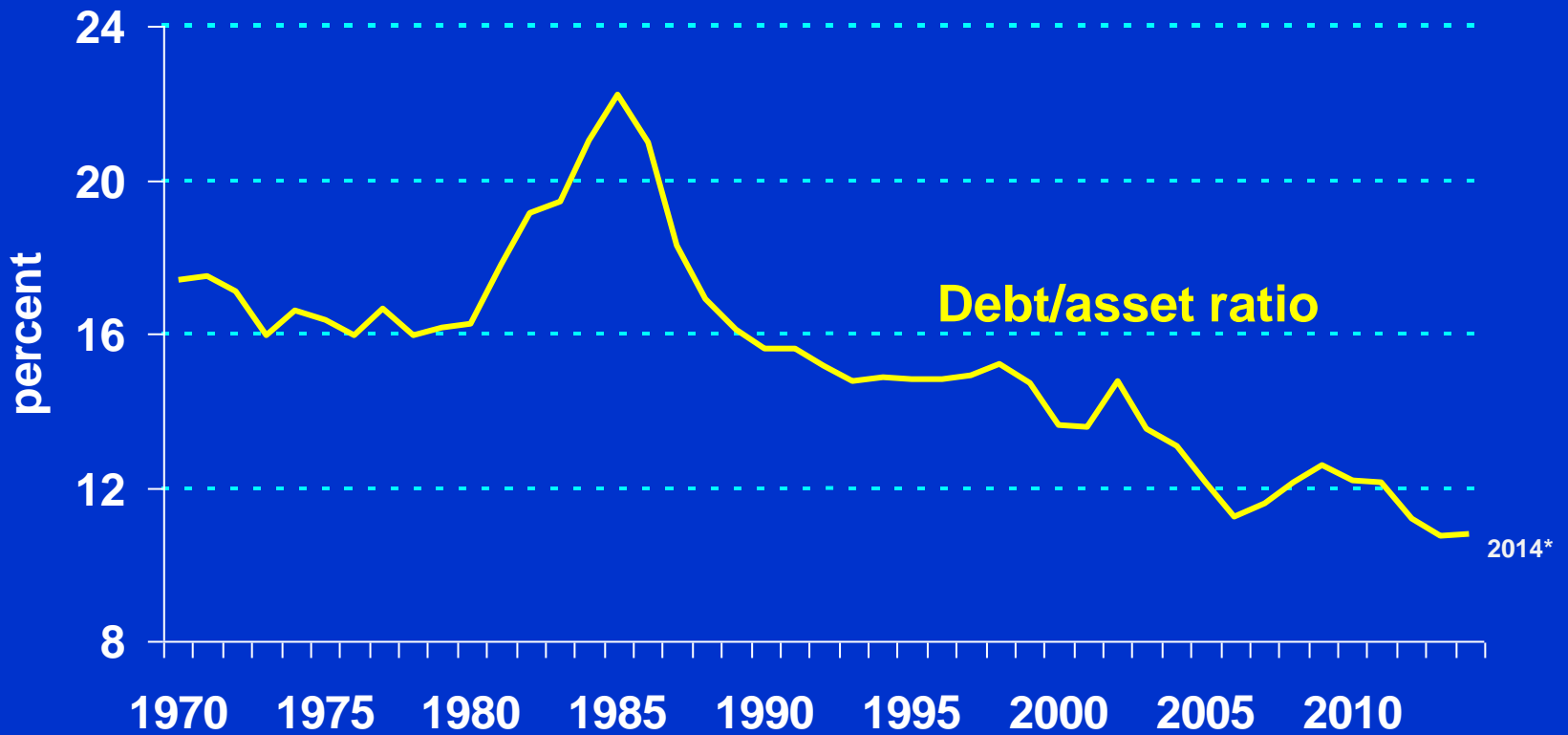


*USDA forecast

Primary agricultural lenders by market share

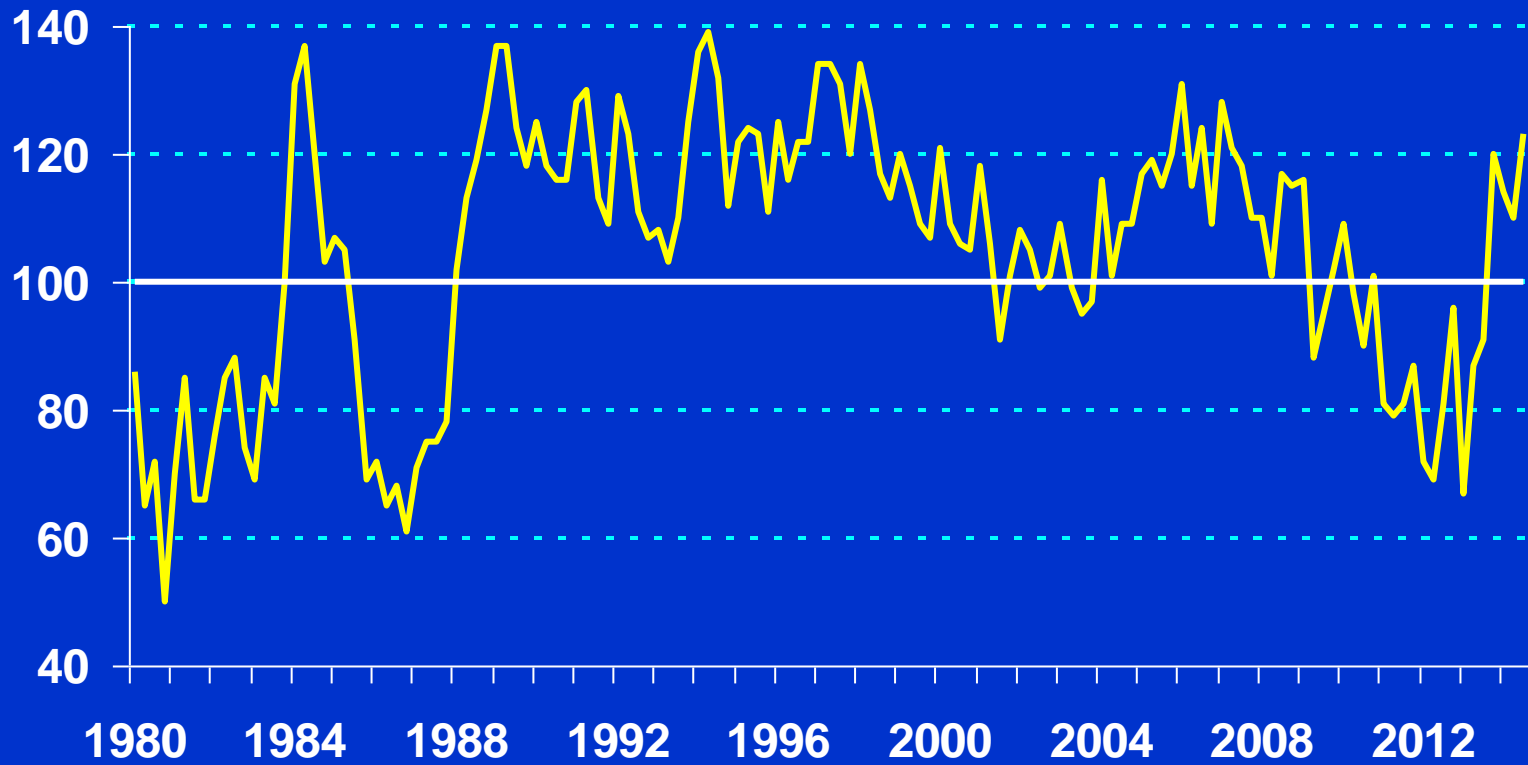


Farm financial ratios improved following the '80s crisis

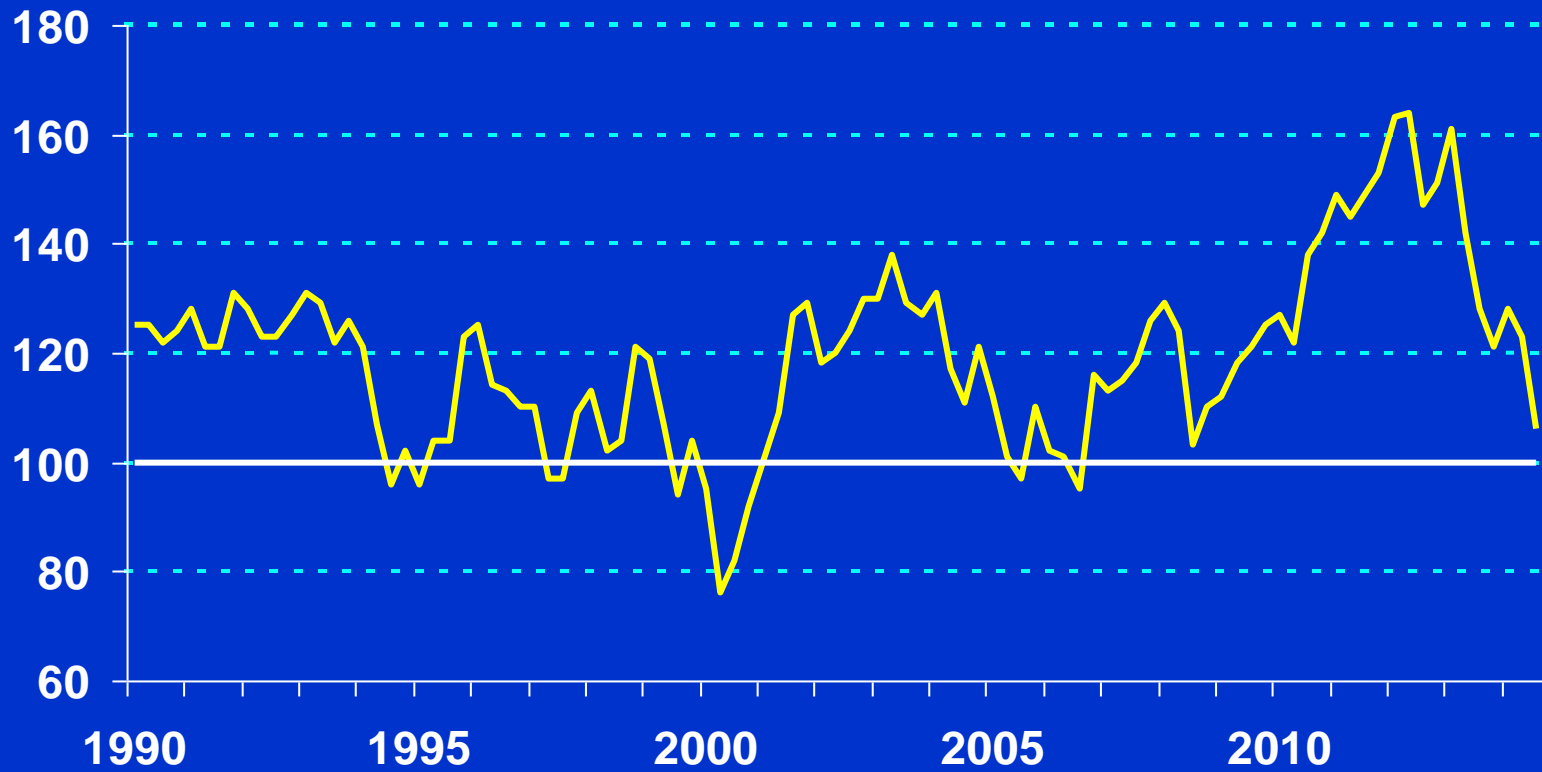


*USDA forecast

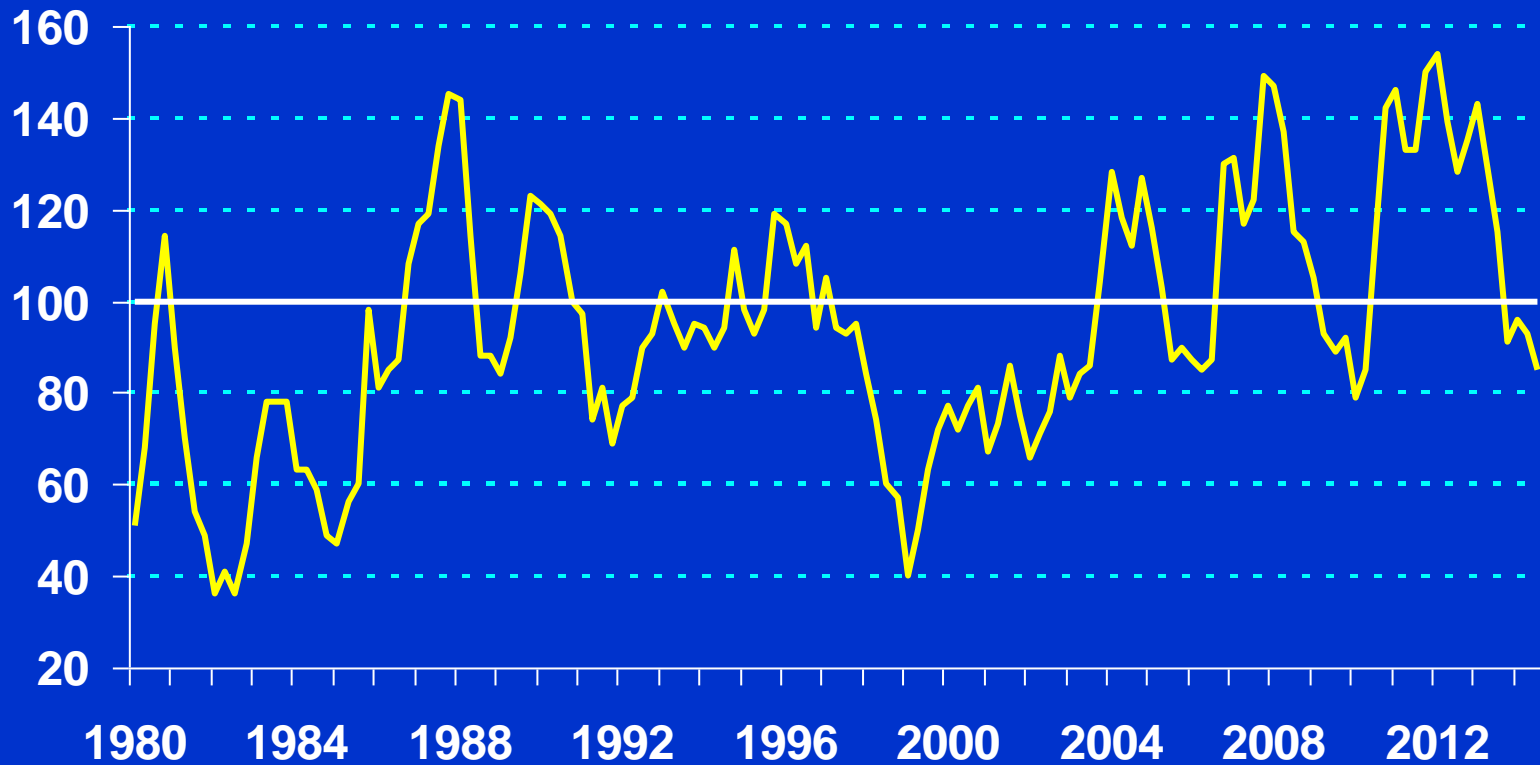
Index of agricultural loan demand for the Seventh Federal Reserve District (excluding real estate)



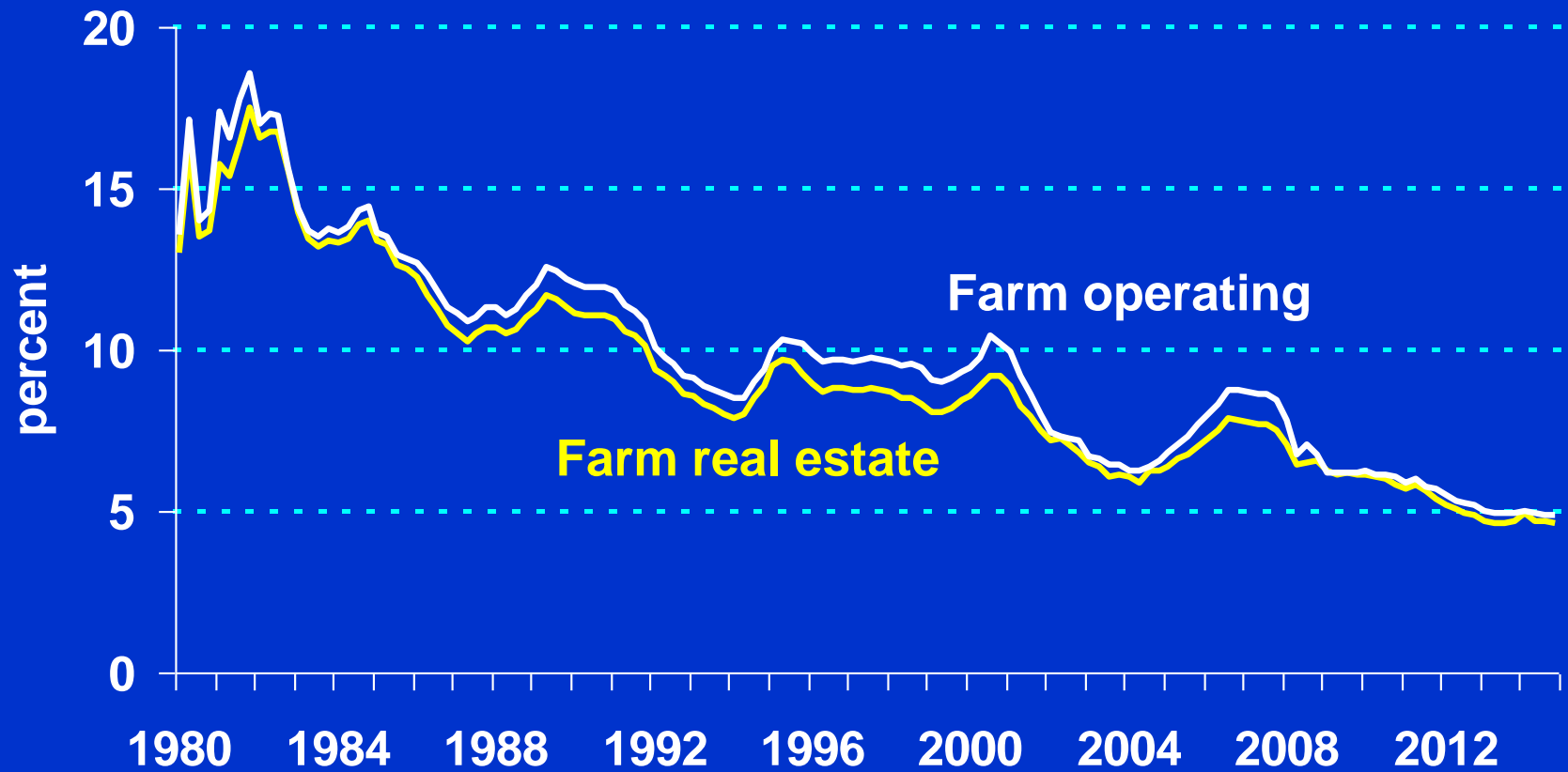
Index of funds availability for the Seventh Federal Reserve District



Index of agricultural loan repayment rates for the Seventh Federal Reserve District



Interest rates charged on new farm loans in the Seventh Federal Reserve District



Credit spreads between Corporate High Yield and Corporate Aaa securities have edged higher

Credit spreads between Corporate High Yield and Corporate Aaa

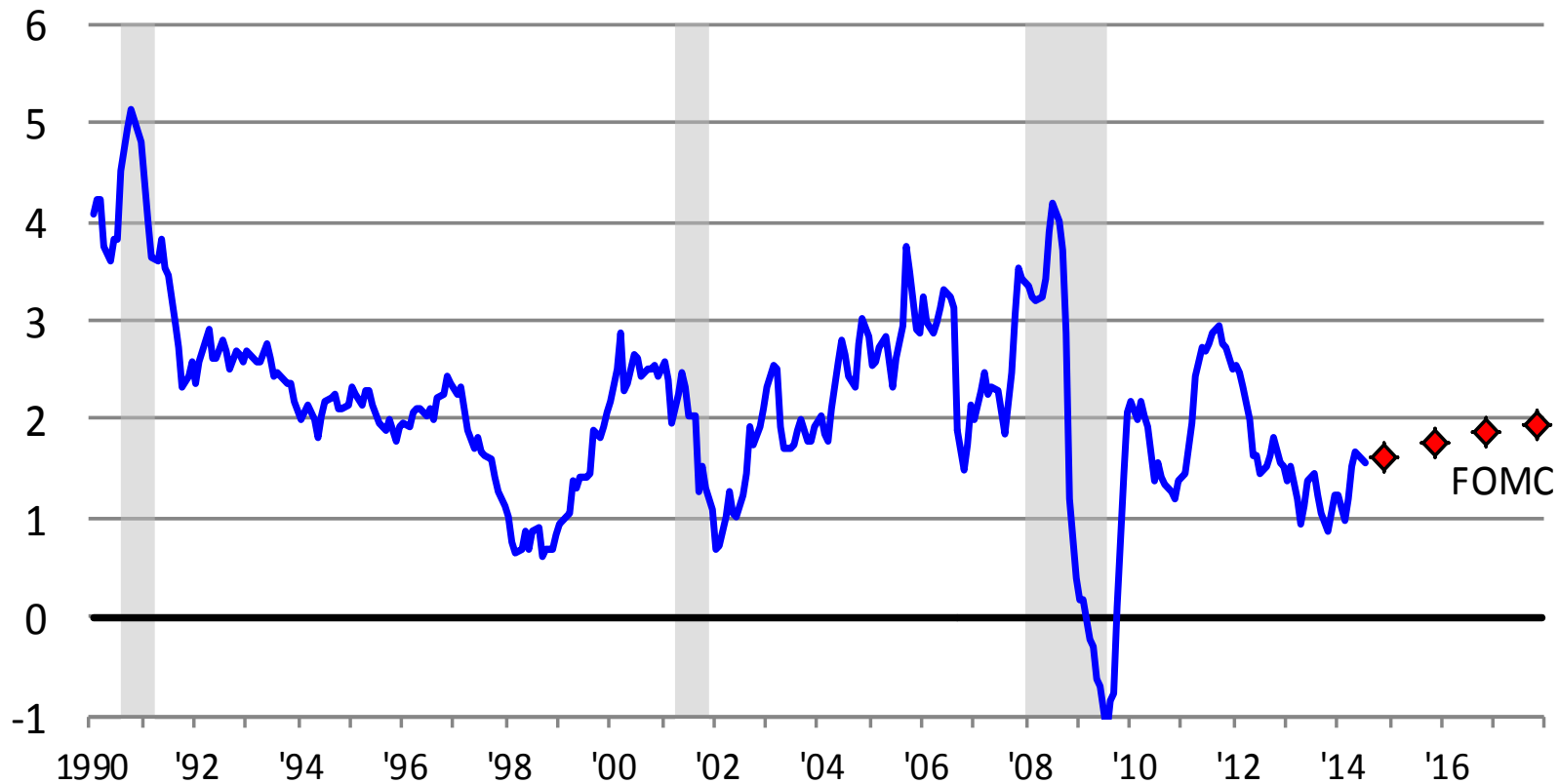
percent



The FOMC anticipates that PCE inflation will remain below two percent through 2017

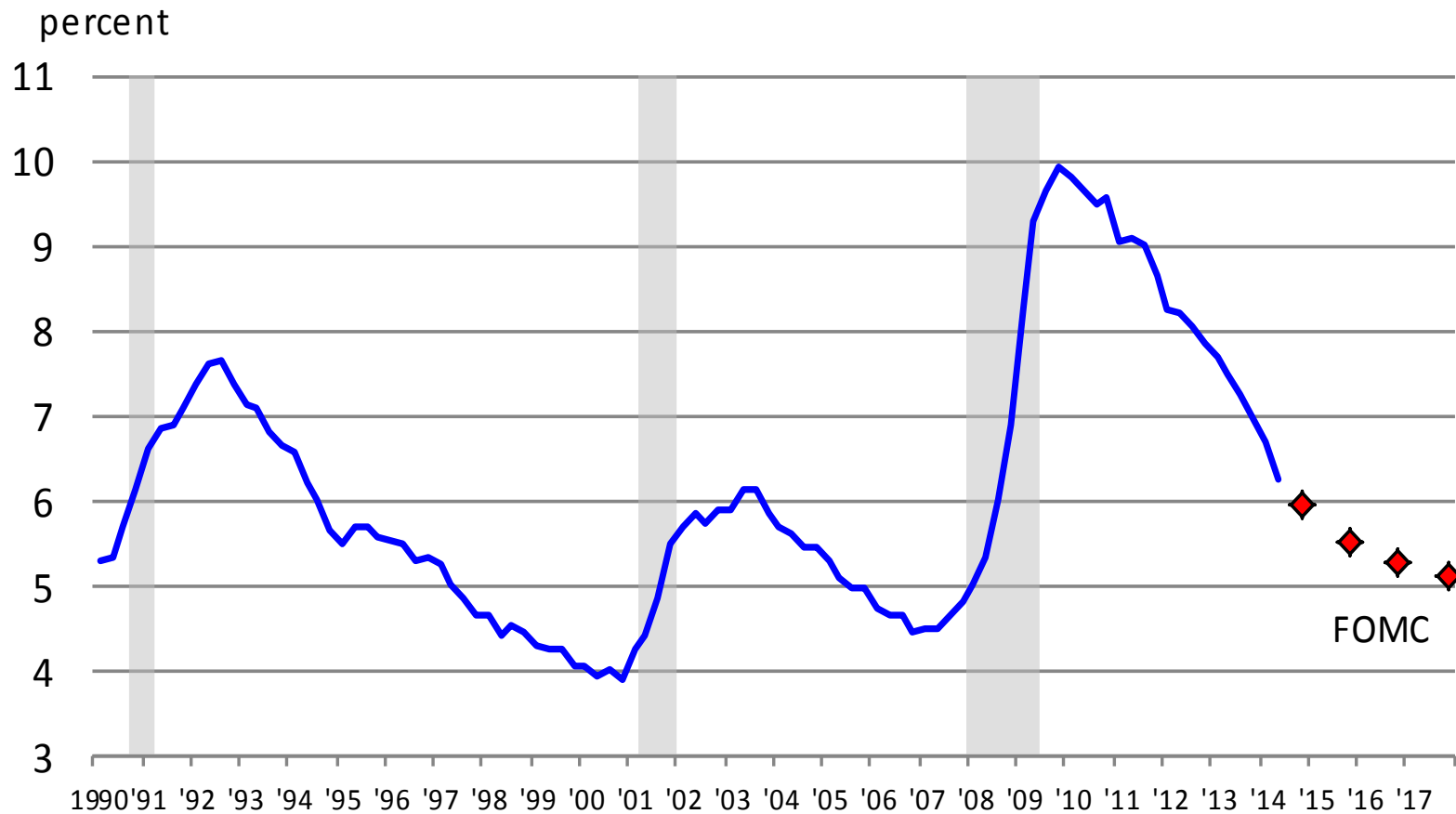
Personal consumption expenditure - chain price index

percent change from a year earlier



The FOMC forecasts that the unemployment rate will be at the natural rate by the end of 2016

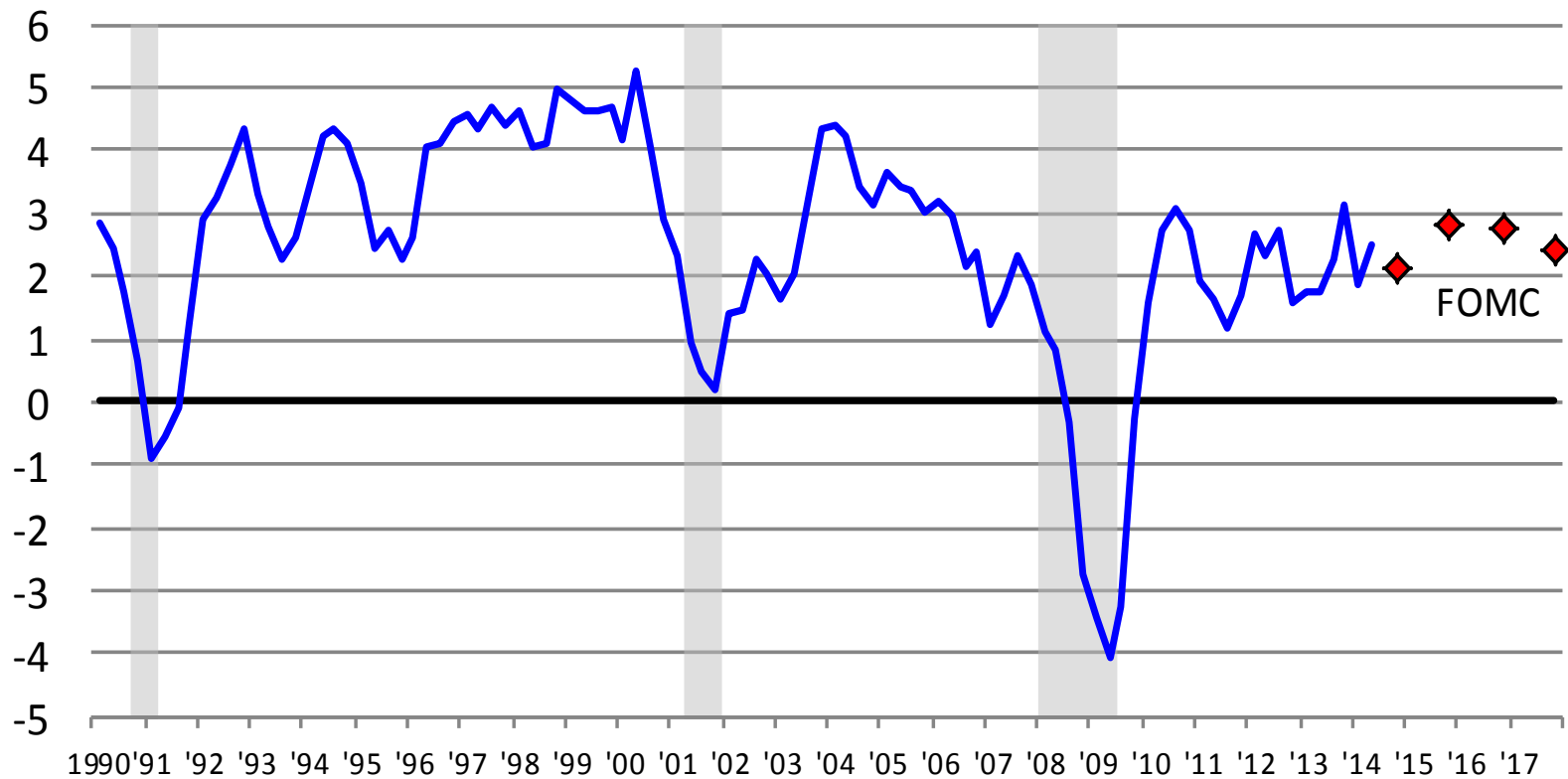
Unemployment rate



The FOMC expects GDP to grow near its trend in 2014 and then above trend

Real gross domestic product

percent change from a year earlier



Balancing Aggregate Demand And Supply

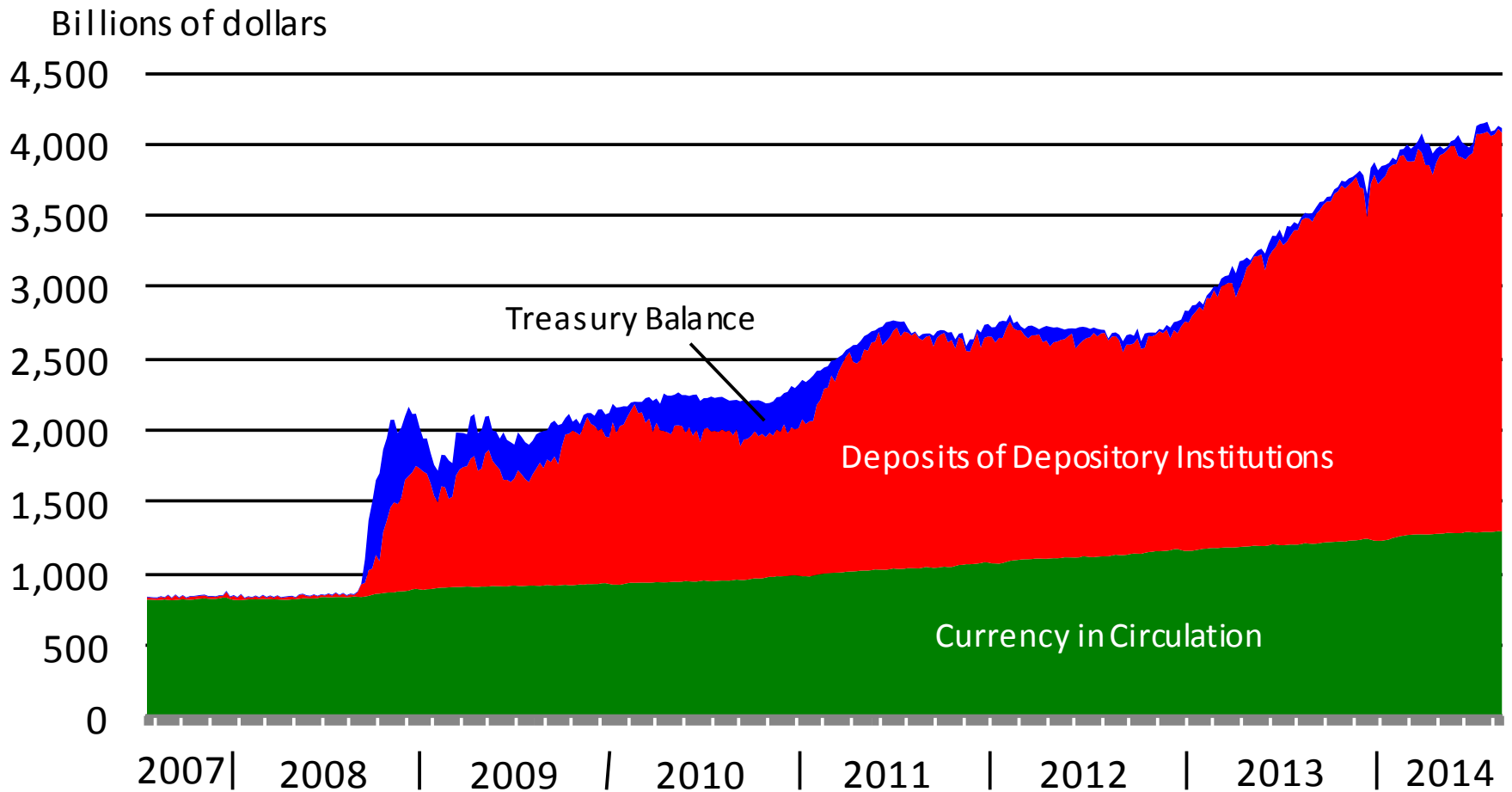
- Lower interest rates increase aggregate demand
 - Relevant rates are long-run real interest rates facing households and businesses
- Long-run private-sector real interest rates =
 - expected average short-term nominal rate
 - minus* expected average inflation rate
 - plus* risk premia (duration, credit, inflation uncertainty)
- Two prongs to Fed actions in 2012
 - Asset purchases to shrink term premia
 - Forward guidance to lower expected short-term rates

Recent Monetary Policy Actions

- Tapering of asset purchases began in December 2013
- Reductions in purchases of \$5 billion for mortgage-backed securities and \$5 billion for Treasuries
- Additional reductions in ongoing purchases through October 2014, with no planned purchases from November forward
- Continue to reinvest assets as they mature
- Monitor economic conditions to tailor future actions

Fed's balance sheet includes a large amount of excess reserves

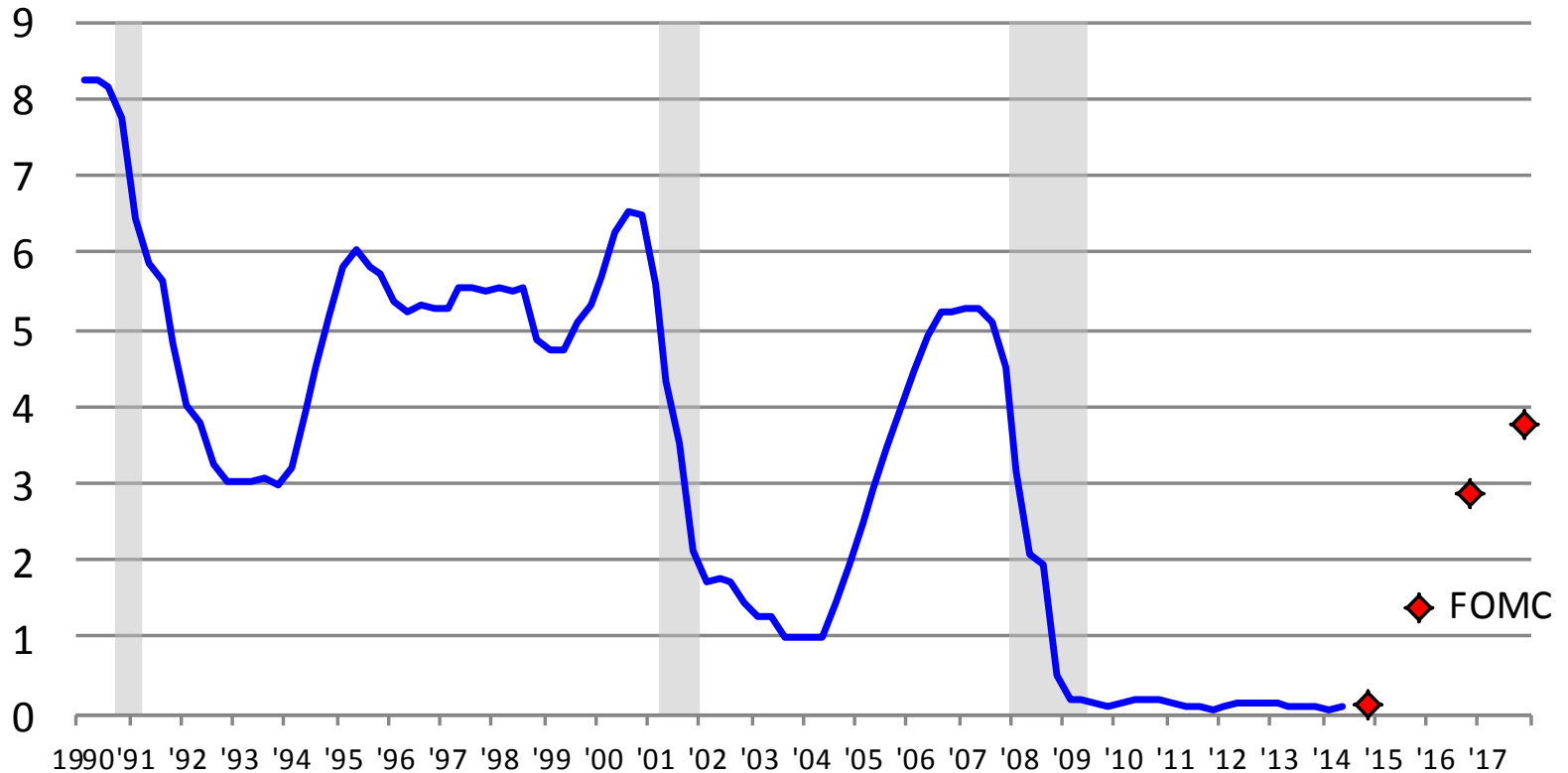
Liabilities of the Federal Reserve



The Federal Funds Rate is anticipated to return to the neutral rate by the end of 2017

Target Federal Funds Rate

percent



Summary

- The outlook is for the U.S. economy to expand at a pace near trend in 2014 and above trend in 2015-16
- Employment is expected to rise moderately with the unemployment rate edging lower
- Slackness in the economy will lead to a relatively contained inflation rate
- Growth in manufacturing output should continue
- Housing has turned the corner, but still has far to go
- Agriculture remains healthy for livestock, but faces volatility

What factors affect farmland values?

- **Expected net returns**
- **Interest rates**

- **Government programs**
- **Capital investment in structures**
- **Non-farm demand**

- **Inflation, lending policies, other investments, speculation, technology, trade, site characteristics, environmental issues**

What role should the banking system play?

- **Farm income decline and need for borrowing**
- **Risk management for agriculture**
- **Development of manufacturing and service jobs**
- **Promoting the bioeconomy**
- **Leveraging government programs**
- **Capital investment in infrastructure**
- **Supporting rural education options**
- **Population shifts and the missing middle**
- **Regulation of financial institutions**

www.chicagofed.org

