

# U.S. Monetary Policy and the Agricultural Economy



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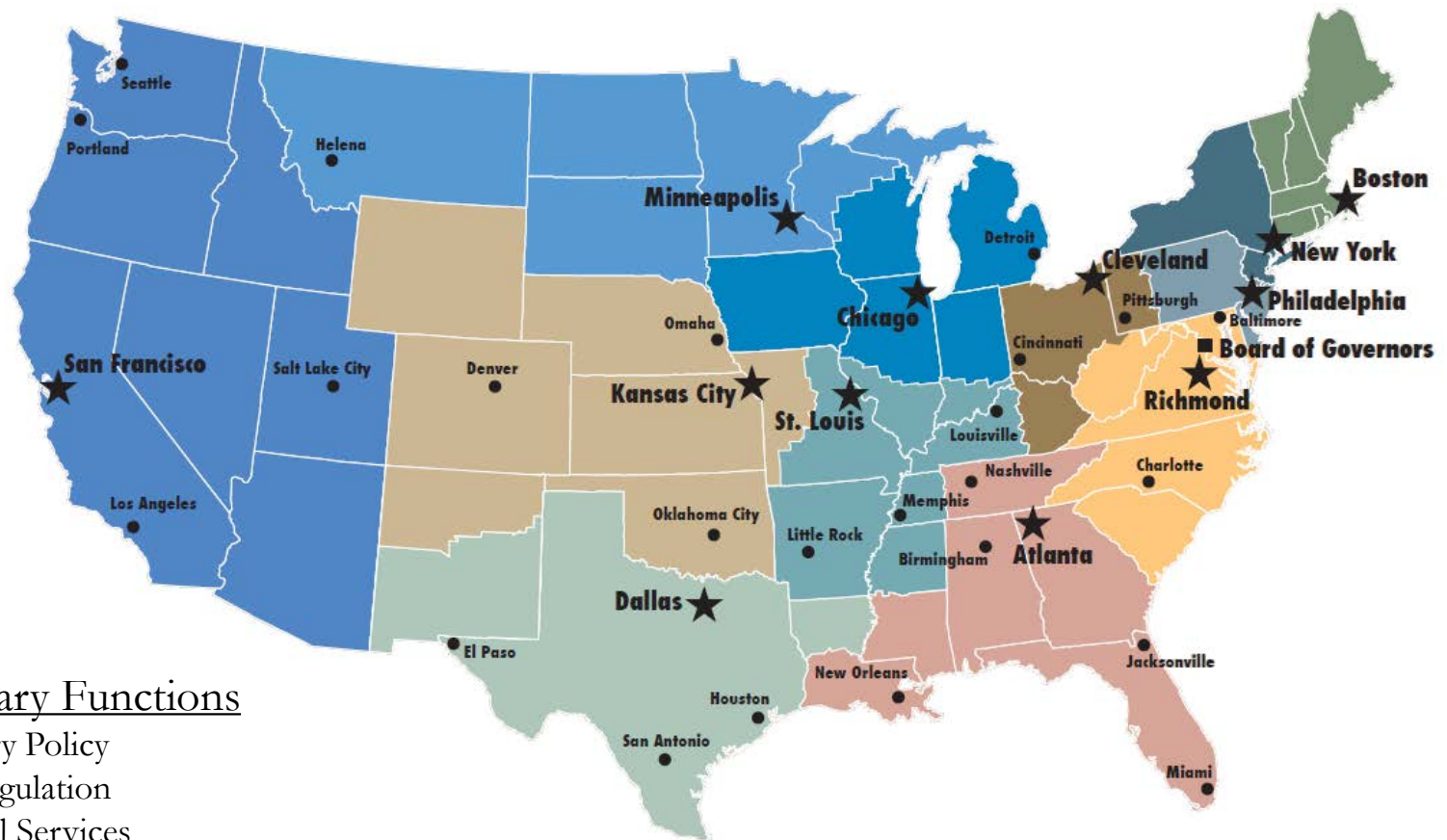
November, 2015

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

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# The Federal Reserve System



## Primary Functions

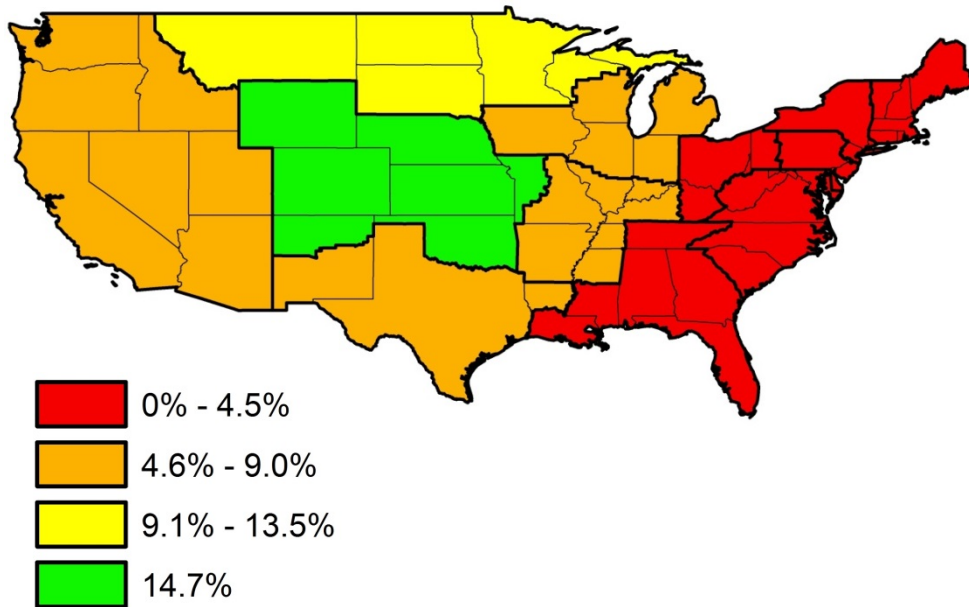
- Monetary Policy
- Bank Regulation
- Financial Services
- Lender of Last Resort



# The Kansas City Fed covers a region that is highly rural.

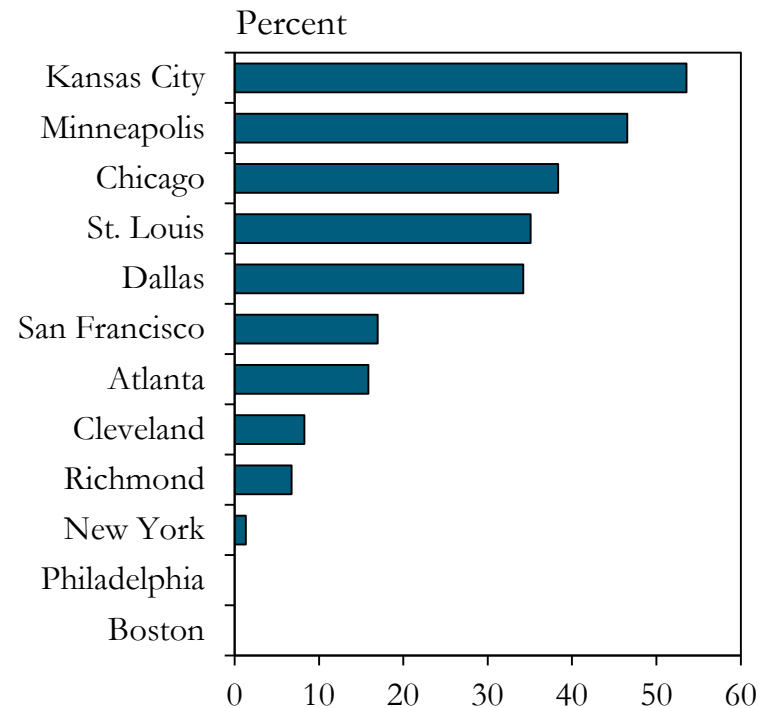
## Average Farm Income as a Share of Total Personal Income

Average Across Counties by Fed District



Source: BEA

## Proportion of “Farm Dependent” Counties



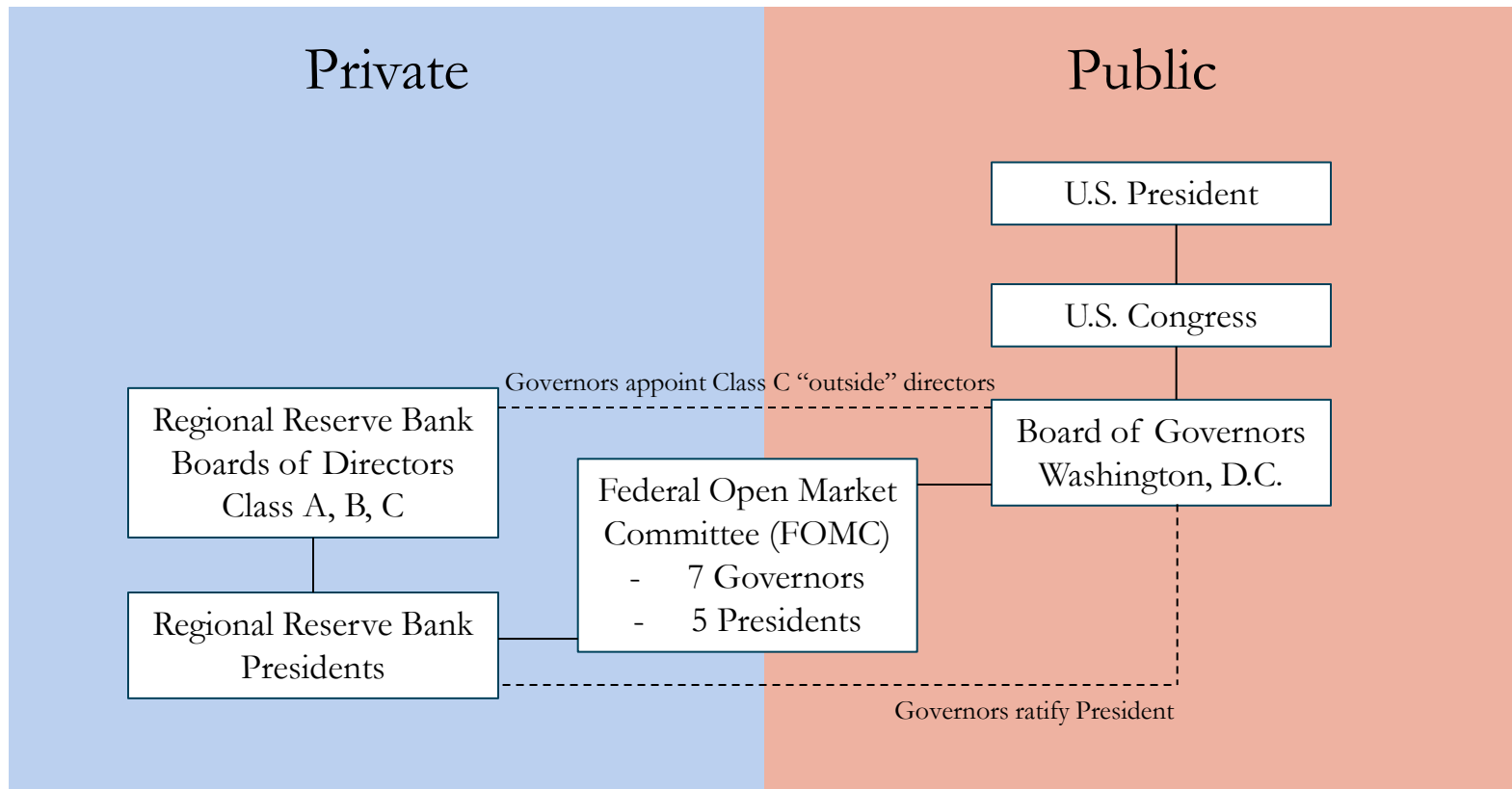
Source: BEA, USDA, and staff calculations

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# Fed Governance and Structure

## A Public/Private Partnership



# Monetary Policy Tools

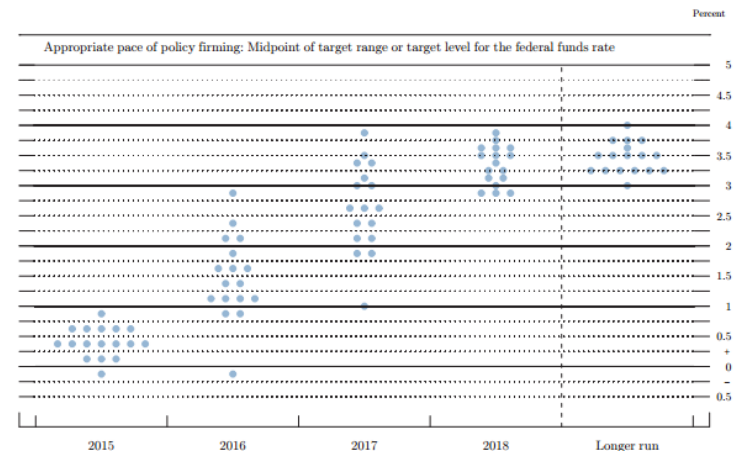
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- Primary Credit Rate  
(Discount Rate)
- Open Market Operations  
(Fed Funds Rate)
- Reserve Requirements
- Balance Sheet  
(Quantitative Easing)
- Forward Guidance



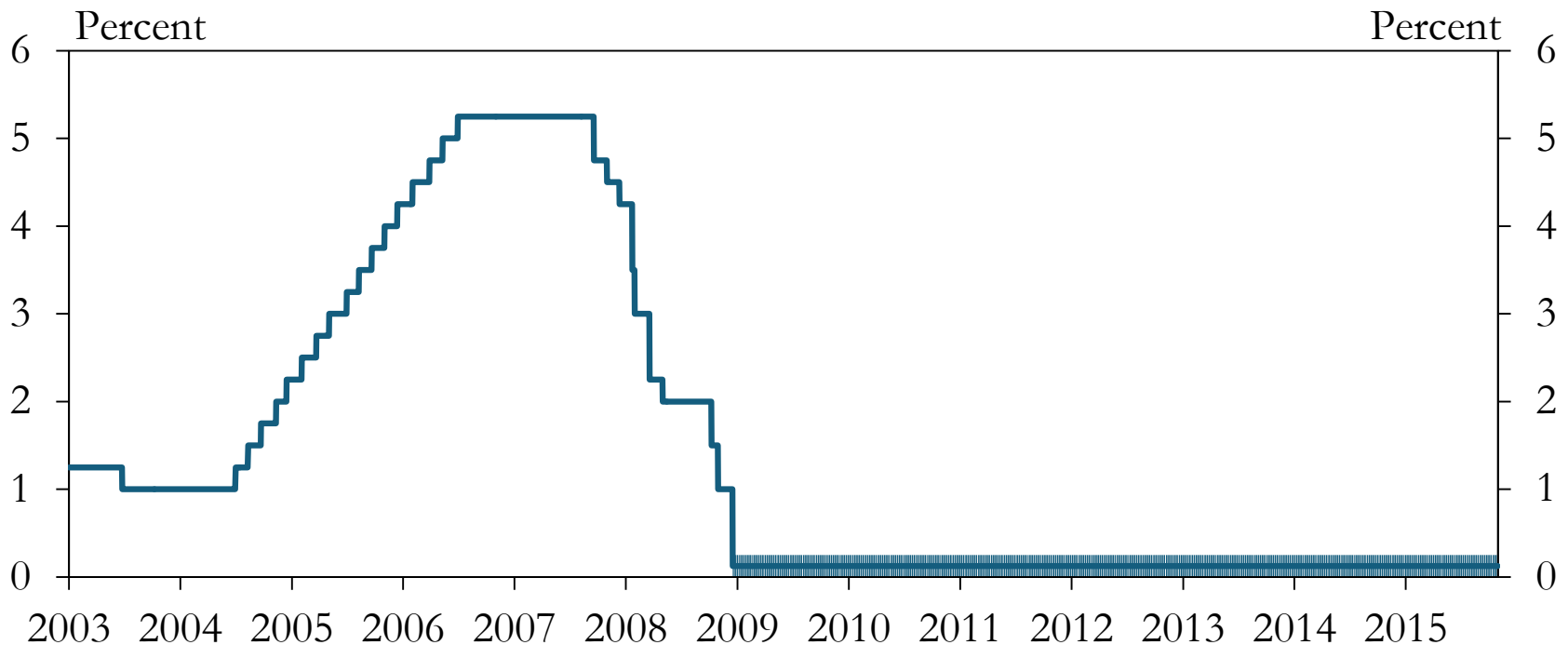
# The Communication Revolution in Central Banking

- Historically, central banks were famously opaque
  - Montagu Norman:  
“Never explain, never excuse”
  - First FOMC statement: 1994
- Economic Research
  - Market reactions more predictable with predictable policy
  - Forward guidance a useful tool



Background - The Fed Funds rate has been near zero since 2008.

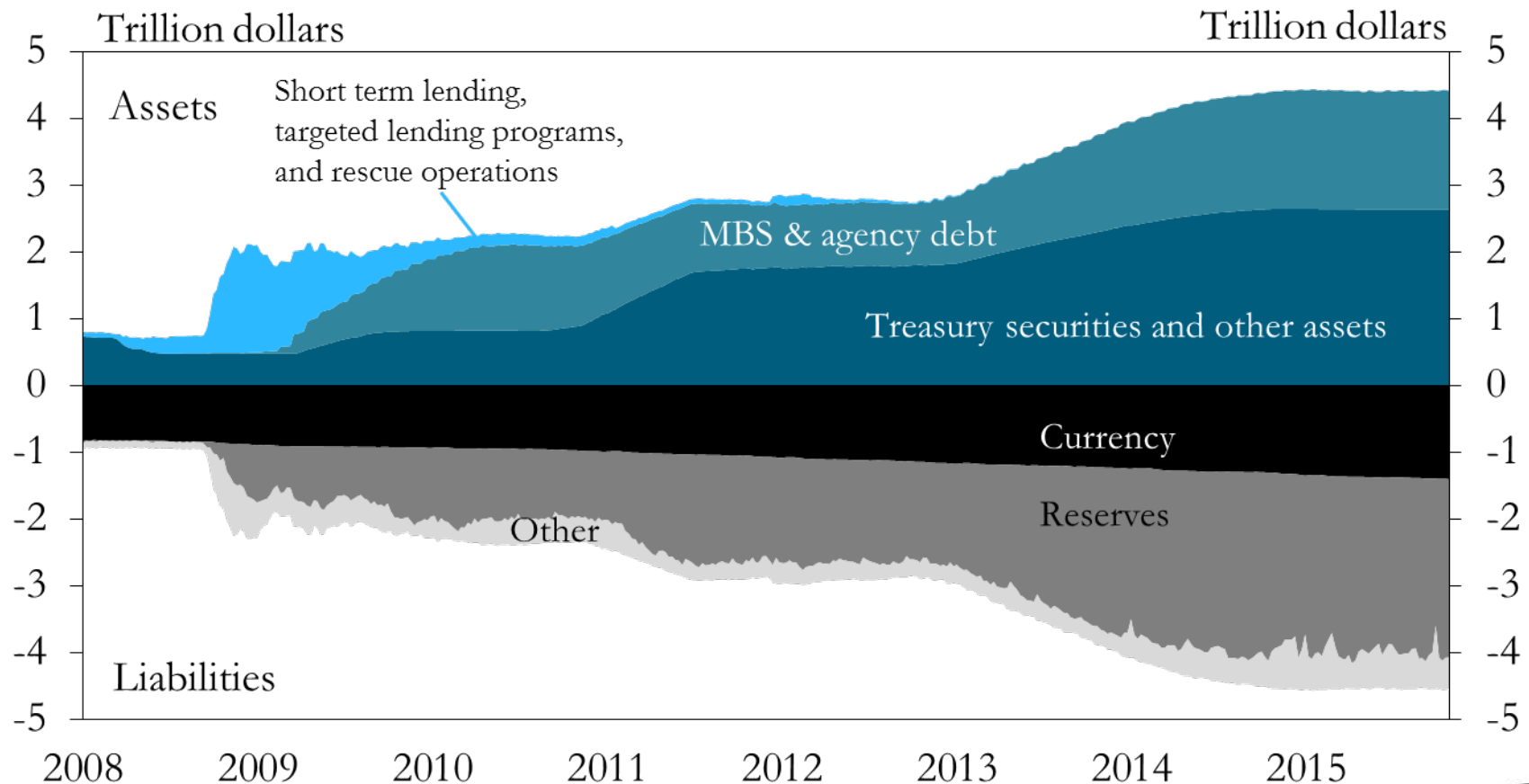
## Federal Funds Target Rate



Source: Federal Reserve Board, Haver Analytics



# Background - The Fed's balance sheet is historically large.



Source: Federal Reserve Board, Haver Analytics

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# The FOMC's decision

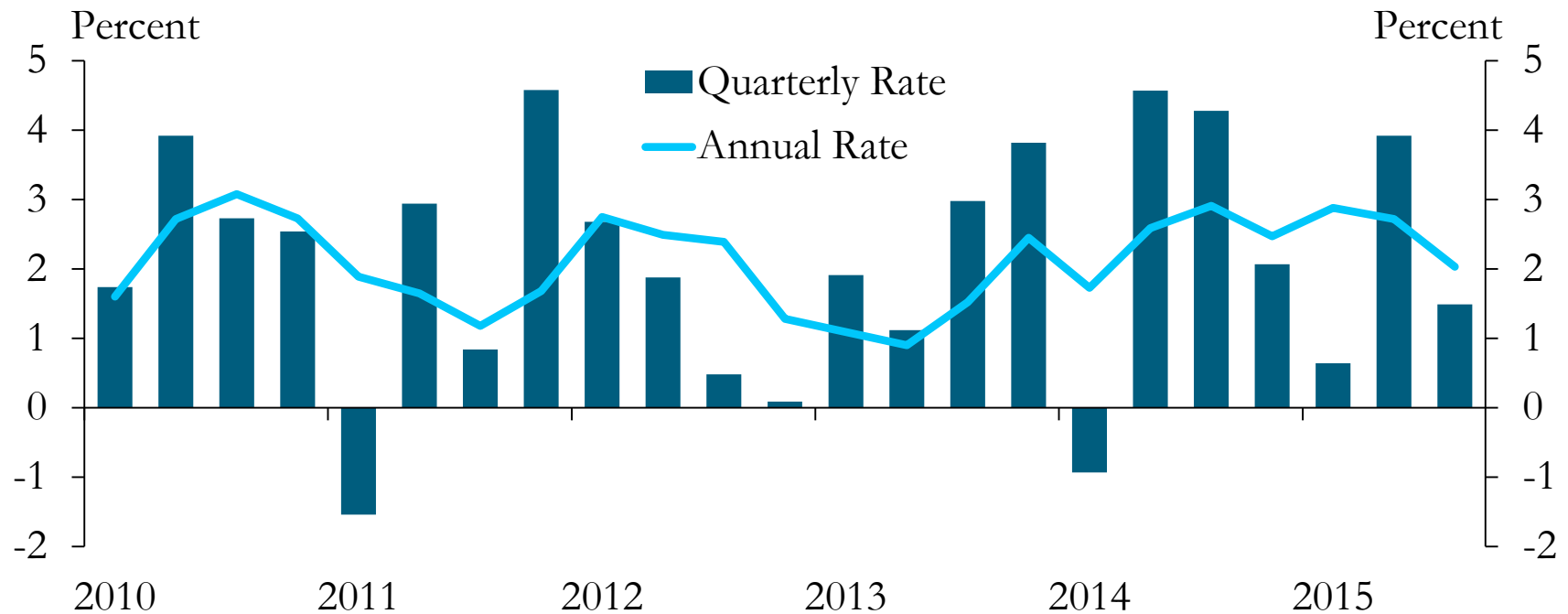
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- No clear signs yet of an overheating economy, but monetary policy acts with “long and variable lags”
- Whether it will be appropriate...at its **next** meeting
  - Assess progress—both real and expected—toward its objectives
  - **Some further improvement** in the labor market
  - **Is reasonably confident** that inflation will move back to its 2 percent objective over the medium term



“Economic activity has been expanding at a moderate pace.”

## U.S. Real GDP Growth



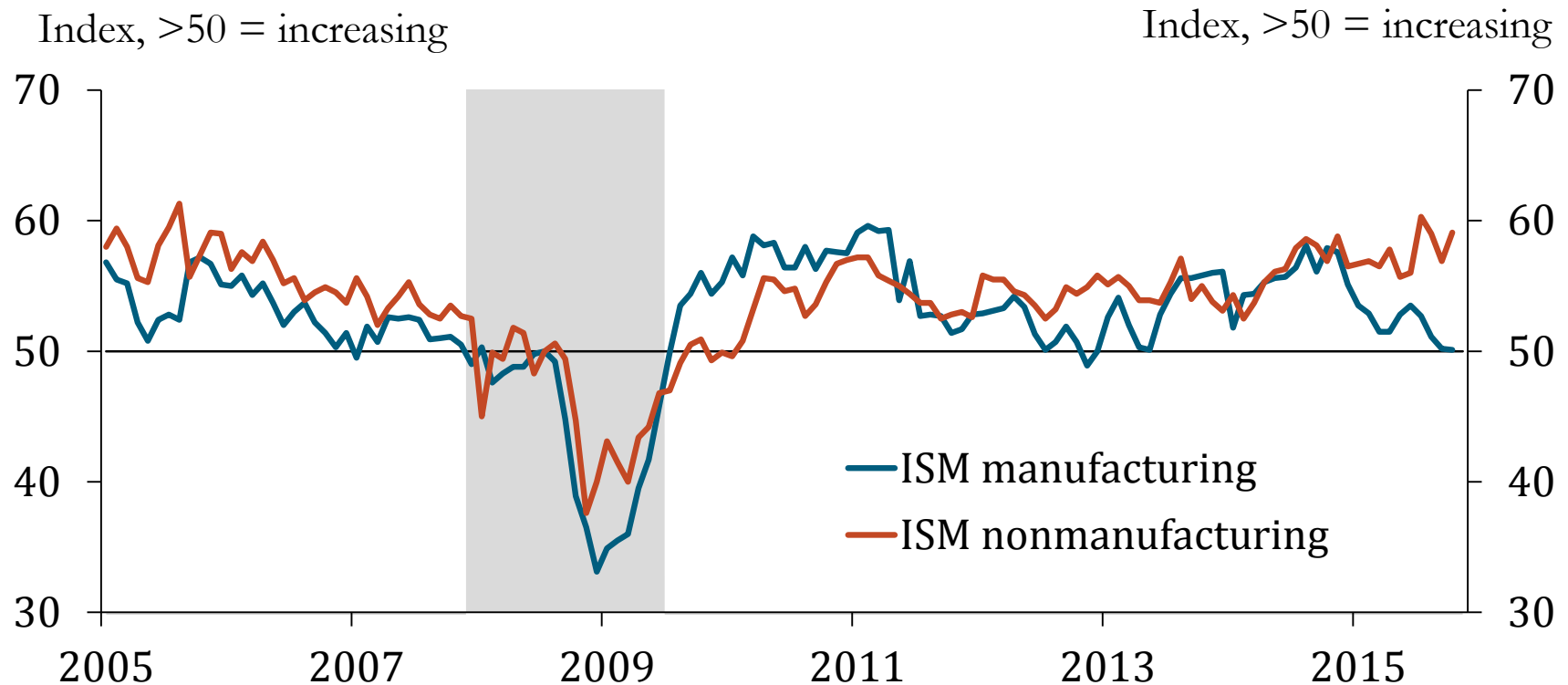
Source: Bureau of Economic Analysis, Haver Analytics

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# The industrial sector has diverged from the rest of the economy.

## U.S. Manufacturing and Nonmanufacturing Indexes



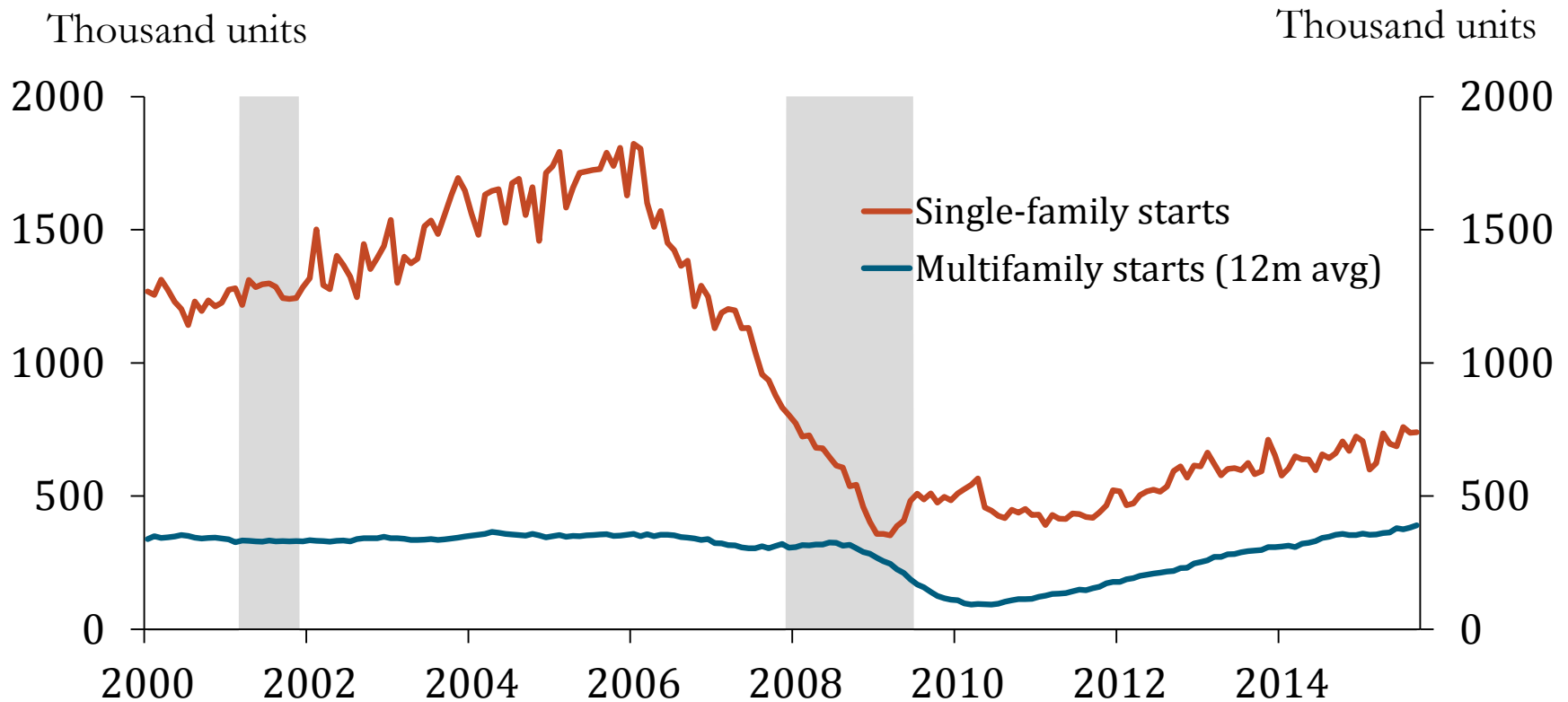
Source: Bureau of Economic Analysis, Haver Analytics

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The housing sector has continued to show improvements.

## U.S. Housing Starts



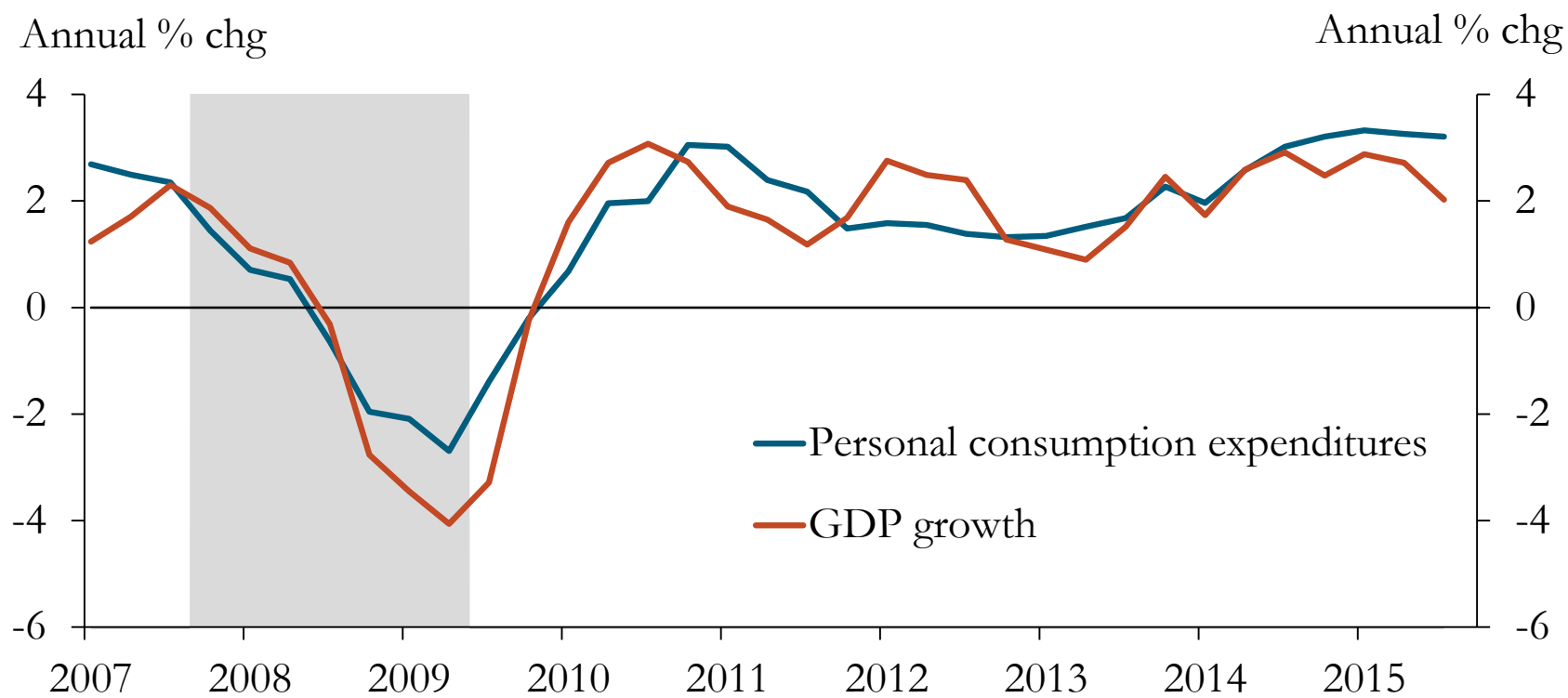
Source: U.S. Census Bureau, Haver Analytics

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And household spending has been rising steadily.

## U.S. GDP and Personal Consumption Growth



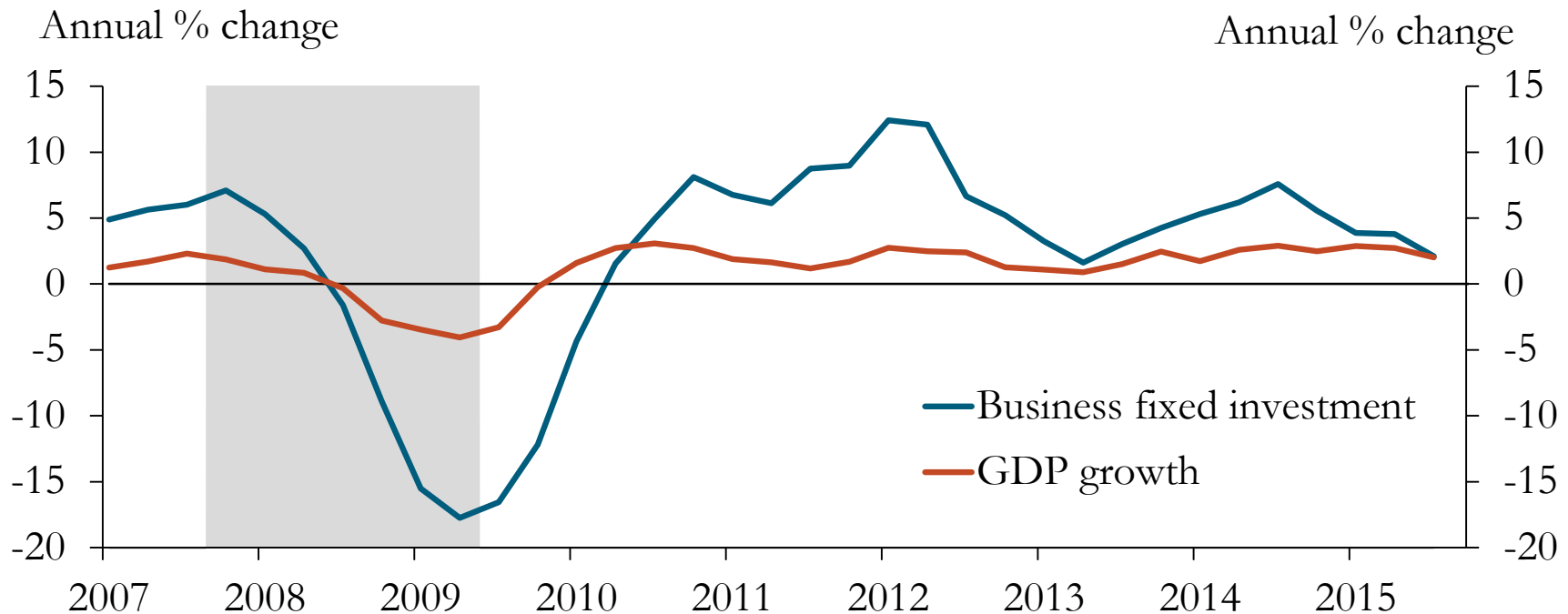
Source: Bureau of Economic Analysis, Haver Analytics

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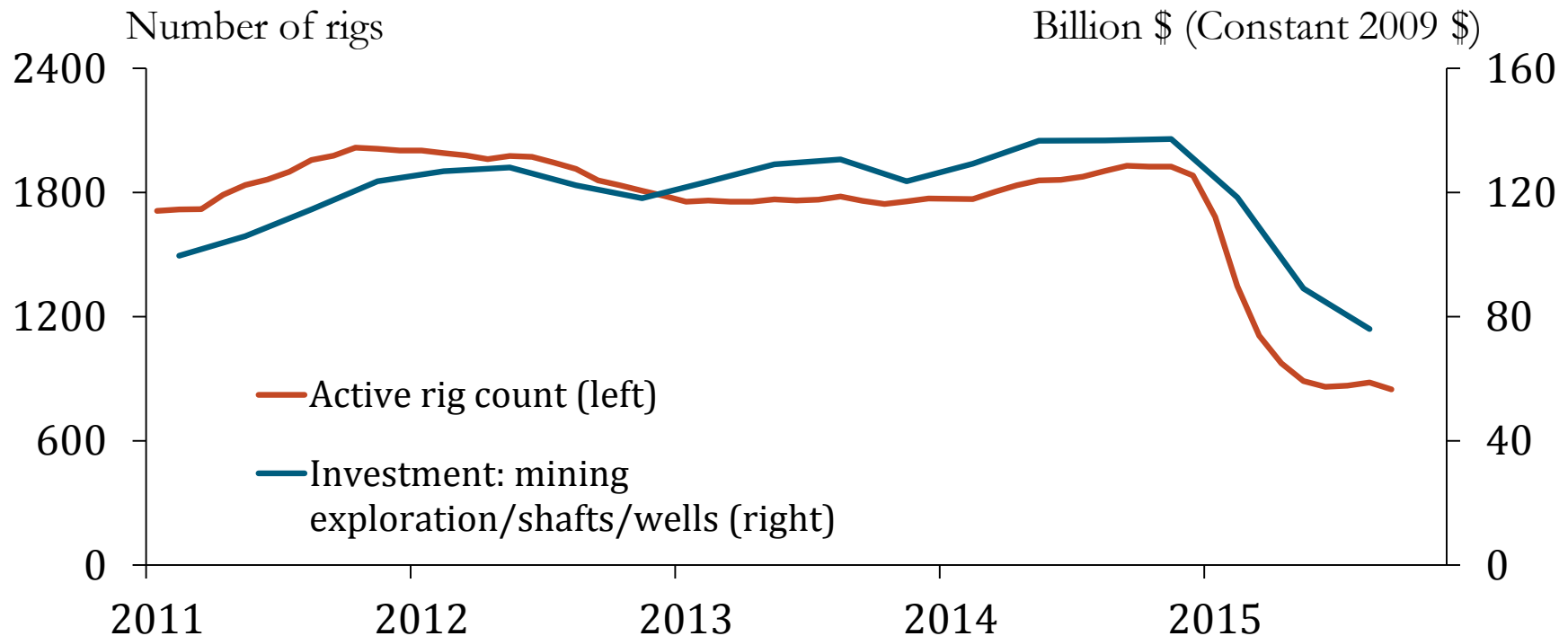
Business investment also generally has been  
“increasing at solid rates.”

## U.S. GDP and Business Fixed Investment



There has been a significant drag, however, from energy investment.

## U.S. Rig Count and Energy Investment



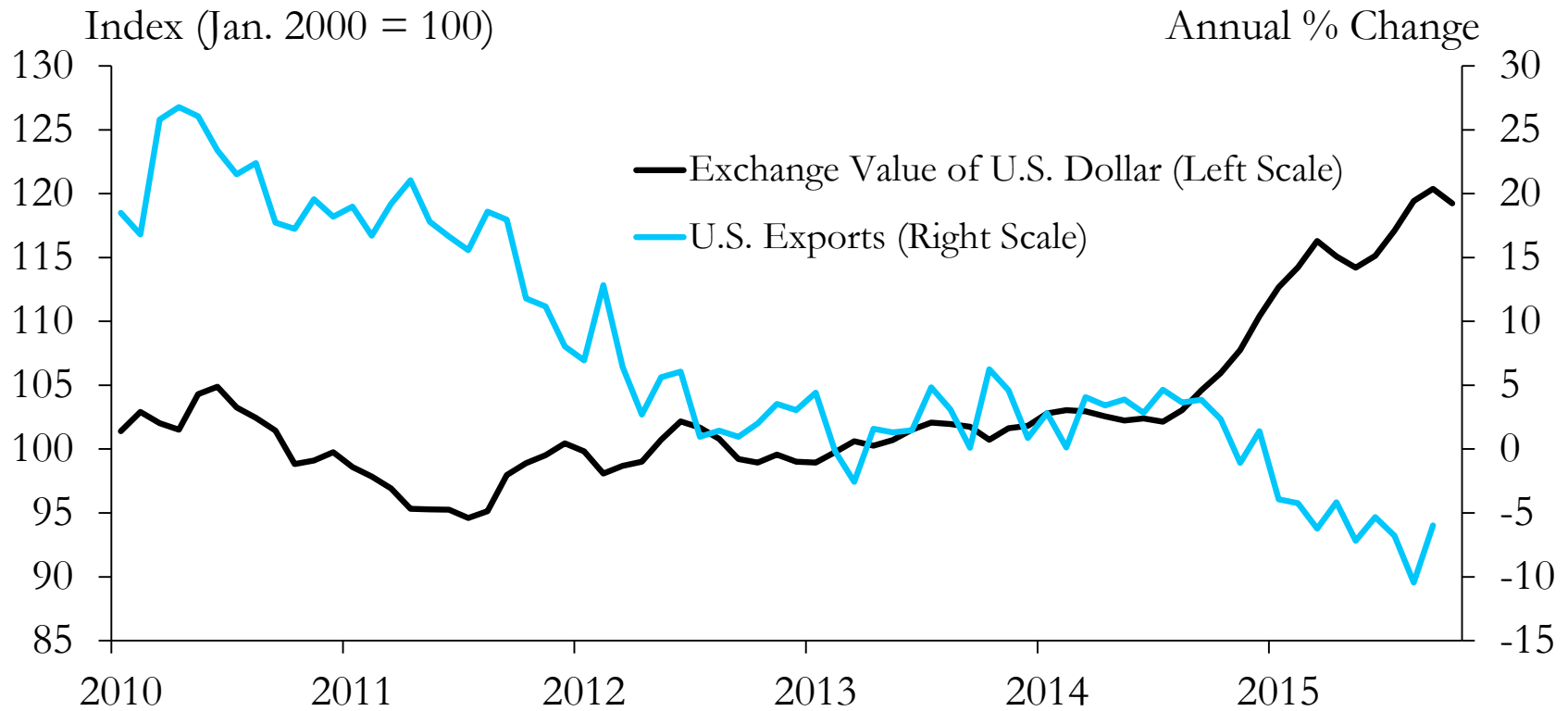
Source: Bureau of Economic Analysis, Baker Hughes, Haver Analytics

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Exports have been soft,  
due in part to a stronger dollar.

## Value of U.S. Dollar and U.S. Exports



Source: Federal Reserve Board, WiserTrade, and Haver Analytics

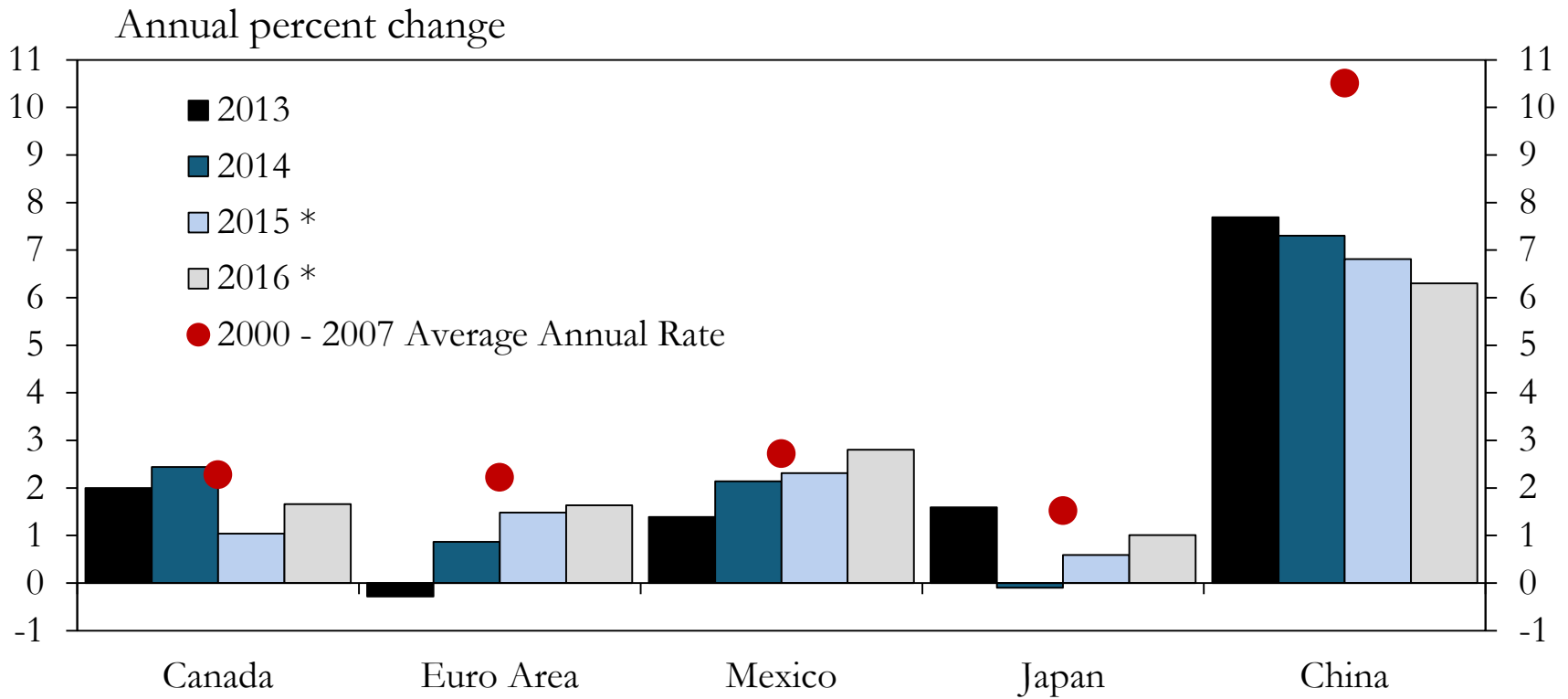
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# The stronger dollar reflects relatively weak global growth in 2014 and 2015.

## Global GDP Growth



Source: IMF

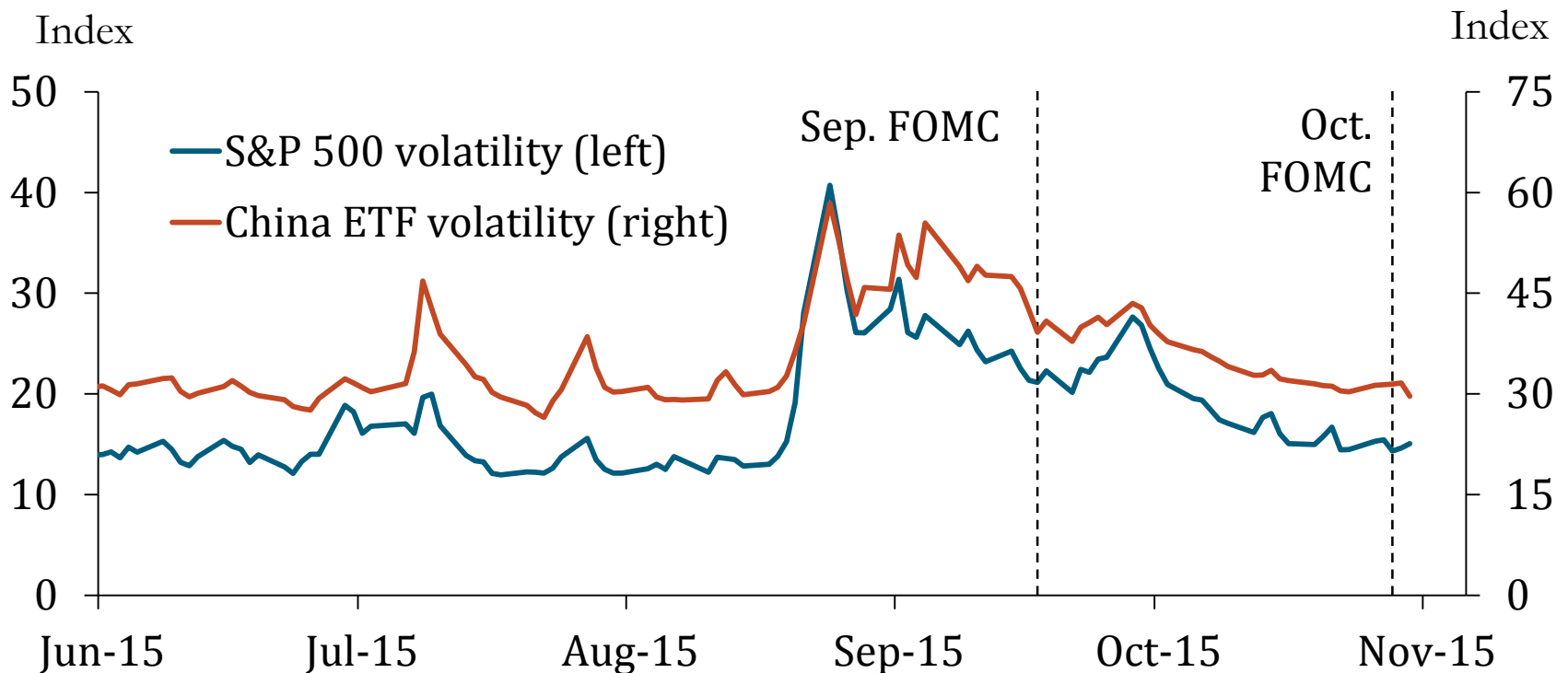
\* Forecast

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The FOMC has continued to monitor global economic and financial developments.

## Financial Market Volatility



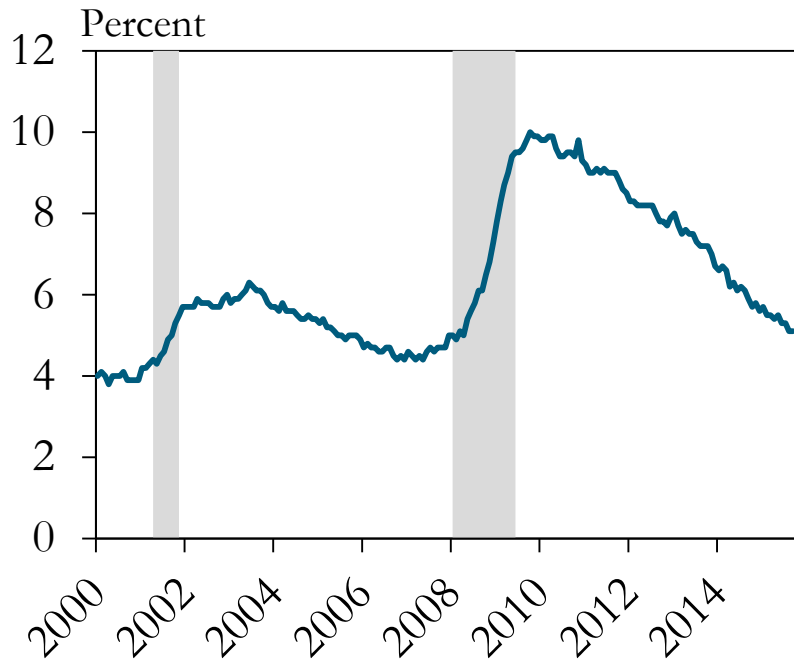
Source: Chicago Board Options Exchange, Thomson Reuters

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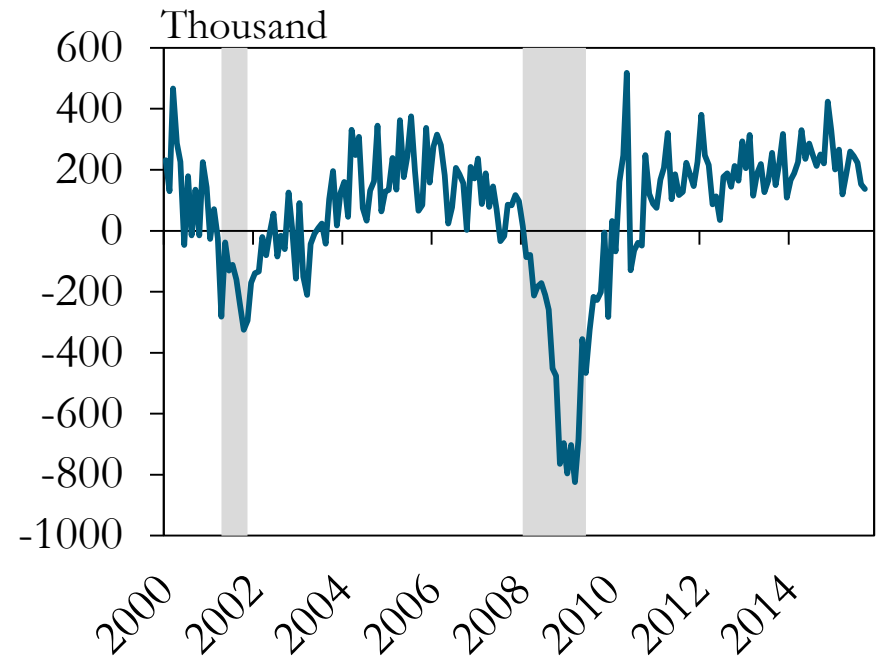
In labor markets, the U.S. unemployment rate has steadily declined alongside moderate job growth.

### U.S. Unemployment Rate



Source: Bureau of Labor Statistics, Haver Analytics

### U.S. Monthly Job Growth

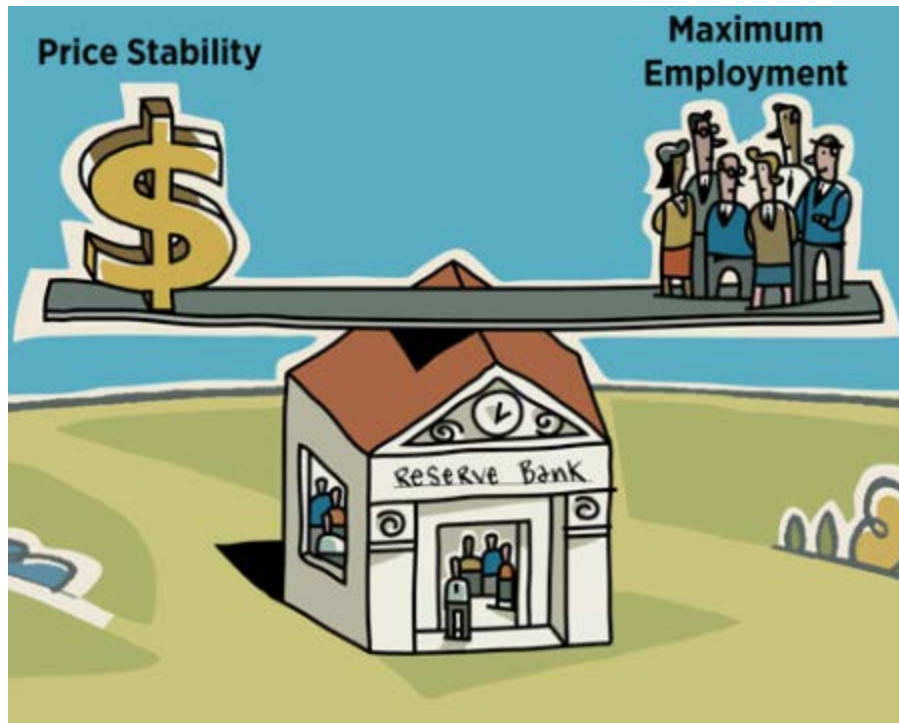


Source: Bureau of Labor Statistics, Haver Analytics



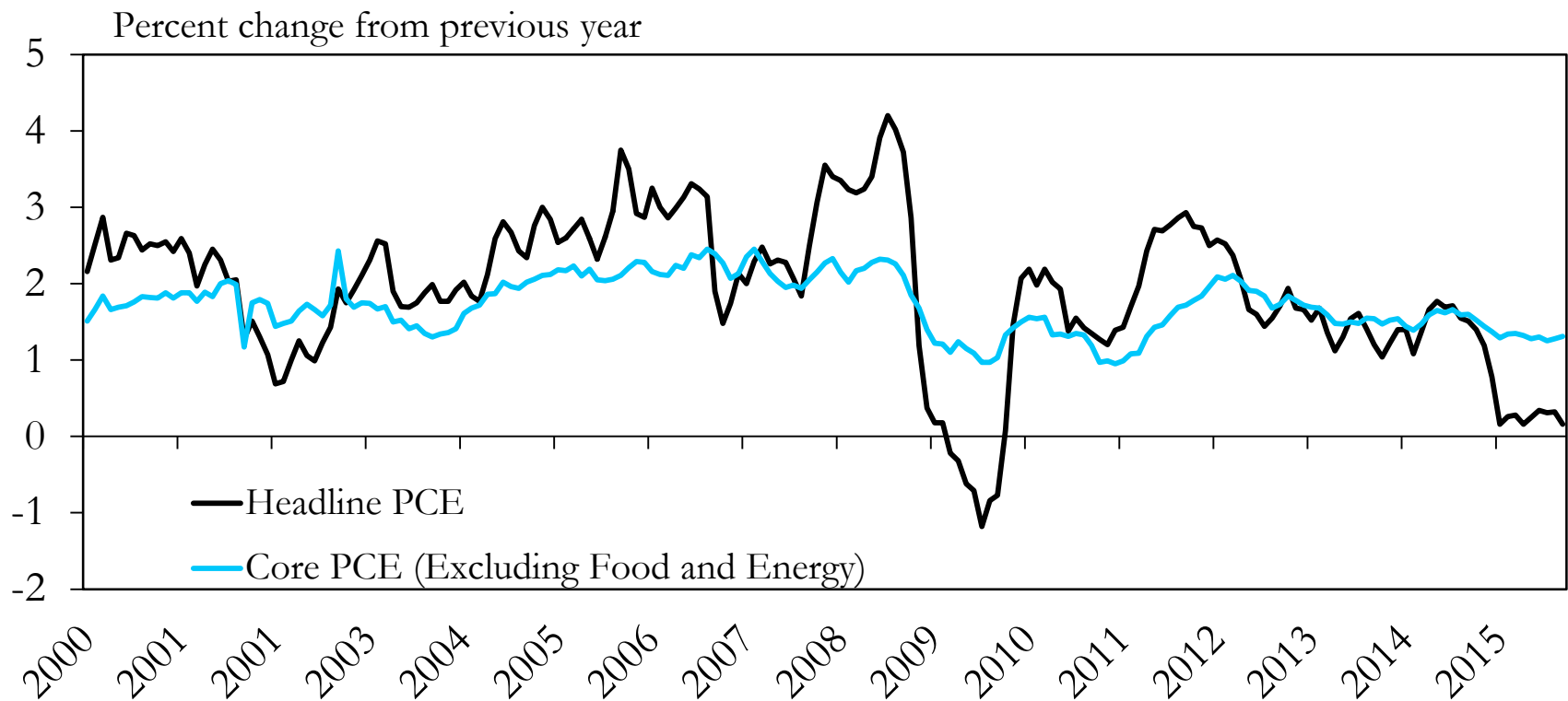
Economic growth and price stability are part of the Fed's “dual mandate.”

The Fed's dual mandate guides policy decisions



And on the other side of the “dual mandate,” inflation has been running below the Fed’s 2% target.

## Personal Consumption Expenditures



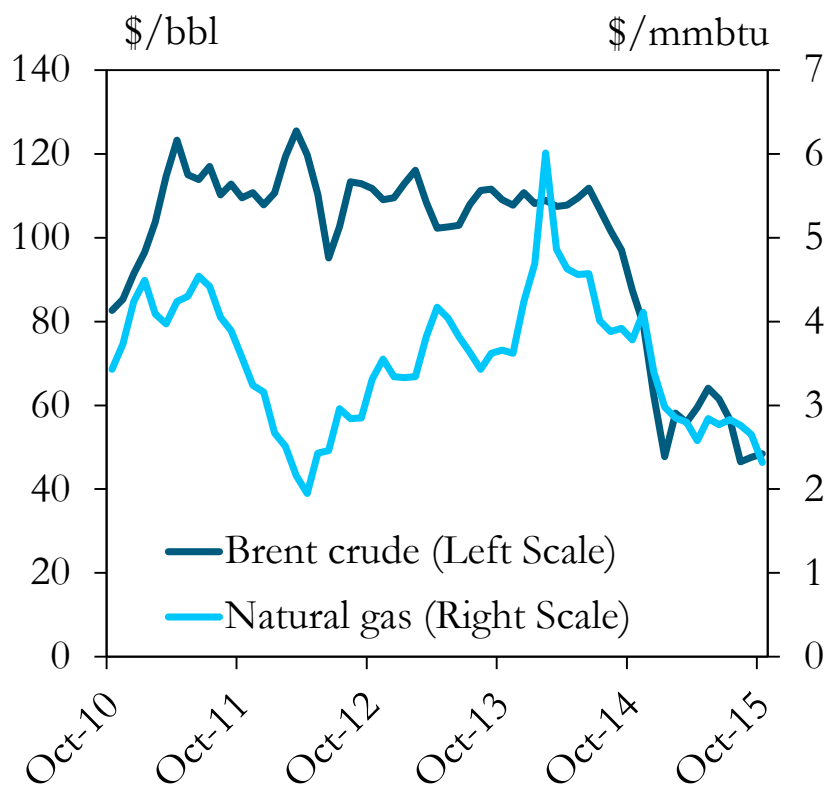
Source: Bureau of Economic Analysis, Haver Analytics

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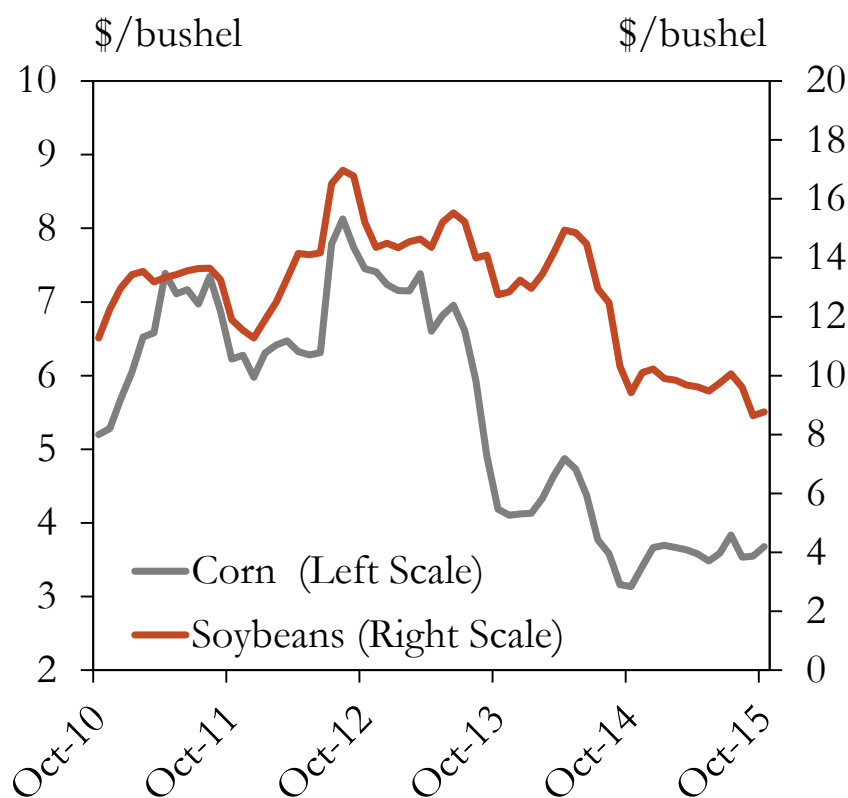


Overall inflation has been low partly because of lower commodity prices.

## Oil and Natural Gas Prices



## Corn and Soybean Prices



Sources: The *Wall Street Journal*, Haver Analytics

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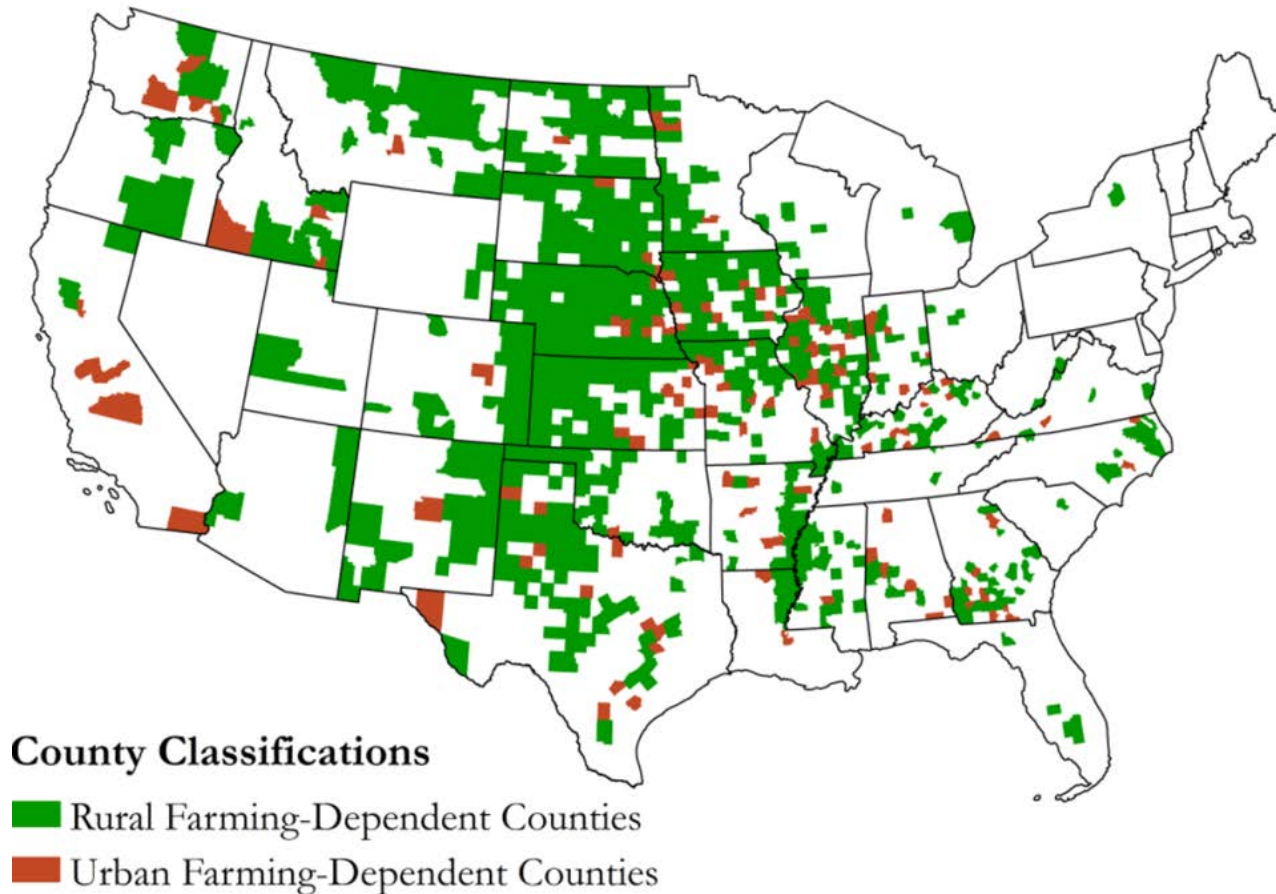
# Are lower commodity prices a supply or demand story?

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## And what is the connection to monetary policy?

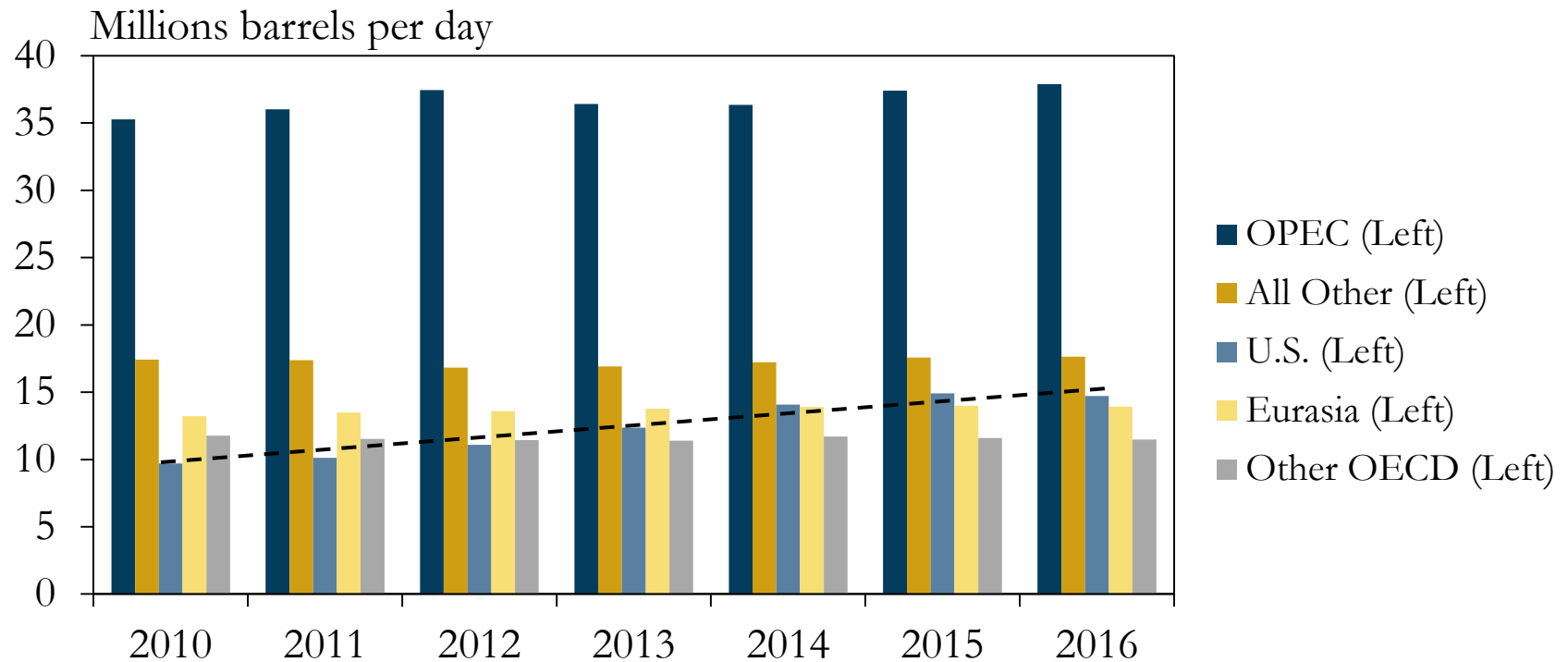
The central U.S. is relatively  
“commodity dependent.”





Energy prices have been significantly affected by increased U.S. production.

## Global Production of Petroleum and Other Liquids



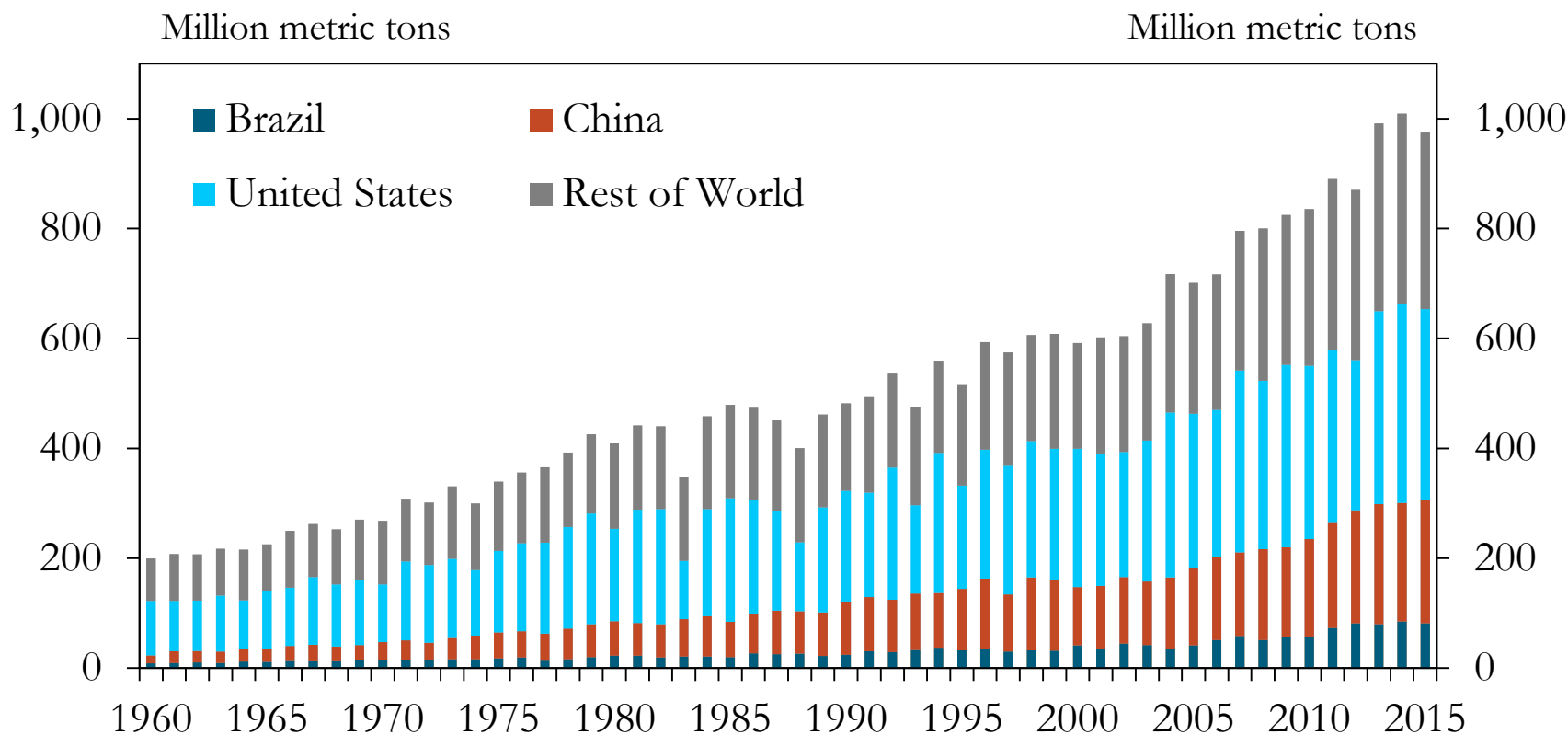
Source: Energy Information Administration

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In agriculture, production has also increased dramatically in the past decade.

## World Corn Production



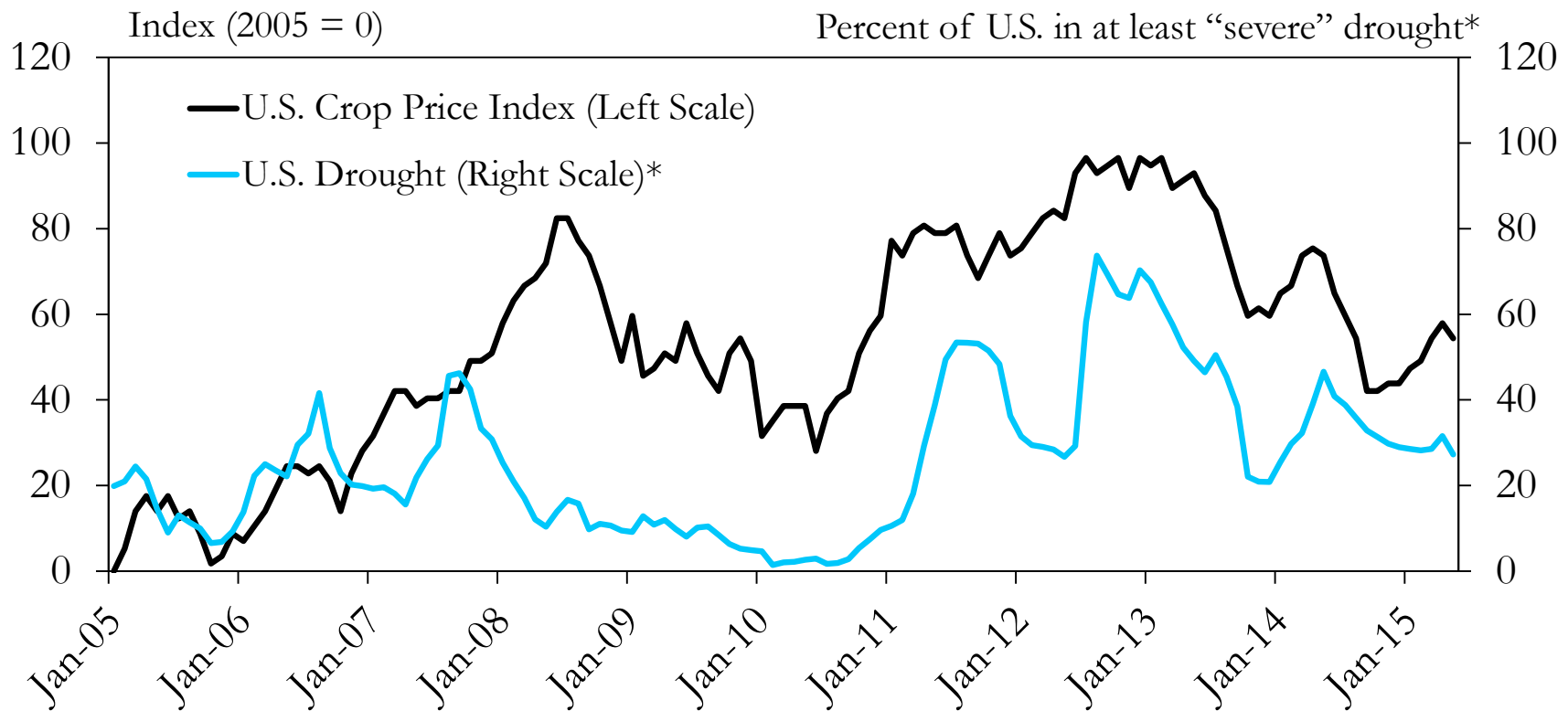
Source: USDA Foreign Agricultural Service

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In the short-term, supply disruptions can have significant impacts on crop prices.

## U.S. Crop Prices and Drought



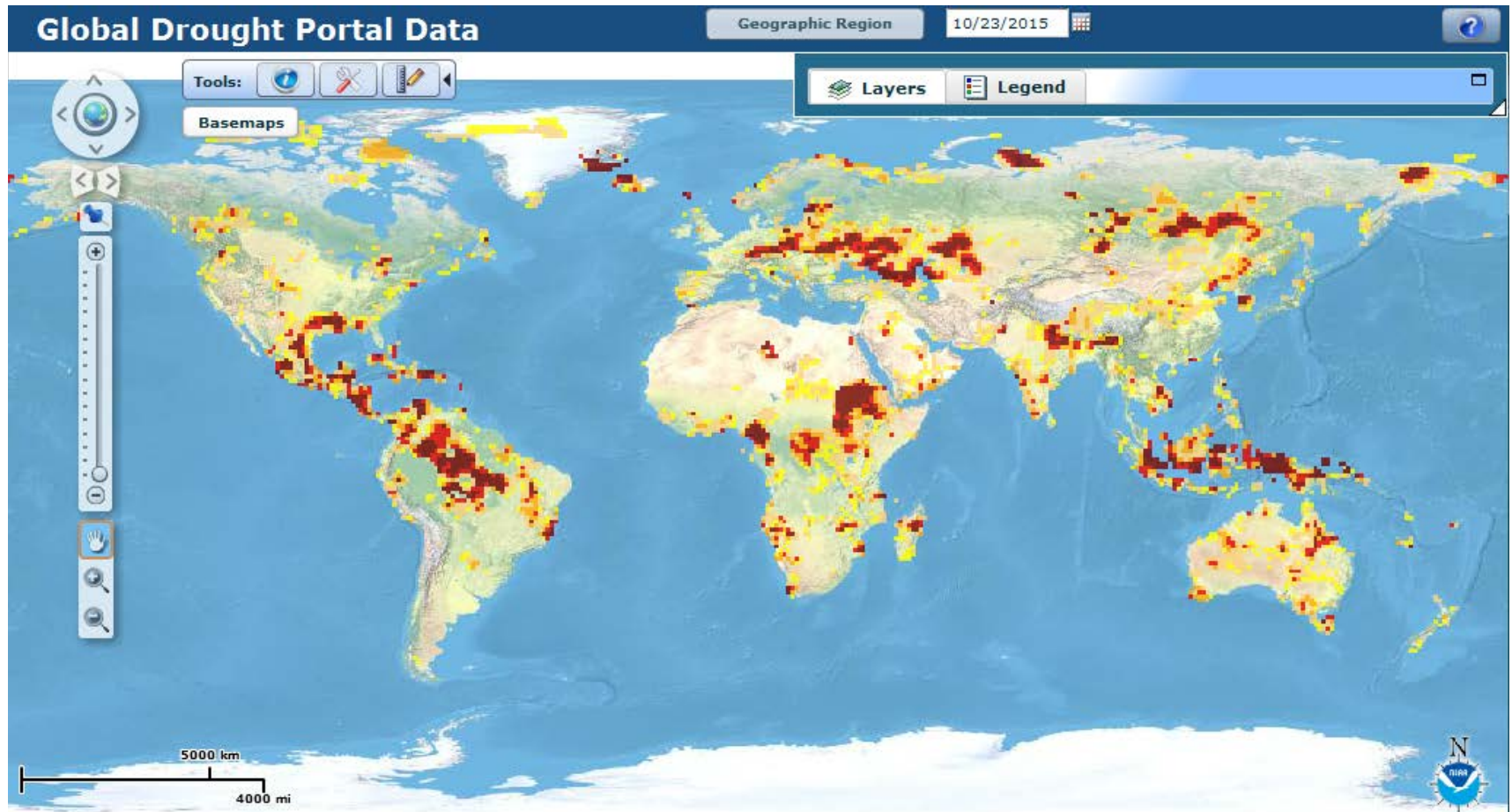
Source: USDA, University of Nebraska-Lincoln, and NOAA

\* Includes lower 48 states only.

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# Global weather patterns also affect U.S. crop prices.



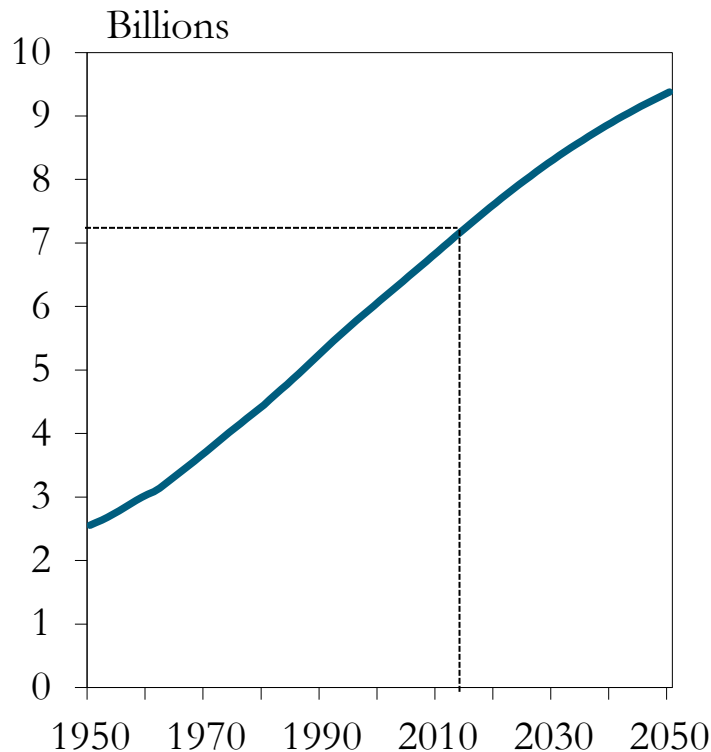
Source: NOAA, Global Drought Information System

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In the long-term, increases in global population and incomes are often highlighted as growth factors.

## World Population Projection



Source: U.S. Census Bureau, International Database

## Size of the Middle Class

Millions of People and Global Share

	2009		2030	
North America	338	18%	322	7%
Europe	664	36%	680	14%
Central and South America	181	10%	313	6%
Asia Pacific	525	28%	3,228	66%
Sub-Saharan Africa	32	2%	107	2%
Middle East and North Africa	105	6%	234	5%

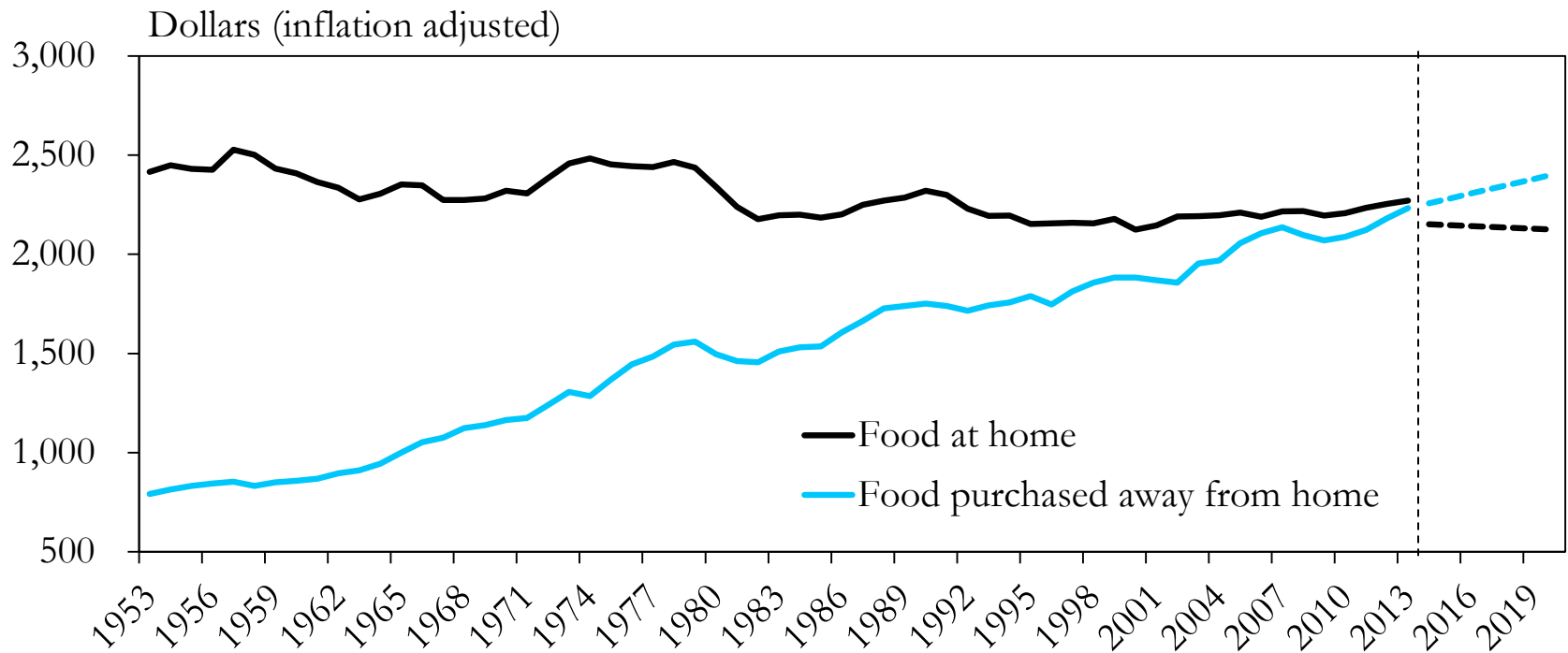
Source: World Bank

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Changing consumer food preferences are also having an effect on agricultural industries.

## U.S. Per Capita Food Expenditures

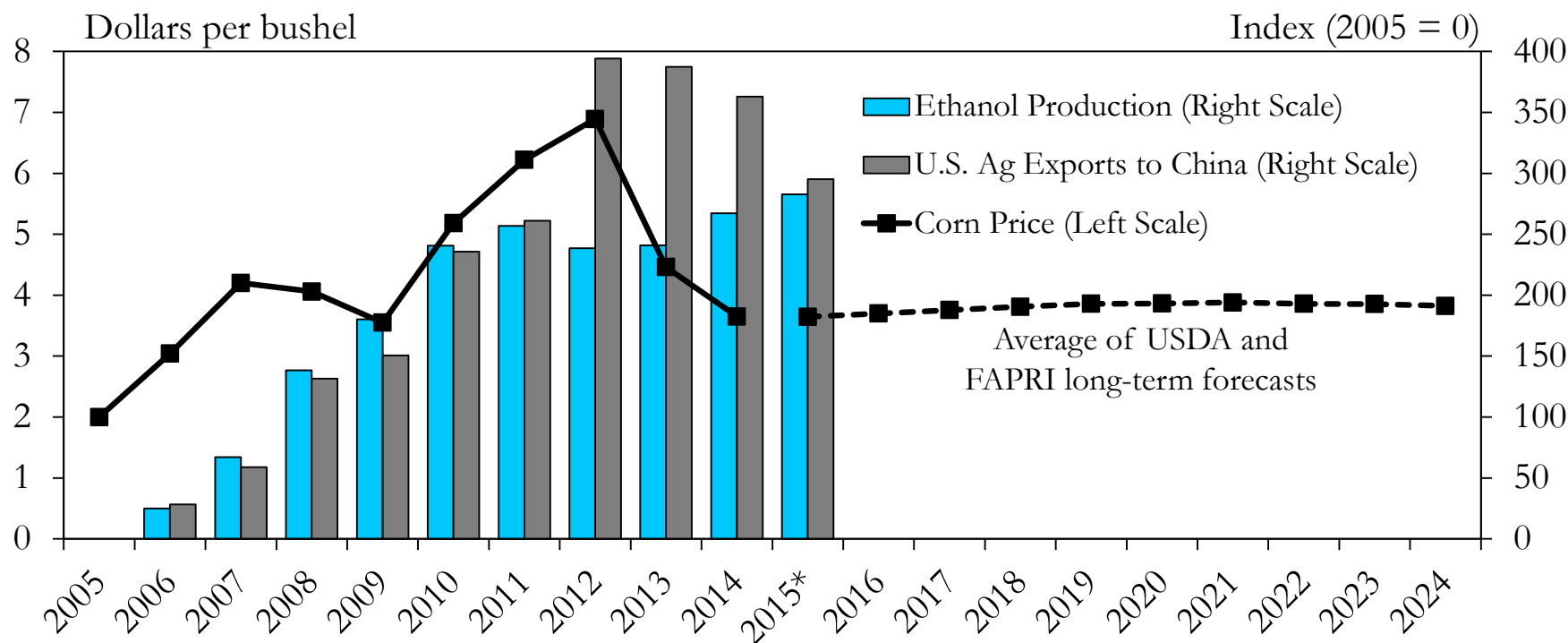


Source: USDA, Economic Research Service



The intersection of supply and demand, however, suggests ag commodity prices could remain low.

## U.S. Corn Prices and Key Demand Factors



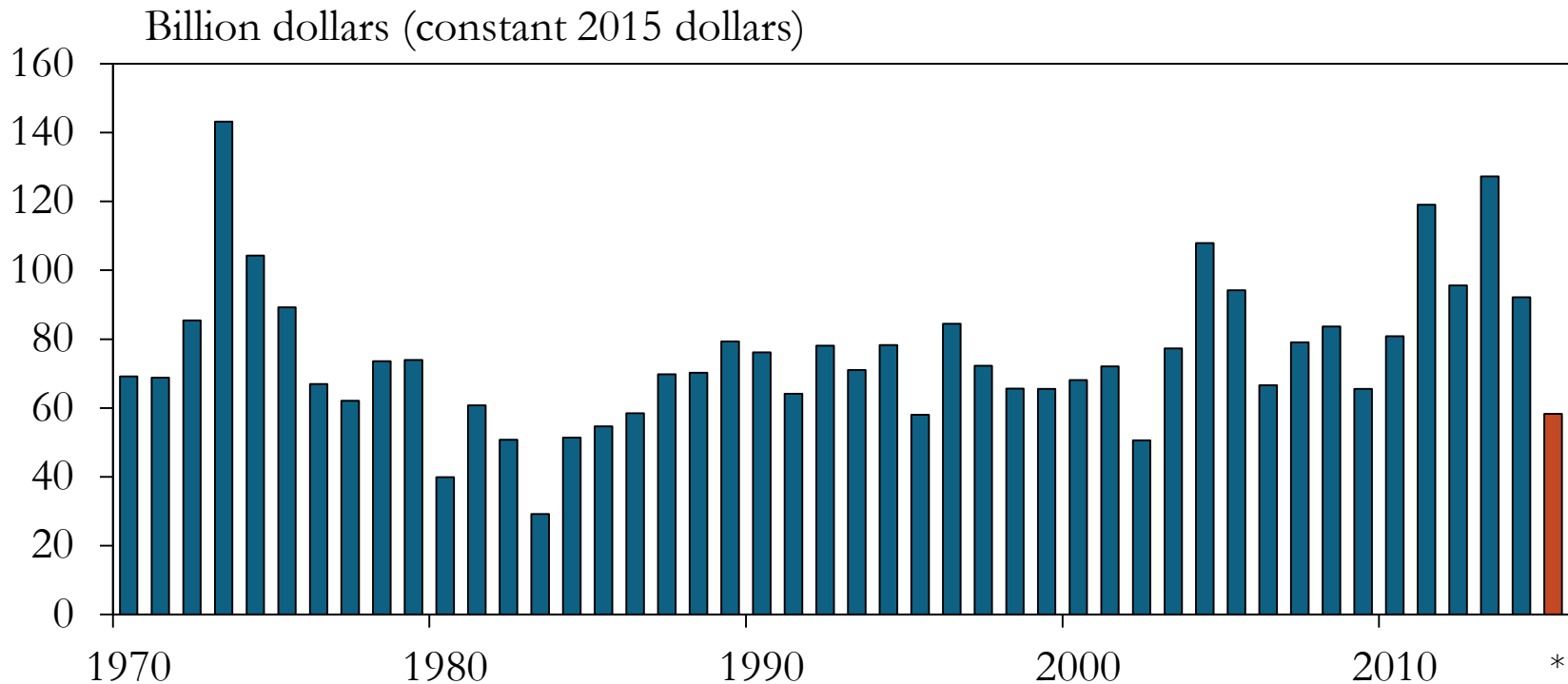
Source: USDA, FAPRI (Food and Agricultural Policy Research Institute – Univ. of Missouri, and Renewable Fuels Association

\* 2015 ethanol production calculated based on data through September 11<sup>th</sup>. Ag exports to China calculated from data through July 2015.



# The adjustment in agricultural commodity prices is being felt in rural America.

## U.S. Real Net Farm Income



Source: USDA

\* Forecast for 2015.

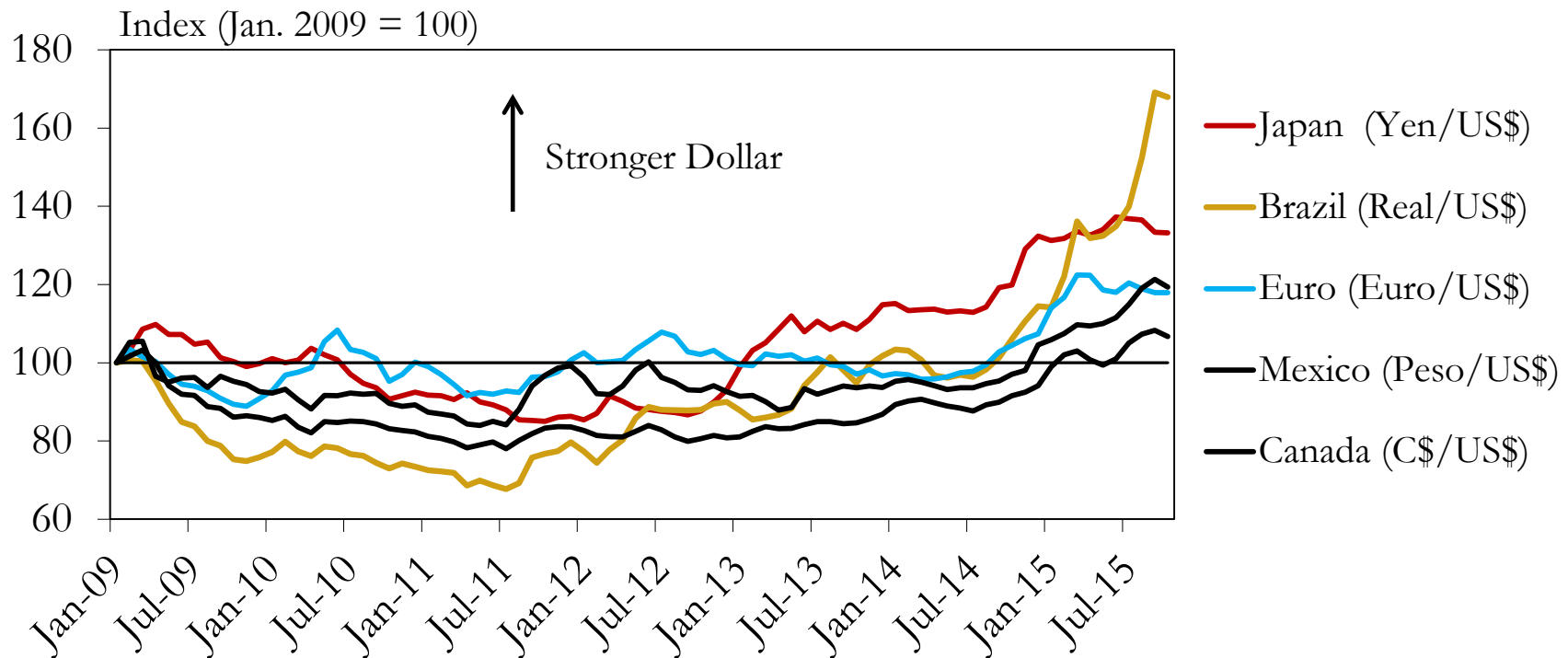
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Macroeconomic factors, such as exchange rates and interest rates, will be important.

## Currency Exchange Rates

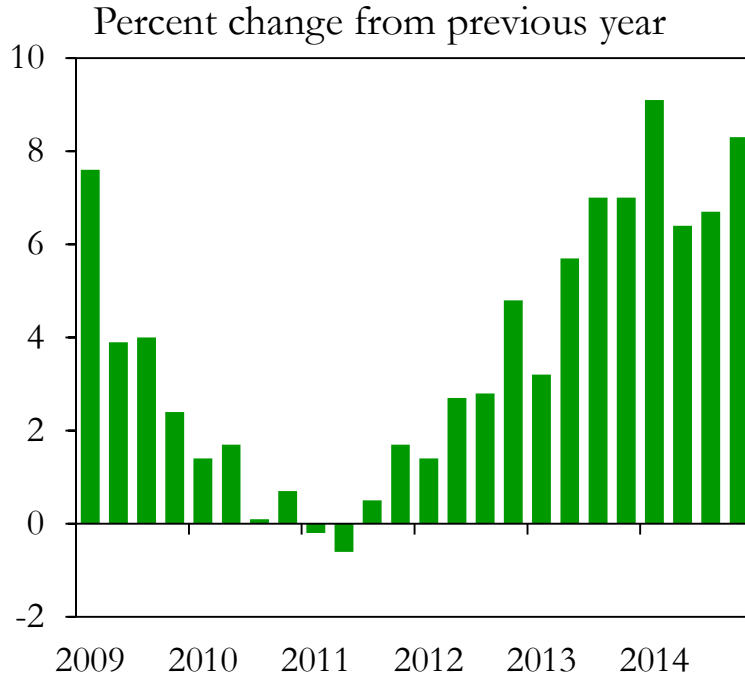


Sources: FRB, IMF, Haver Analytics



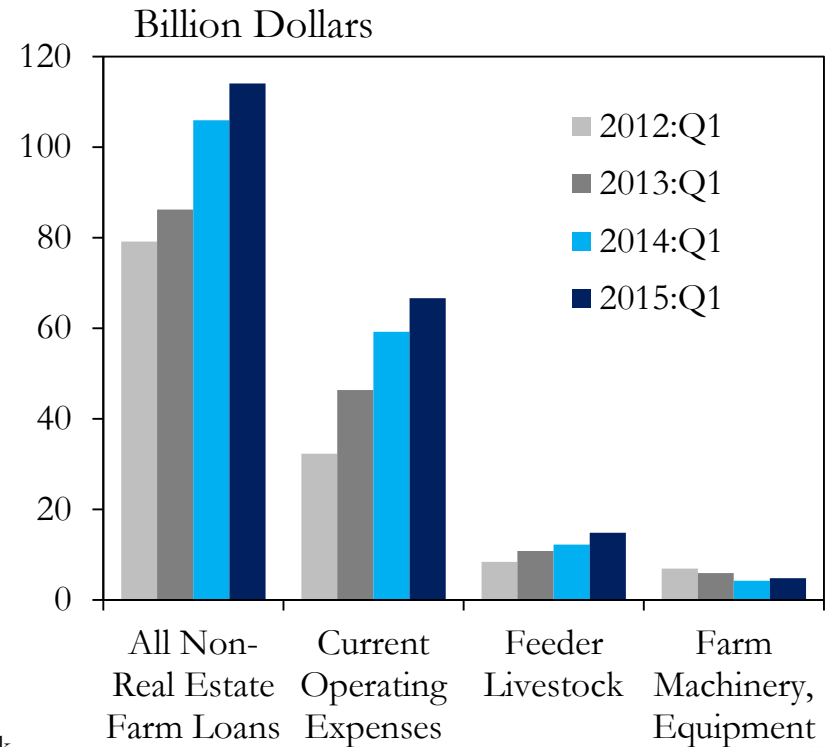
# Low interest rates have coincided with a period of rising debt in the U.S. farm sector.

## U.S. Farm Debt Outstanding at Commercial Banks



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

## U.S. Non-Real Estate Farm Loan Volumes

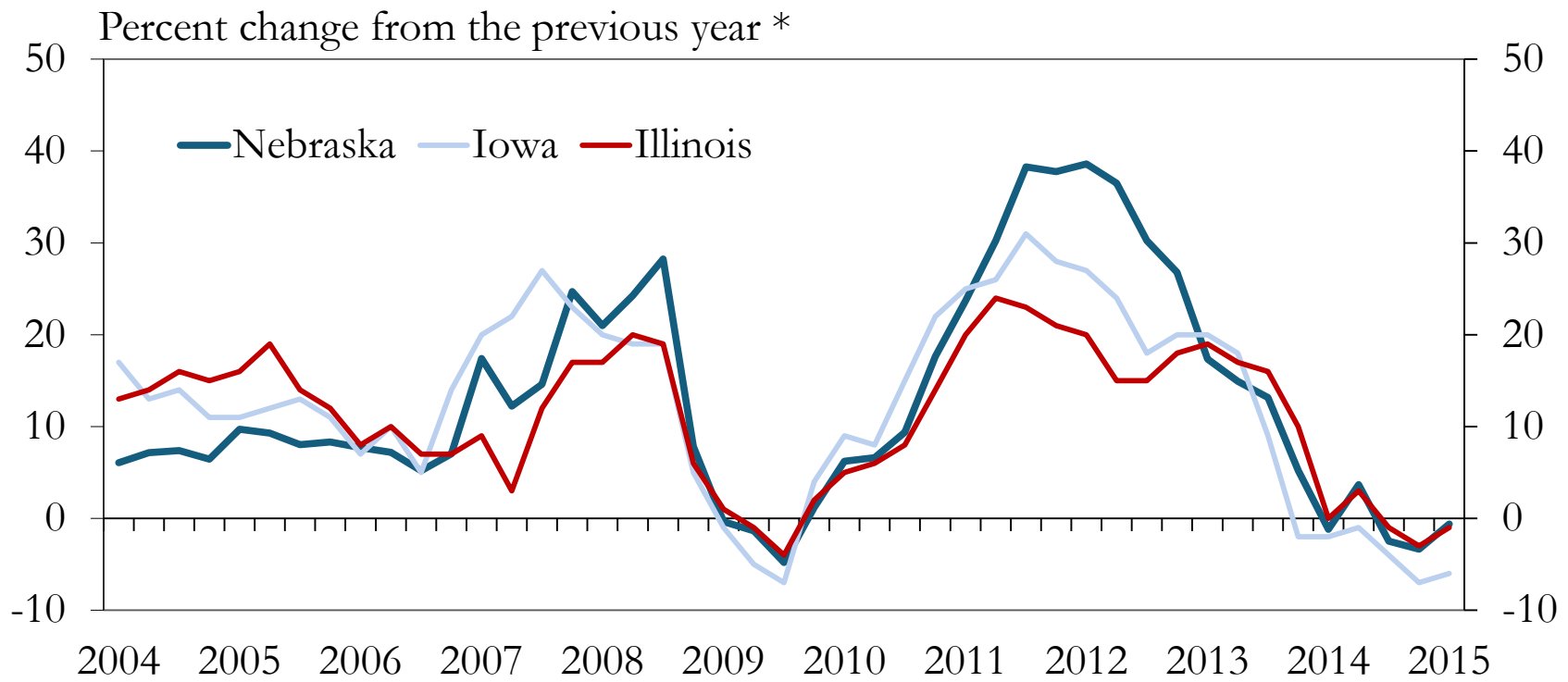


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The outlook for farmland values, often used as collateral for other loans, has weakened.

## Nonirrigated Farmland Values - Annual Gains



\*Percent changes are calculated using responses only from those banks reporting in both the past and the current quarter.

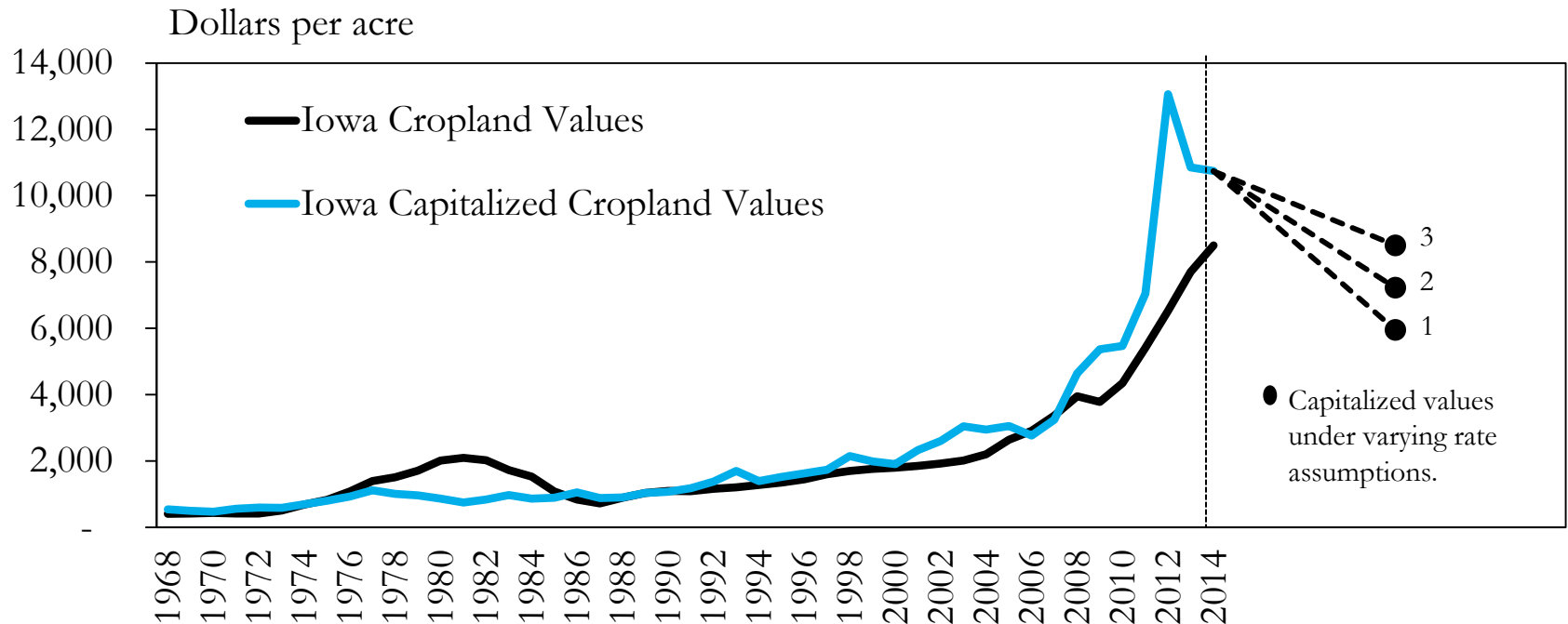
Source: Federal Reserve District Surveys

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# Higher interest rates could put further pressure on farmland values.

## Farmland Values and Potential Scenarios



Source: USDA, Federal Reserve Bank of St. Louis, and author's calculations.

Note: Iowa capitalized land values calculated as the Iowa cash rental rate divided by the 10-year Treasury Rate.

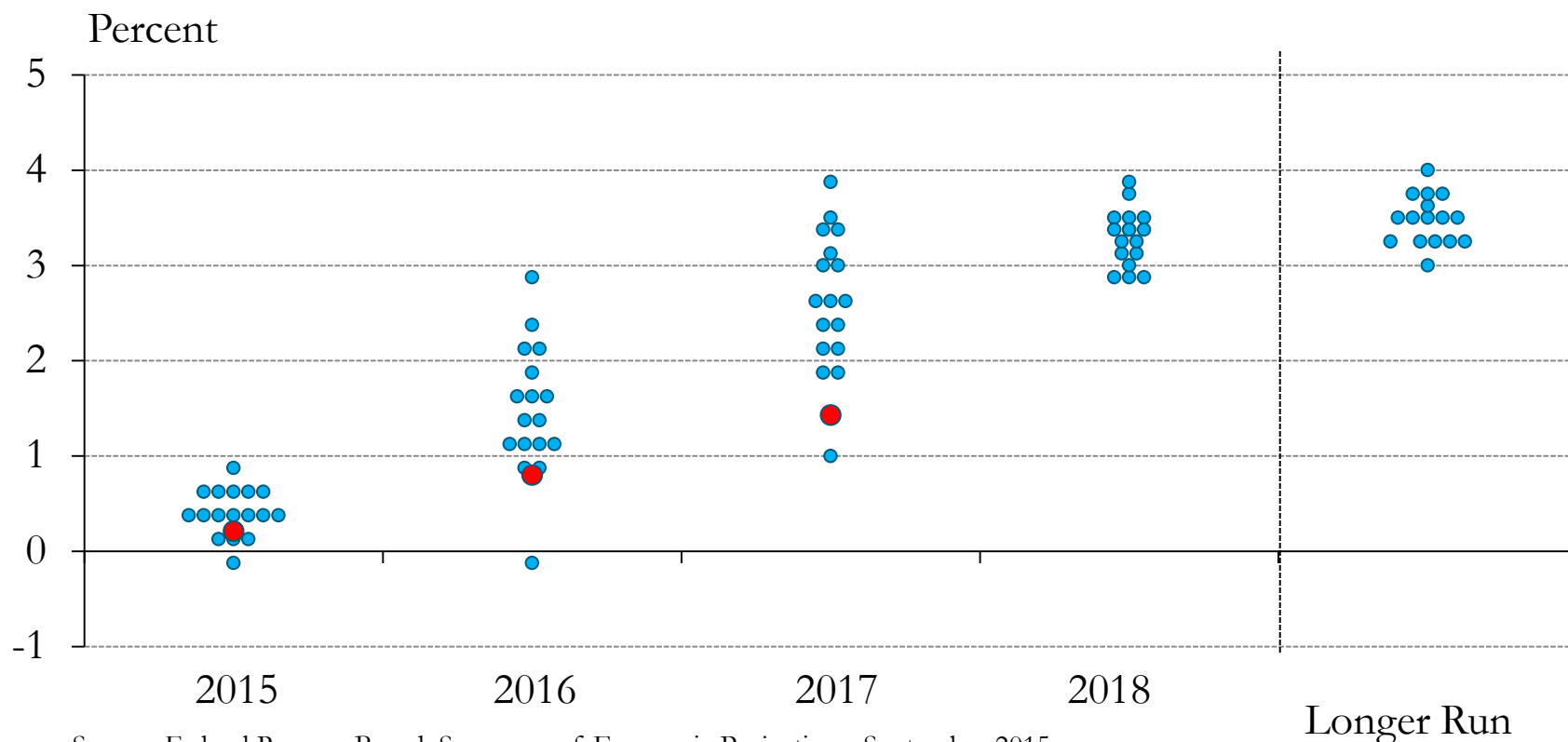
1: Capitalized = Actual. 2: Capitalized 15% less than actual. 3: Capitalized 30% less than actual.



# Interest rate expectations among FOMC participants, however, vary widely.

## Appropriate Pace of Policy Firming

Target Federal Funds Rate at Year-End



Source: Federal Reserve Board, Summary of Economic Projections, September 2015

Note: Blue dots indicate FOMC participants, red dots indicate futures market expectations.

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# Concluding Points

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- The Federal Reserve, and monetary policy, is “data dependent.”
  - U.S. economic data have been relatively positive, despite global uncertainty.
- Significant attention has focused on when interest rates will rise.
  - But, the path of interest rates also matters.
- In contrast to the U.S. economy, commodity-based industries are facing tighter conditions.
- Macroeconomic factors could be especially important for agriculture during the transition.



# Questions?

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