What Follows the Post-Crisis Environment?

The Banking and Economic Outlook

Presentation to the Twelfth Annual Community Bankers Symposium

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A look back at the dislocations that arose from the Great Financial Crisis

- The so-called TED spread between LIBOR and the yield on 3 month Treasury instruments rose from its pre-crisis norm of around 25 basis points and peaked at 464 basis points in September 2008.
- U.S. home prices declined by one-third on average between early 2006 and early 2009.
- More than 50 percent of the subprime mortgages made in 2006 defaulted by 2011, as did 40 percent of Alt-A mortgages.
- The share of prime mortgages past due 90 days or more rose from 0.3 percent in 2006 to 3.3 percent in 2009.
- Annual home mortgage foreclosures peaked in 2009 at 2.8 million, or 3.5 times their pre-crisis level.
- The U.S. economy lost 8.8 million jobs during the 2008-09 recession.
- The physical production of steel in the U.S. declined by half in the six months following the bankruptcy of Lehman Brothers.
- U.S. real GDP declined by more than 4 percent during the recession – the most in any downturn since the 1930s.

A look back at the effects of the crisis on FDIC-insured institutions

- Noncurrent construction and development (C&D) loans held by FDIC-insured institutions rose from less than 1 percent of outstanding balances in 2006 to nearly 17 percent in 2010.

- Noncurrent residential mortgage loans rose from less than 1 percent of outstanding balances in 2006 to nearly 8 percent in 2010.

- FDIC-insured institutions charged off over $600 billion of bad loans between 2008 and 2011.

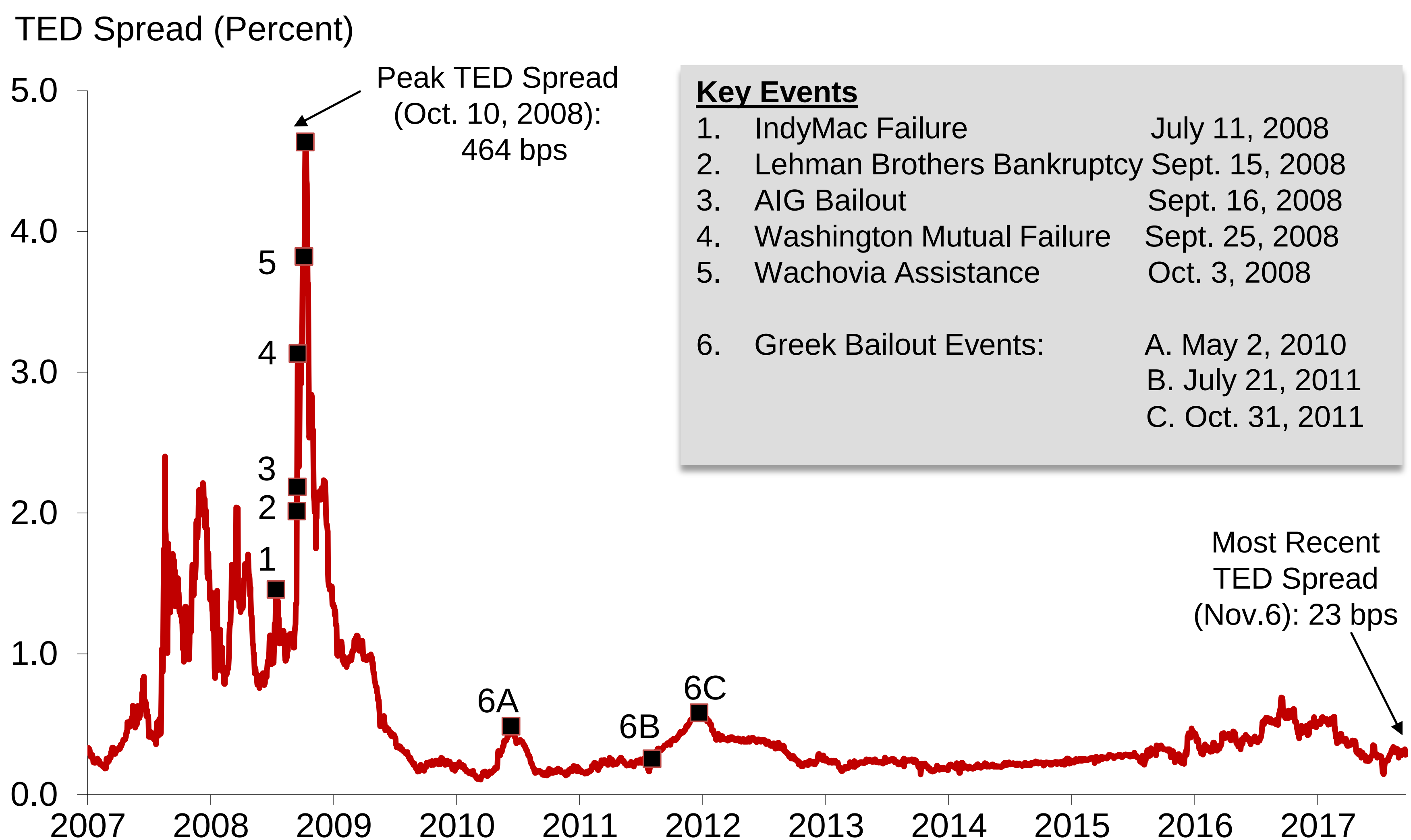
- Problem institutions rose from 50 in 2006 to 888 in 2011.

- 520 institutions failed between 2008 and 2016, imposing losses of $74 billion on the Deposit Insurance Fund.

- The FDIC Board invoked the systemic risk exception three times in 2008 and 2009 to avert the failure of three systemically-important banks.

- The systemic risk exception was also invoked in 2008 so that the FDIC could provide guarantees on limited amounts of senior unsecured debt and unlimited amounts of non-interest bearing transactions accounts under the Temporary Liquidity Guarantee Program (TLGP).

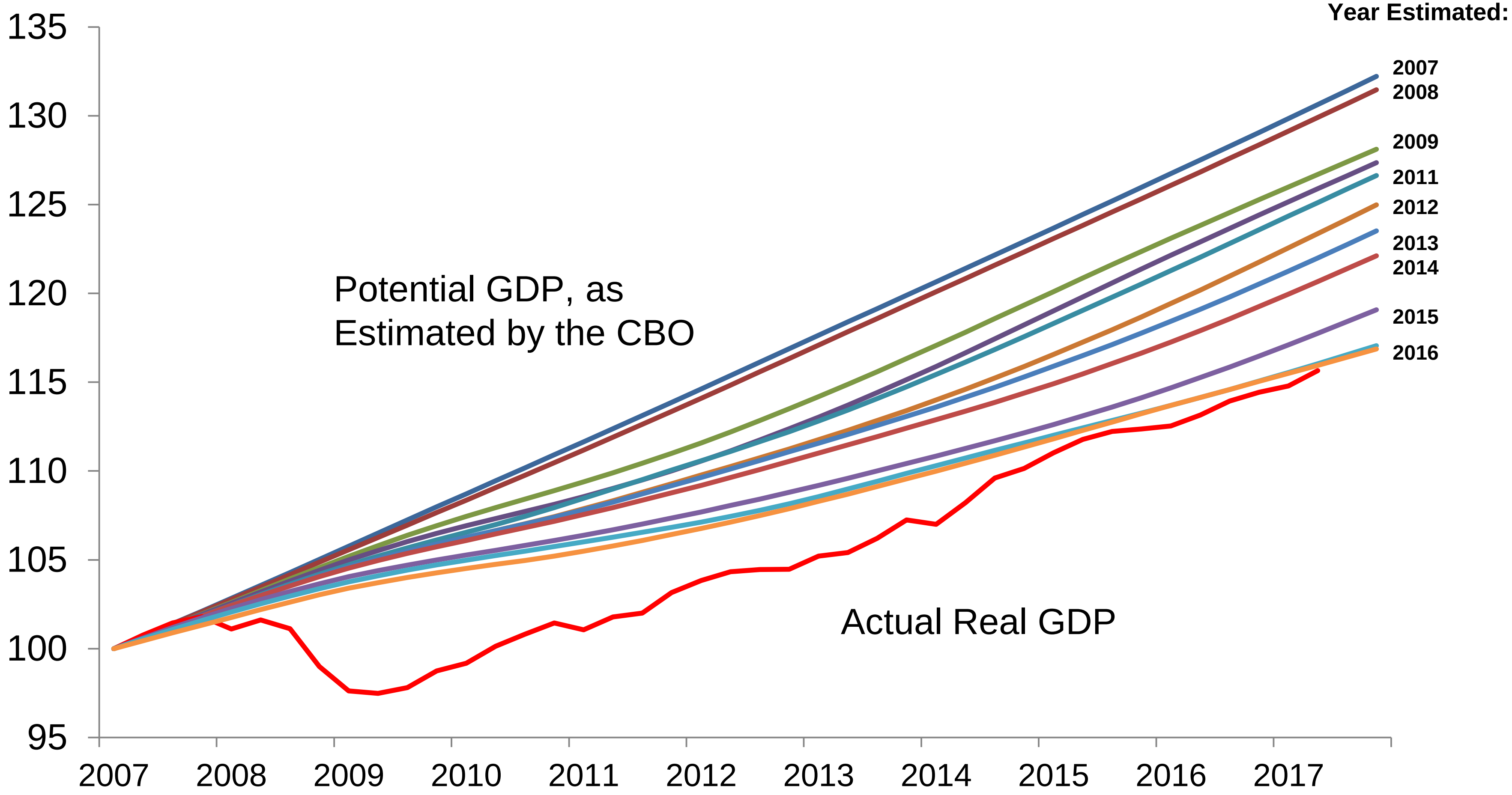
Interest rate spreads soared in late 2008 with increased financial market distress.



Source: Bloomberg.

U.S. real GDP is now roughly equal to potential, but only because potential GDP has been revised downward.

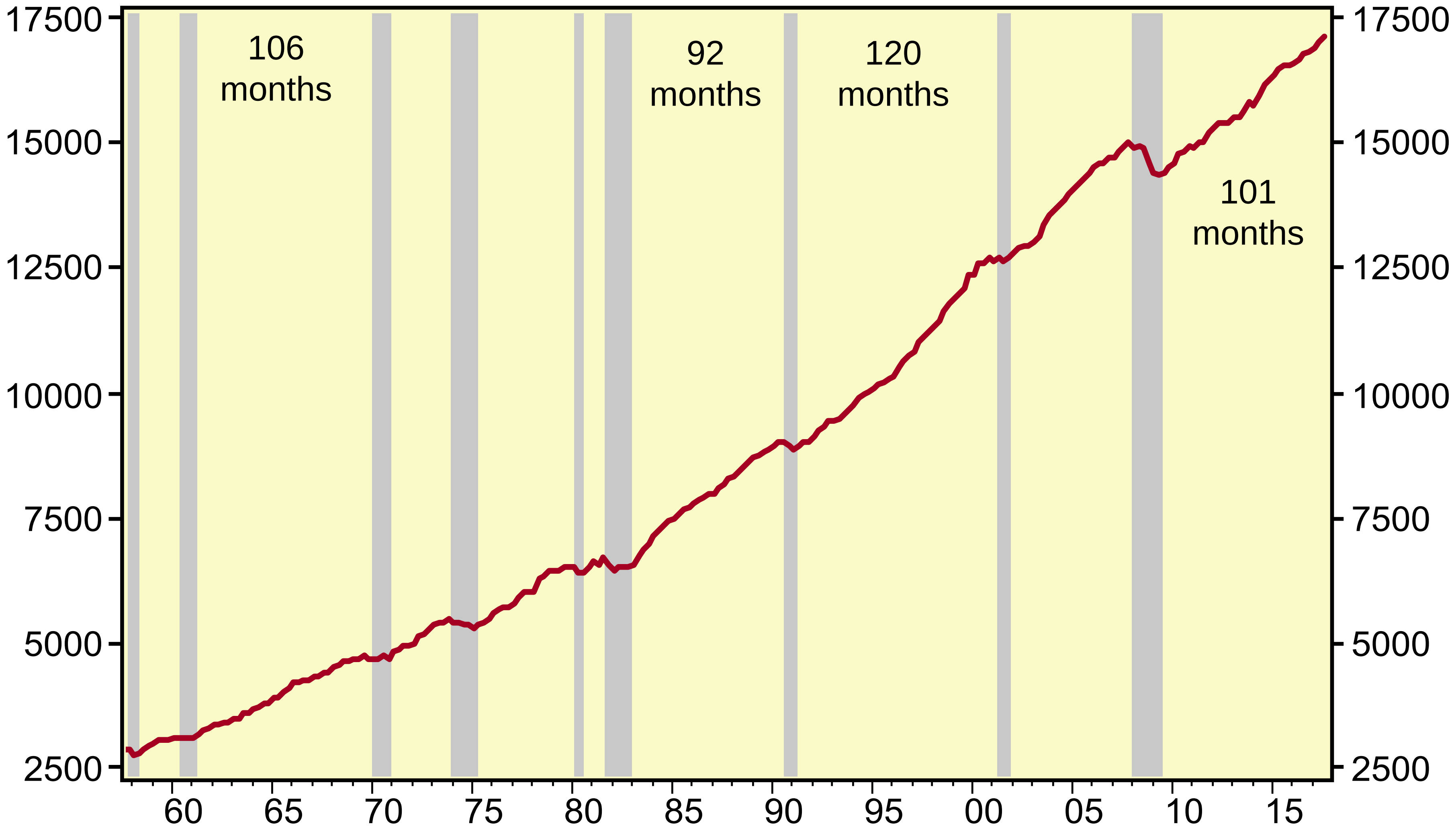
U.S. Real GDP, Indexed (2007 = 100)



Source: Congressional Budget Office, Bureau of Economic Analysis (Haver Analytics).

Real Gross Domestic Product

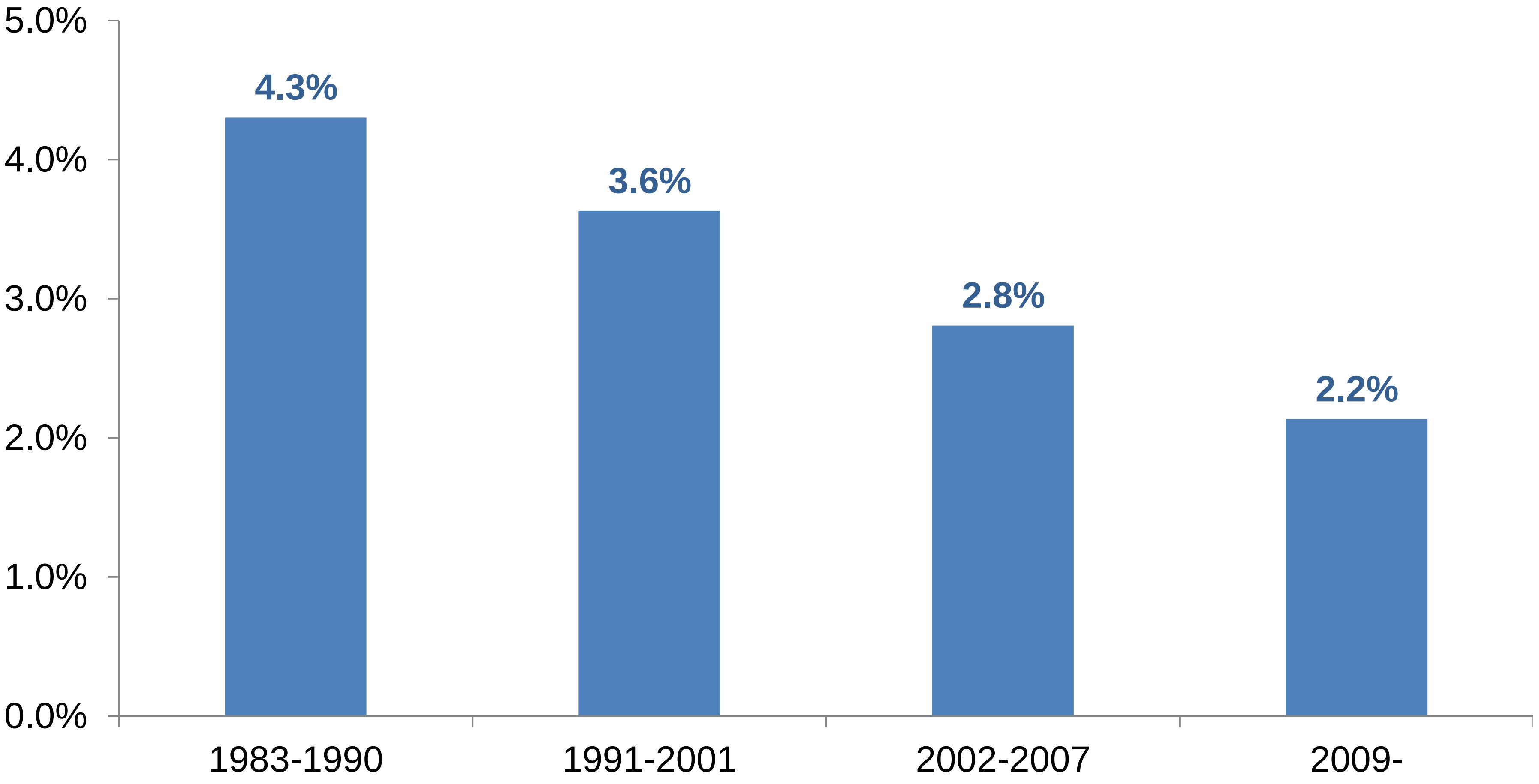
SAAR, Bil.Chn.2009$



Source: Bureau of Economic Analysis /Haver Analytics

U.S. economic growth during this expansion has been sub-par even by the standard of recent expansions.

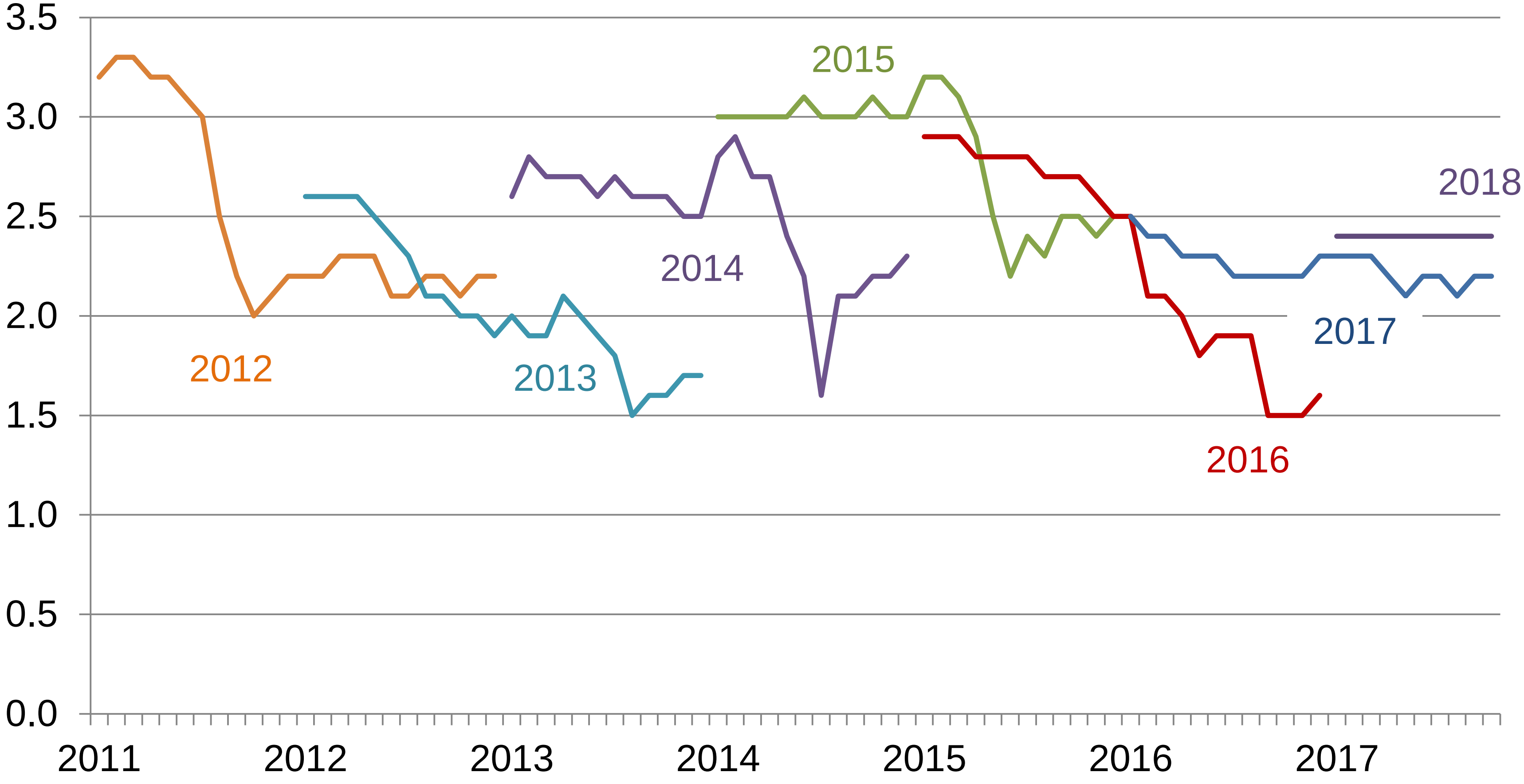
Average Annualized Inflation-Adjusted Rate of Growth During Expansion



Source: Bureau of Economic Analysis and National Bureau of Economic Research (Haver Analytics)

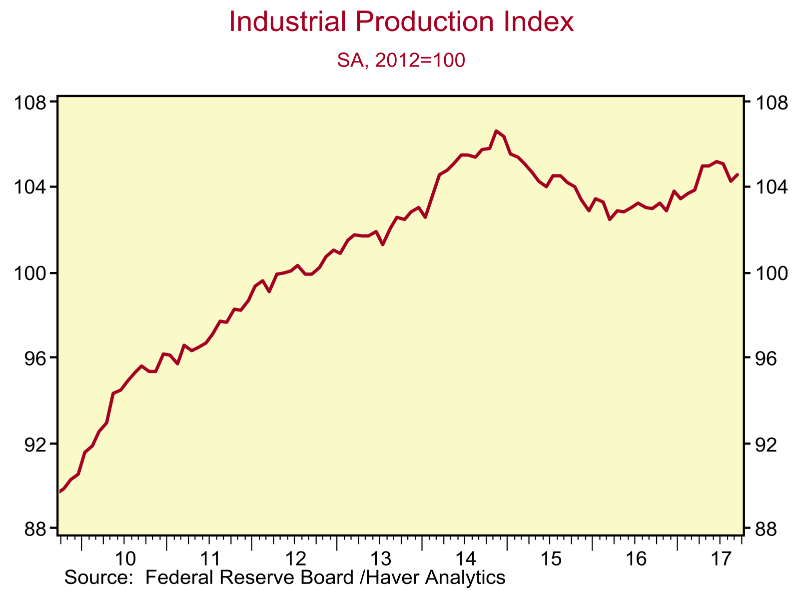
GDP forecasts have disappointed in each of the last six years.

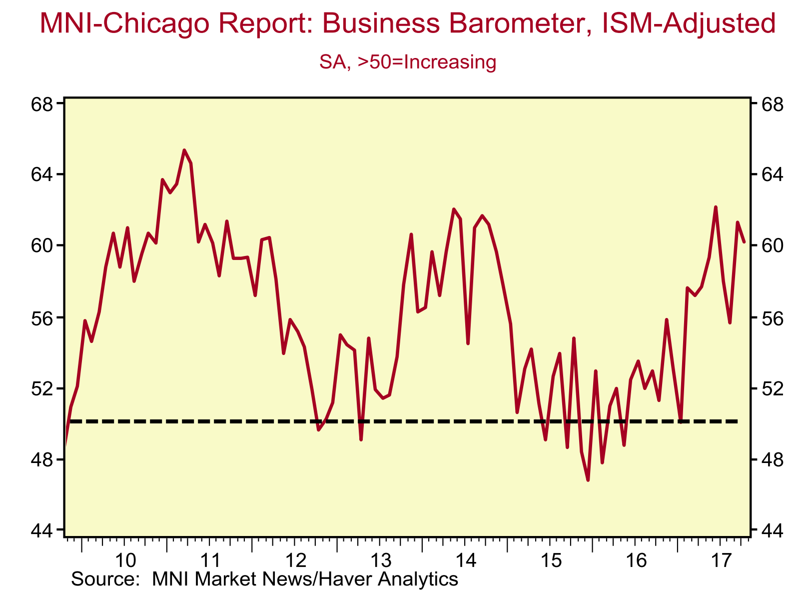
Forecast and Actual Real Growth in Annual U.S. GDP, in Percent

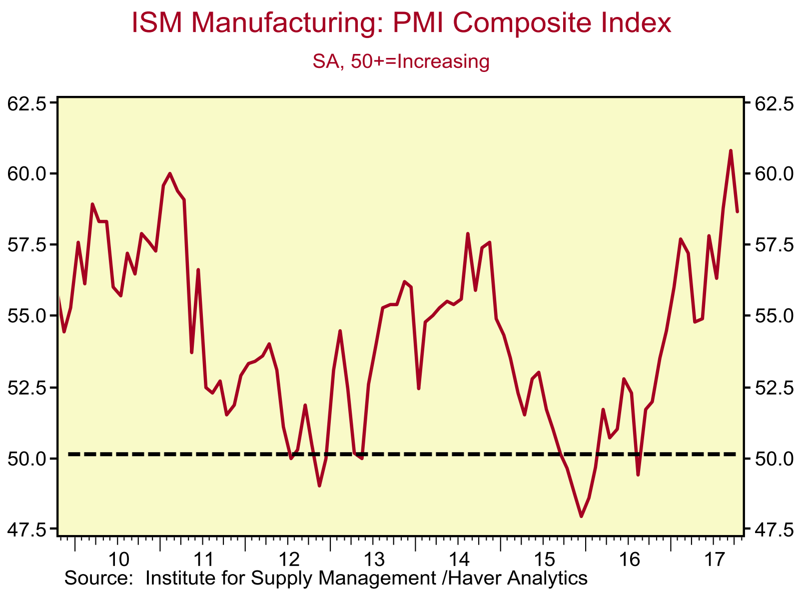


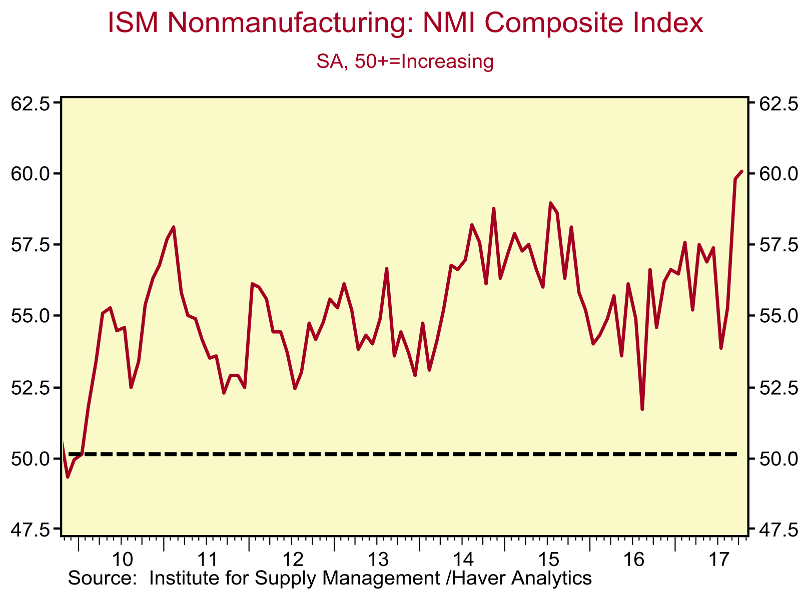
Source: Blue Chip Economic Indicators (Haver Analytics)

After dipping in 2015-16, business activity and expectations have picked up in 2017.









After dipping in 2015-16, business activity and expectations have picked up in 2017.

NFIB: Small Business Optimism Index

SA, 1986=100

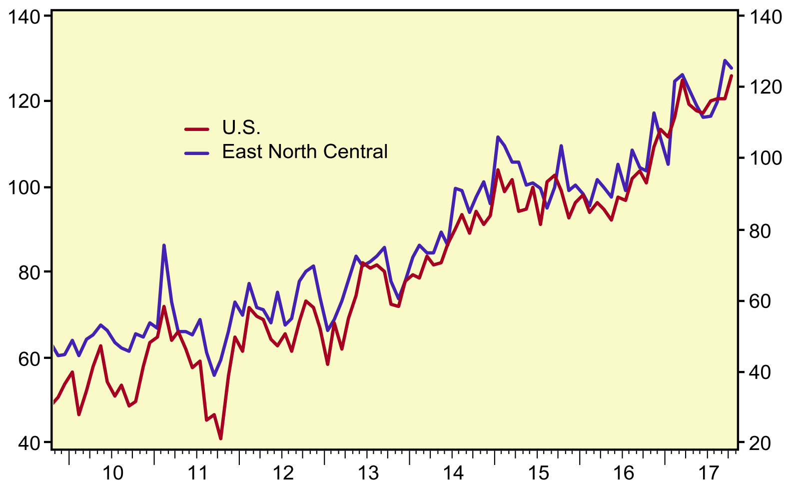
Source: National Federation of Independent Business /Haver Analytics

CEO Economic Outlook Survey Diffusion Index

50+=Expansion

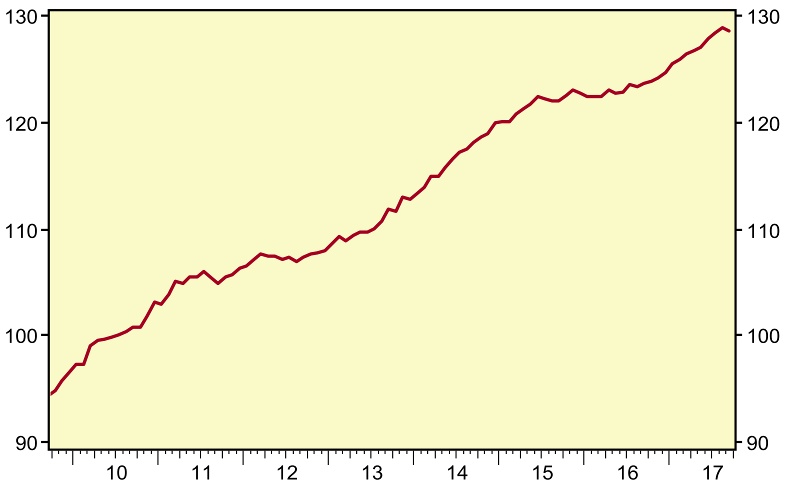
Source: Business Roundtable /Haver Analytics

Consumer Confidence, SA, 1985 = 100

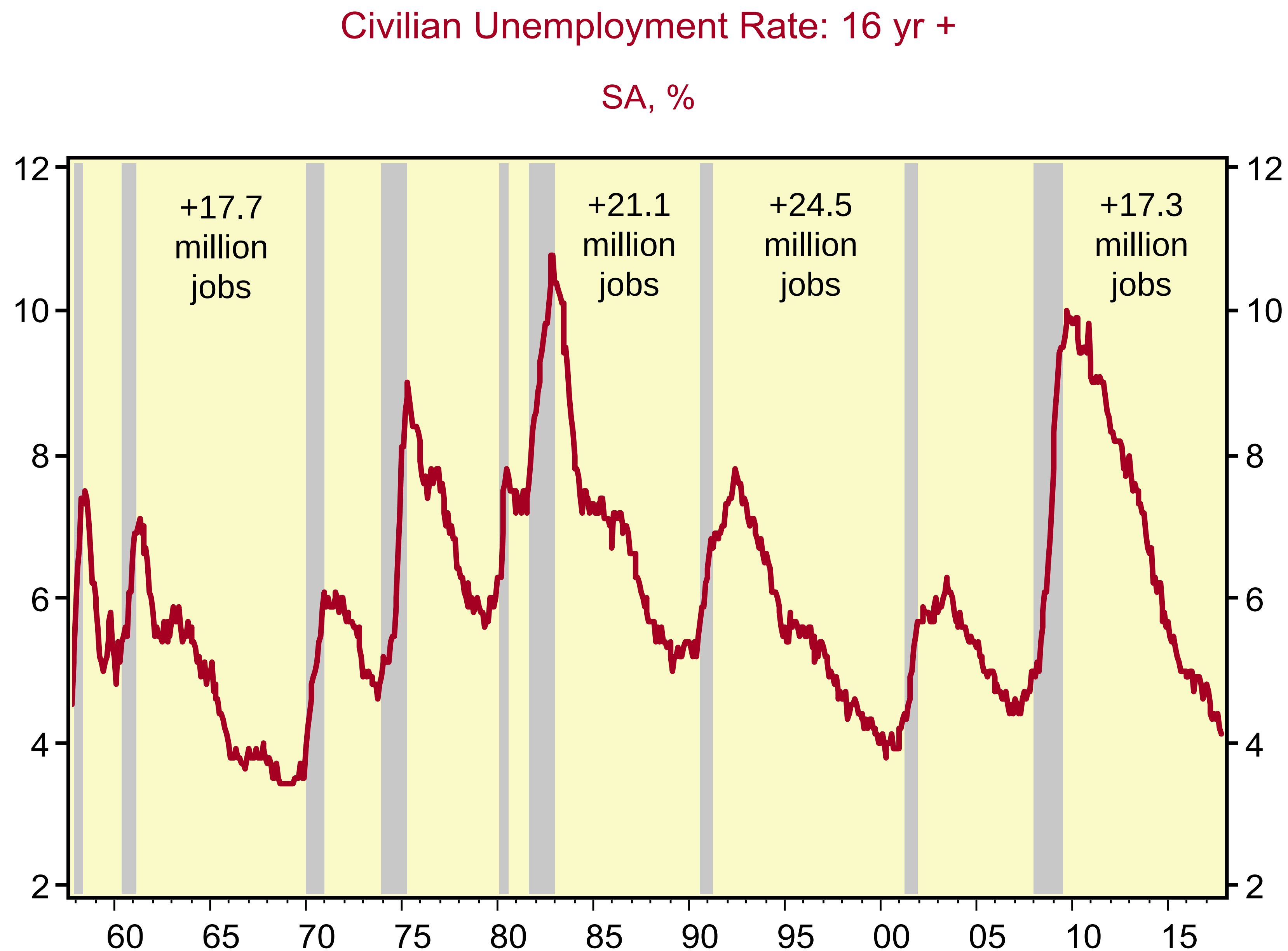


Source: The Conference Board /Haver Analytics

Composite Index of 10 Leading Indicators (2010=100)

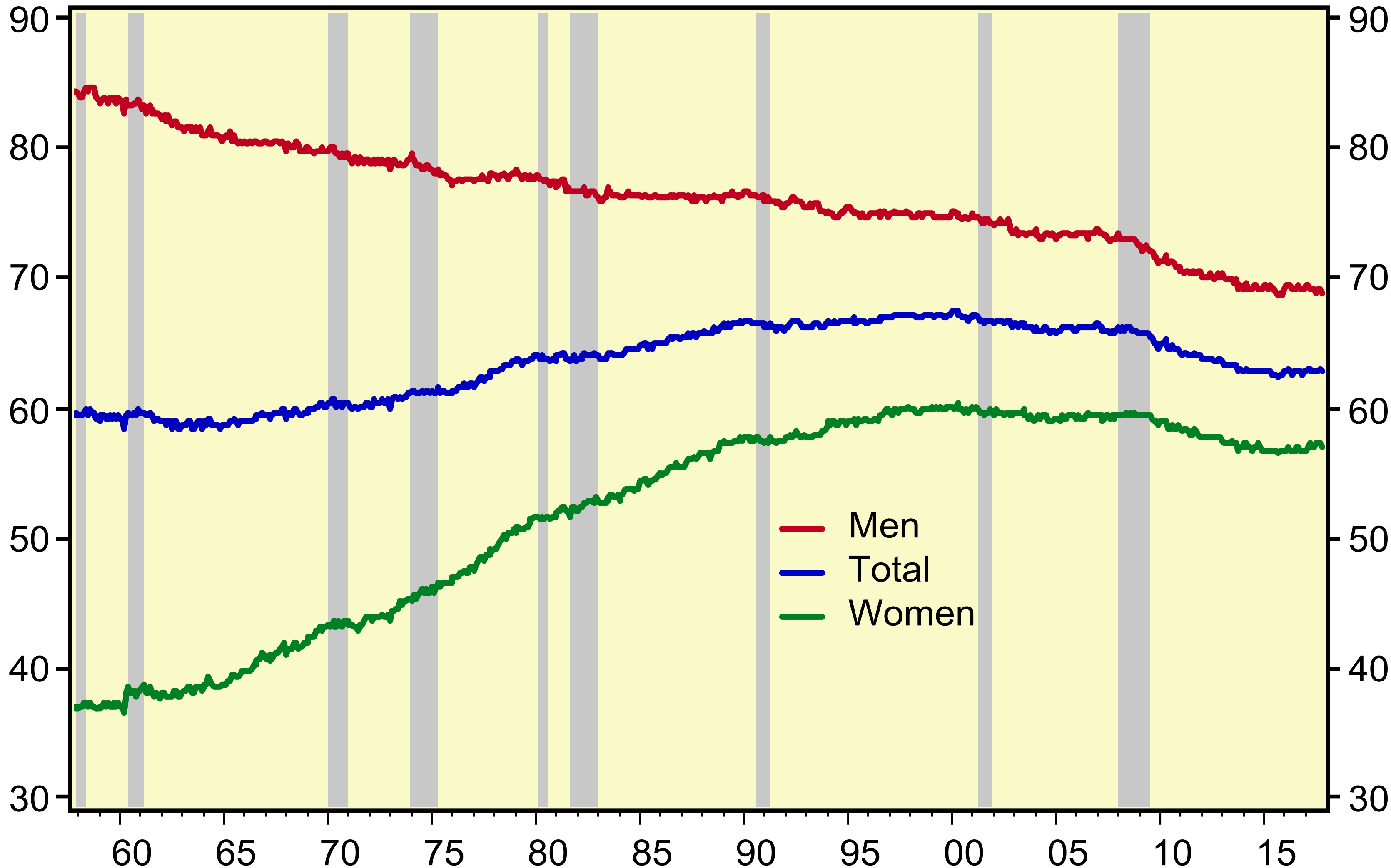


Source: The Conference Board /Haver Analytics



Source: Bureau of Labor Statistics /Haver Analytics

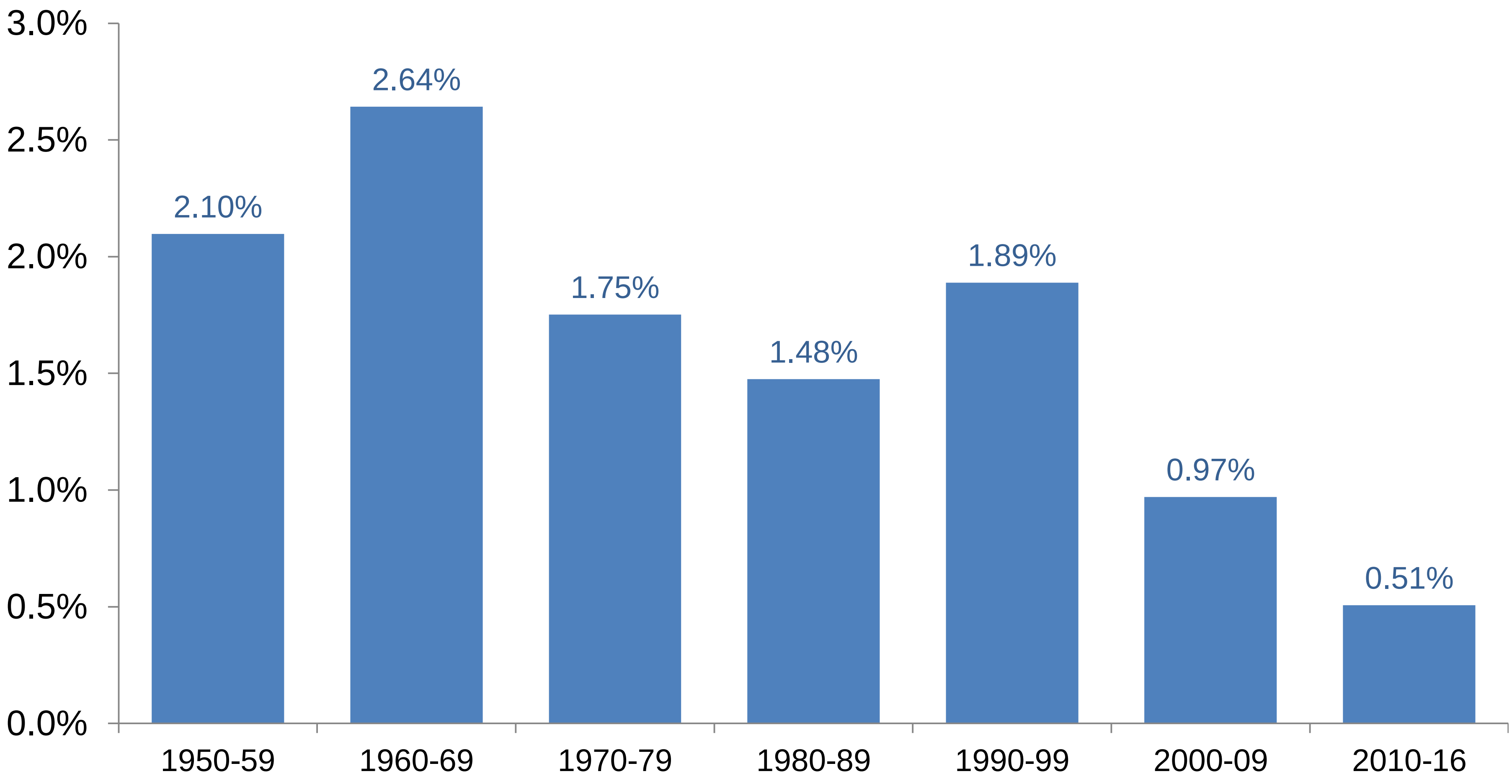
Labor Force Participation Rate: Age 16+, Seasonally Adjusted



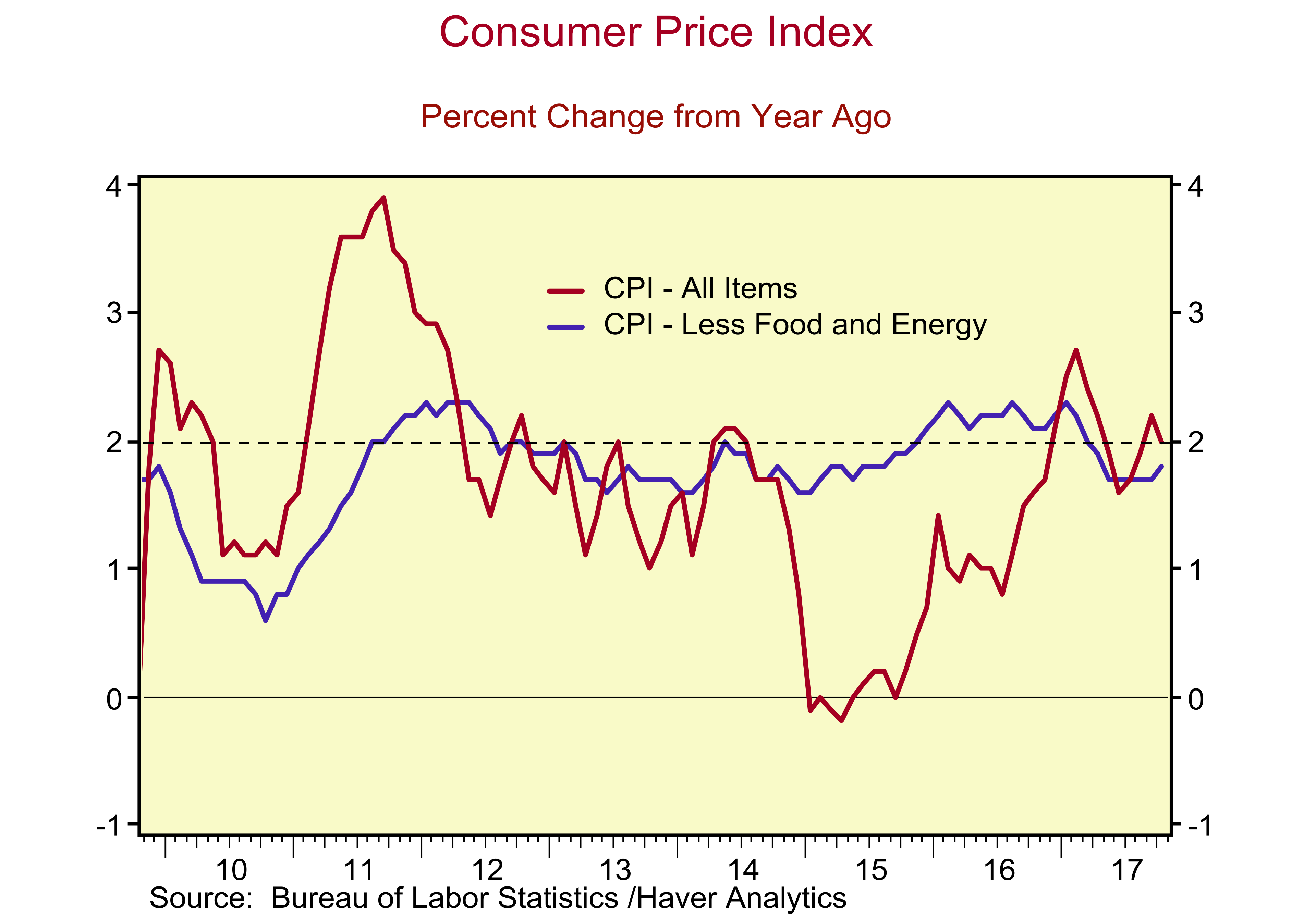
Source: Bureau of Labor Statistics /Haver Analytics

Lower productivity growth translates into lower wage growth.

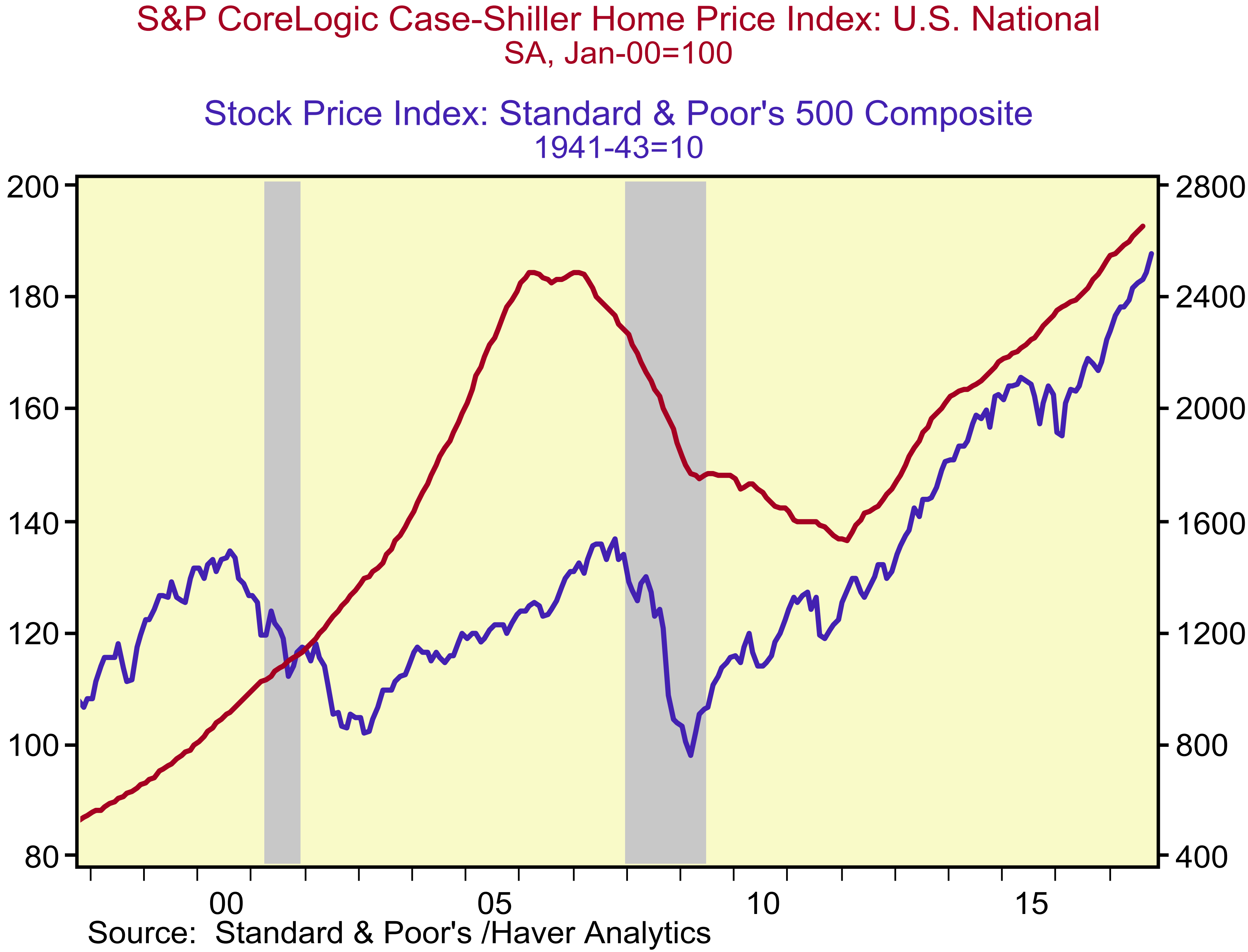
Compound Annual Rate of Increase in Real Output Per Hour, Nonfarm Business Sector

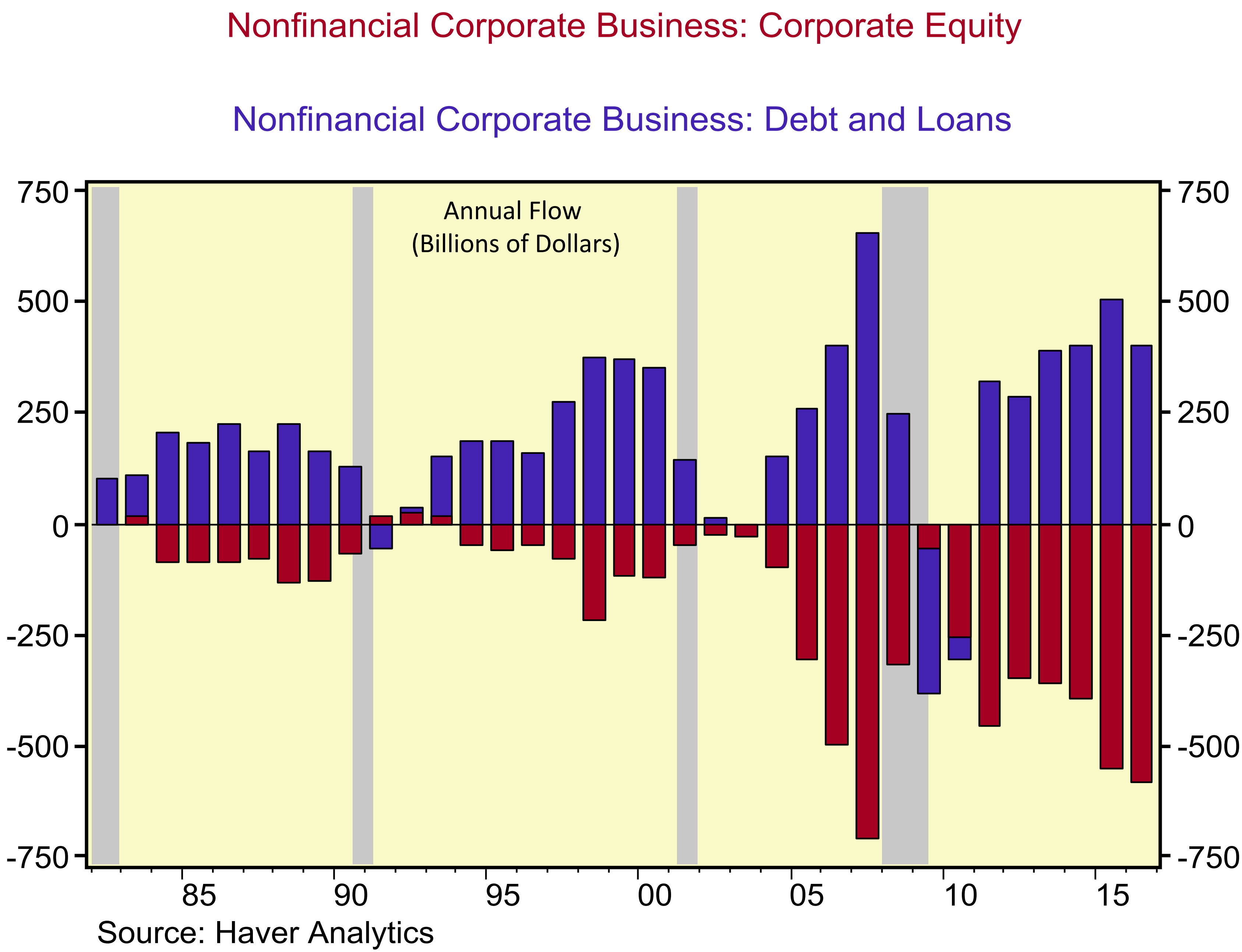


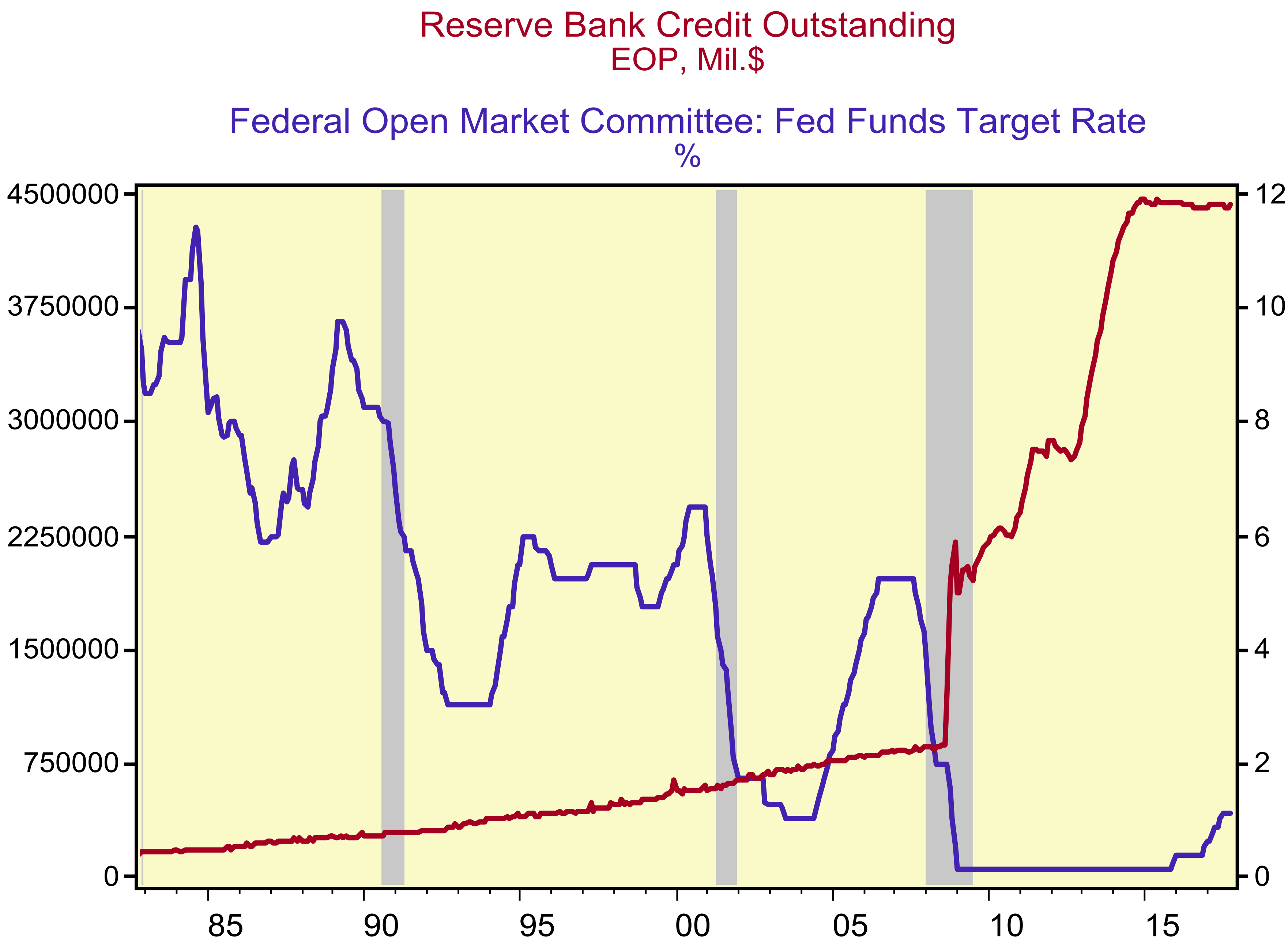
Source: Bureau of Labor Statistics



Consumer Price Index
Percent Change from Year Ago
CPI - All Items
CPI - Less Food and Energy
4
3
2
1
0
-1
10
11
12
13
14
15
16
17
Source: Bureau of Labor Statistics /Haver Analytics

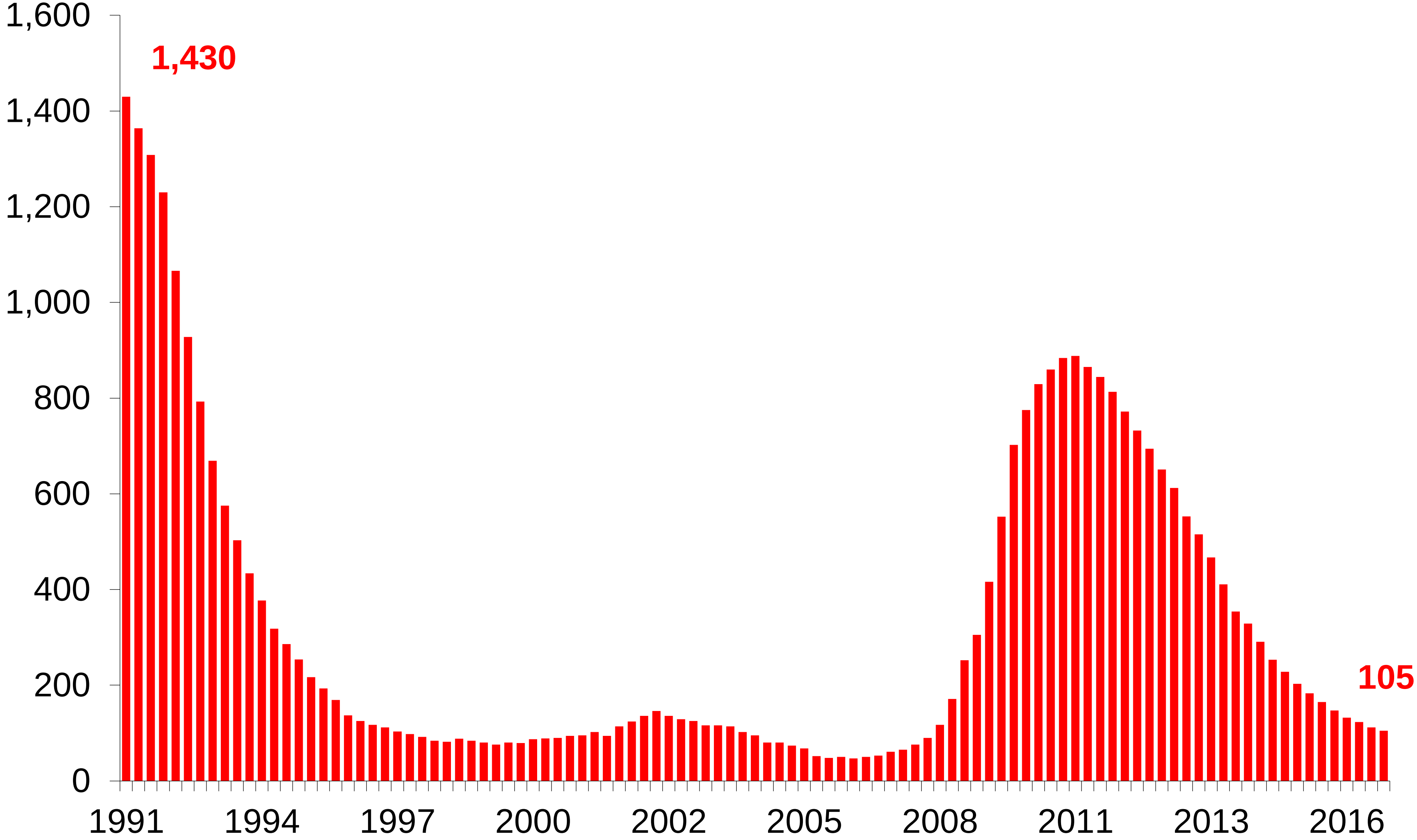

S&P CoreLogic Case-Shiller Home Price Index: U.S. National
SA, Jan-00=100
Stock Price Index: Standard & Poor's 500 Composite
1941-43=10
200
180
160
140
120
100
80
2800
2400
2000
1600
1200
800
400
00
05
10
15
Source: Standard & Poor's /Haver Analytics


Nonfinancial Corporate Business: Corporate Equity
Nonfinancial Corporate Business: Debt and Loans
Annual Flow
(Billions of Dollars)
750
500
250
0
-250
-500
-750
85
90
95
00
05
10
15
Source: Haver Analytics



Source: Federal Reserve Board /Haver Analytics

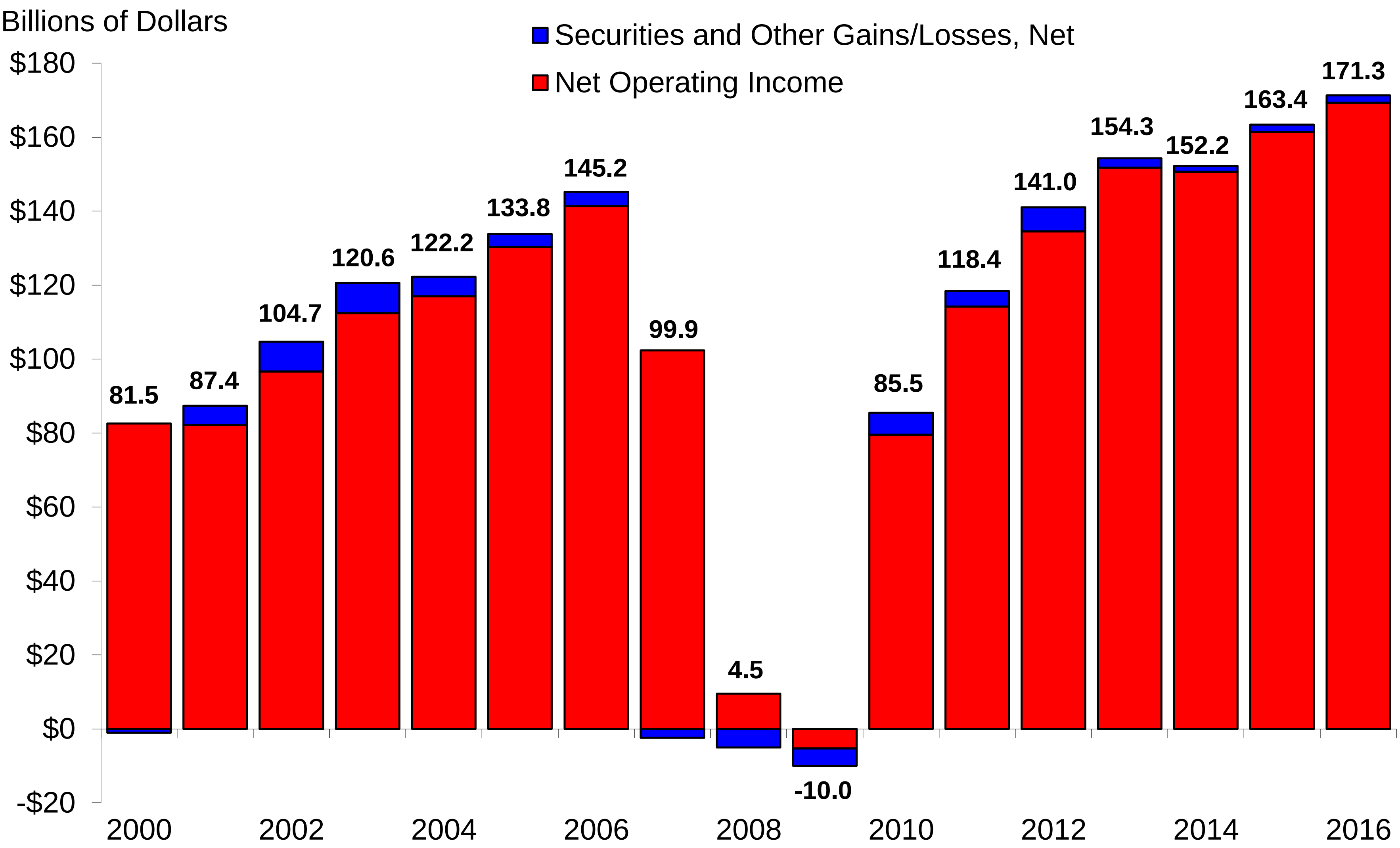
Number of Institutions on the FDIC's "Problem List" 1991 - 2017*



Source: FDIC *December 31, 1991 through June 30, 2017

Annual Net Income

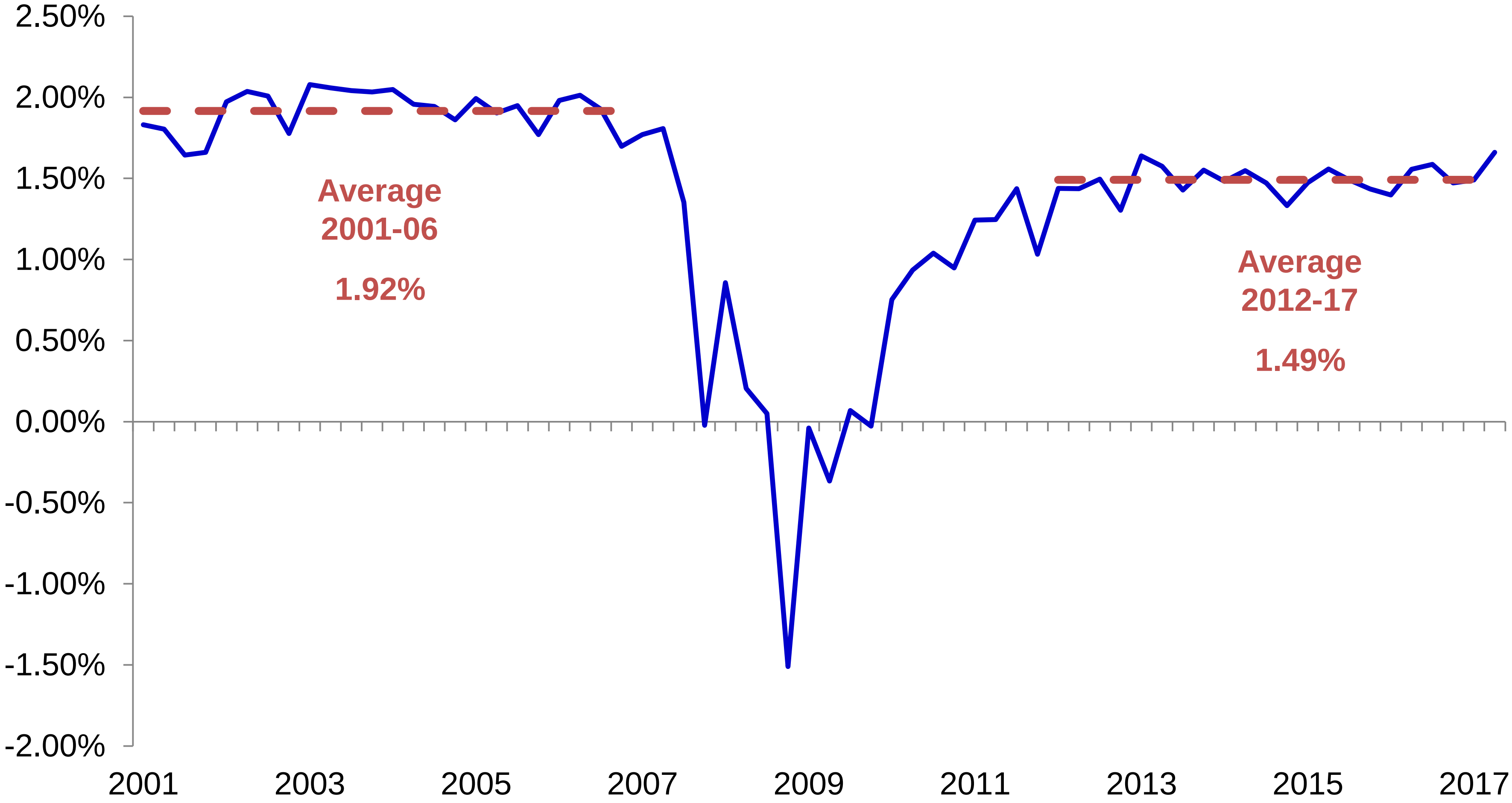
All FDIC-Insured Institutions



Source: FDIC.

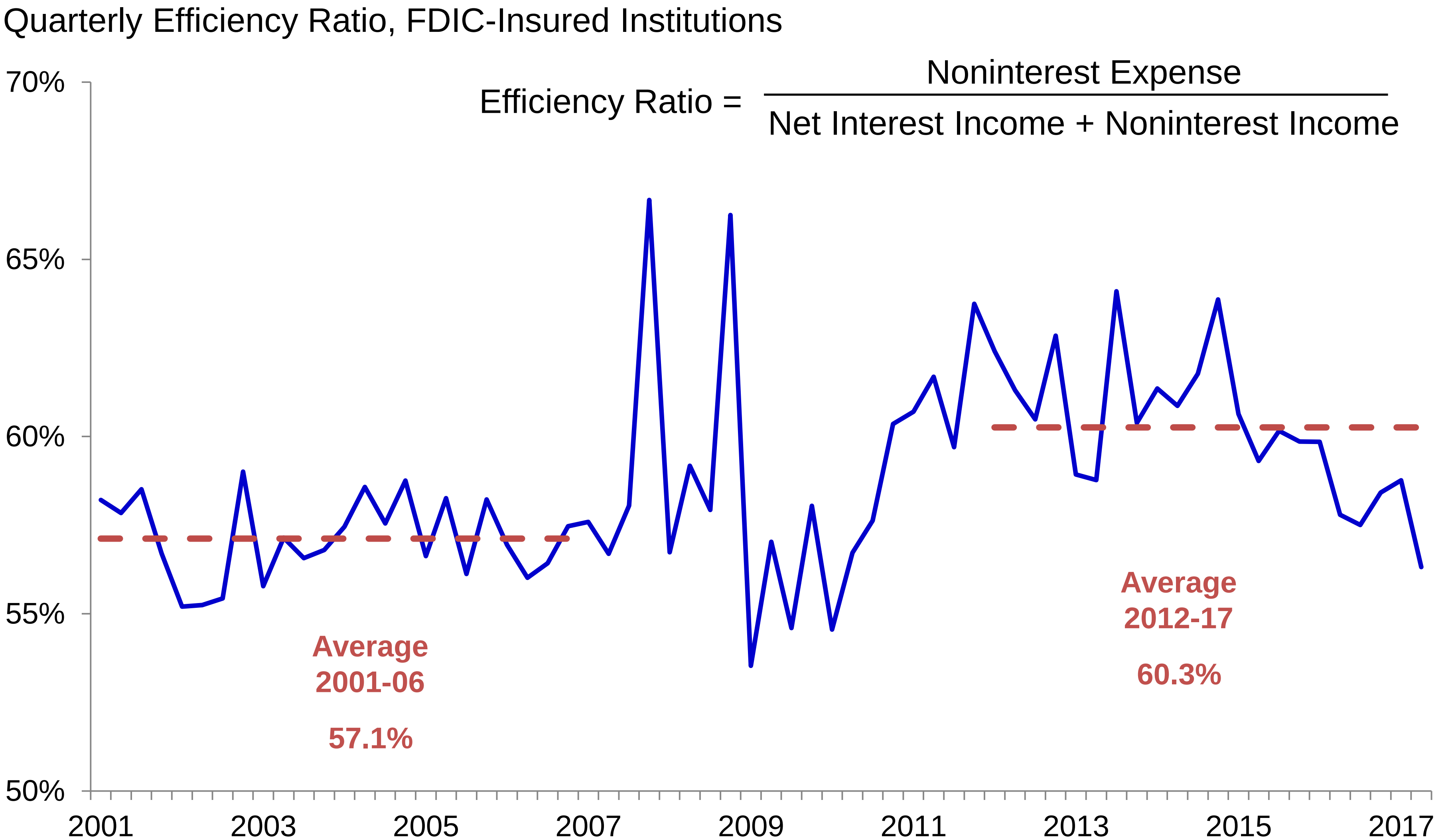
Profitability has recovered, but remains below pre-crisis levels.

Quarterly Pre-tax Return on Assets (Annualized), FDIC-Insured Institutions



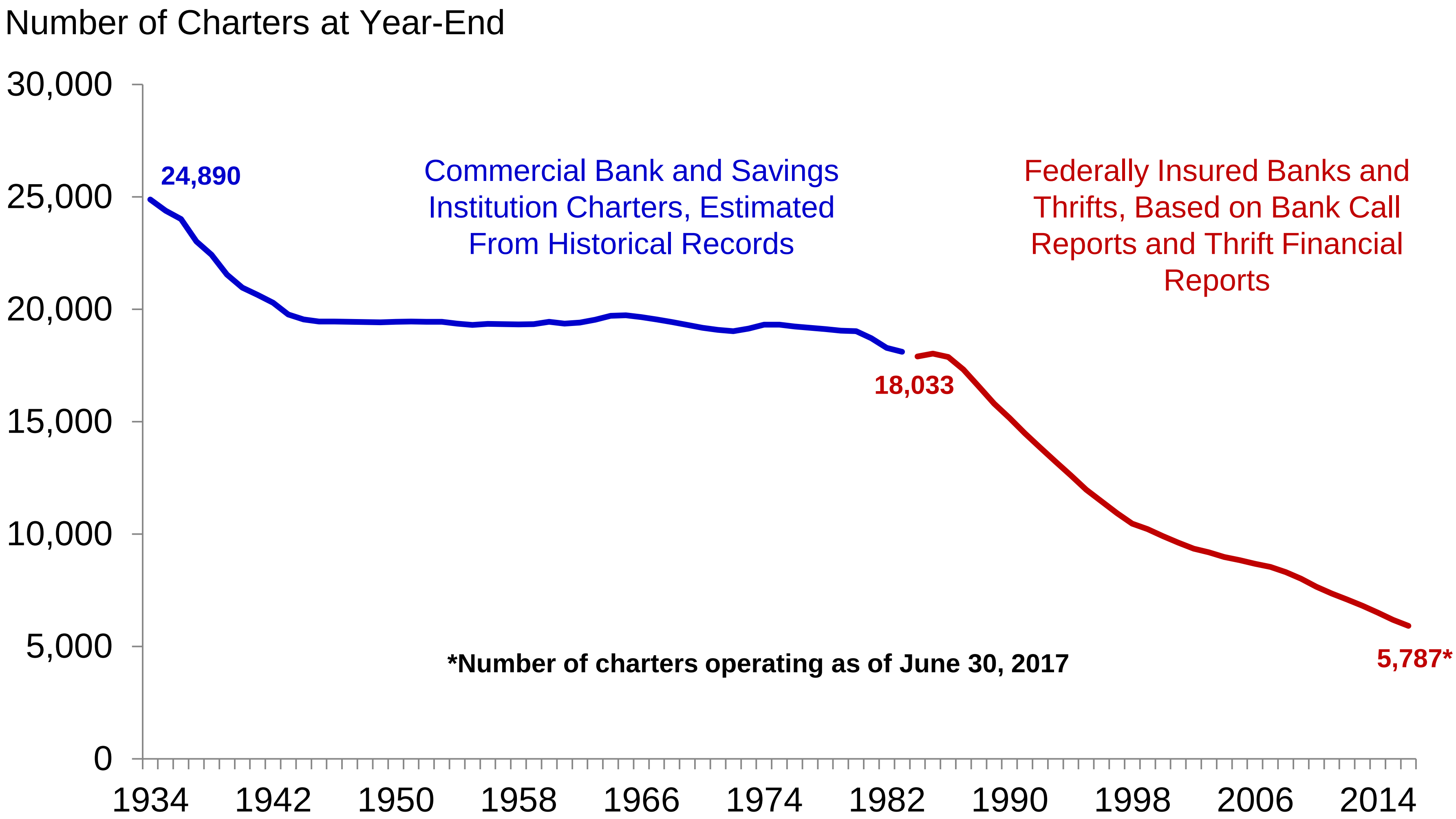
Source: FDIC *Quarterly Banking Profile*

Efficiency ratios rose after the crisis, but are quickly normalizing.



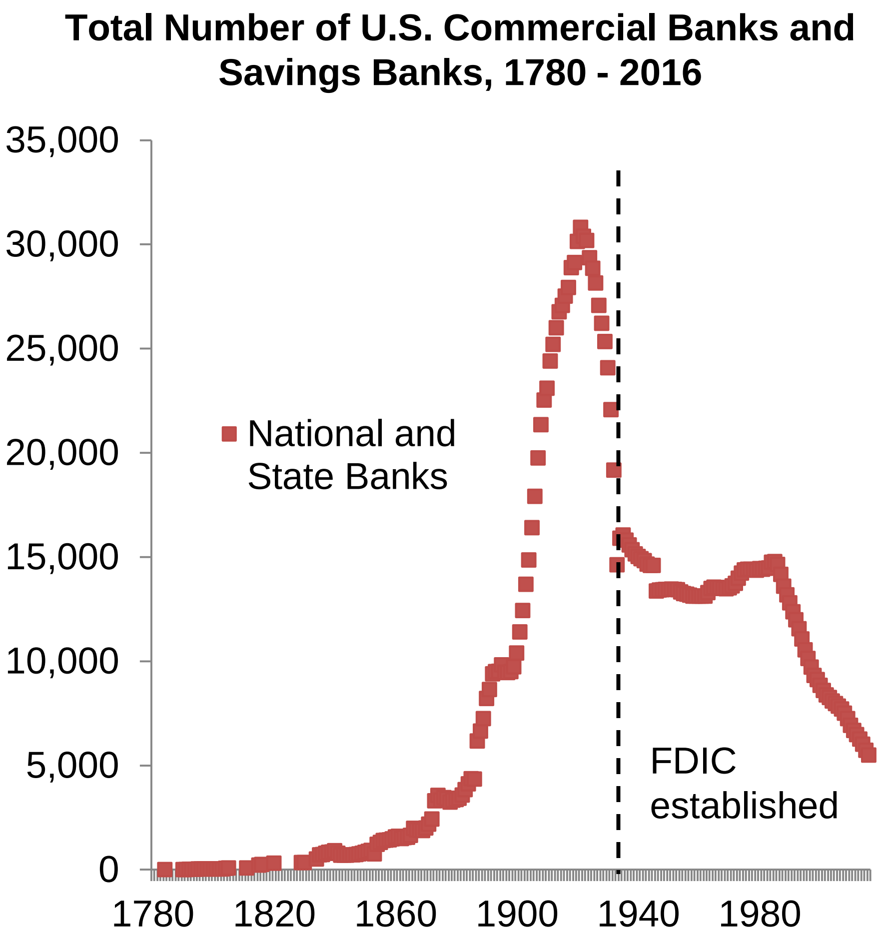
Source: FDIC *Quarterly Banking Profile*

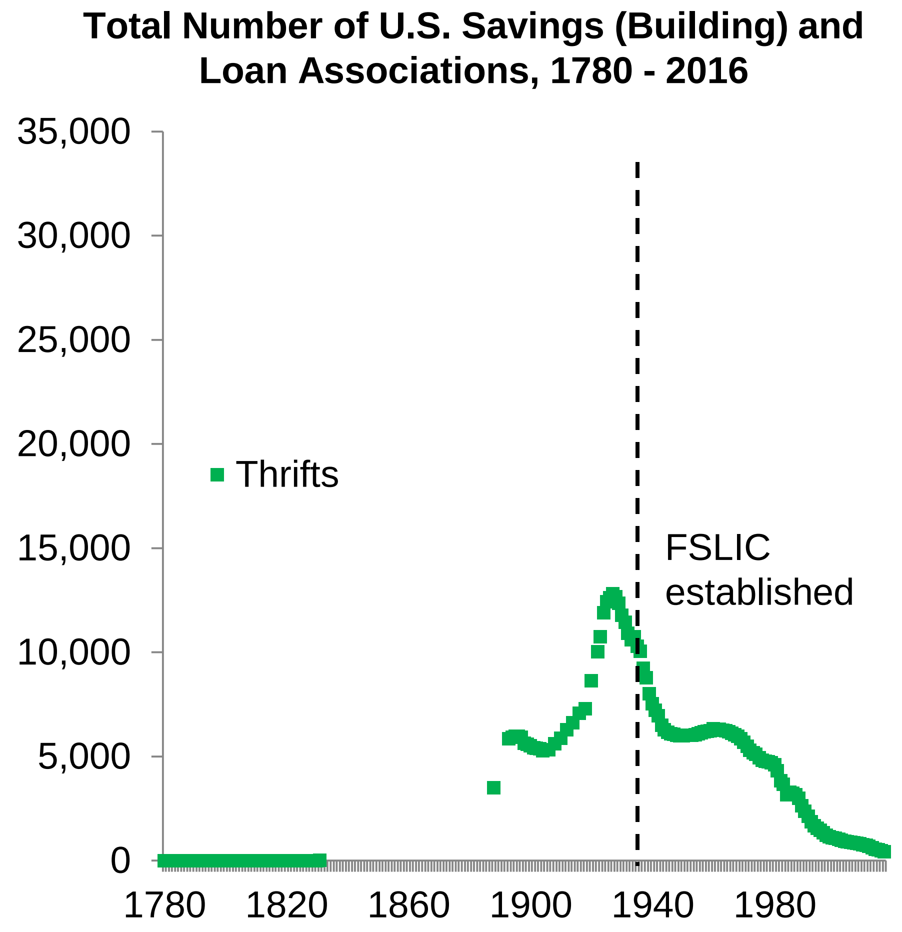
Number of Federally-Insured U.S. Banking and Thrift Institutions 1934 – 2017*



Source: 1934–83: FDIC *Historical Statistics on Banking*, Tables CB03 and SI01; Federal Home Loan Bank Board, *Savings and Home Financing Sourcebook*, 1987, pp. A1–A2. 1984–2016: FDIC, Bank Call Reports and Thrift Financial Reports.

The total number of U.S. commercial banks, savings banks, and savings and loans peaked in the early 1920s at over 40,000.

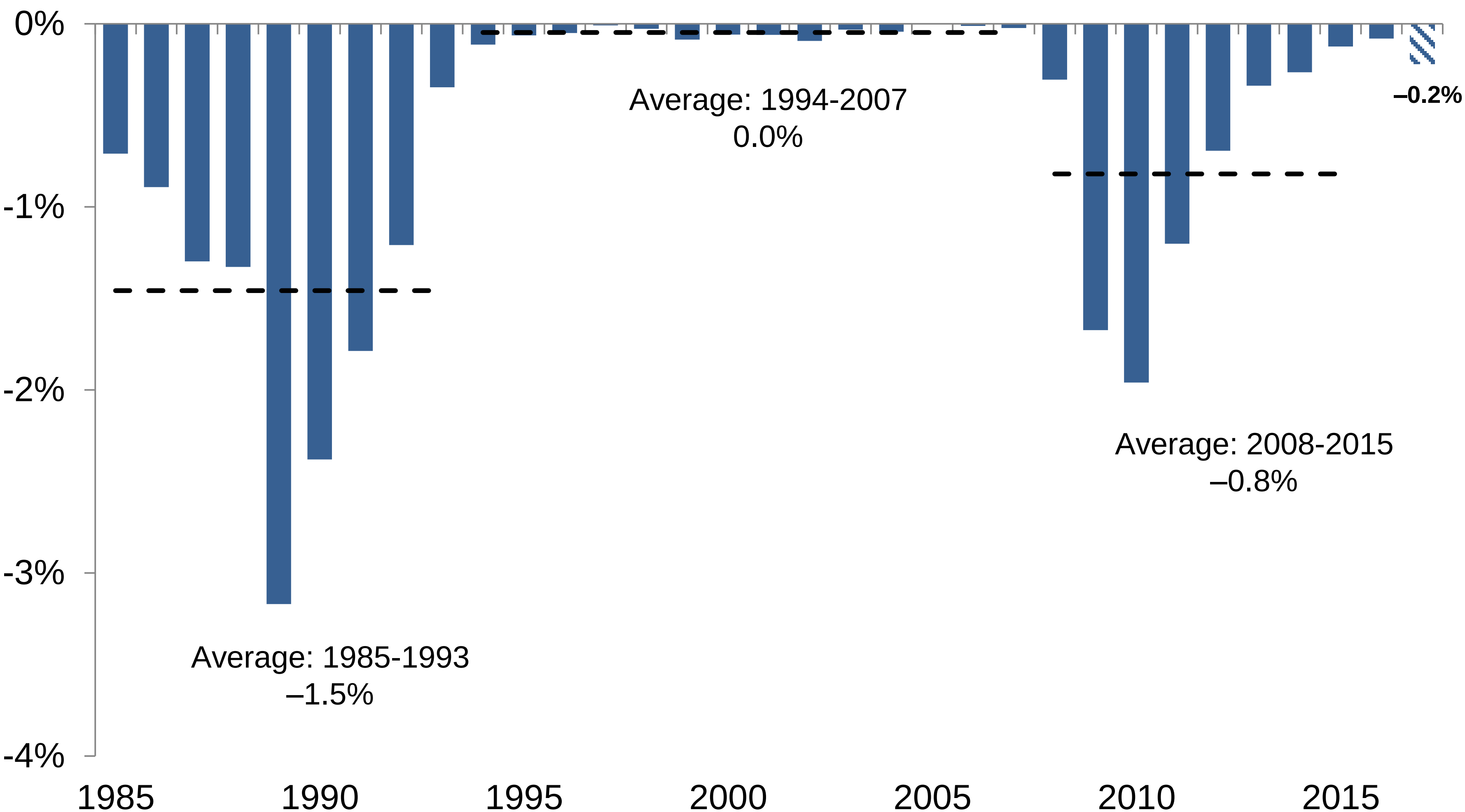




Sources: FDIC, FSLIC, OCC, FRB, Bureau of Labor, Economic History Association, Historical Statistics of the United States.

Annual Rates of Failure, 1985 - 2017*

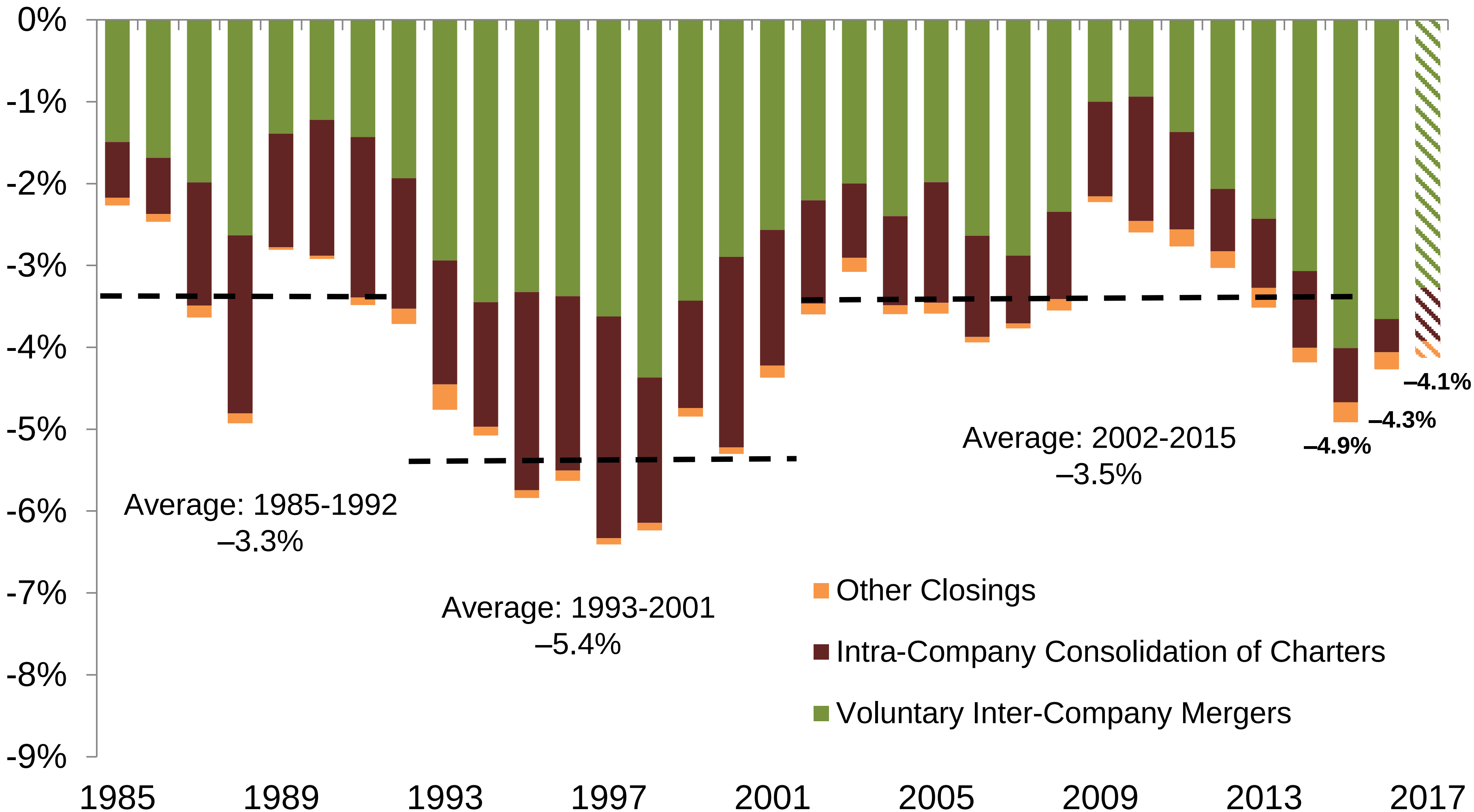
As Percent of Charters Reporting at Previous Year-End



Source: FDIC. *2017 rate is based on annualized structure data available as of 6/30/17.

Annual Rates of Voluntary Attrition, 1985 - 2017*

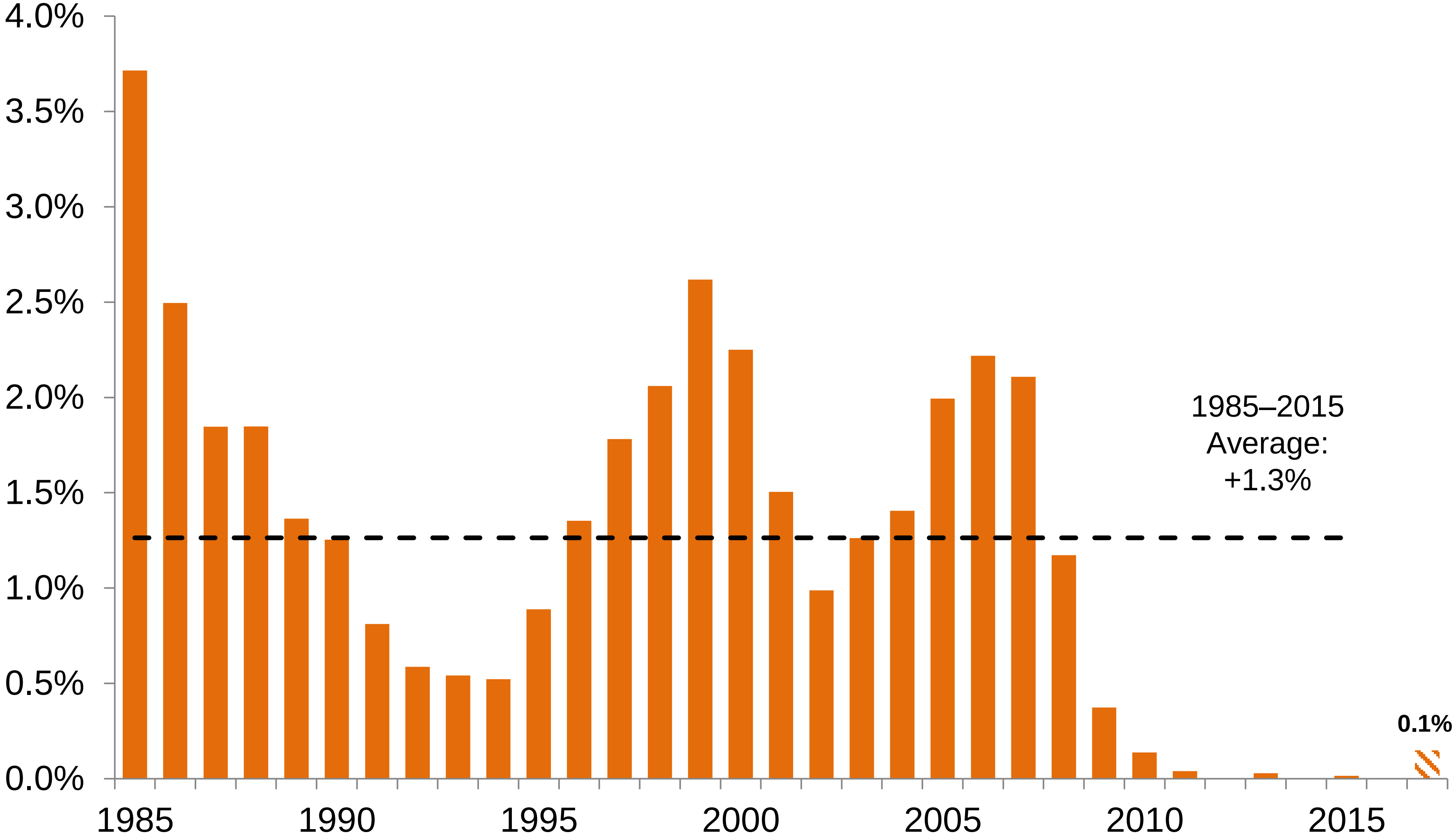
As Percent of Charters Reporting at Previous Year-End



Source: FDIC. *2017 rate is based on annualized structure data available as of 6/30/17.

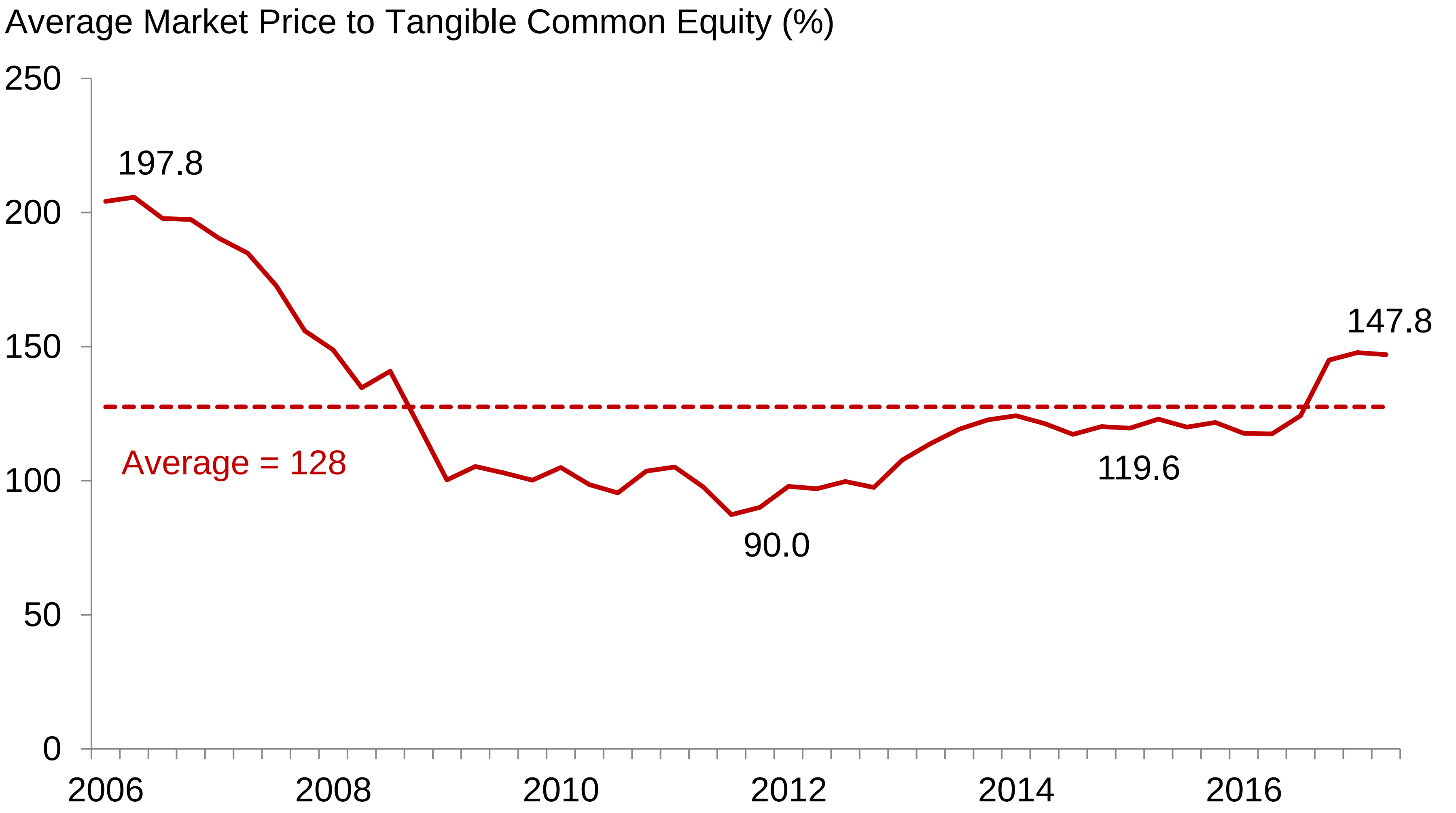
Annual Rates of New Chartering Activity, 1985 - 2017*

As Percent of Charters Reporting at Previous Year-End



Source: FDIC. *2017 rate is based on annualized structure data available as of 6/30/17.

Average Market Price to Tangible Common Equity

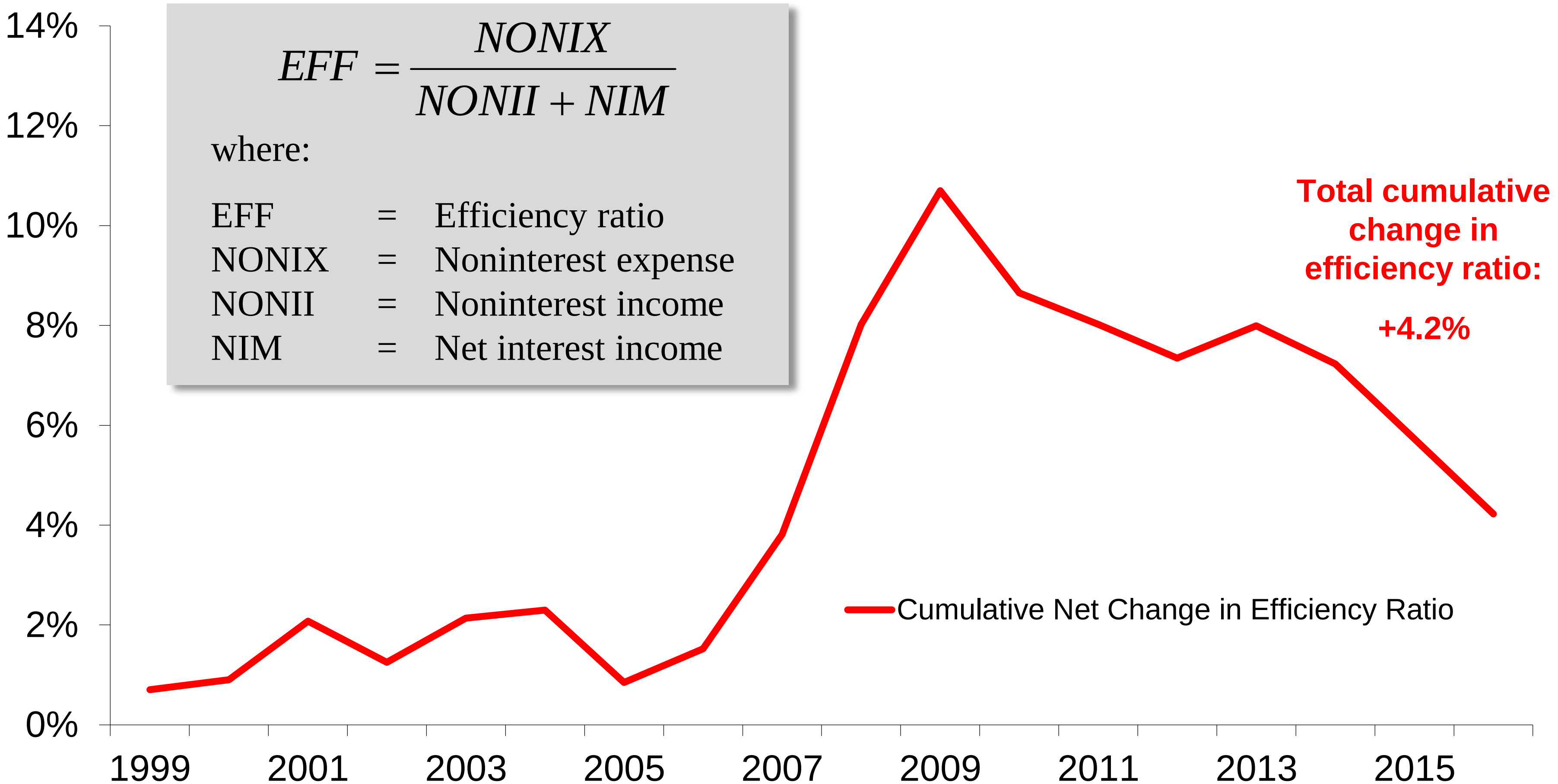


Source: SNL Financial.

Note: Includes publicly listed banks, savings banks, thrifts, and mutuals.

The cumulative increase in the community bank efficiency ratio since the crisis has been large. But it is improving fast.

Cumulative Change in the Community Bank Efficiency Ratio Since 1998



Source: FDIC.

A little math to decompose annual changes in the efficiency ratio:

The ***total differential*** for the efficiency ratio in each year is the sum of the ***partial differentials*** with respect to the three components of the ratio. Using the quotient rule, the partial differentials are:

$$dEFF = \left[\frac{1}{(NONII + NIM)} \right] \cdot dNONIX$$

$$dEFF = \left[\frac{-NONIX}{(NONII + NIM)^2} \right] \cdot dNONII$$

$$dEFF = \left[\frac{-NONIX}{(NONII + NIM)^2} \right] \cdot dNIM$$

The bracketed terms are multipliers that translate changes in NONIX, NONII and NIM into changes in the efficiency ratio.

Let's throw in some community bank numbers for the 2015-16 interval:

$$-.0148 = \left[\frac{1}{(.00951 + .03318)} \right] \cdot (-0.00063)$$

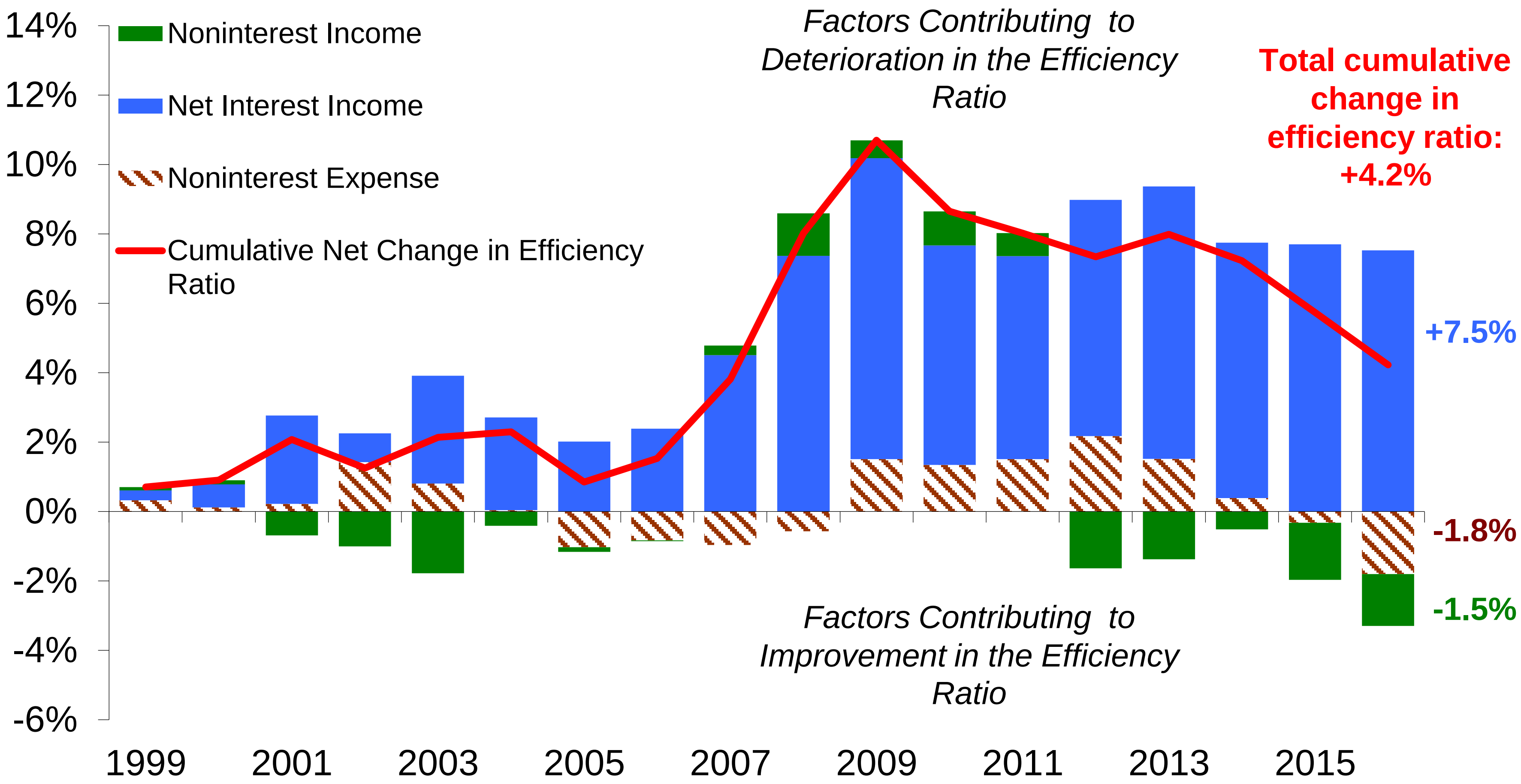
$$.0014 = \left[\frac{-.02855}{(.00951 + .03318)^2} \right] \cdot (-.000089)$$

$$-.0017 = \left[\frac{-.02855}{(.00951 + .03318)^2} \right] \cdot (.00011)$$

Sure enough, the three components of change sum to -0.015, or -1.5%, which was the reported change in the community bank efficiency ratio during 2016.

A squeeze on net interest income more than fully explains the long-term rise in the community bank efficiency ratio.

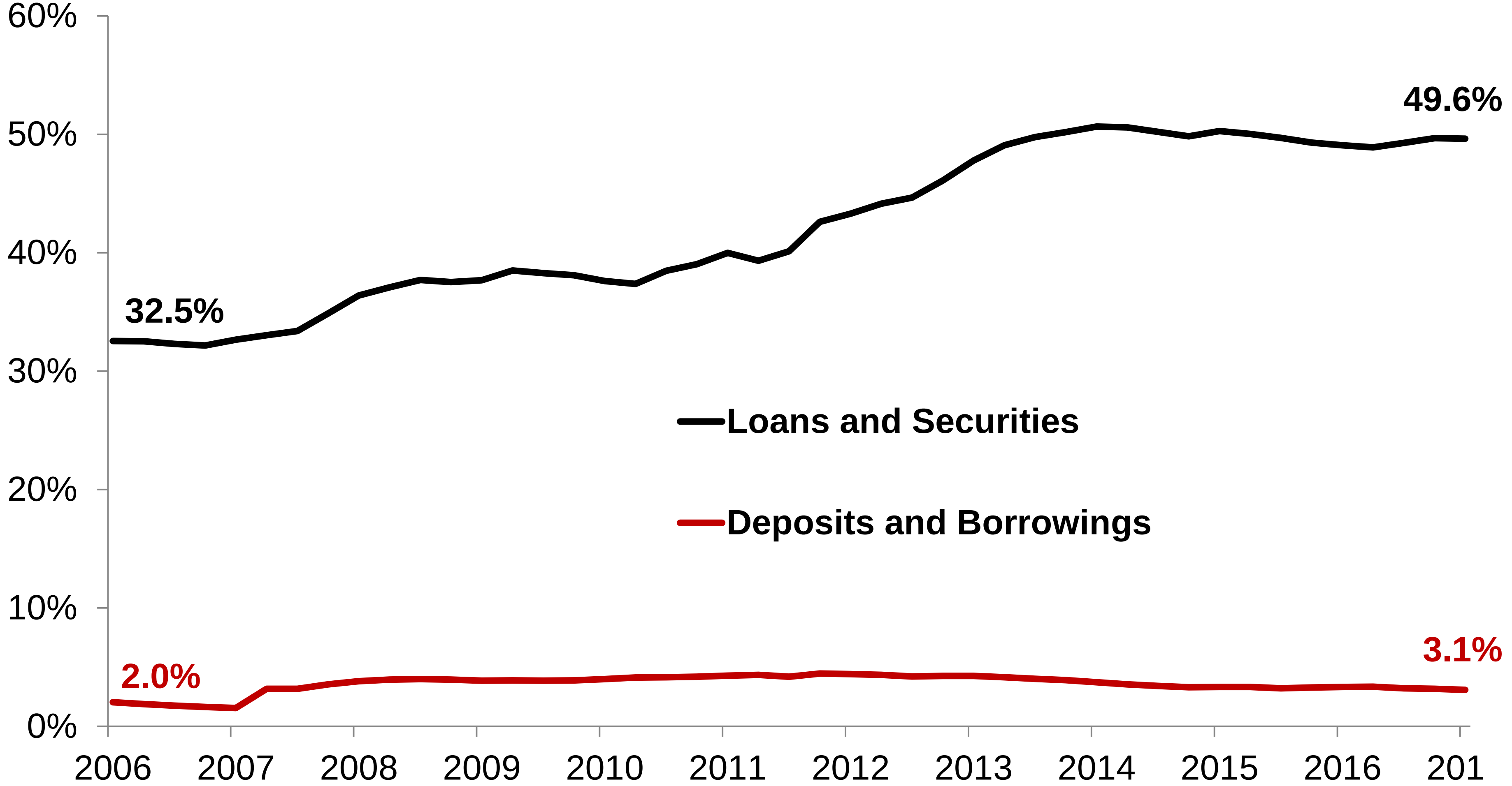
Components of Cumulative Change in the Community Bank Efficiency Ratio Since 1998



Source: FDIC.

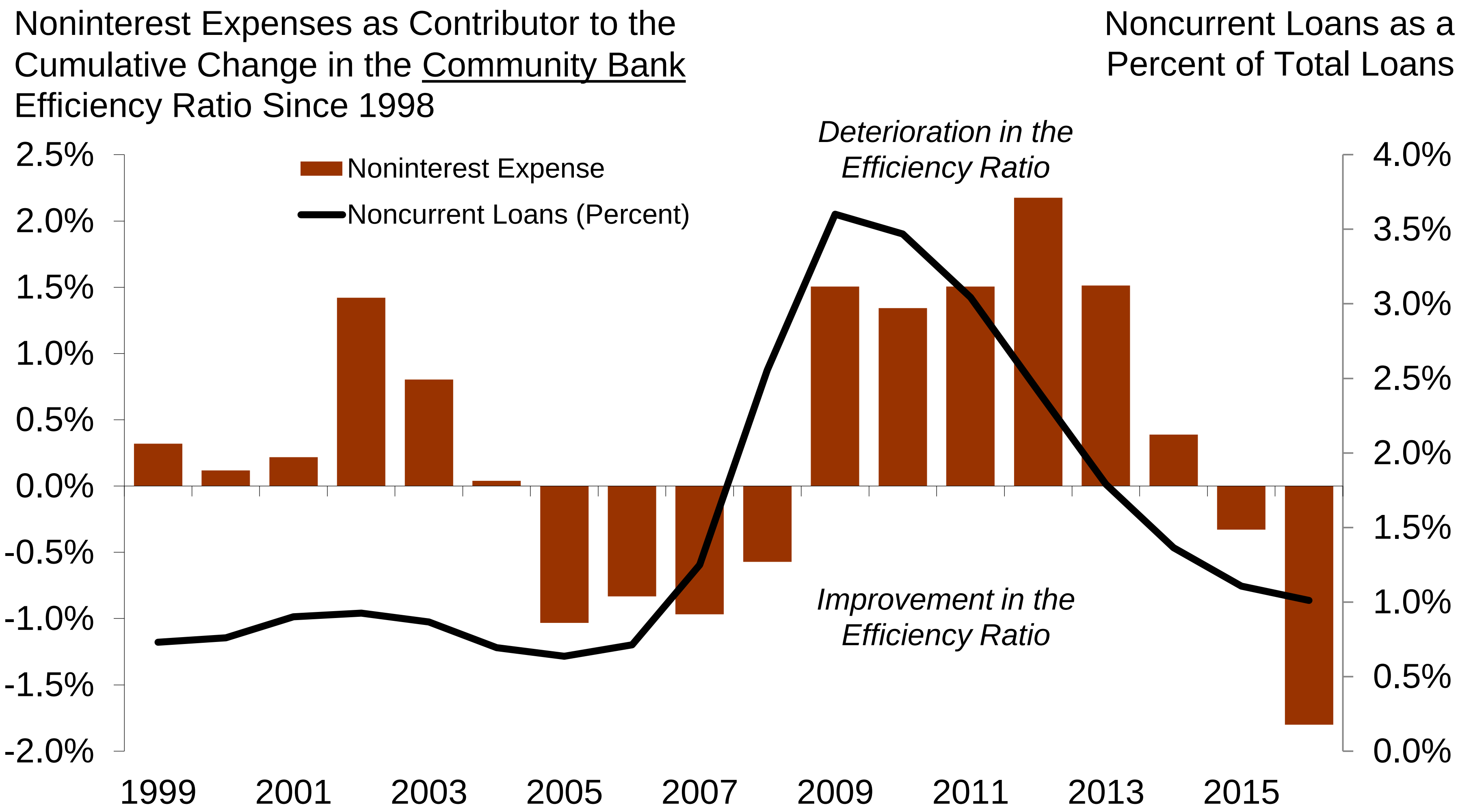
Community banks report a growing "repricing gap" between assets and liabilities that reprice in more than 3 years.

Assets and Liabilities that Reprice in More than Three Years, As a Percent of Total Assets



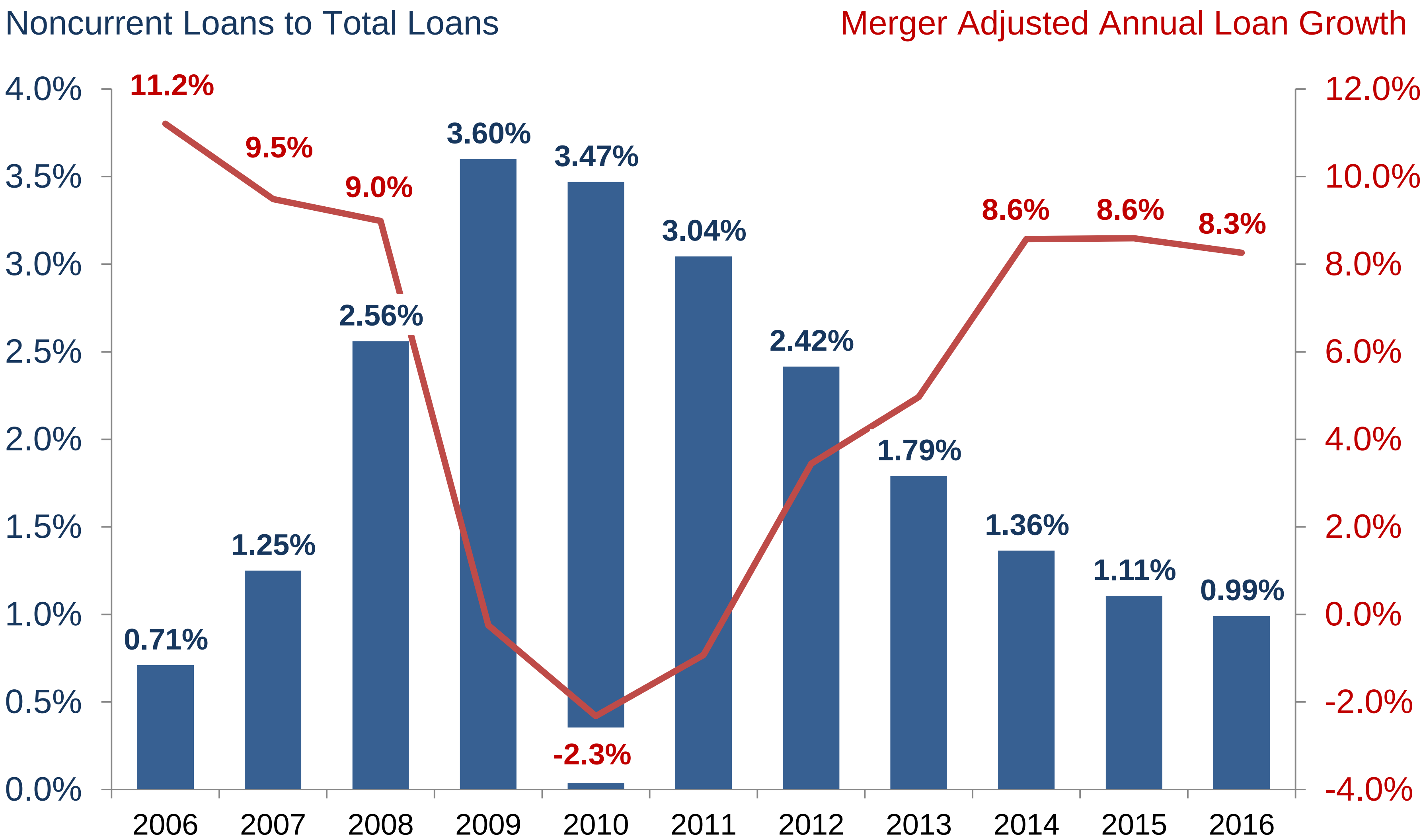
Source: FDIC Call Reports. As of June 30, 2017.

Community bank noninterest expenses fluctuate with the level of problem loans.



Source: FDIC.

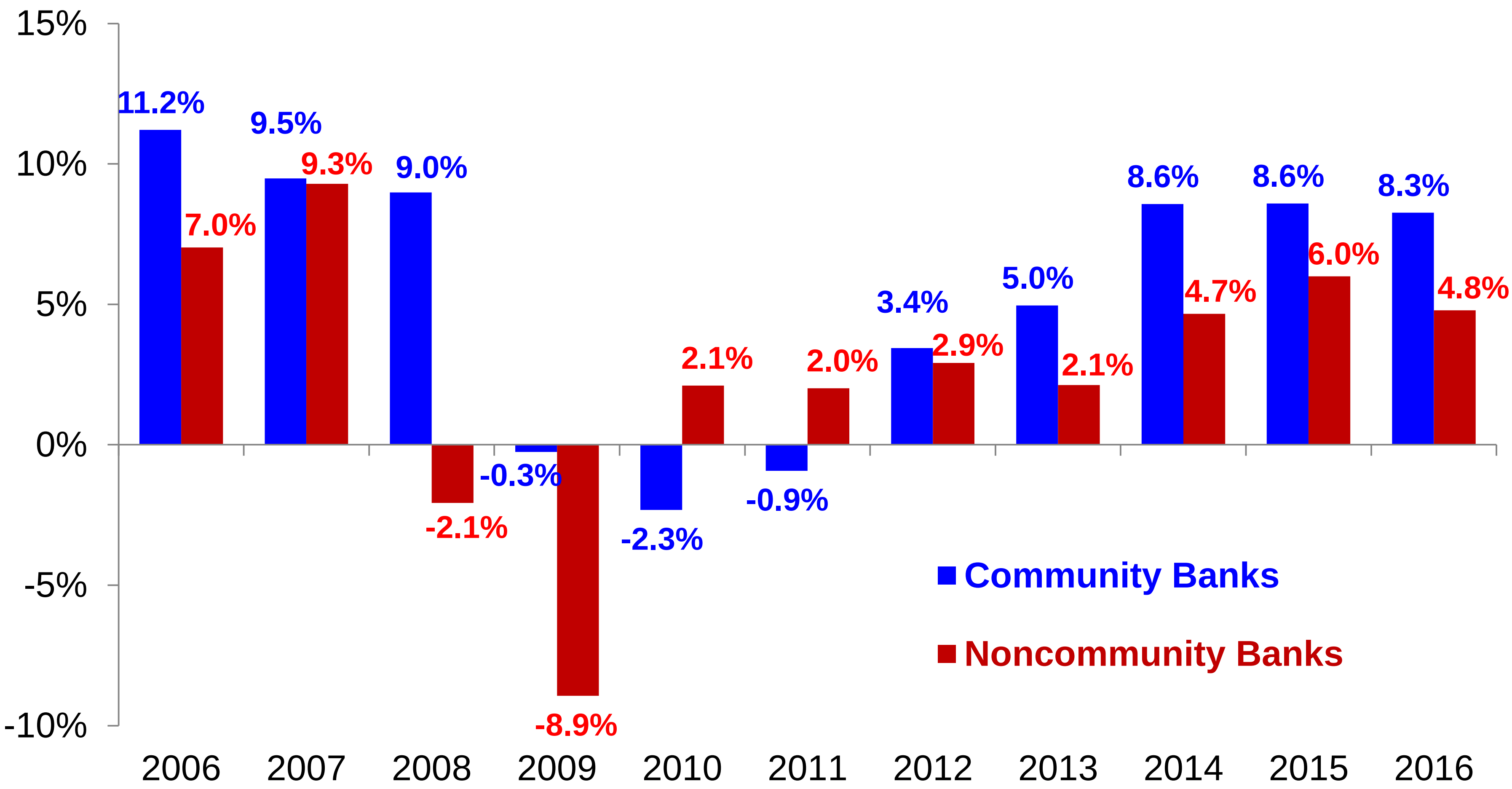
Community bank loan growth has been inversely related to the level of problem loans.



Source: FDIC

Community bank loan growth has exceeded growth at noncommunity banks for five consecutive years.

Merger Adjusted Annual Growth in Total Loans and Leases



Source: FDIC

Community banks consistently lead noncommunity banks in terms of merger-adjusted growth in real estate loans.

Merger Adjusted Annual Percent Growth

Group With Highest Rate of Growth for Year

1- to 4-Family Mortgages

Year	Community Banks	Noncommunity Banks
2006	***6.4%***	6.1%
2007	***6.2%***	4.0%
2008	***10.9%***	-7.2%
2009	***1.6%***	-6.2%
2010	***-0.9%***	-1.7%
2011	***-0.8%***	-2.1%
2012	***2.6%***	-2.3%
2013	***0.2%***	-5.3%
2014	***6.0%***	-1.4%
2015	***5.7%***	0.6%
2016	***5.0%***	2.0%

CRE Loans

Year	Community Banks	Noncommunity Banks
2006	***16.7%***	12.1%
2007	***12.5%***	7.6%
2008	***9.5%***	1.5%
2009	***-1.1%***	-8.3%
2010	***-3.7%***	-11.0%
2011	***-2.1%***	-5.4%
2012	***2.2%***	-0.8%
2013	***6.9%***	4.1%
2014	***9.3%***	6.0%
2015	***11.3%***	9.7%
2016	***11.7%***	7.9%

Source: FDIC. Annual loan growth is merger adjusted.

While large banks tend to dominate consumer lending, community banks have led growth in C&I lending for the past 4 years.

Merger Adjusted Annual Percent Growth

Group With Highest Rate of Growth for Year

Loans to Individuals

Year	Community Banks	Noncommunity Banks
2006	***0.9%***	0.7%
2007	2.0%	***11.5%***
2008	-0.6%	***3.1%***
2009	-5.1%	***-2.7%***
2010	-7.4%	***26.3%***
2011	-5.5%	***-0.4%***
2012	0.5%	***1.3%***
2013	***4.1%***	2.1%
2014	***7.6%***	4.7%
2015	3.2%	***5.8%***
2016	5.4%	***6.1%***

C&I Loans

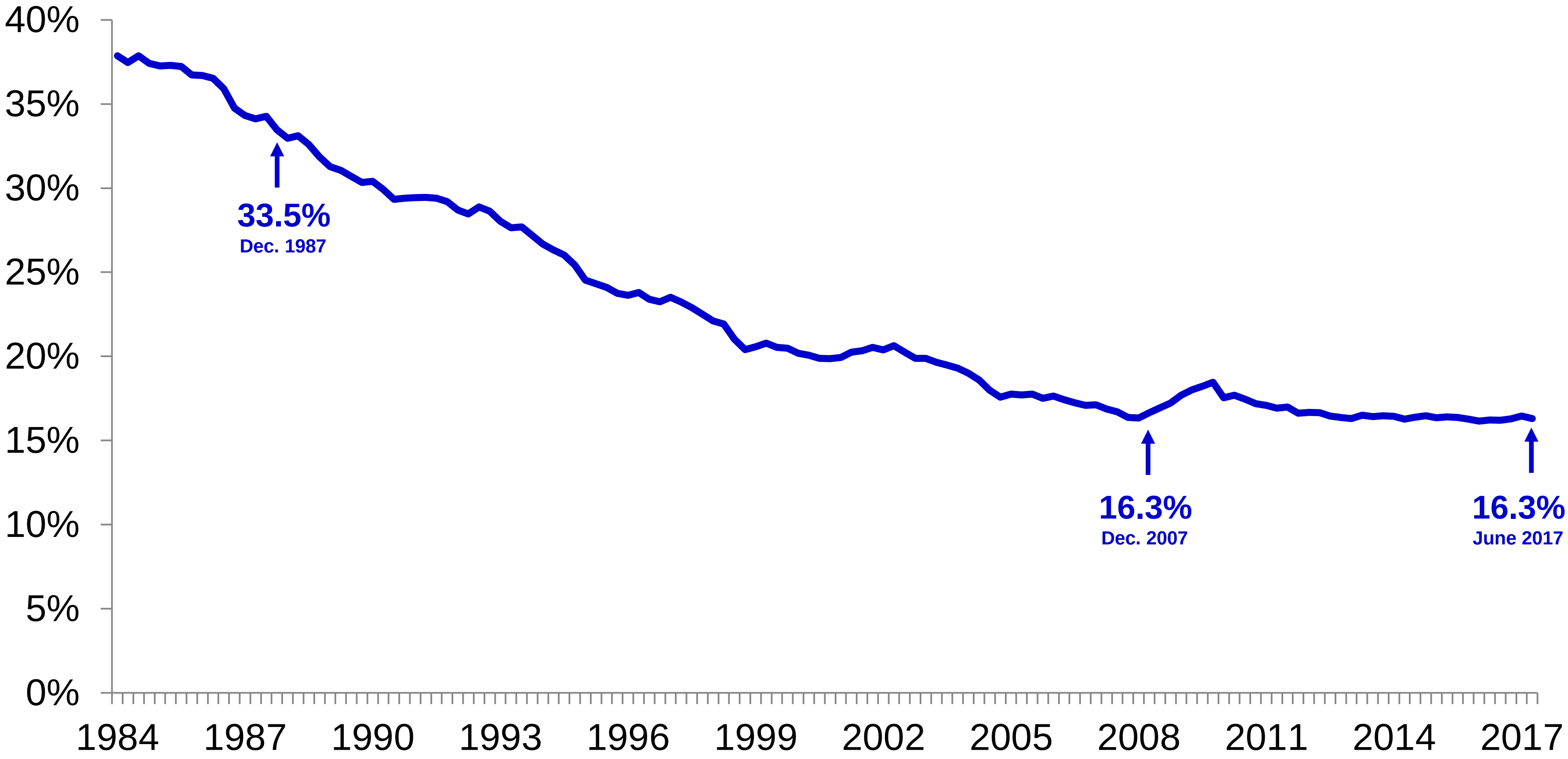
Year	Community Banks	Noncommunity Banks
2006	***12.5%***	11.9%
2007	11.1%	***19.6%***
2008	***7.5%***	3.4%
2009	***-3.6%***	-20.7%
2010	***-2.4%***	***-2.4%***
2011	1.4%	***15.9%***
2012	6.3%	***11.7%***
2013	***8.1%***	4.5%
2014	***10.8%***	9.3%
2015	***8.0%***	7.3%
2016	***7.5%***	5.0%

Source: FDIC. Annual loan growth is merger adjusted.

Post-Crisis Stabilization of Community Bank Market Share

After losing half their share of industry loans in the 20 years leading up to the crisis, community banks hold the same share of industry loans as they did 9.5 years ago.

Community Bank Share of Banking Industry Total Loans and Leases



Source: FDIC. Per the FDIC research definition of the community bank (2012).

A Path to Normalization?

Overview	• Bank earnings, credit quality and loan growth have recovered, led by community banks.
Headwinds	• NIMs and profitability remain squeezed in the slow-growth, low-rate environment.
Path to improvement	• A gradual transition to higher interest rates and faster economic growth would help to restore profitability.
Positive developments	• Rising price-to-book premiums signal new optimism about profitability and new bank formation.
Emerging risks	• Institutions with mismatched portfolios – in terms of repricing and/or liquidity – could be vulnerable to a rapid rise in interest rates or outflows of deposit funding. • A large decline in the value richly-priced equities and real estate could push credit losses higher. • Rapid increases in CRE financing could indicate rising credit risks in some markets.

Discussion