

Brown Sugar:

Deriving Satisfaction through Data Analysis

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Sage Policy Group, Inc.

March 13th, 2018

On Behalf of

Department of Energy

2018 Project

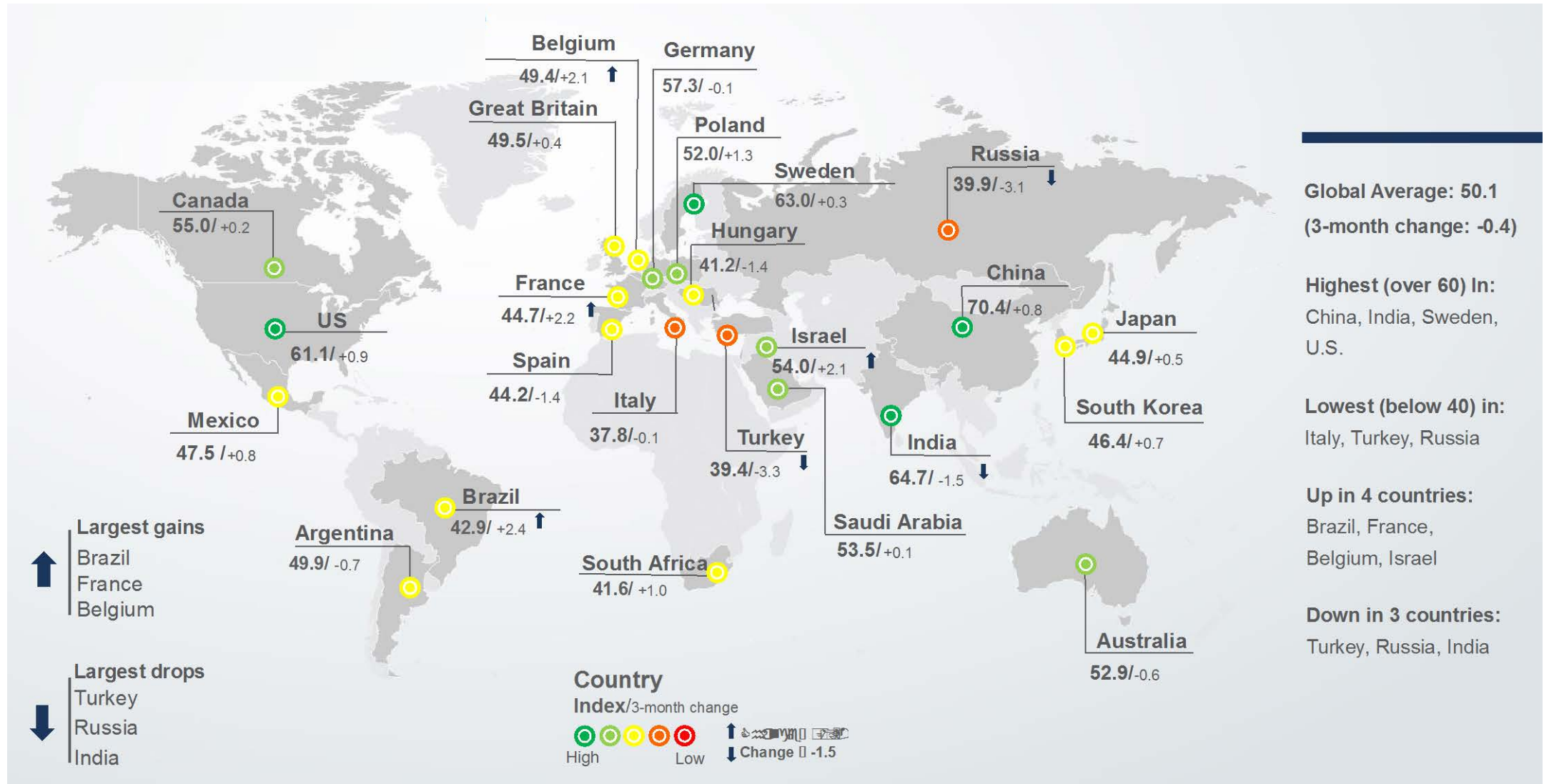
Management Workshop

*Disclaimer: Any resemblance
between the presentation's title
and the speaker is purely coincidental.*

Get off of My Cloud

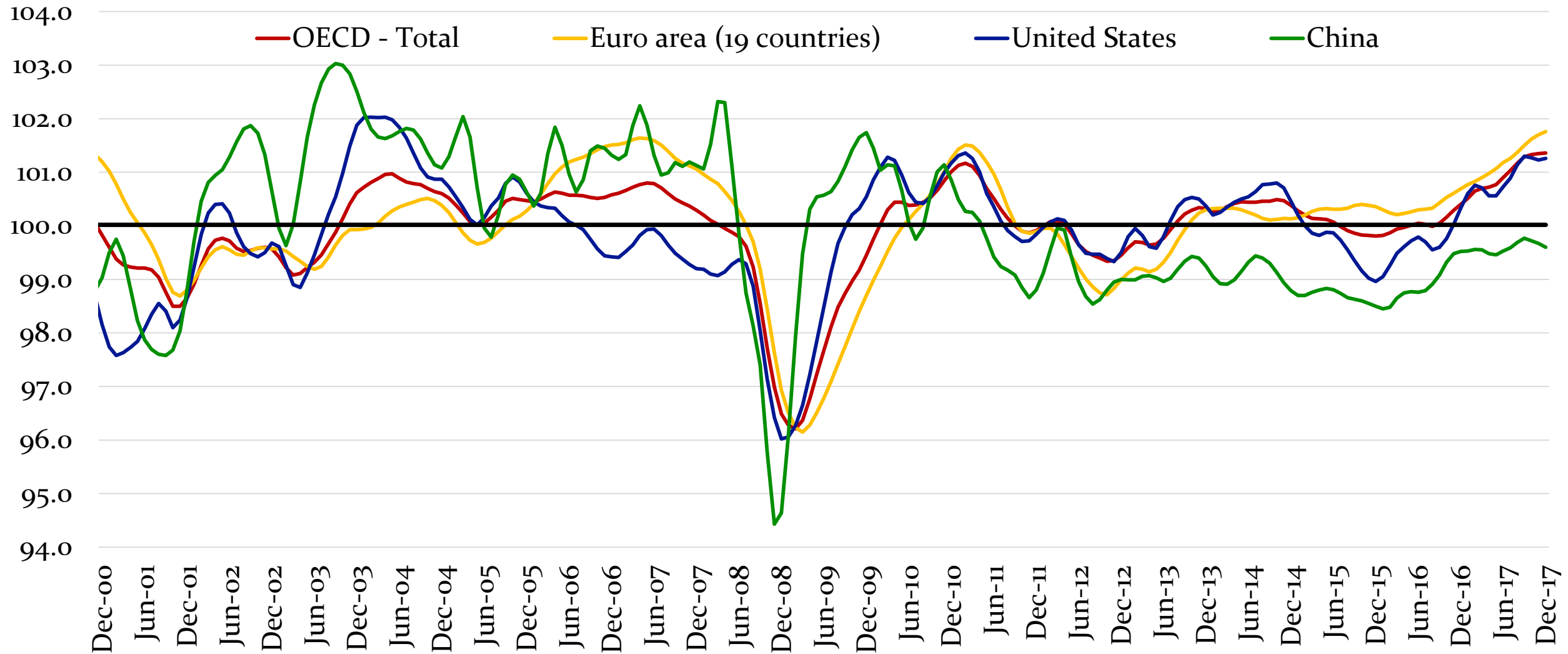


IPSOS Global Confidence Index, January 2018



OECD Business Confidence Index –Select Regions/Countries

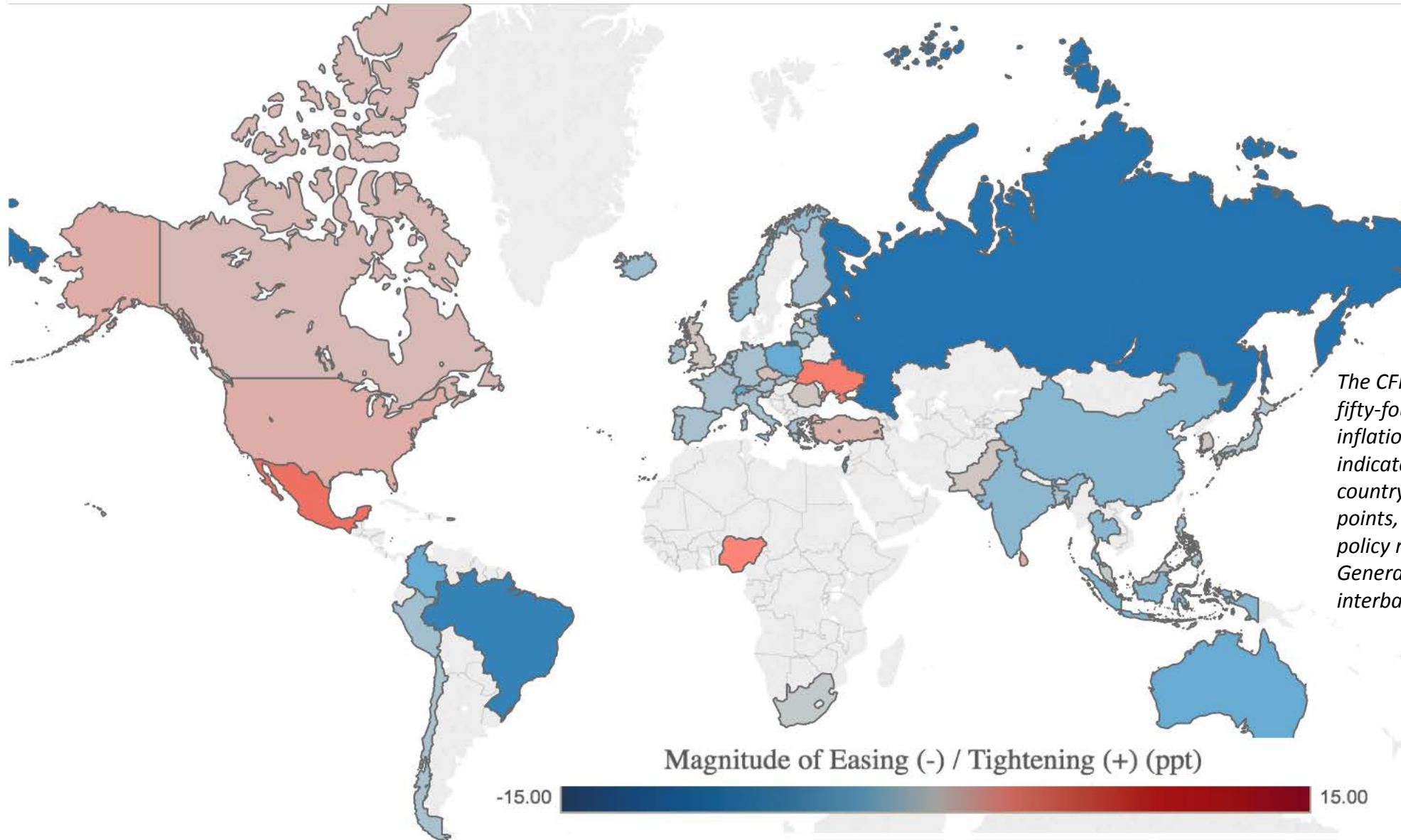
2000-2017



The business confidence index (BCI) is based on enterprises' assessment of production, orders and stocks, as well as its current position and expectations for the immediate future. Opinions compared to a "normal" state are collected and the difference between positive and negative answers provides a qualitative index on economic conditions. Source: OECD

Global Monetary Policy Tightening/Easing

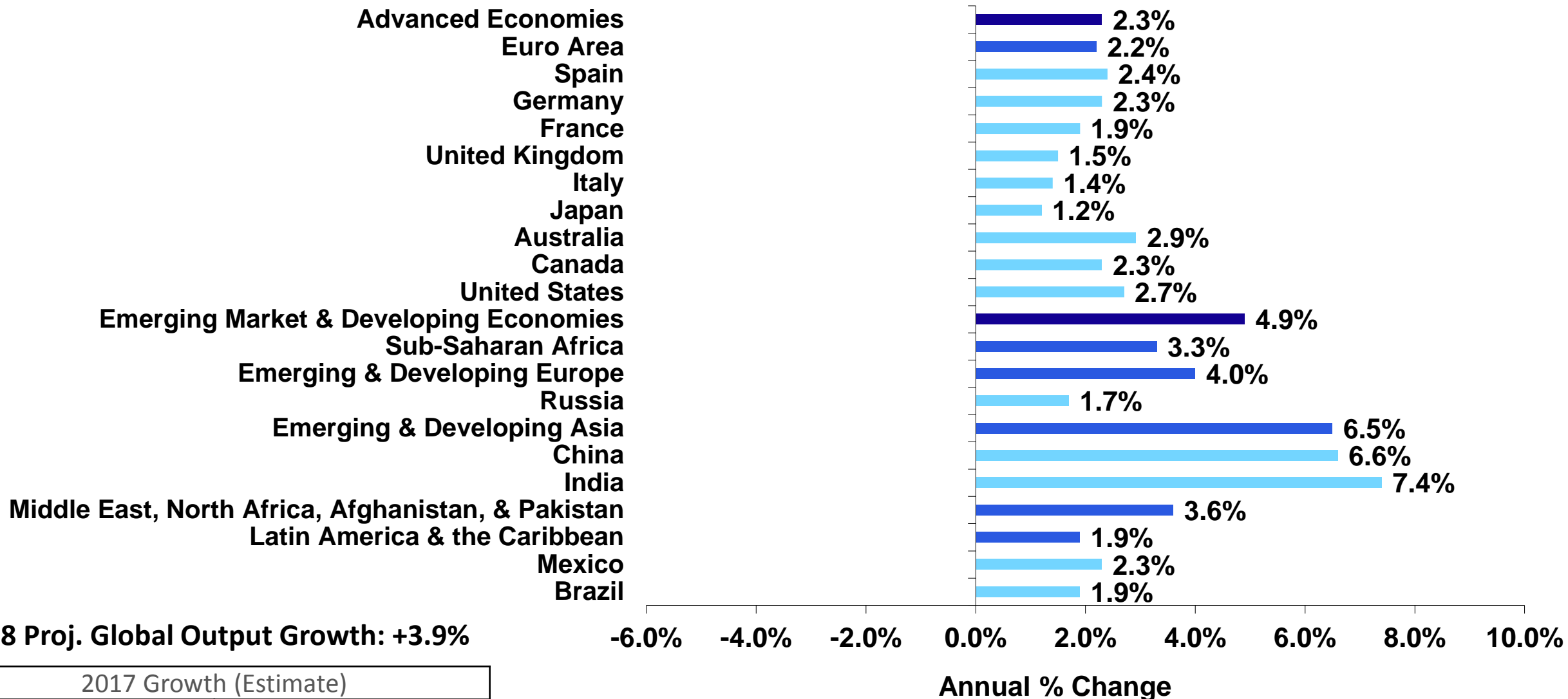
As of January 2018



The CFR Global Monetary Policy Tracker covers fifty-four large countries—mainly those that target inflation in some manner. Tightening policy is indicated in red, loosening in blue. The more a country has raised (lowered) rates, in percentage points, from the most recent trough (peak) in its policy rate, the darker the shade of red (blue). Generally, the policy rate target is the overnight interbank rate, with exceptions indicated.

Estimated Growth in Output by Select Global Areas

2018 Projected



2017 Growth (Estimate)	
World: 3.7%	Euro Area: 2.4%
United States: 2.3%	Japan: 1.8%

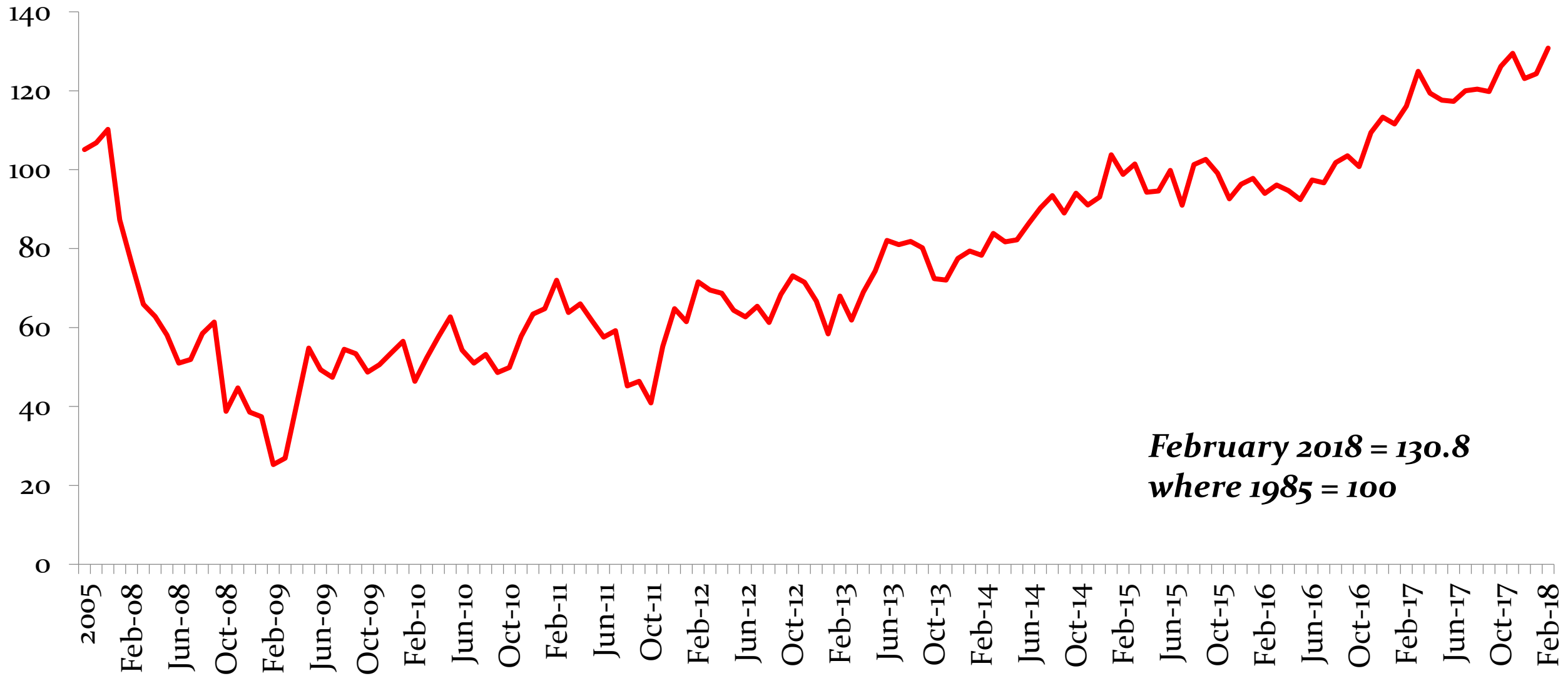
Source: International Monetary Fund: World Economic Outlook Update, January 2018

Start Me Up



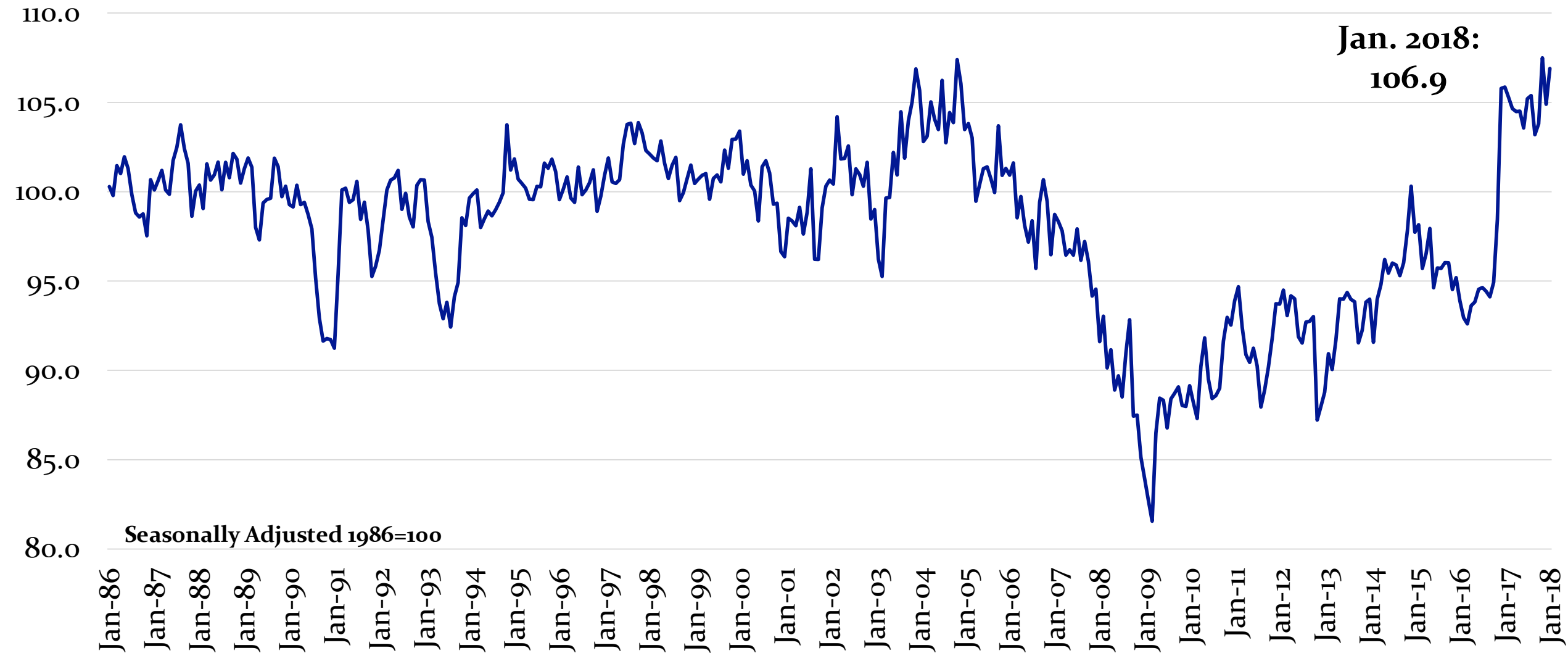
Conference Board Consumer Confidence Index

2005 – February 2018



**February 2018 = 130.8
where 1985 = 100**

NFIB Index of Small Business Optimism, 1986-2018

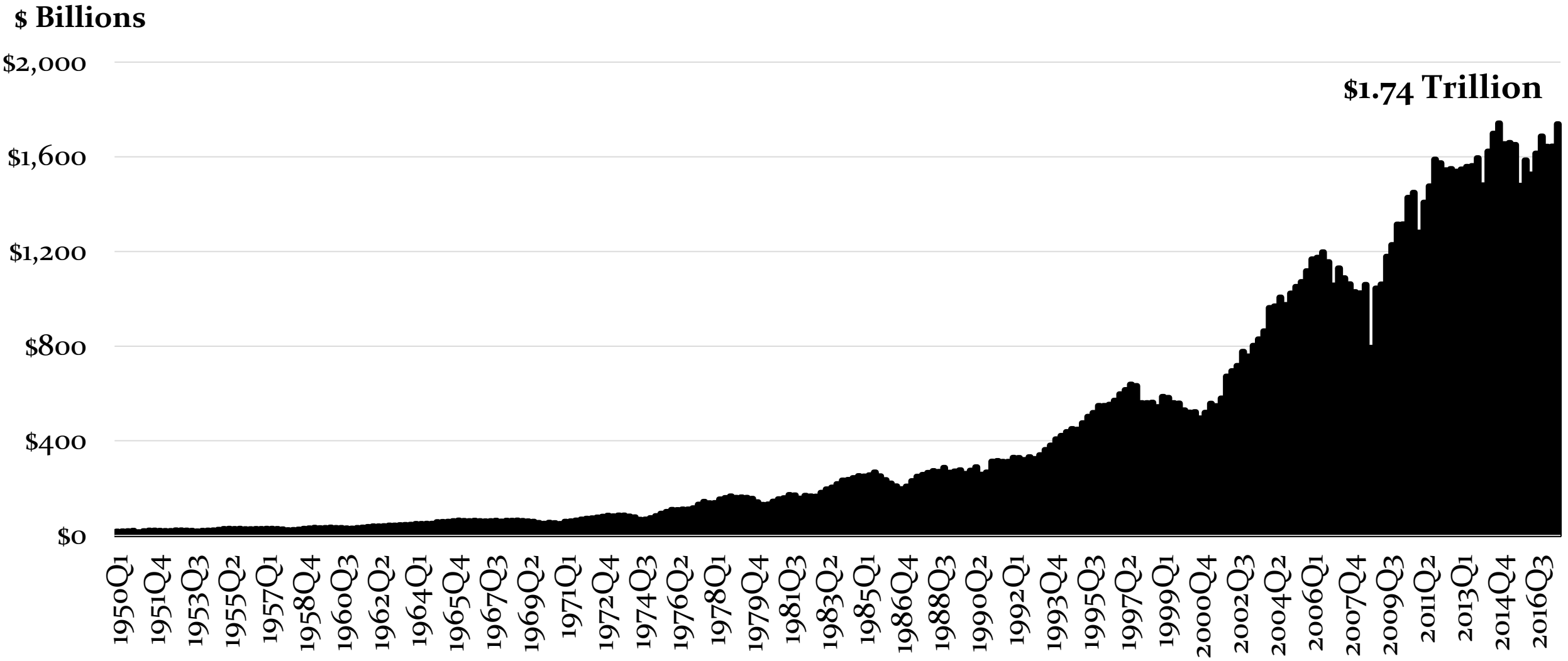


**Jan. 2018:
106.9**

Seasonally Adjusted 1986=100

Paint It Black – Corporate Profits

*U.S. Corporate Profits After Tax**



- About 50 power reactors are currently under construction in 13 countries — including in China, India, UAE and Russia.
- Plant lifetime extension programs are maintaining capacity, particularly in the U.S.
- In all, about 160 power reactors with a total gross capacity of some 160,000 MWe are on order or planned and at least 300 more have been proposed.

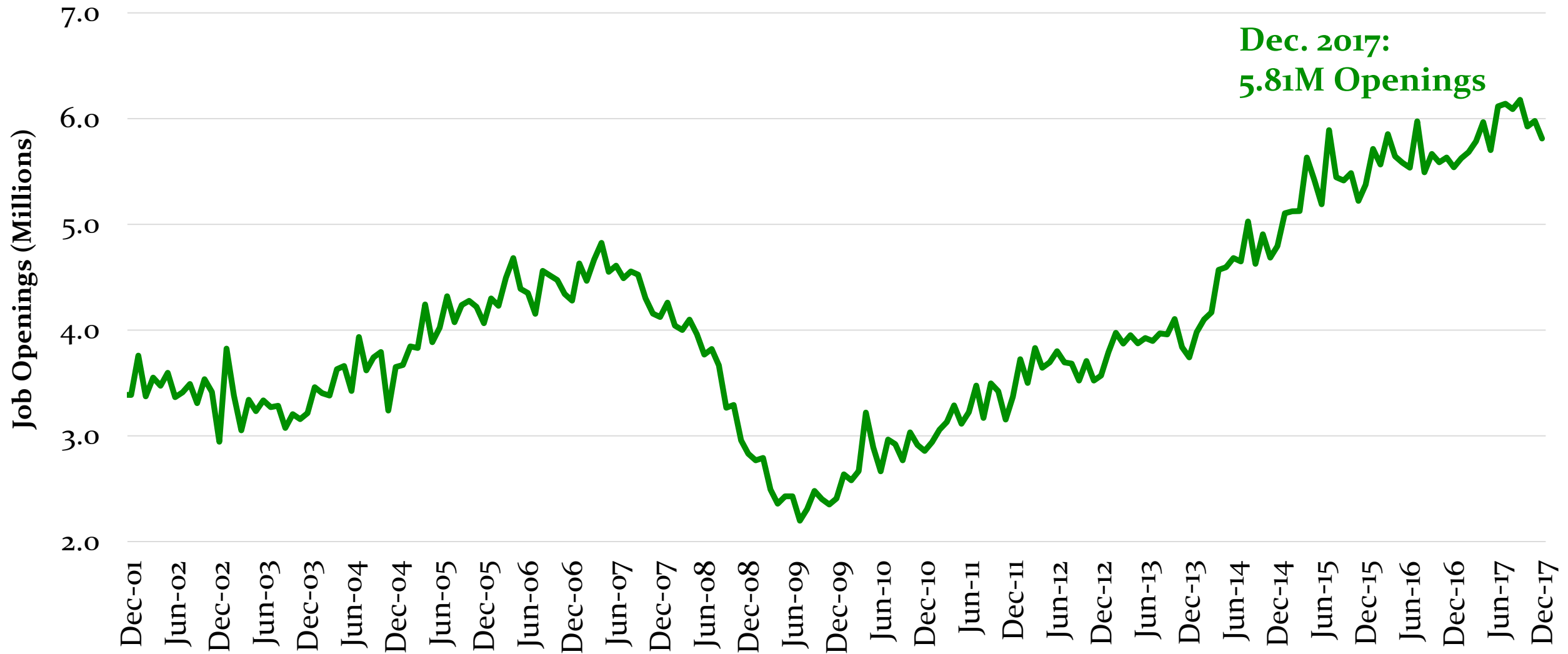
- Despite challenges, in the last 5 years, some 55 nuclear entrepreneurial startups have cropped up with a total of \$1.6 billion in funding.
- The old-school nuclear power industry is undergoing a period of entrepreneurial innovation, with tech billionaires investing in nuclear power startups.
- Small modular reactors (SMR) are also being designed in the U.S., which could address some of the problems associated with large nuclear plants (problems such as the huge capital investment required and certain safety issues).

U.S. Nuclear Power Startups Get the Backing of Tech Giants

- **Terra Power:** As chairman of the board, Bill Gates has invested a large sum of his wealth to develop the company's Travel Wave Reactor, an energy system that uses depleted uranium and only needs to be refueled every 40 to 60 years.
- **General Fusion:** The company uses high-tech hammers to trigger nuclear fusion, a process called "magnetized target fusion." The Vancouver-based company has raised \$94 million and is backed by Amazon CEO Jeff Bezos.
- **Tri Alpha Energy:** Microsoft's co-founder Paul Allen has invested heavily in California based Tri Alpha. The company is pursuing what it calls "friendly fusion" with a combination of particle accelerators and plasma physics. They even have an operational generator named Norman that we could see in action in the next decade.
- **Helion Energy:** The company is developing the "Fusion Engine," which they say will be 1,000 times smaller and 500 times cheaper than the competition. Helion hopes to have a working reactor by 2019. PayPal co-founder Peter Thiel has invested in the endeavor, alongside NASA, the Department of Energy, and DoD.

U.S. Job Openings

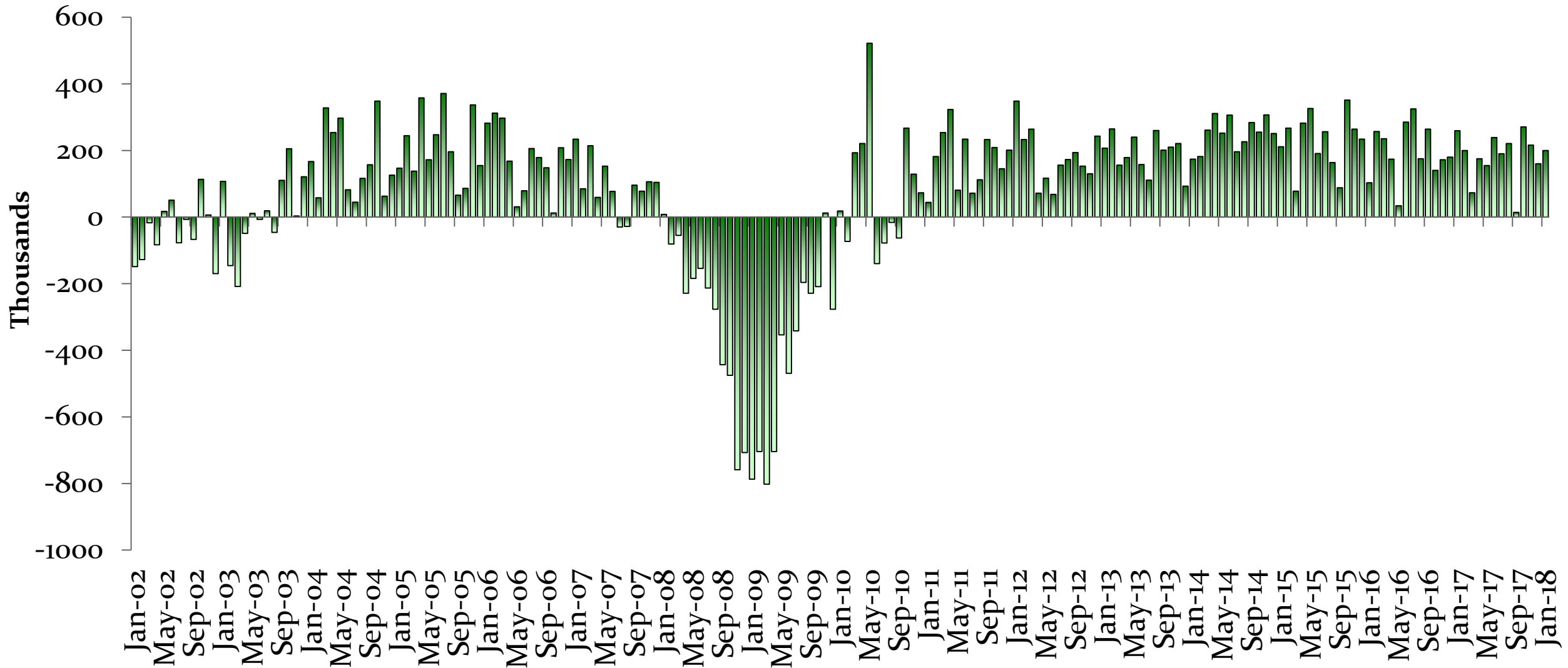
December 2001 through December 2017



**Dec. 2017:
5.81M Openings**

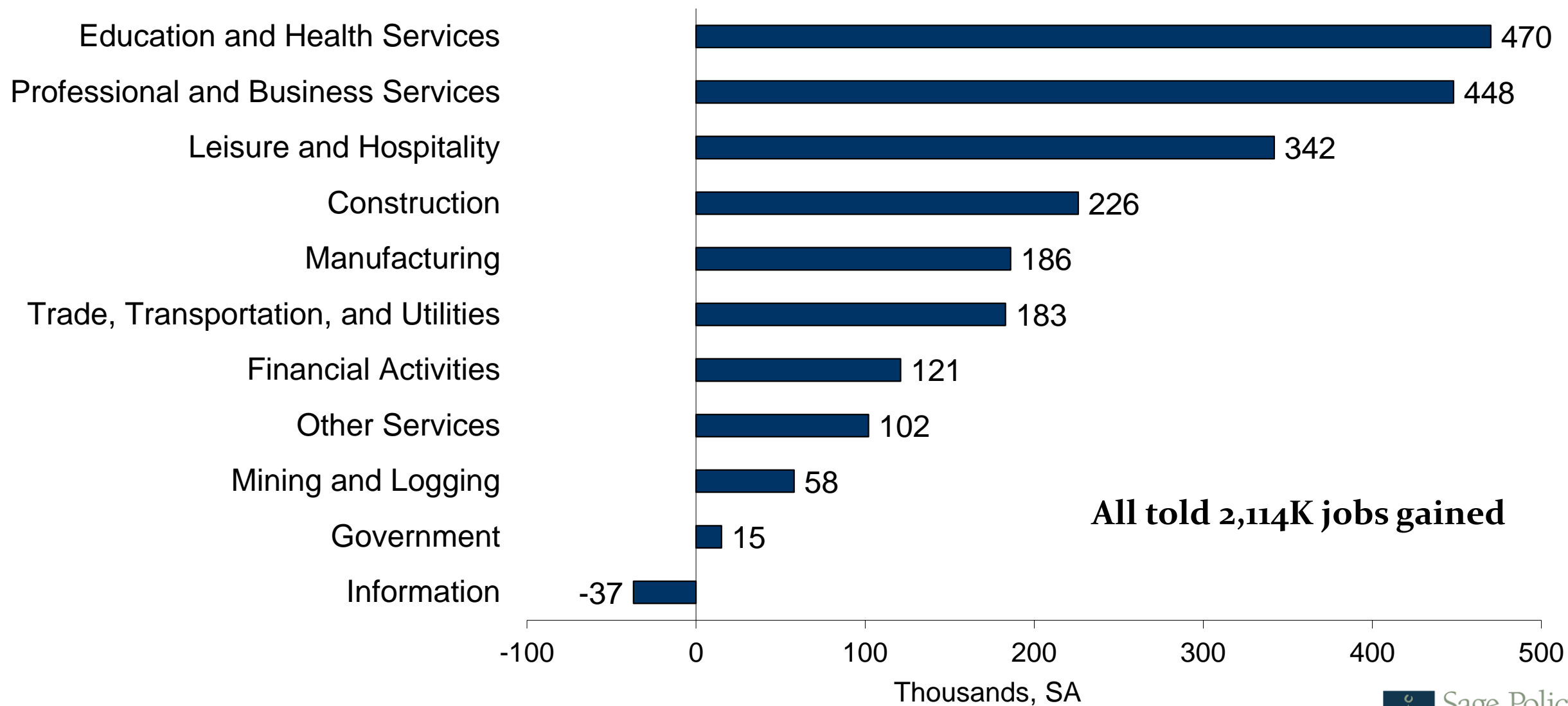
Net Change in U.S. Jobs, BLS

January 2002 through January 2018



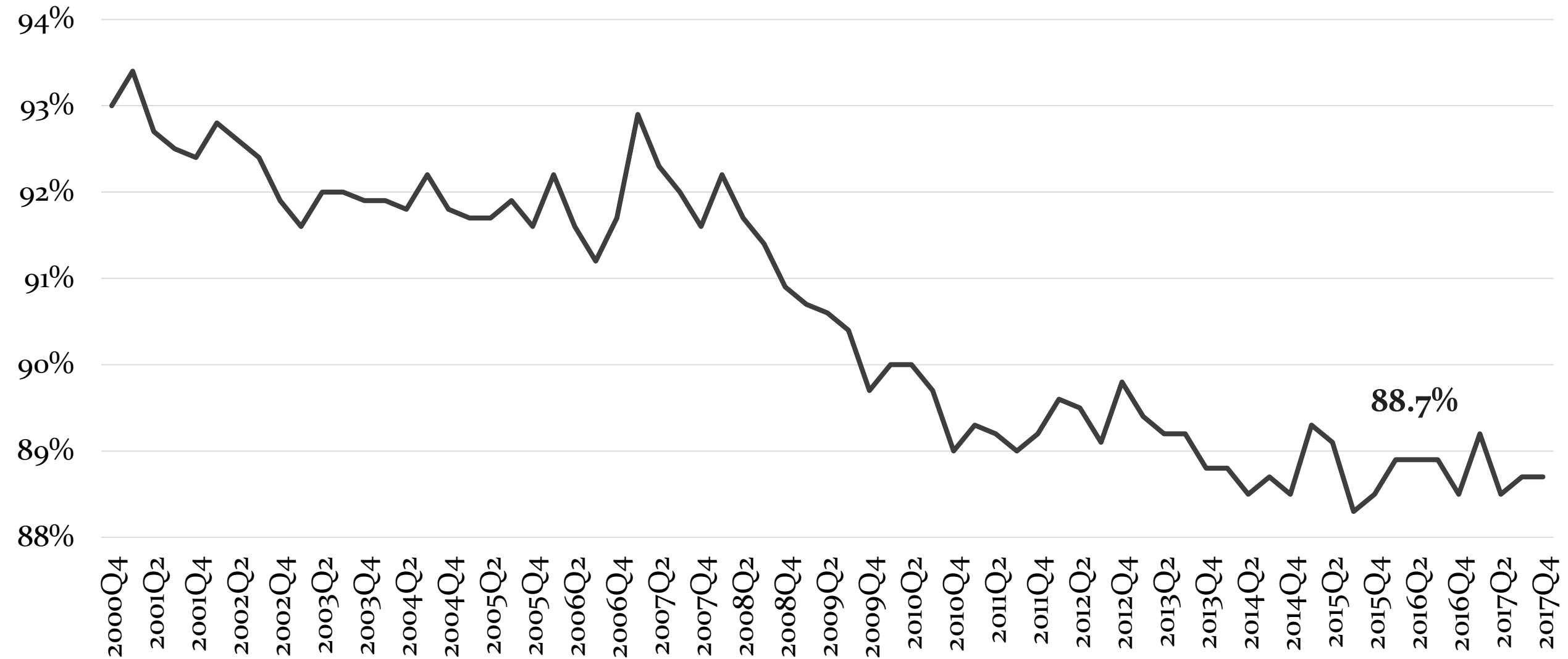
National Nonfarm Employment

by Industry Sector, January 2017 v. January 2018



U.S. Labor Force Participation: Men Ages 25-34

2000 – 2017



Employment Growth, U.S. States (SA)

December 2016 v. December 2017 Percent Change

RANK	STATE	%	RANK	STATE	%	RANK	STATE	%
1	NEVADA	3.3	18	WISCONSIN	1.4	33	SOUTH DAKOTA	0.9
2	OREGON	2.7	19	ARIZONA	1.3	36	MAINE	0.8
3	UTAH	2.6	19	MICHIGAN	1.3	36	MISSOURI	0.8
4	FLORIDA	2.5	19	MINNESOTA	1.3	36	NEW HAMPSHIRE	0.8
4	TEXAS	2.5	19	PENNSYLVANIA	1.3	36	VERMONT	0.8
6	SOUTH CAROLINA	2.2	23	NEW MEXICO	1.2	36	VIRGINIA	0.8
7	CALIFORNIA	2.1	23	OKLAHOMA	1.2	41	OHIO	0.7
7	IDAHO	2.1	23	RHODE ISLAND	1.2	42	NEW JERSEY	0.6
7	WASHINGTON	2.1	26	MARYLAND	1.1	43	CONNECTICUT	0.5
10	COLORADO	2.0	26	HAWAII	1.1	43	ILLINOIS	0.5
11	GEORGIA	1.9	26	KENTUCKY	1.1	45	KANSAS	0.4
12	IOWA	1.8	26	NEBRASKA	1.1	45	NORTH DAKOTA	0.4
12	MASSACHUSETTS	1.8	30	DISTRICT OF COLUMBIA	1.0	45	WYOMING	0.4
12	MONTANA	1.8	30	NEW YORK	1.0	48	LOUISIANA	0.3
15	ALABAMA	1.7	30	TENNESSEE	1.0	49	WEST VIRGINIA	0.2
15	NORTH CAROLINA	1.7	33	ARKANSAS	0.9	50	DELAWARE	-0.1
17	MISSISSIPPI	1.6	33	INDIANA	0.9	51	ALASKA	-0.7

U.S. Year-over-year Percent Change: +1.5%

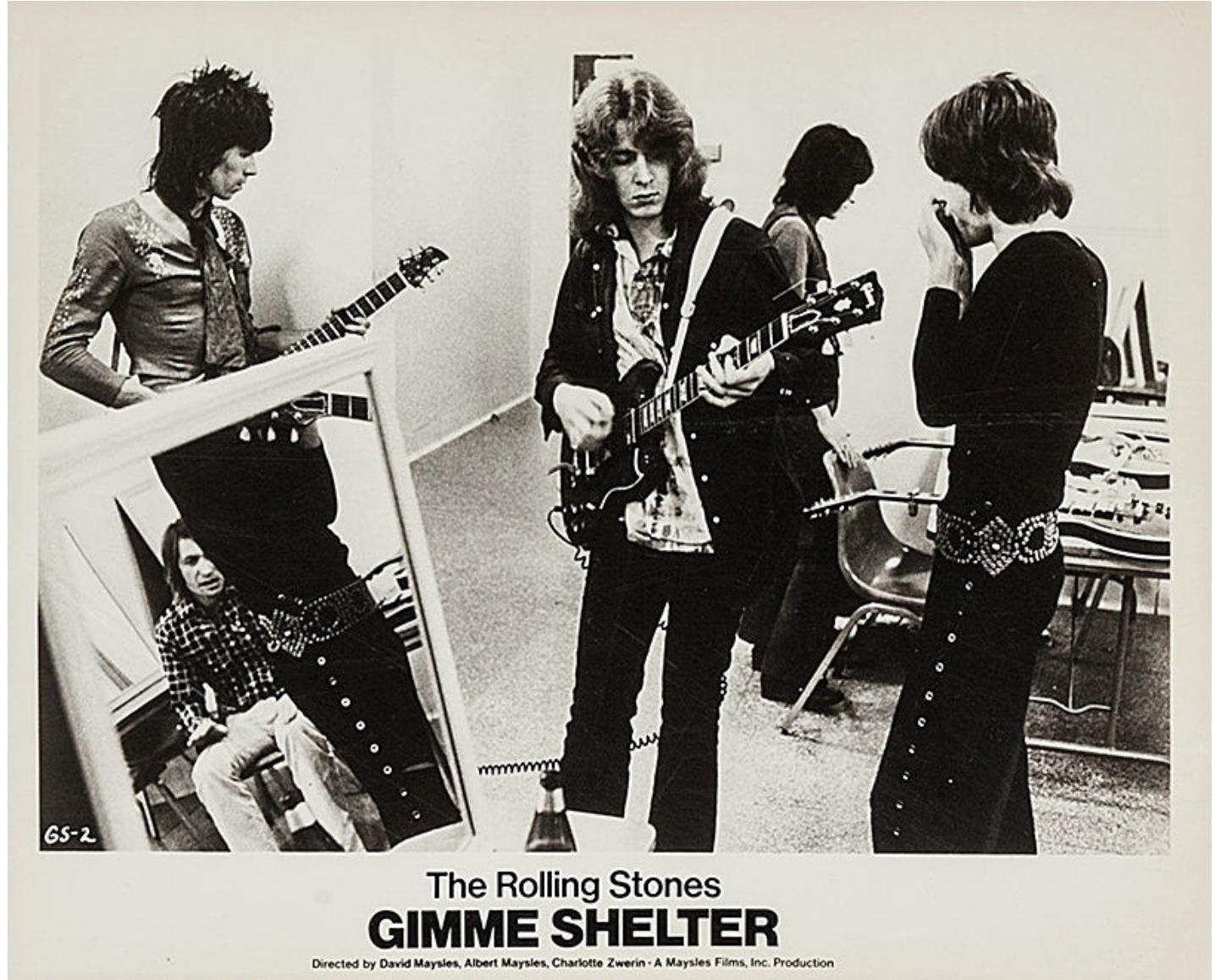
Unemployment Rates, 25 Largest Metros (NSA)

December 2017

Rank	MSA	UR	Rank	MSA	UR
1	San Francisco-Oakland-Hayward, CA MSA	2.7	13	Los Angeles-Long Beach-Anaheim, CA MSA	3.9
2	Boston-Cambridge-Nashua, MA-NH Metro NECTA	2.8	13	Miami-Fort Lauderdale-West Palm Beach, FL MSA	3.9
3	Denver-Aurora-Lakewood, CO MSA	2.9	13	Phoenix-Mesa-Scottsdale, AZ MSA	3.9
3	Minneapolis-St. Paul-Bloomington, MN-WI MSA	2.9	17	New York-Newark-Jersey City, NY-NJ-PA MSA	4.0
5	San Antonio-New Braunfels, TX MSA	3.0	18	Atlanta-Sandy Springs-Roswell, GA MSA	4.1
6	Dallas-Fort Worth-Arlington, TX MSA	3.1	18	Riverside-San Bernardino-Ontario, CA MSA	4.1
7	Washington-Arlington-Alexandria, DC-VA-MD-WV MSA	3.3	18	Seattle-Tacoma-Bellevue, WA MSA	4.1
7	Orlando-Kissimmee-Sanford, FL MSA	3.3	21	Charlotte-Concord-Gastonia, NC-SC MSA	4.2
7	San Diego-Carlsbad, CA MSA	3.3	21	Detroit-Warren-Dearborn, MI MSA	4.2
10	St. Louis, MO-IL MSA (1)	3.4	21	Philadelphia-Camden-Wilmington, PA-NJ-DE-MD MSA	4.2
10	Tampa-St. Petersburg-Clearwater, FL MSA	3.4			
12	Portland-Vancouver-Hillsboro, OR-WA MSA	3.6	24	Houston-The Woodlands-Sugar Land, TX MSA	4.3
13	Baltimore-Columbia-Towson, MD MSA	3.9	25	Chicago-Naperville-Elgin, IL-IN-WI MSA	4.7

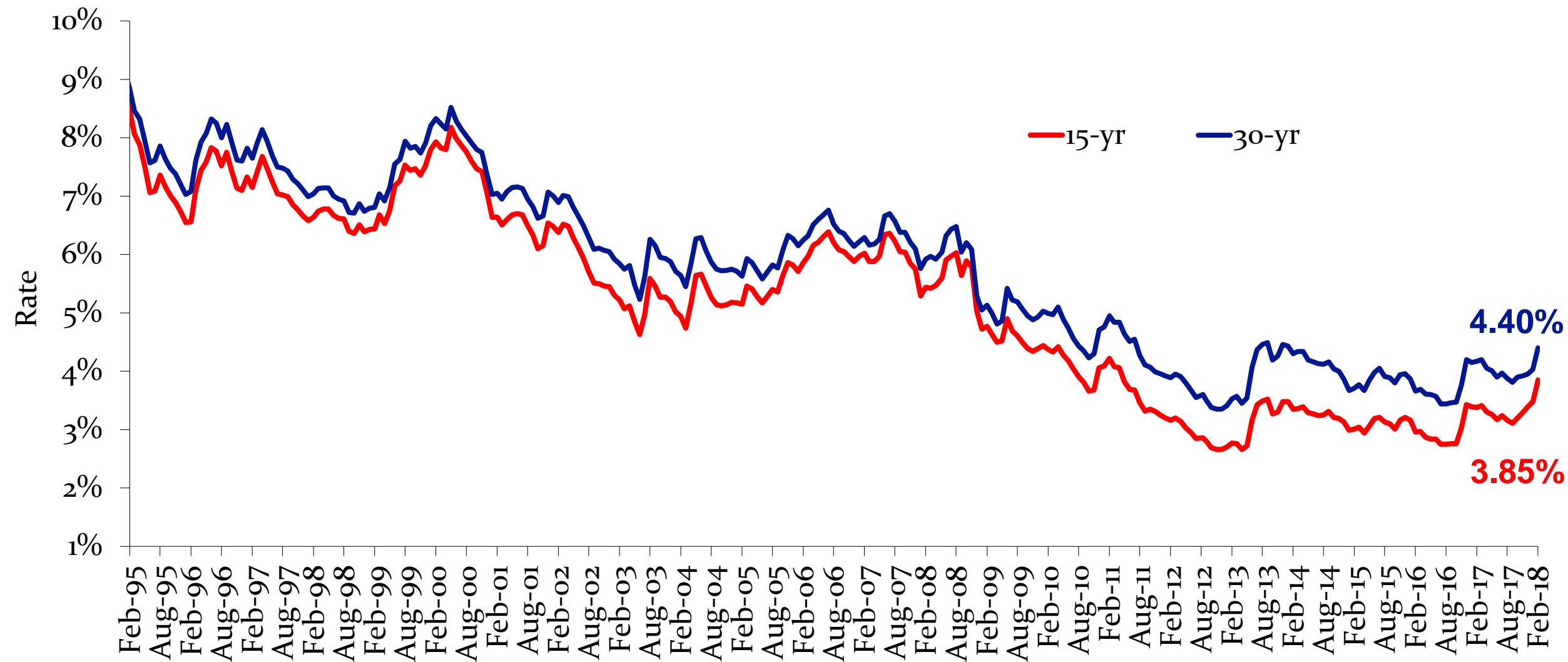
U.S. Unemployment Rate: 4.1%

Gimme Shelter



15-Year & 30-Year Fixed Mortgage Rates

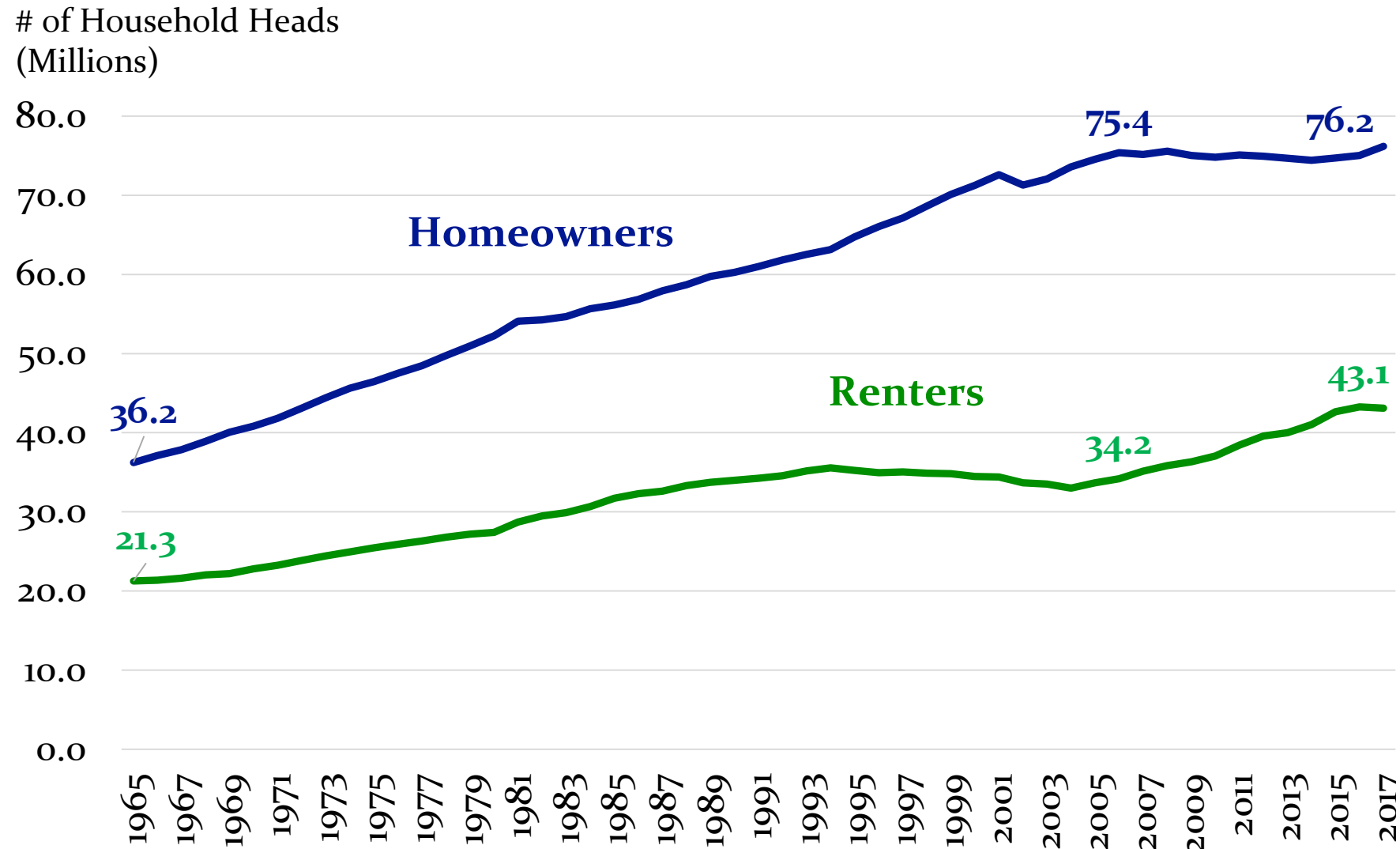
February 1995 through February 2018*



*Week ending 2/22/2018

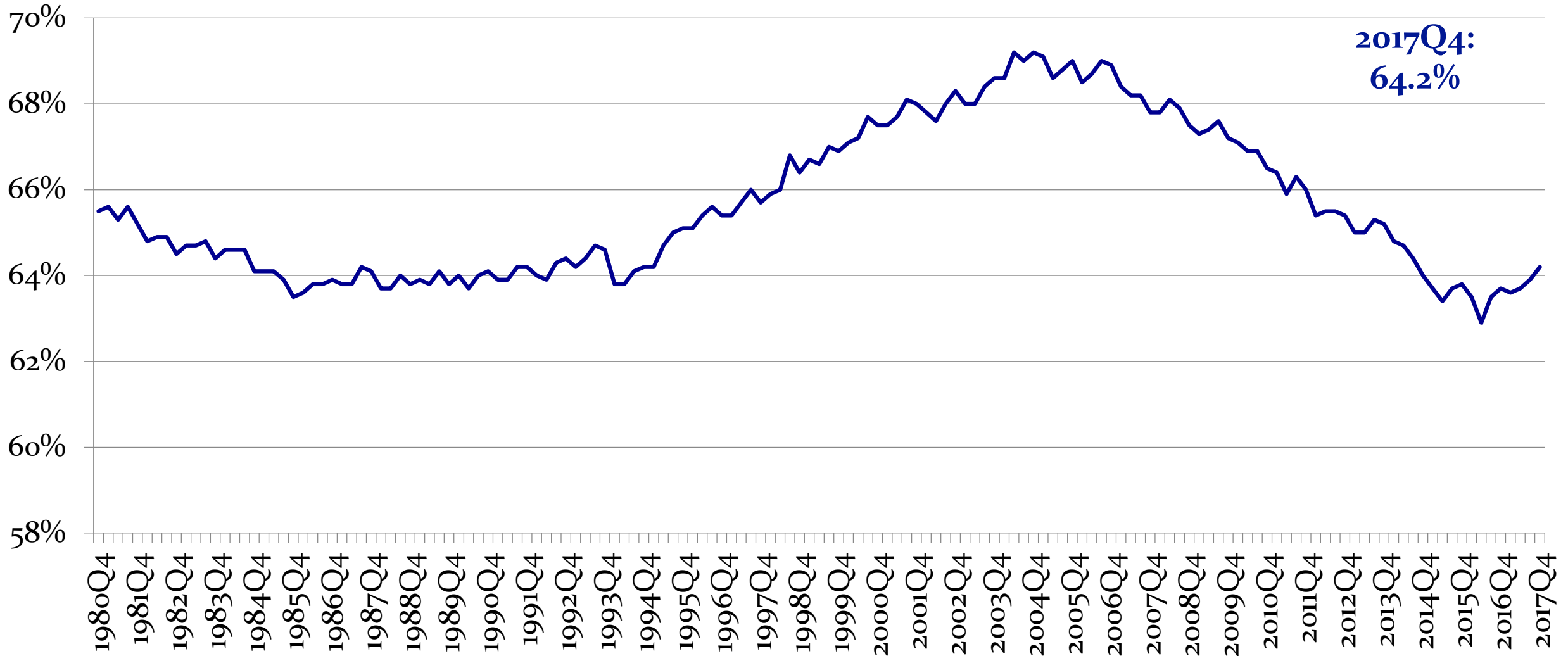
U.S. Households: Owner v. Renter Occupied, 1965-2017

- From 2006-2017 the number of households headed by owners remained relatively flat.
- At the same time, the number of households renting their home increased significantly (+26%).
- The share of renter households also increased—from 31.2% of households in 2006 to 36.1% in 2017.



U.S. Homeownership (NSA)

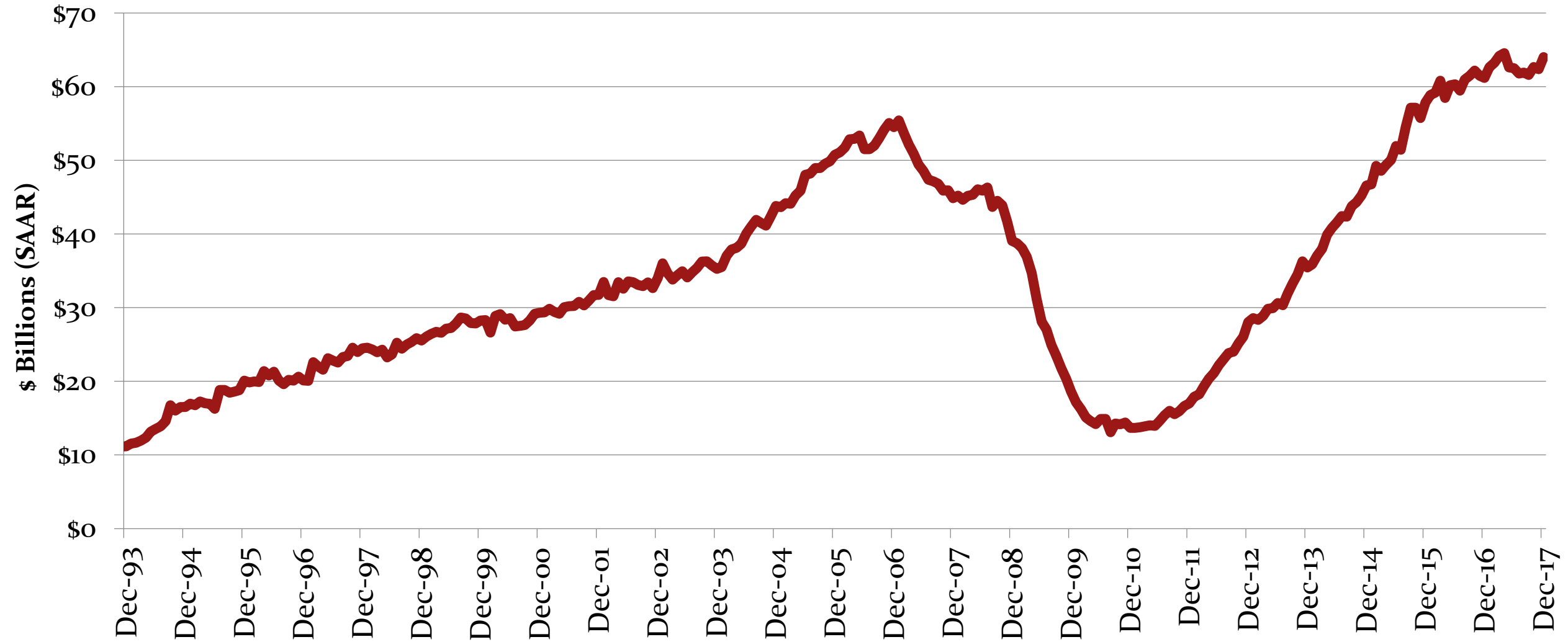
1980Q4-2017Q4



2017Q4:
64.2%

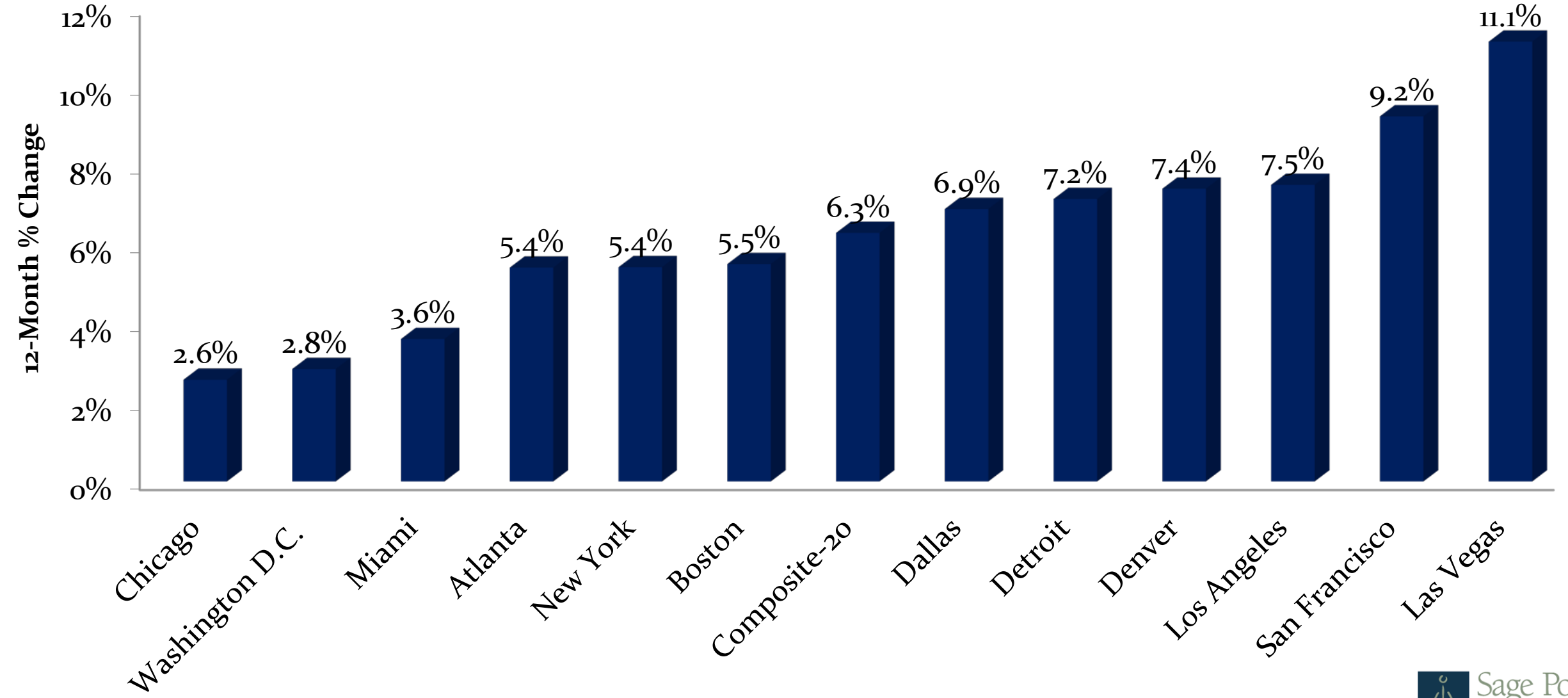
U.S. Private New Multifamily Construction

December 1993 through December 2017



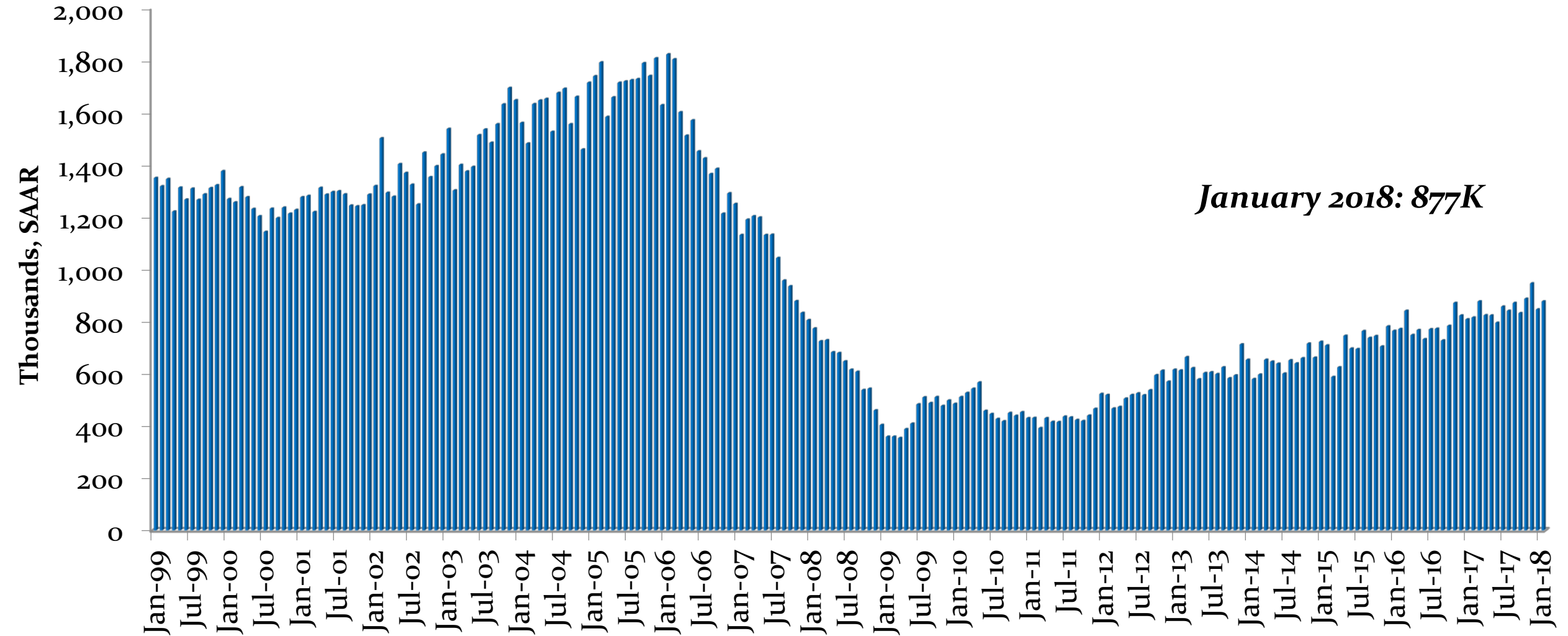
S&P/Case-Shiller Home Price Indices for Select Metros

December 2017, 12-Month Percentage Change



U.S. Single-Family Housing Starts

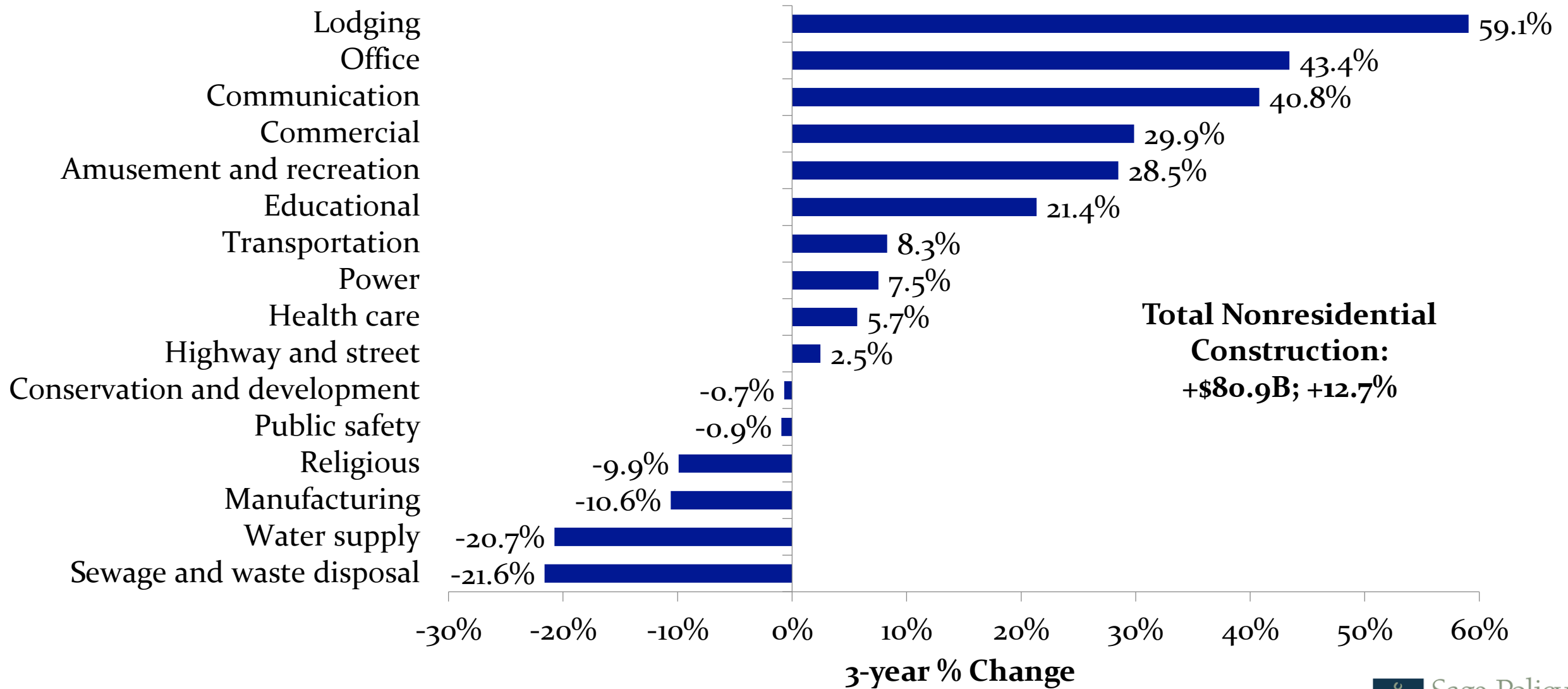
January 1999 through January 2018



January 2018: 877K

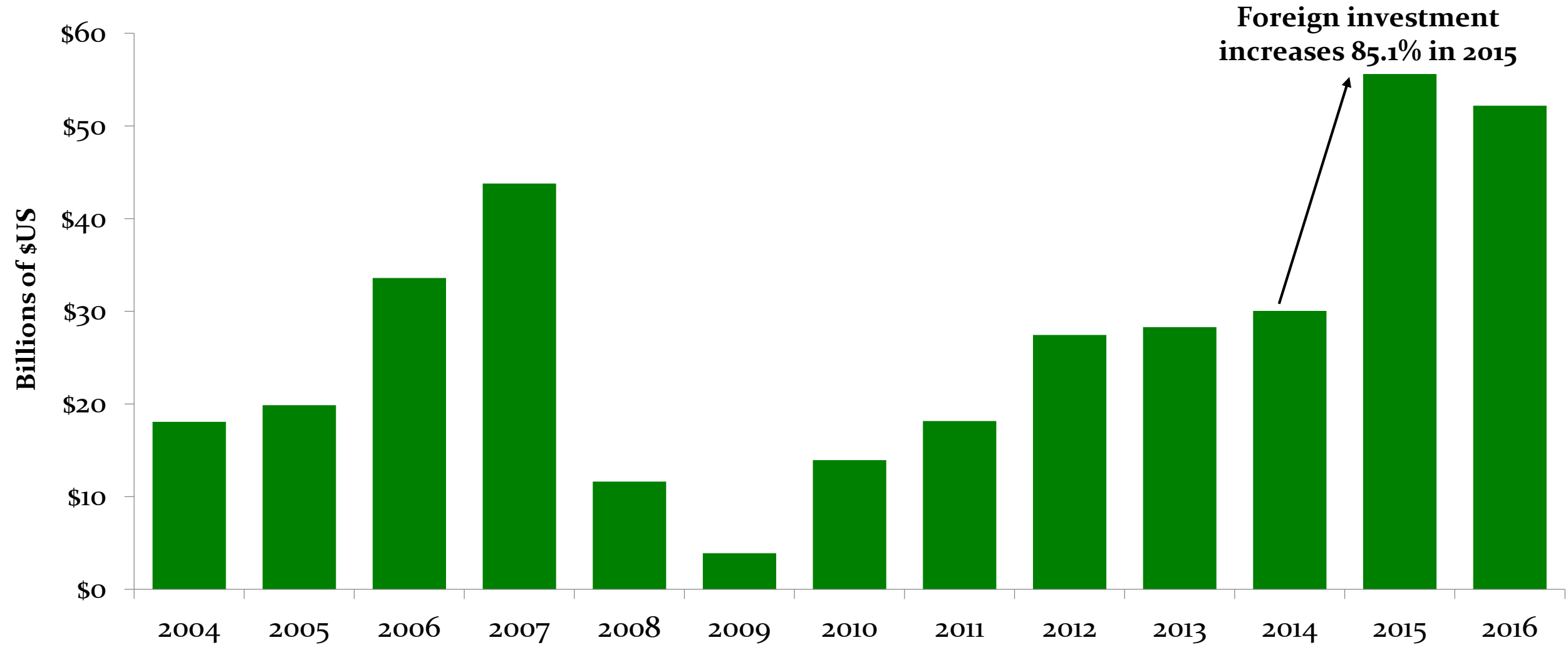
National Nonresidential Construction Spending by Subsector

December 2014 v. December 2017



Commercial/Multifamily Offshore Investment Sales

Volumes Reach New Heights in 2015/16

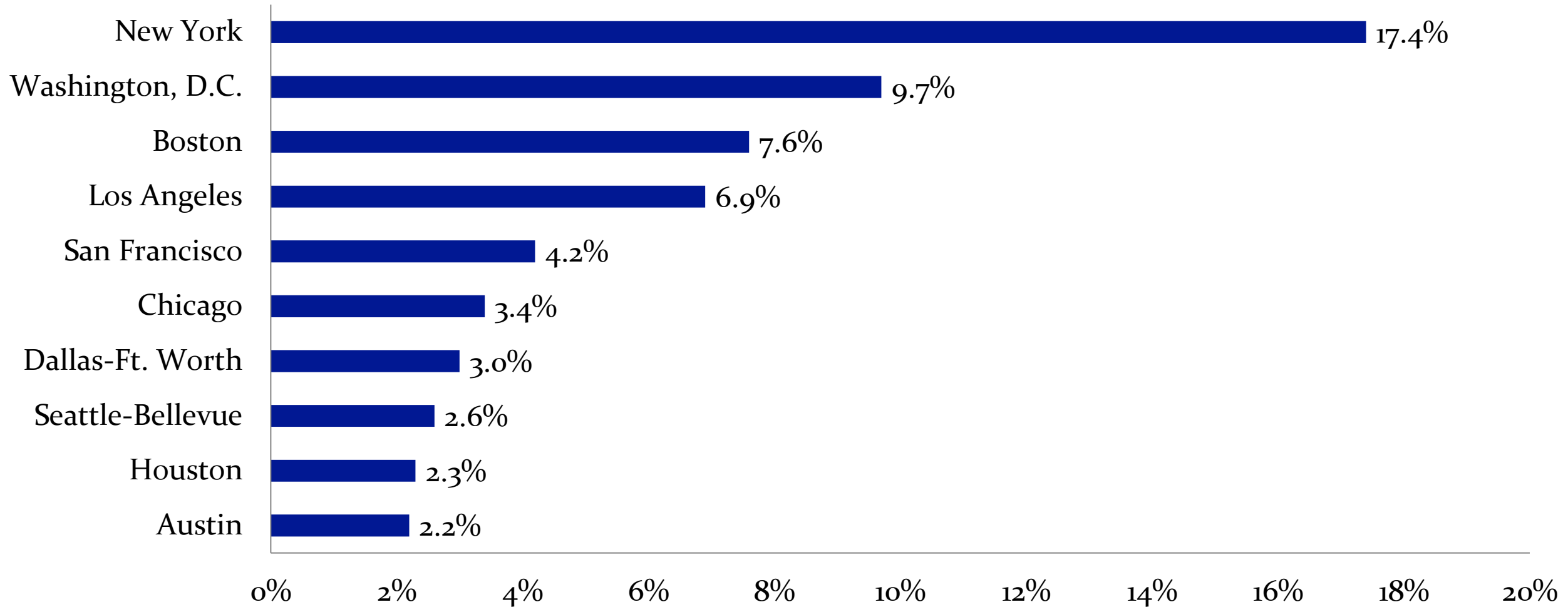


Cross-border investment remained elevated in 2016:
Although down relative to a record 2015, offshore investment levels still exceeded the pre-2015 high in 2007.

Foreign Investment in U.S. Commercial Real Estate

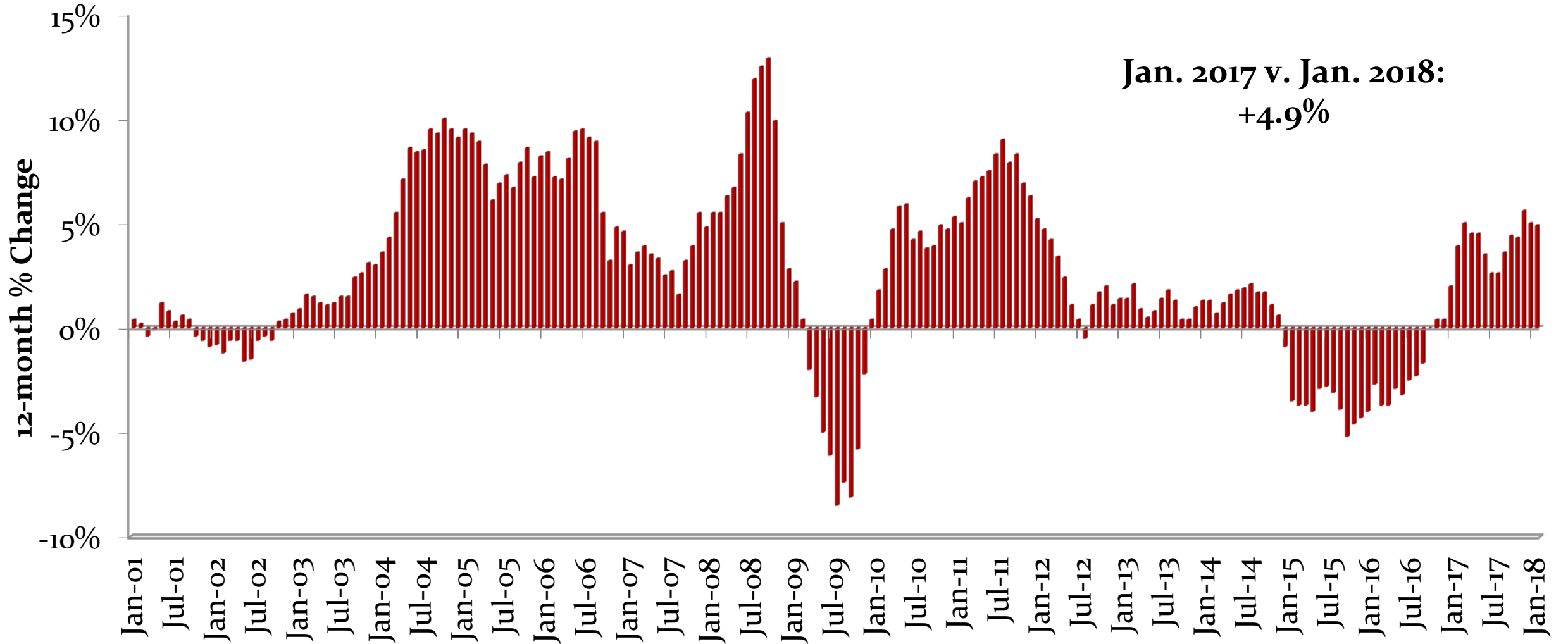
Top Destination Markets, 2017H1

Foreign Investment by Destination Market (as a % of Total)



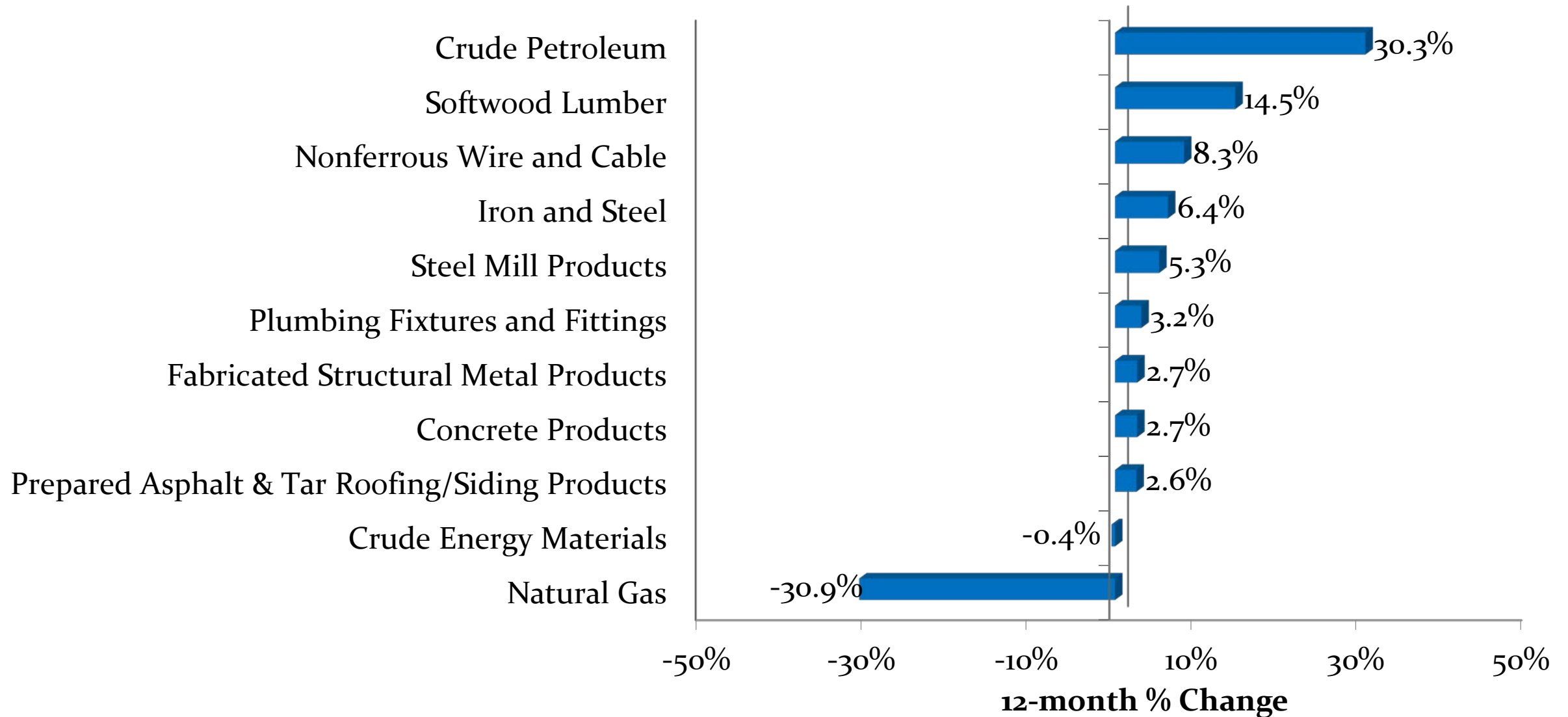
Inputs to Construction PPI (NSA)

January 2001 – January 2018

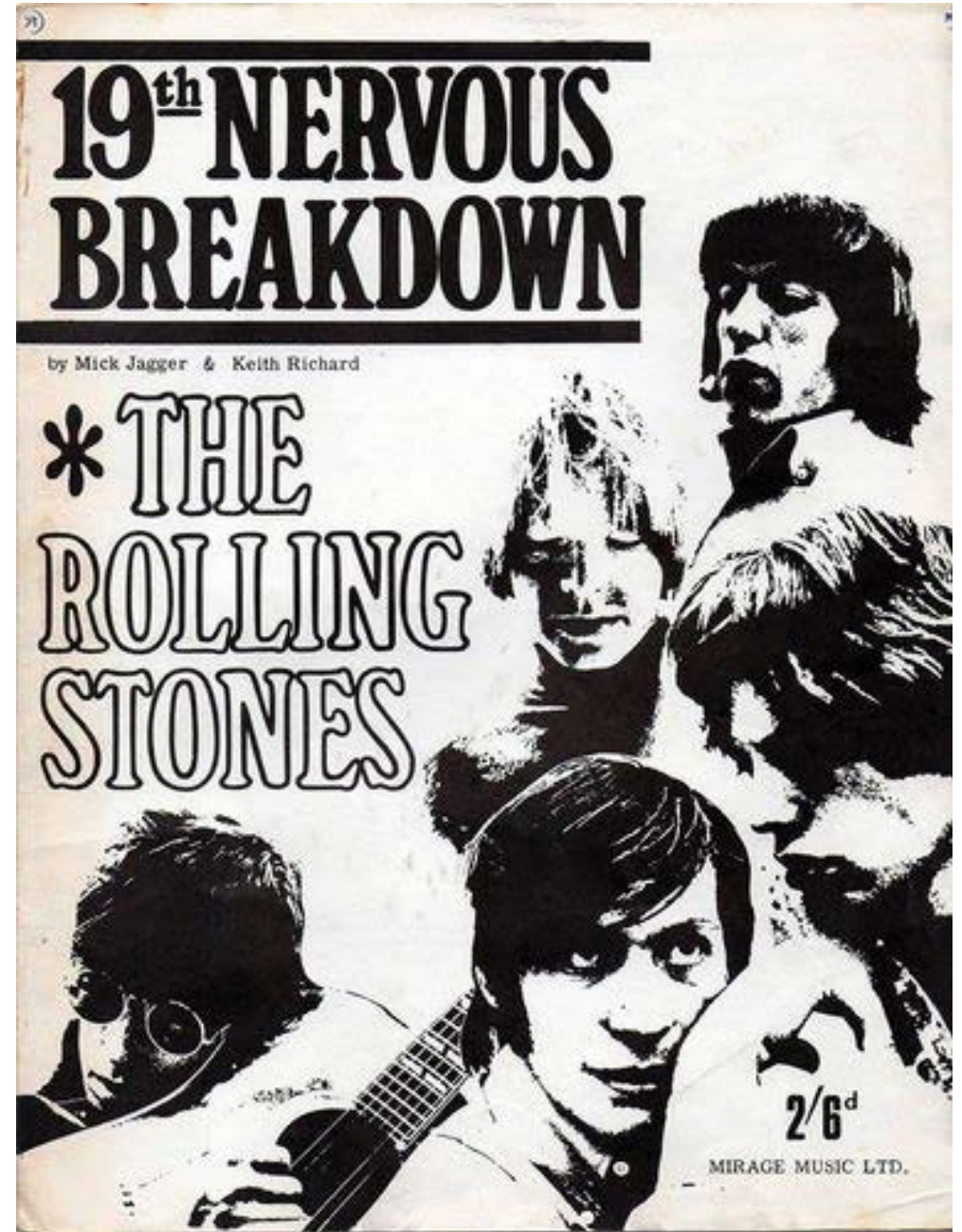


Construction Materials PPI (NSA)

12-month % Change as of January 2018

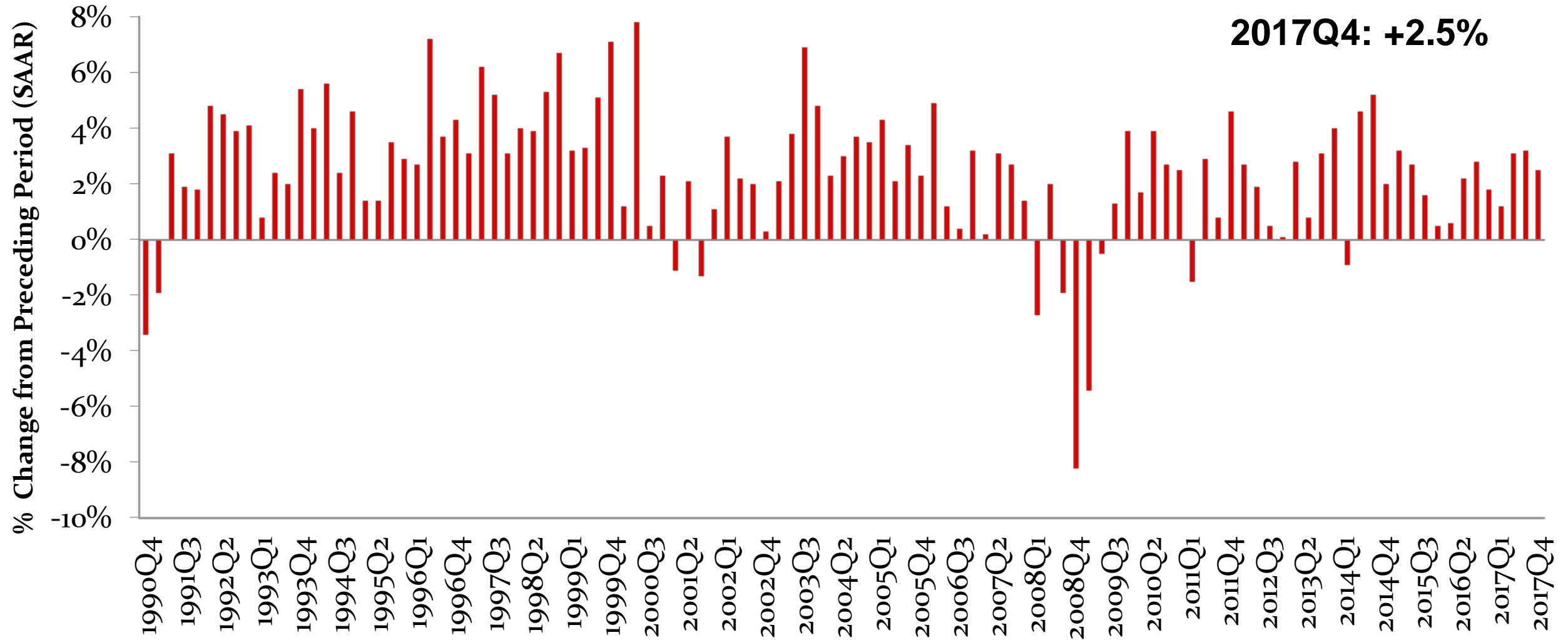


19th
Nervous
Breakdown



Gross Domestic Product

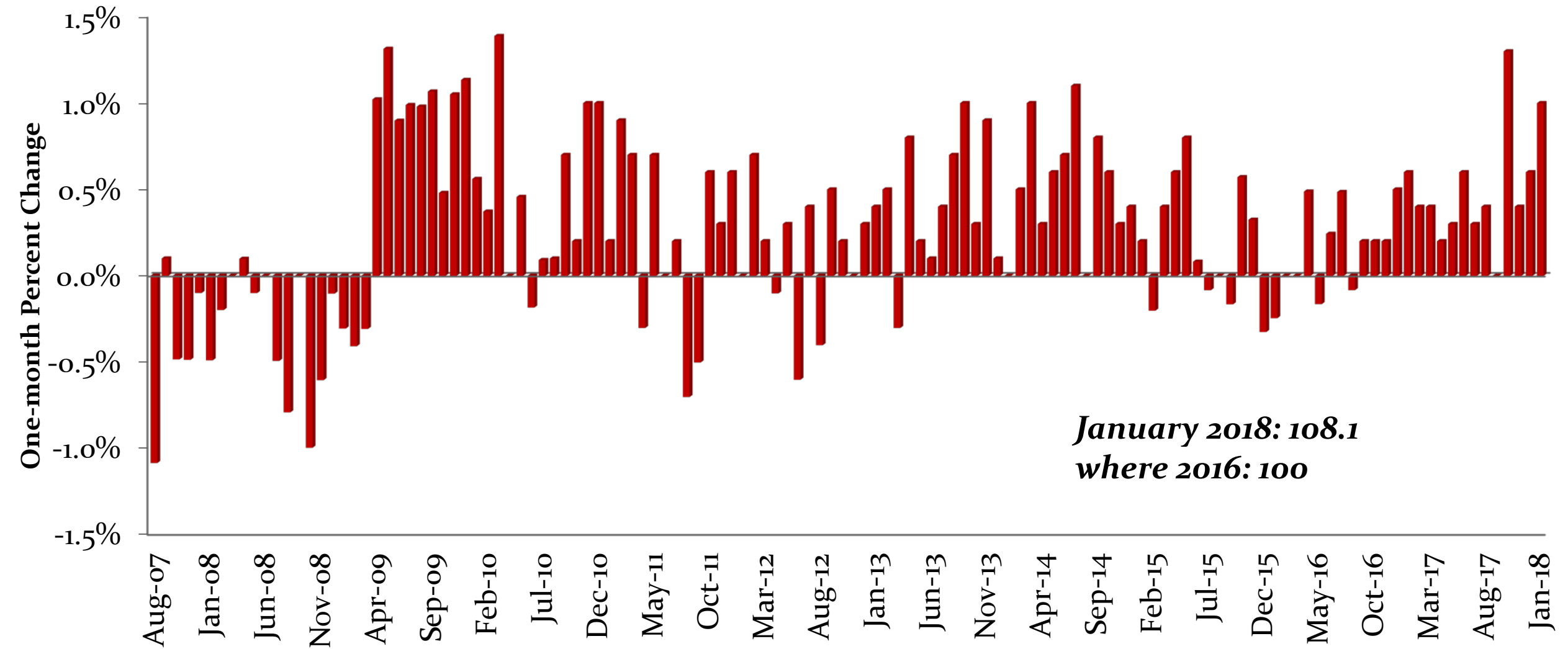
1990Q4 through 2017Q4*



2017Q4: +2.5%

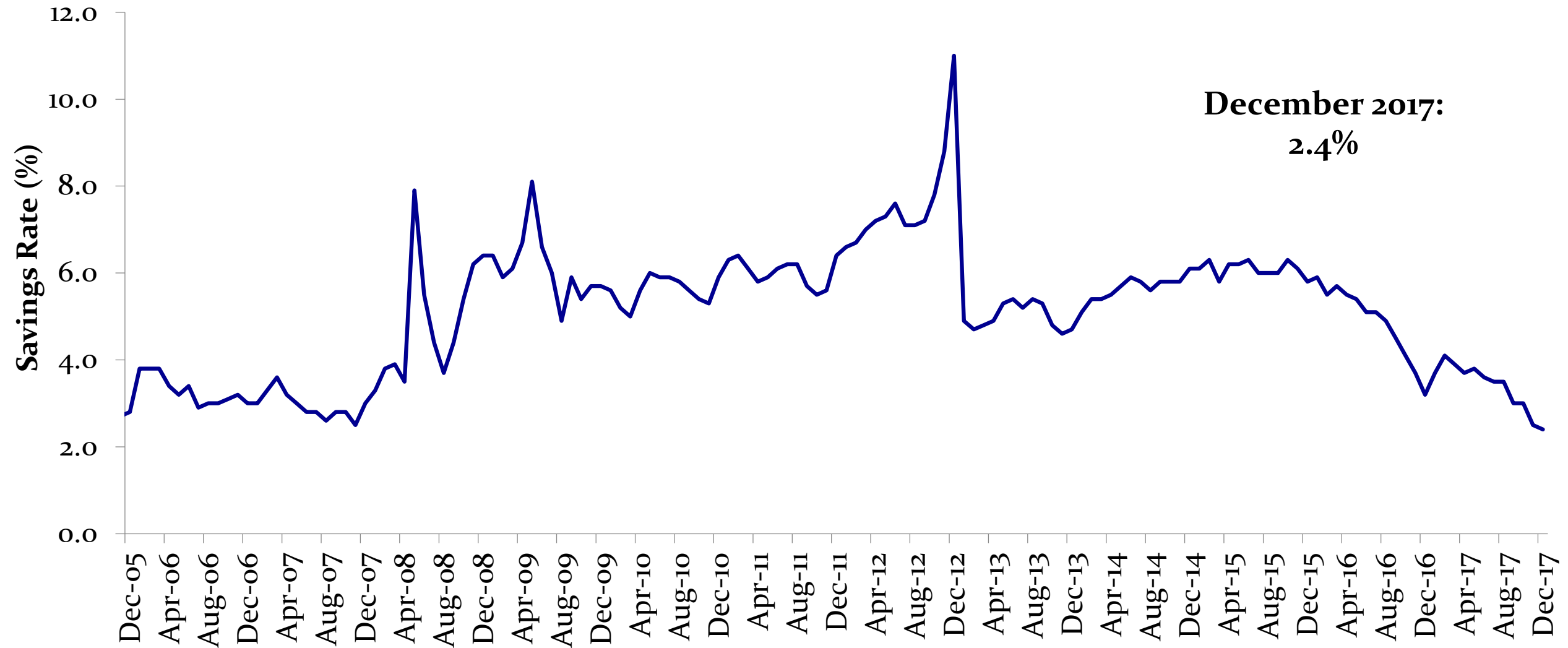
Conference Board Leading Economic Indicators Index

August 2007 through January 2018



U.S. Saving Rate, December 2005 – December 2017

(Savings as Percentage of Personal Disposable Income)

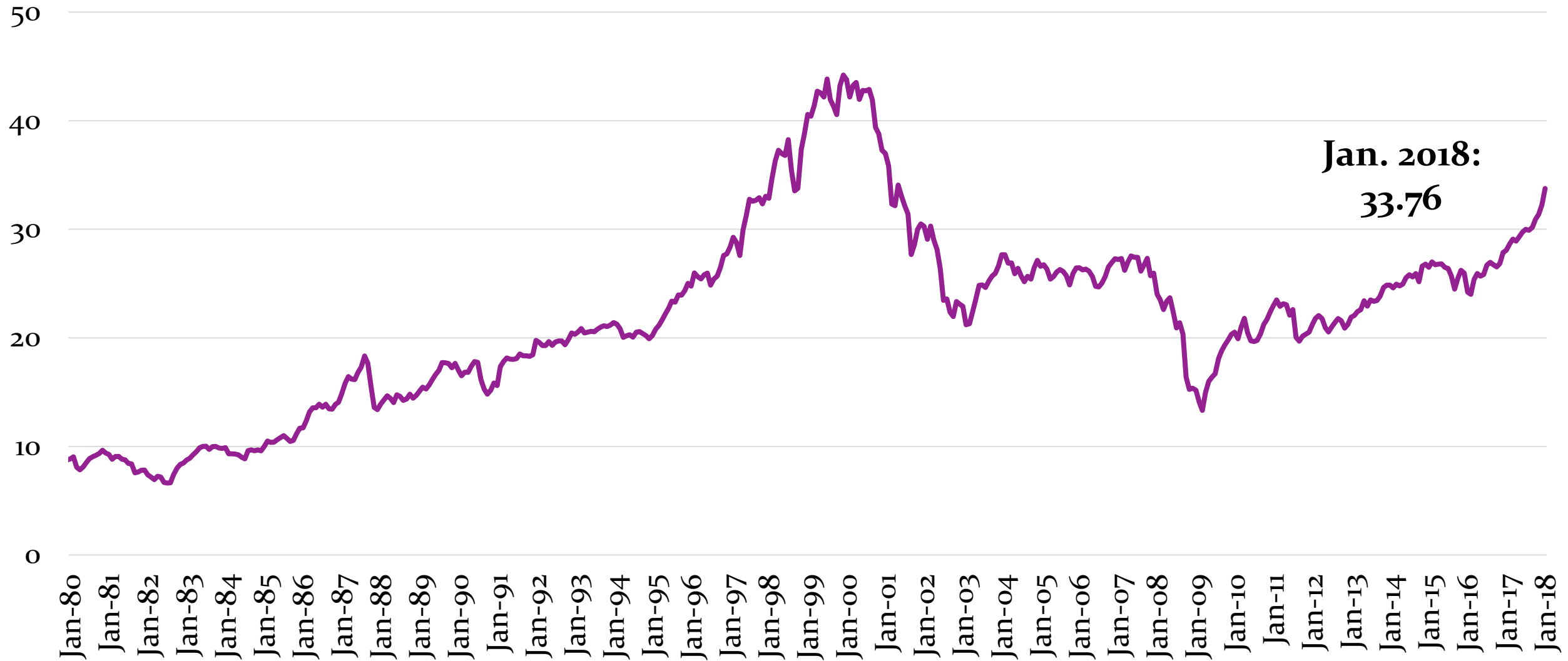


December 2017:
2.4%

Global Debt Reaches All Time Highs (IIF)

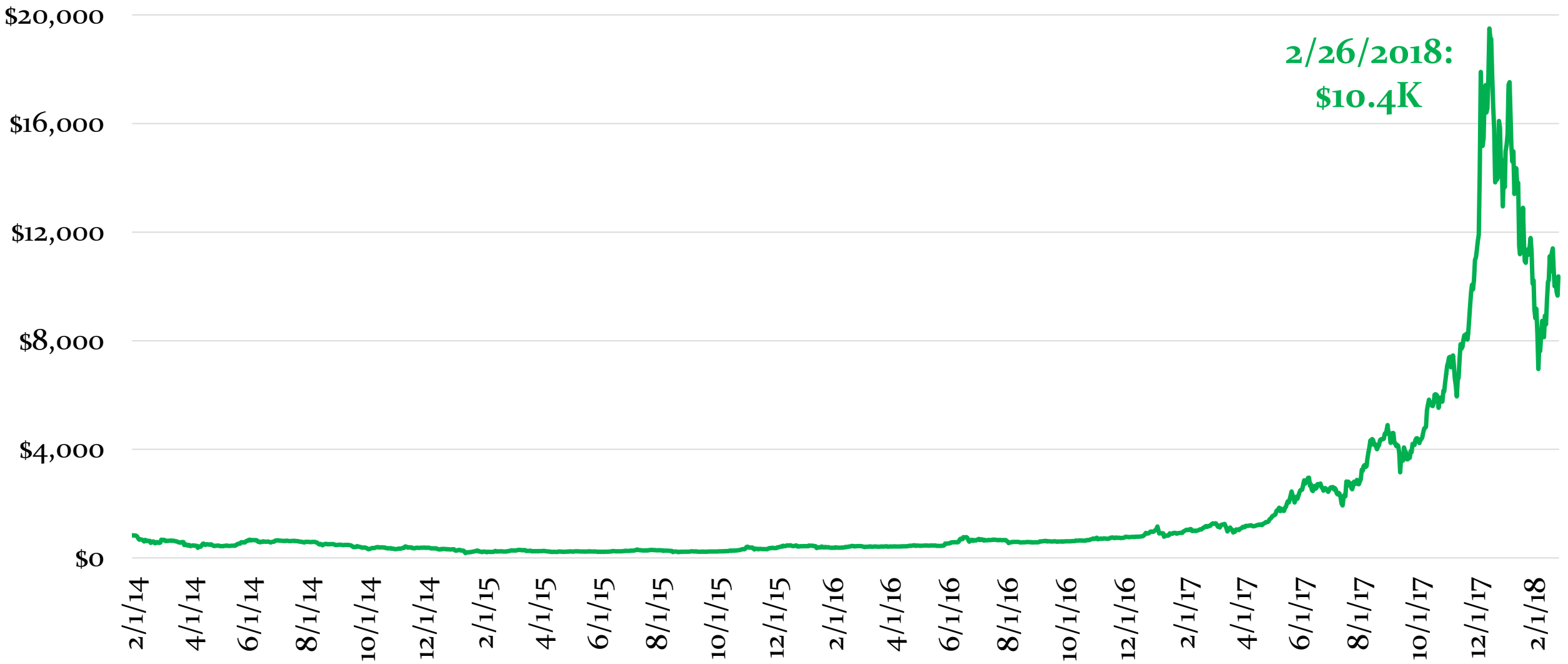
- According to the International Institute of Finance (IIF), global debt has reached an all-time high in 2016;
- At **\$215 trillion**, global debt—including household, government, and corporate—now represents **325% of global GDP**;
- Last year the IMF warned of risks to the global economy:
 - *“sheer size of debt could set the stage for an unprecedented private deleveraging process that could thwart the fragile economic recovery”*

Shiller Price-Earnings Ratio, 1980-2018



**Jan. 2018:
33.76**

Shattered! --- Bitcoin Price, 2014-2018



Time is on My Side, at least in the Near-Term

- U.S. setting up for best year since '05. . . ;
- Global economy also picking up momentum, in large measure due to policymaking;
- Job opportunities are abundant;
- Corporate profitability elevated;
- Consumer and business confidence has been surging. . . ;
- And now tax cuts, including major reductions in corporate taxes . . .
What could go wrong?;
- A lot can go wrong – that's always true – first there are the Black Swan threats:
- “I'm forever blowing bubbles, pretty bubbles in the air, they fly so high, nearly reach the sky, and like my dreams, they fade and die”;
- Where are all the pretty bubbles? Equity markets? U.S. bond market? Commercial real estate? Bitcoin?
- 2018 will be fine – better than fine – 2019 might be, too, but beyond that, potential deleveraging cycle prompted by a repricing of assets – Bad!!!!

Thank You

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