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Review of Colorado Employment Data Through March 2018

Colorado-based Business and Economic Research
Prepared
April 24, 2018

Overview of Analysis

This chartbook provides a series of graphs, charts, discussions, and data that tell the story about the changes in the 2018 Colorado employment situation for the first three months of 2018. The release of the March data shows that Q1 2018 employment is 66,900 jobs greater than Q1 2017. That level of job growth is greater than expected by most Colorado economists and is likely to be revised downward by BLS. This analysis looks at economic activity at the national level and state trends and is divided into the two sections listed below.

U.S. Economy

- ✓ Real Gross Domestic Product, Employment, Employment Costs for Compensation, ECI
- ✓ Leading and Coincident Index – US vs. Colorado
- ✓ Corporate Profits, S&P 500 Performance and Volatility, and Crude Oil Prices
- ✓ Mortgage Rates, Housing Prices, and Construction Spending
- ✓ Consumer Debt Outstanding, Student Loans and Motor Vehicle Loans, Federal Government Debt, Personal Savings Rate
- ✓ Inflation, Index for Services and Manufacturing, Retail Sales, and Light Truck and Auto Sales
- ✓ Summary

The Colorado Economy

- ✓ Population, Employment, Unemployment, and Labor Force
- ✓ Trends - Inflation, Housing Prices, Building Permits
- ✓ Trends - Oil Production, DIA Passengers, Vehicle Sales
- ✓ Trends – Select Industries – Transportation, Information, Finance, Construction, PST
- ✓ Summary



The U.S. Economy

Real Gross Domestic Product, Employment, Employer
Costs for Employee Compensation, Employment Cost
Index

Quarterly Real GDP Growth Historical United States

Between 2010 and 2017, the annual real GDP growth ranged from 1.6% to 2.6%. Historical annualized real GDP growth by decade was:

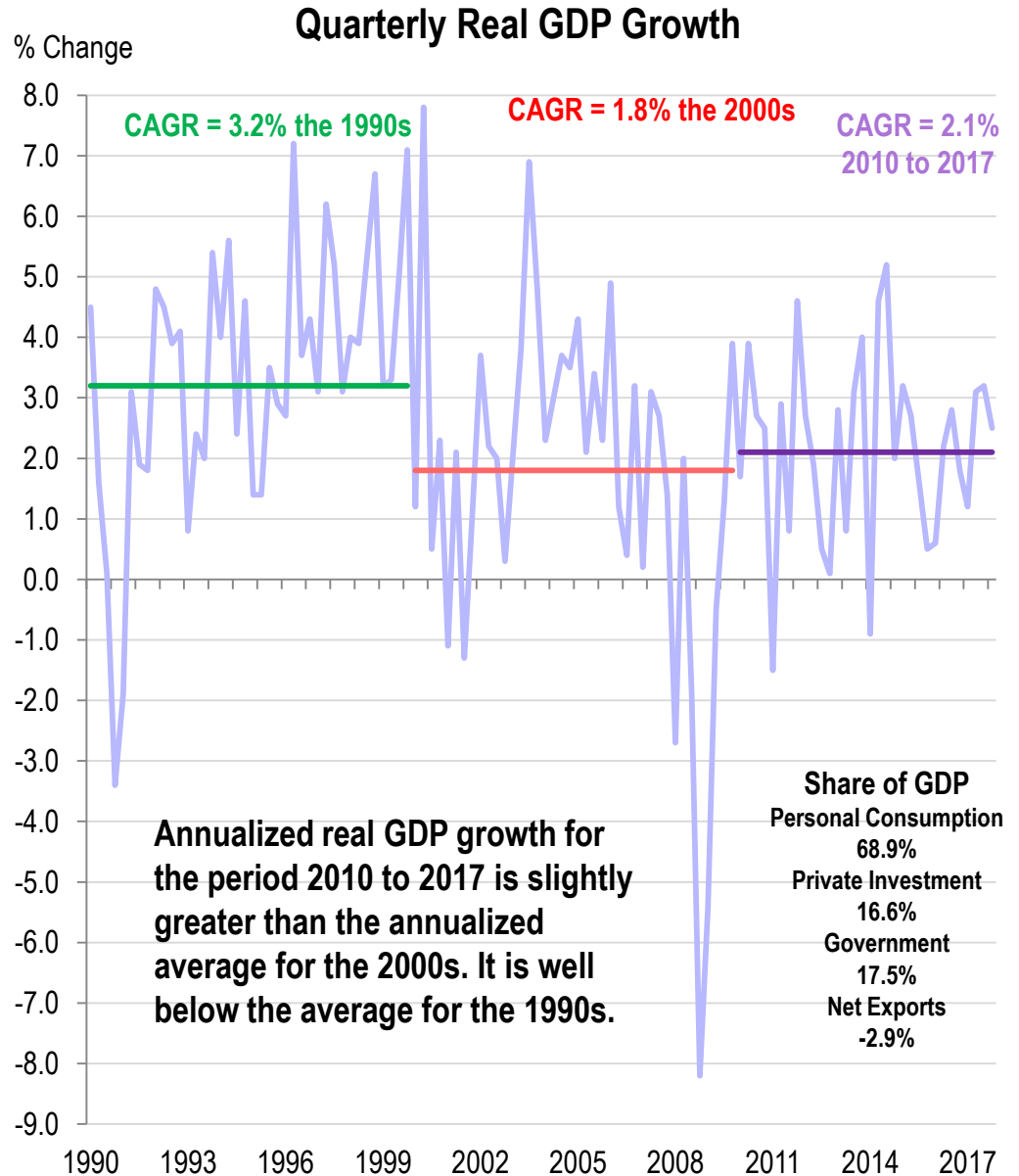
- 1990s 3.2% (green line).
- 2000s 1.8% (red line).
- 2010 to 2017 2.1% (purple line).

Real GDP growth in 2017 was 2.3%. The rate of growth in 2018 is projected to be in the range of 2.3% to 2.7%, with greater upside potential than downside risk.

The 2017 rate of growth by quarter was:

- Q1 1.2%
- Q2 3.1%
- Q3 3.2%
- Q4 2.9%.

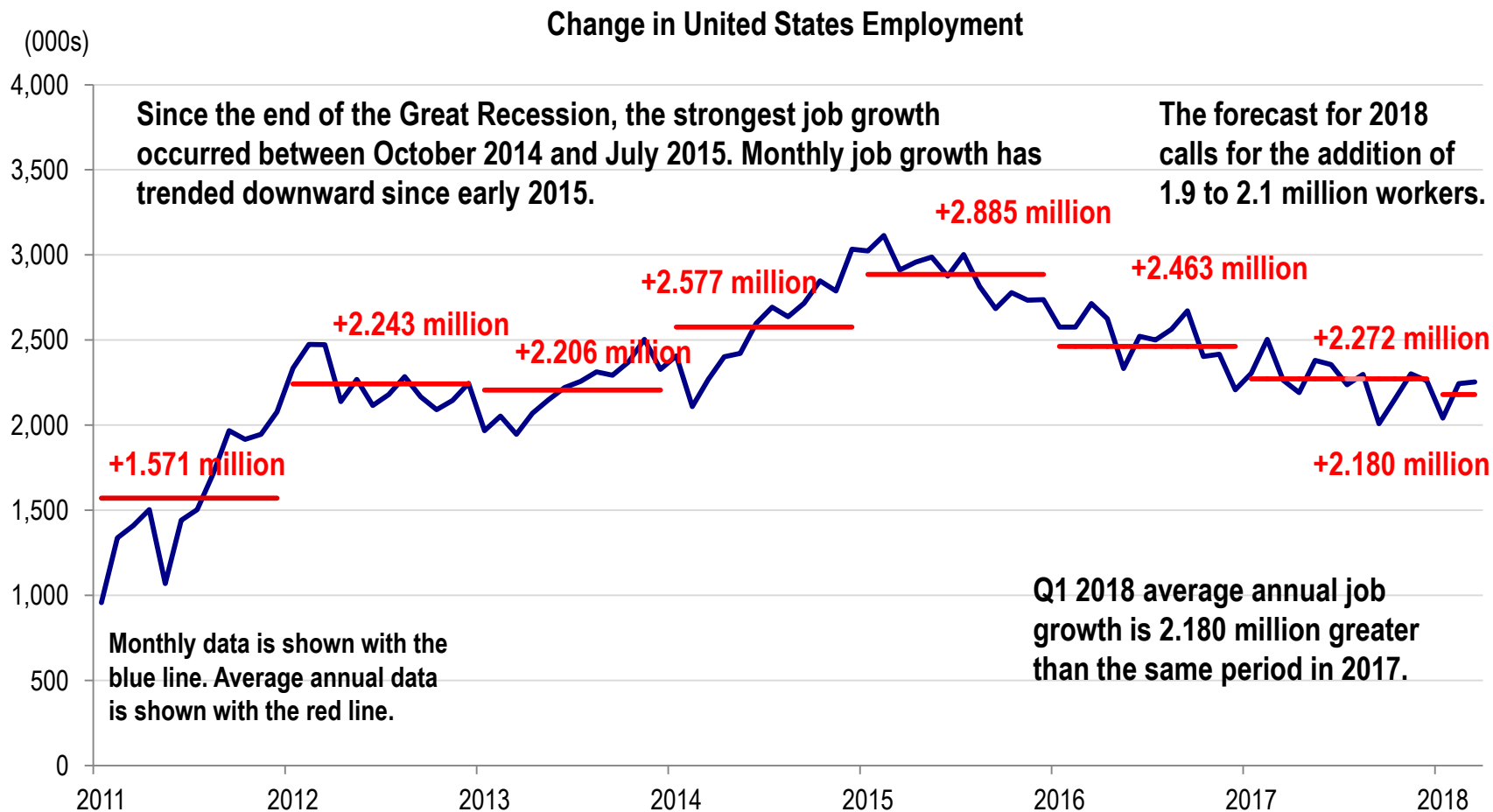
As usual, growth in 2018 will be driven by consumer spending. In addition, there will be stronger business investment and government spending.



Source: Bureau of Economic Analysis, cber.co, Note GDP chained on 2009.

Change in United States Employment

Year-Over-Year



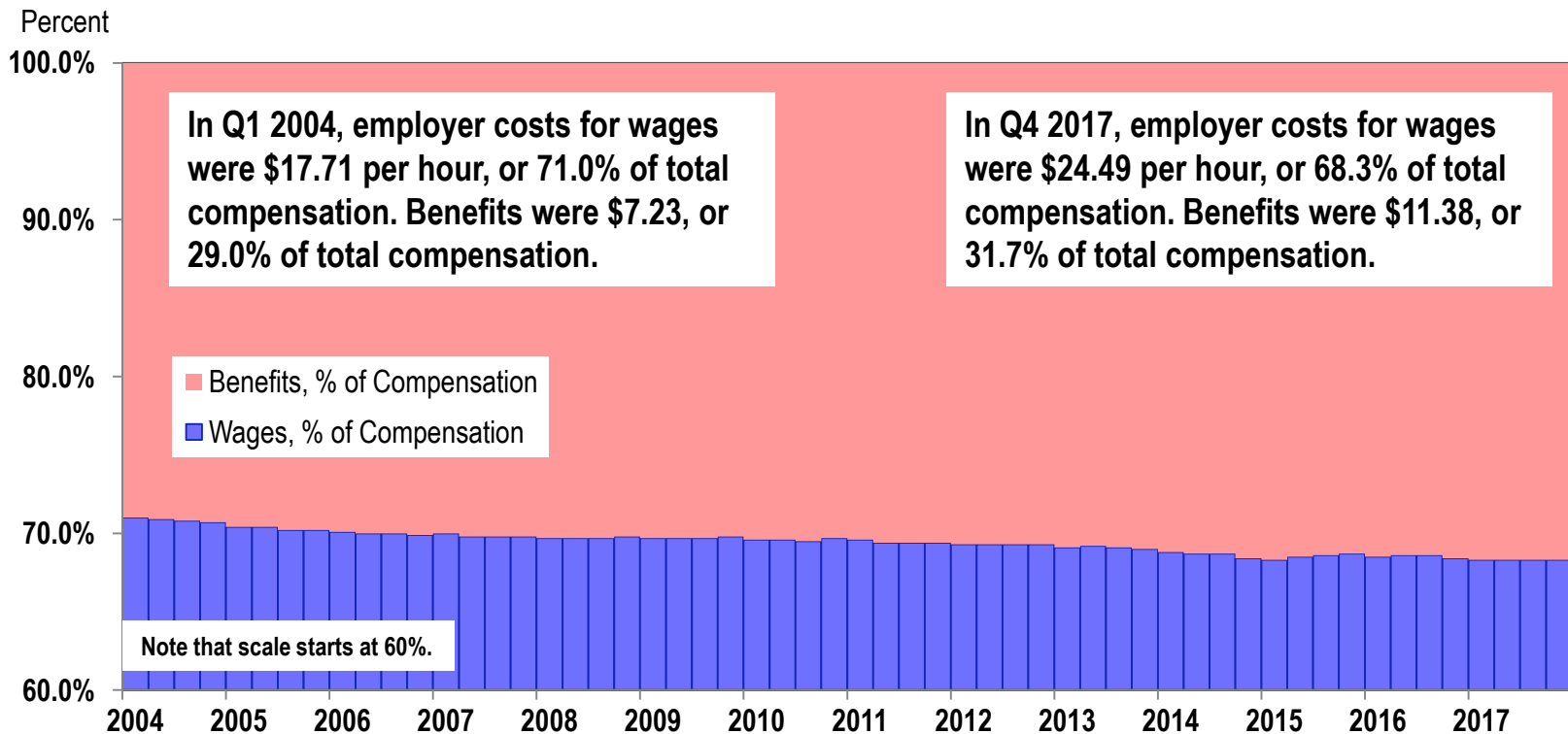
Source: Bureau of Labor Statistics, NSA; cber.co.

Employer Costs for Employee Compensation

Percent of Total Compensation



Employer Costs for Employee Compensation



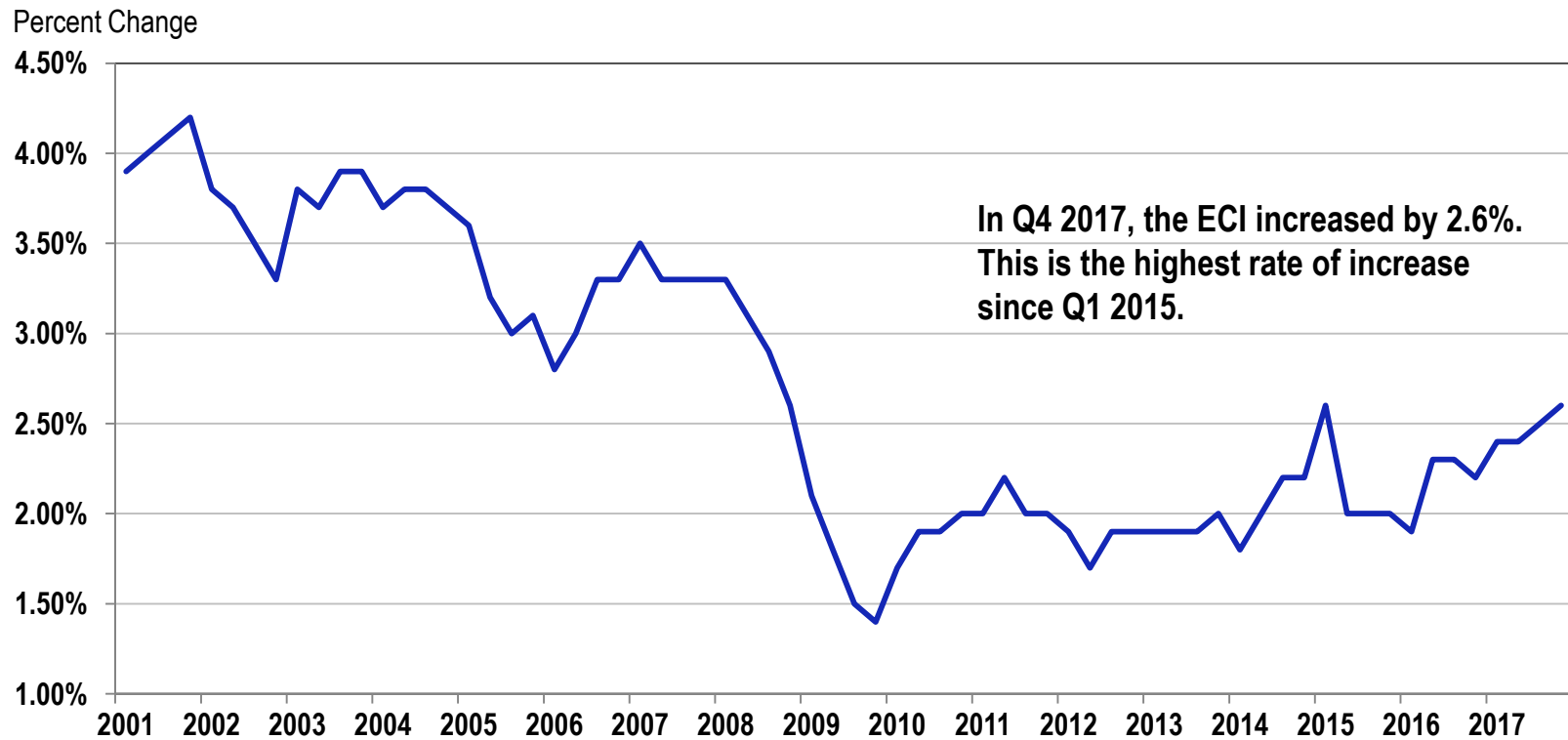
Source: Bureau of Labor Statistics, All civilian wages for all occupations, cber.co.

● Employment Cost Index (ECI)

● Total Compensation for All Civilian Workers in All Industries, 12-month Percent Change



ECI for Civilian Workers – 12 Month Percentage Change



Source: Bureau of Labor Statistics, cber.co.

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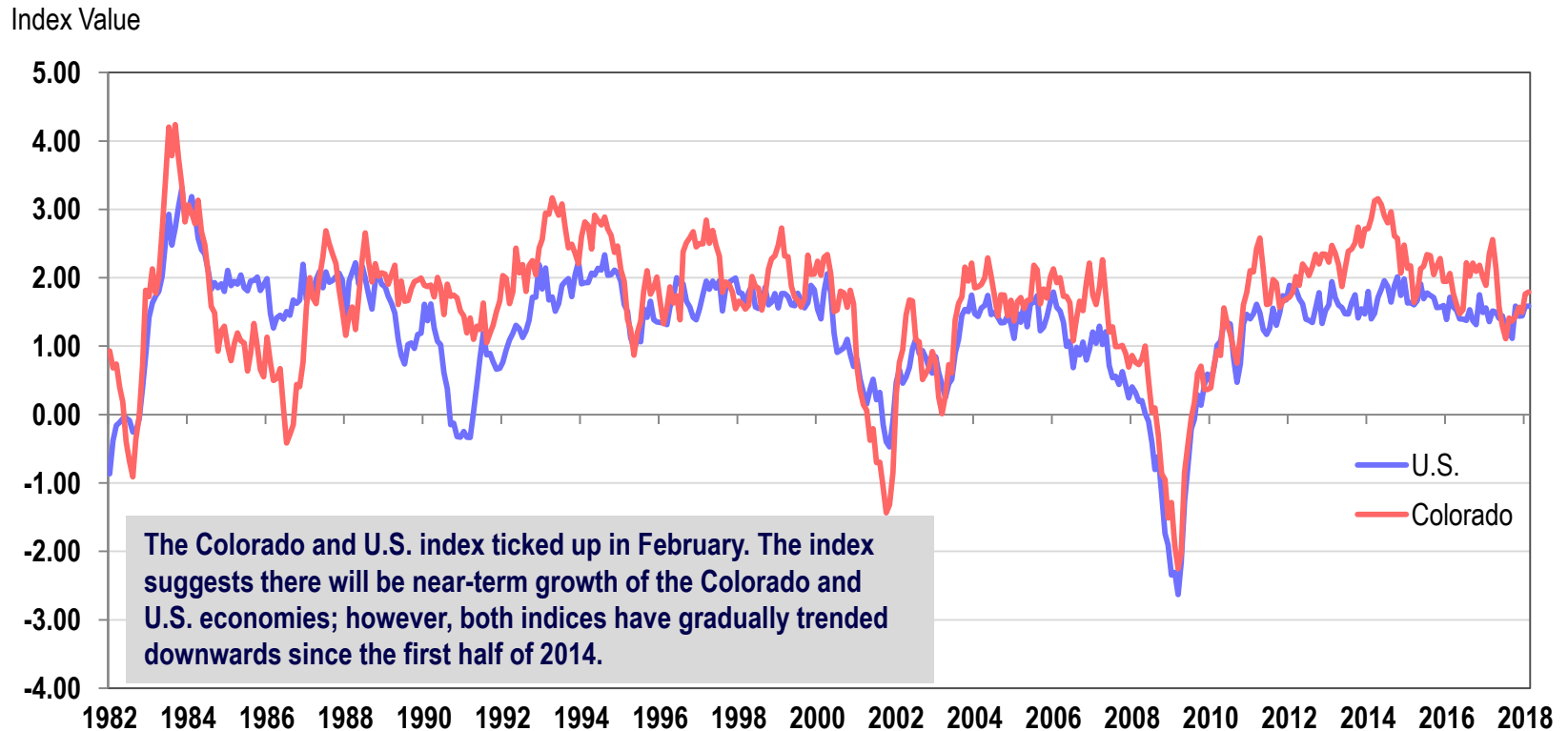
The U.S. Economy

Leading and Coincident Indices (U.S. and Colorado)

Philadelphia Fed Leading Index

Colorado vs. U.S.

Philadelphia Federal Reserve Leading Index – Colorado



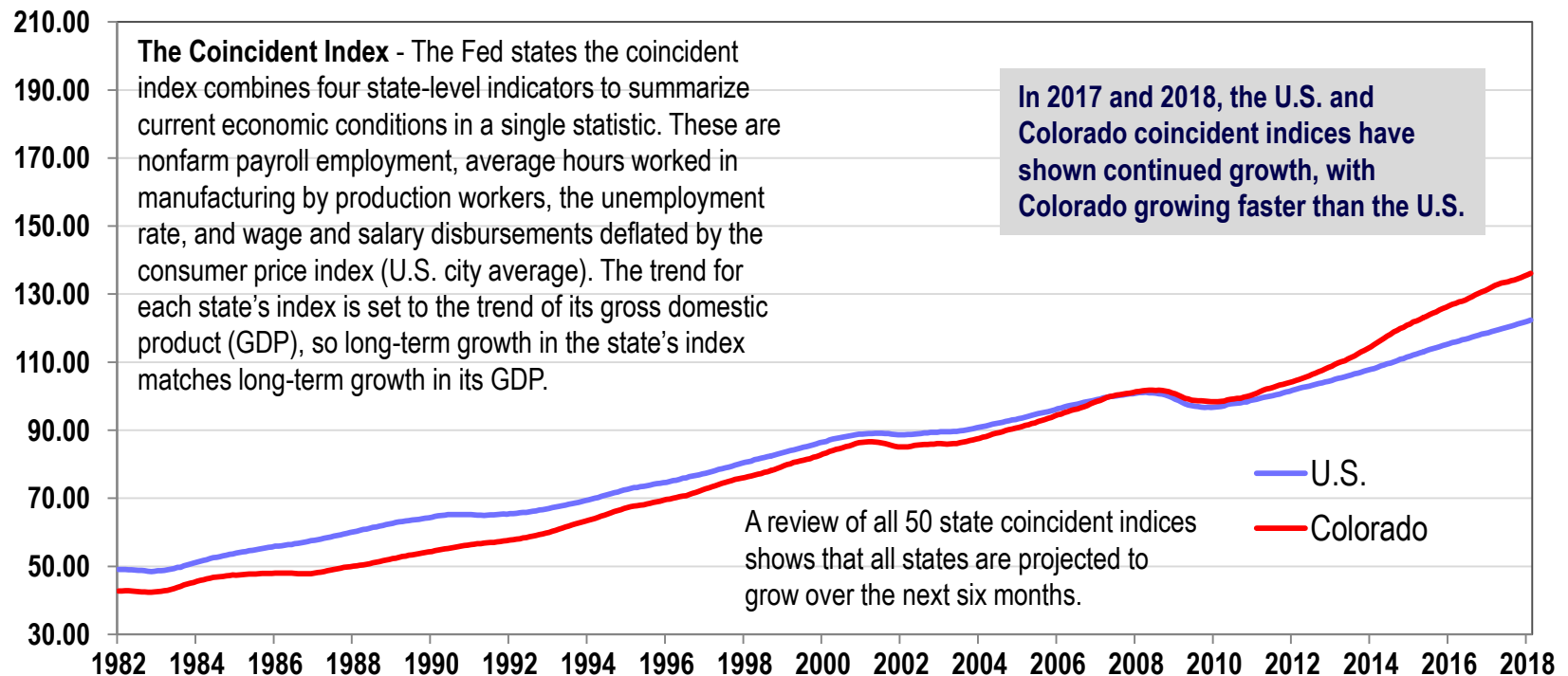
Source: Philadelphia Federal Reserve, cber.co. Note: The leading index predicts the six-month growth rate of the U.S. and state's coincident index.

Philadelphia Fed Coincident Index

Colorado vs. U.S.

Philadelphia Federal Reserve Leading Index – Colorado

Index Value



Source: Philadelphia Federal Reserve, cber.co. Note: The leading index predicts the six-month growth rate of the U.S. and state's coincident index.

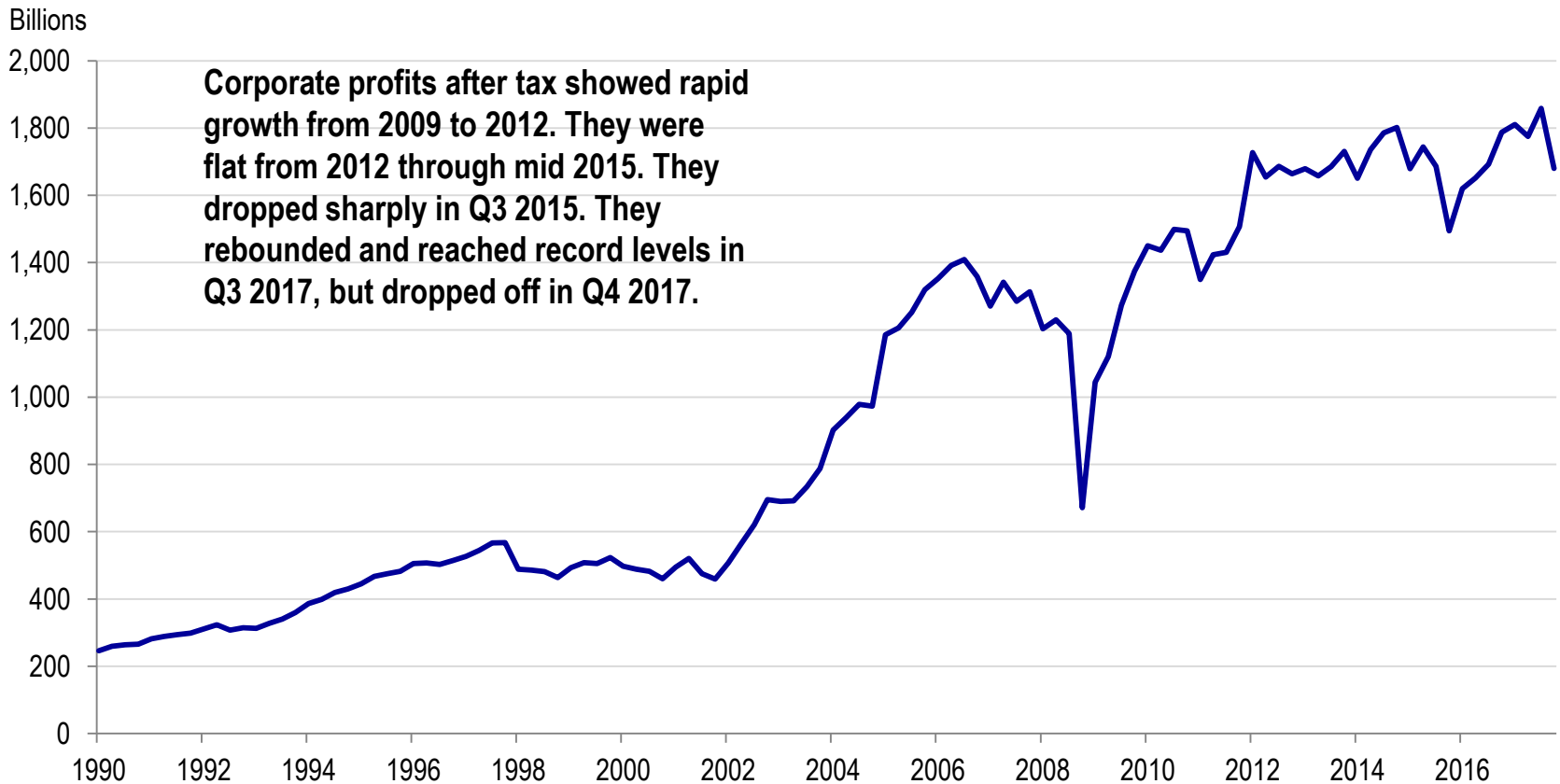


United States Economy

Corporate Profits, S&P Performance and Volatility, and
Crude Oil Prices

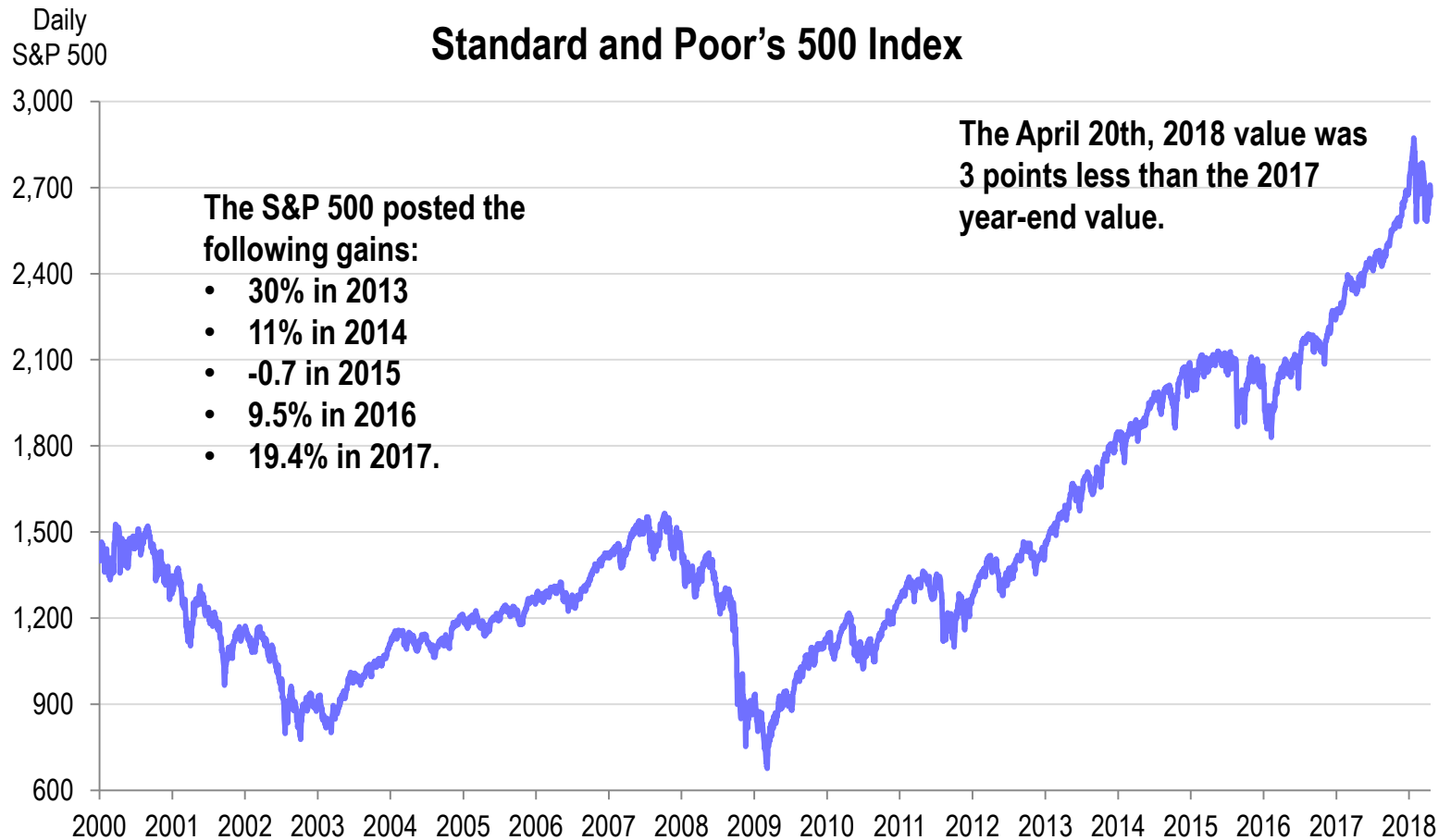
Corporate Profits After Tax (without IVA and CCAdj)

Corporate Profits After Tax



Source: FRED, BEA.

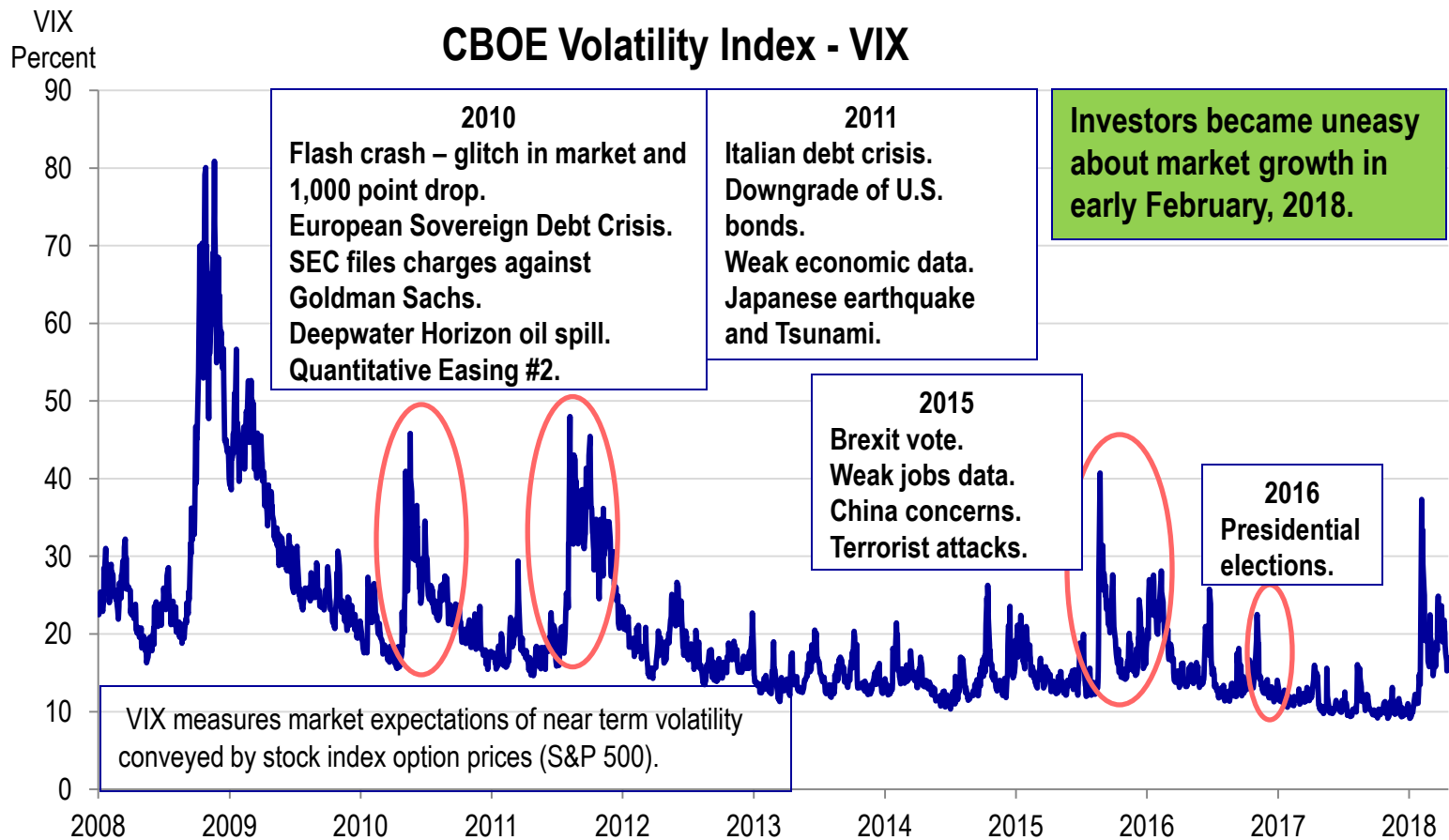
● Standard and Poor's 500 Index



Source: FRED, S&P 500, cber.co.

CBOE Volatility Index

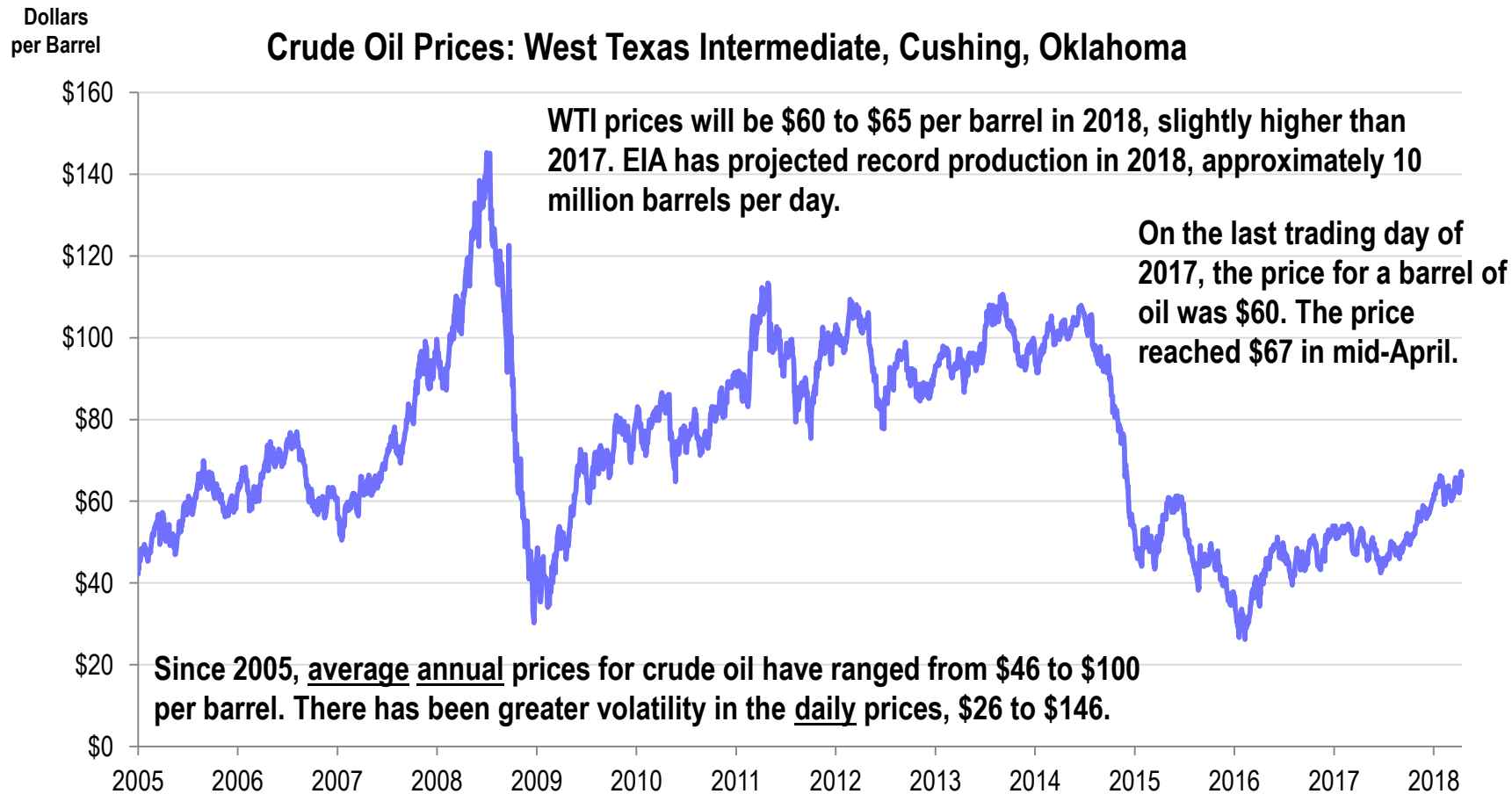
VIX (VIXCLS)



Source: FRED, Chicago Board Options Exchange, cber.co.

Crude Oil Prices

West Texas Intermediate



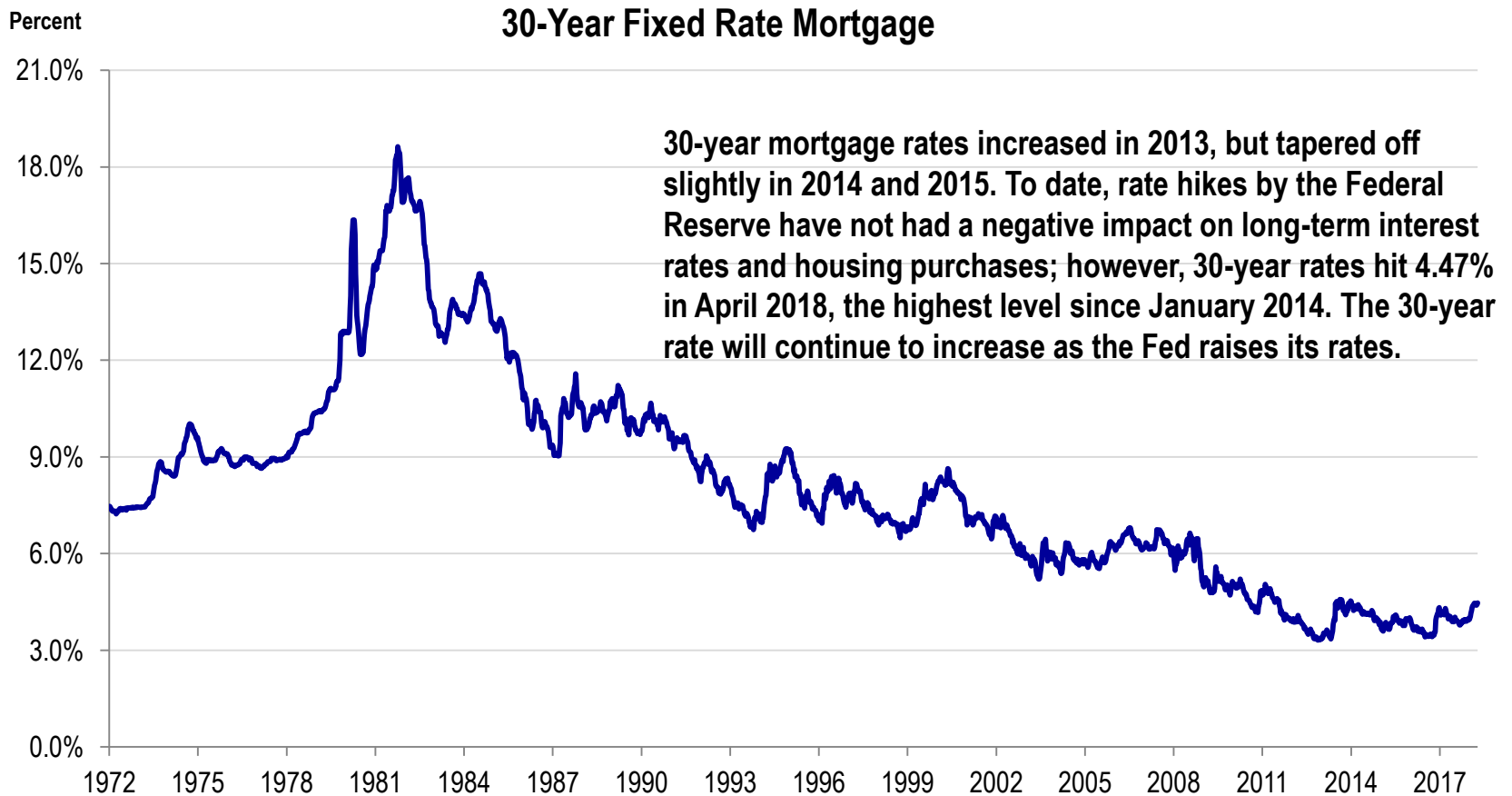
Source: FRED, EIA, cber.co.



The U.S. Economy

Mortgage Rates, Housing Prices, Construction Spending

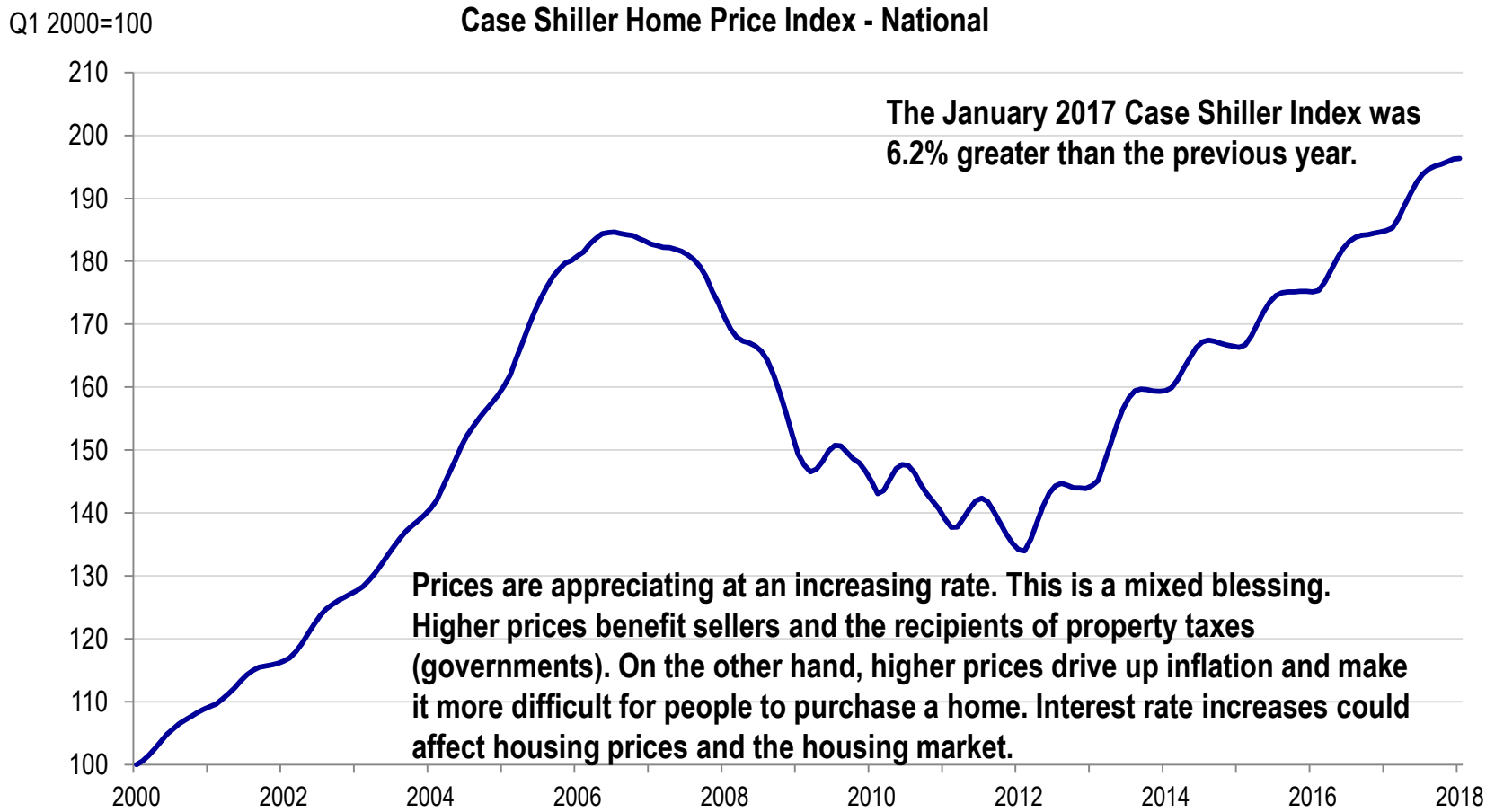
30-Year Fixed Rate Mortgage



Source: FRED, Freddie MAC, cber.co.

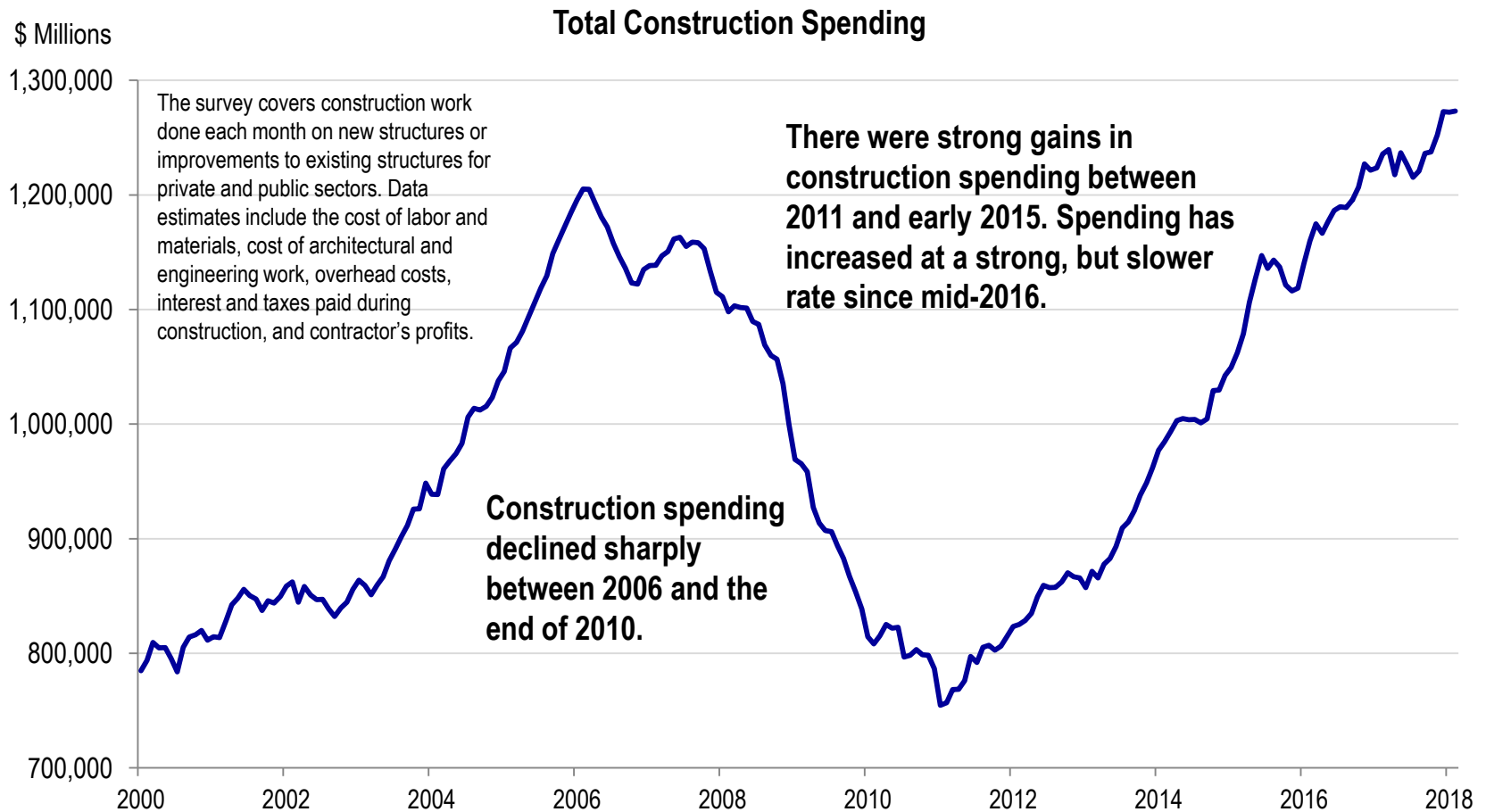
Case Shiller Home Price Index

National Index



Source: S&P Case-Shiller.

Total U.S. Construction Spending



Source: FRED, Census Bureau, not adjusted for inflation, SAAR, cber.co.

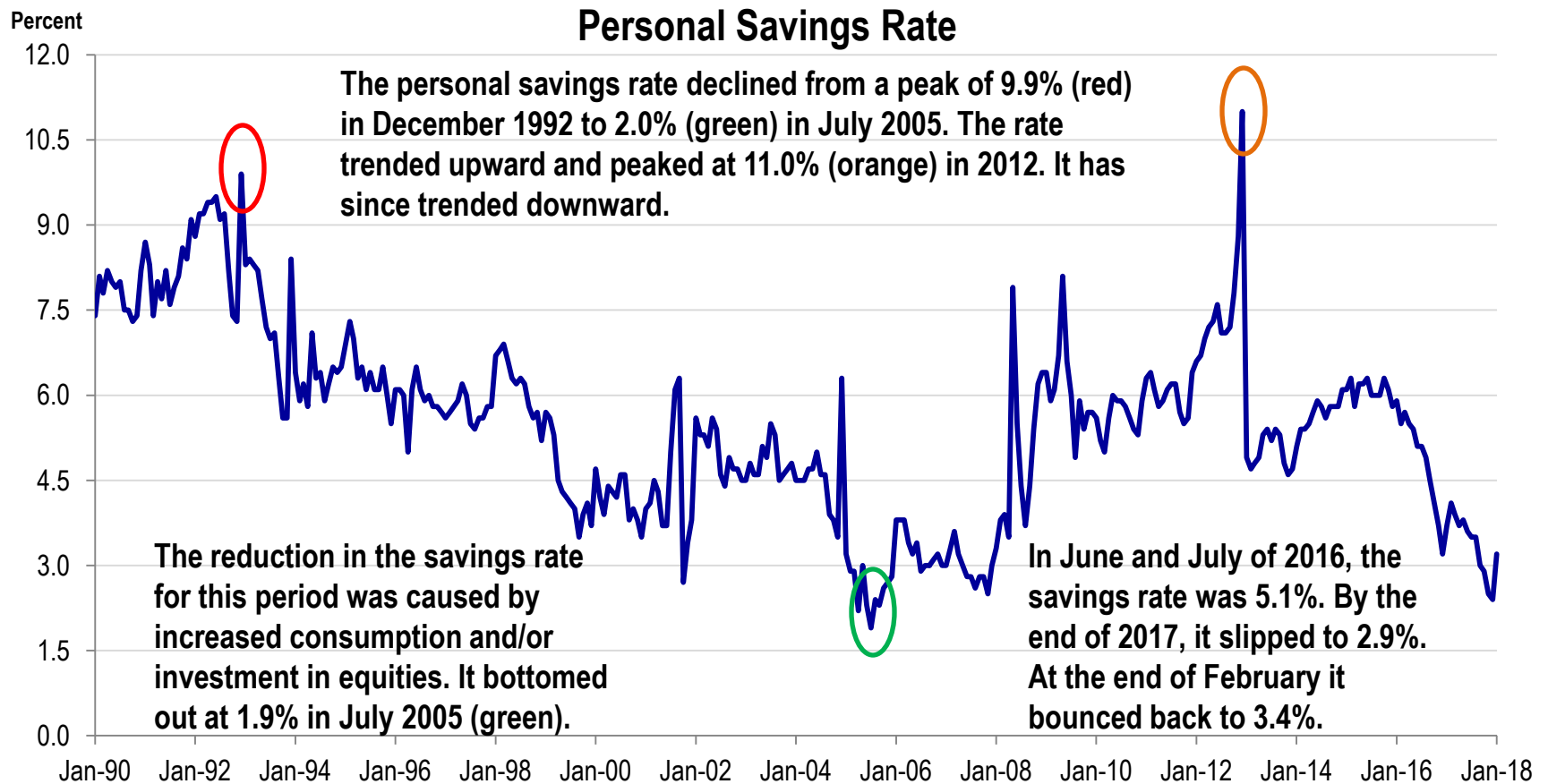


The U.S. Economy

U.S. Consumer Debt Outstanding, Student Loans vs. Motor Vehicle Loans, Federal Government Debt, and Personal Savings Rate

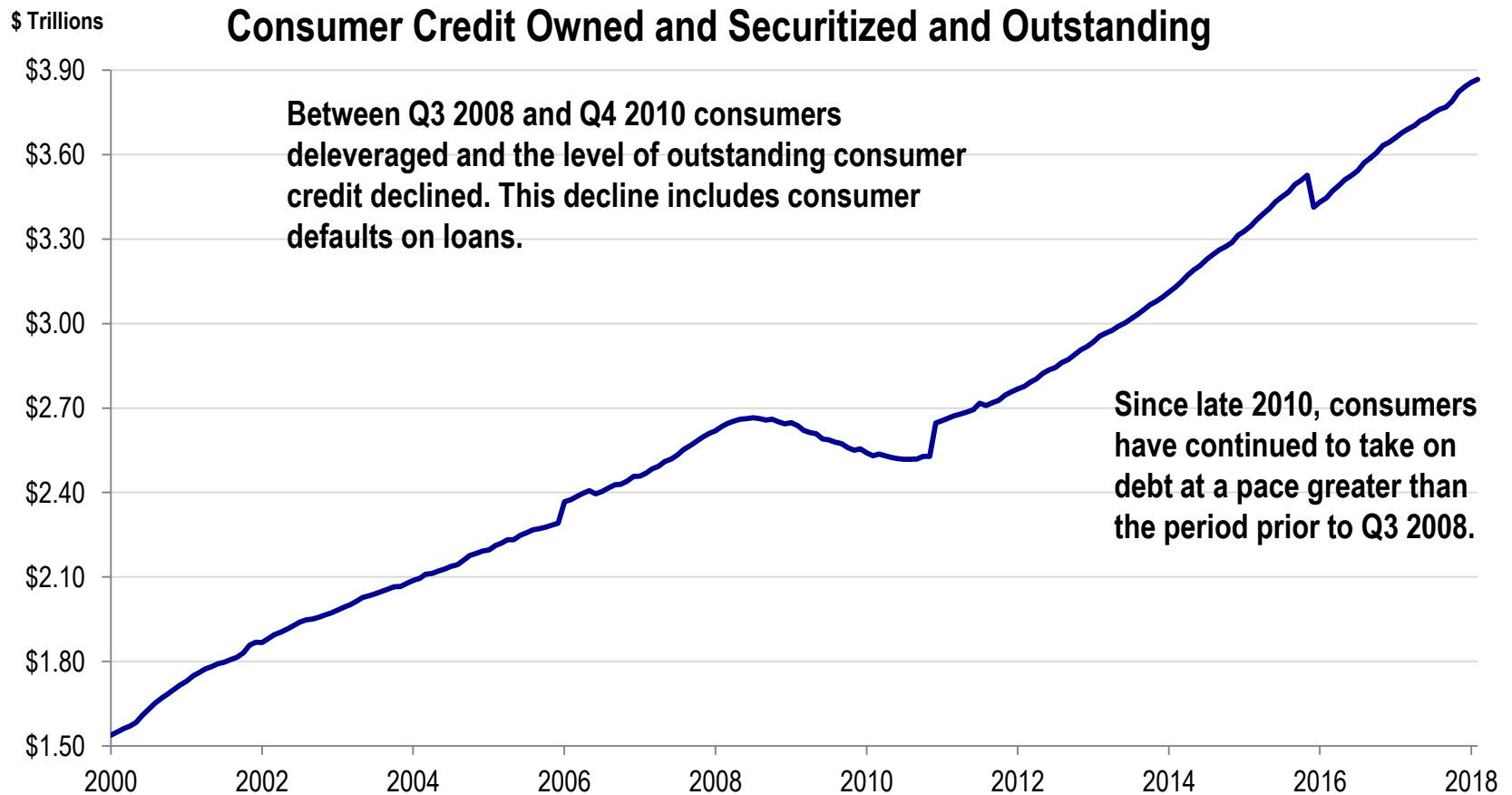
U.S. Personal Savings Rate

Percentage of Disposable Personal Income



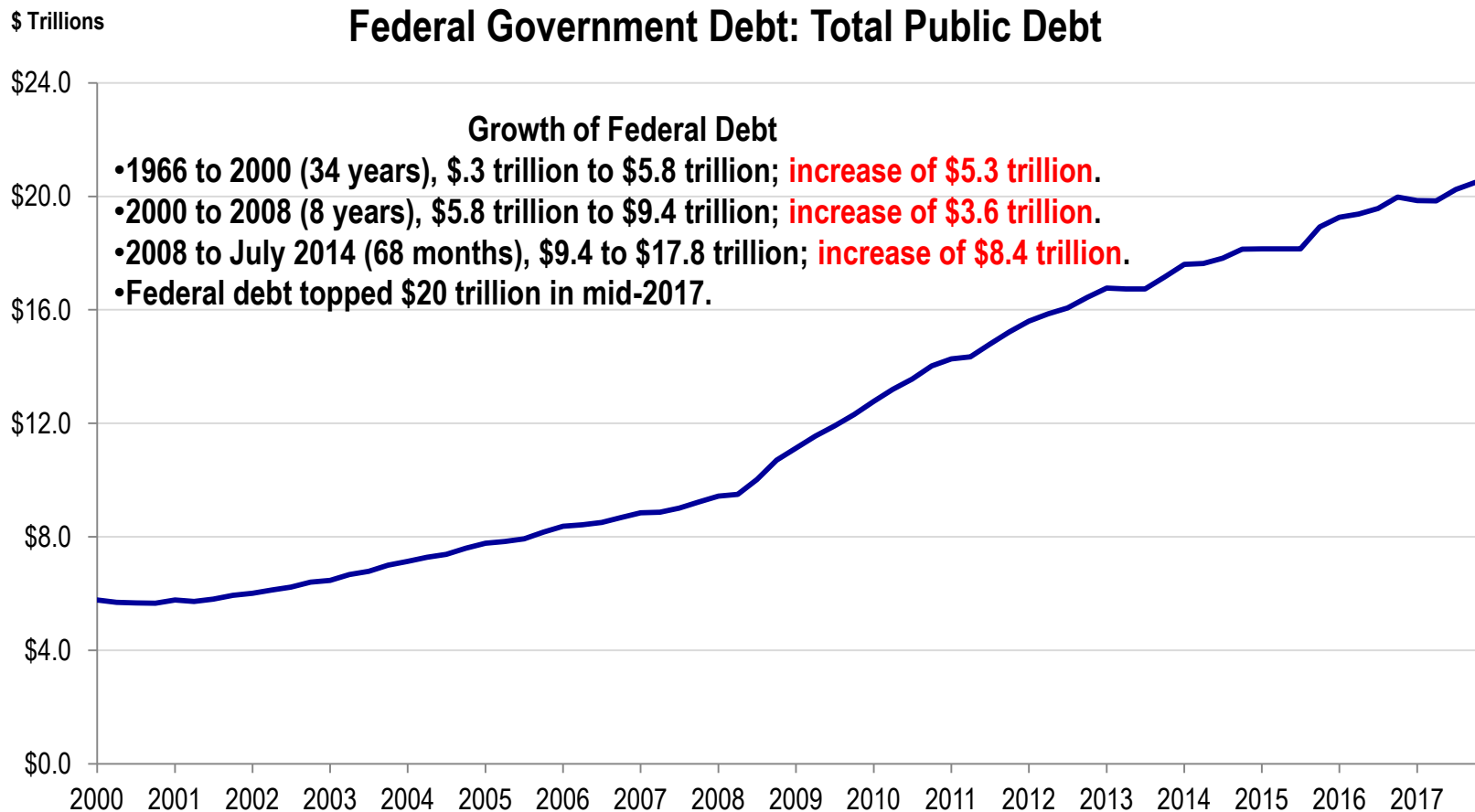
Source: FRED, SA.

U.S. Consumer Credit Outstanding



Source: FRED, Federal Reserve, G.19, SA.

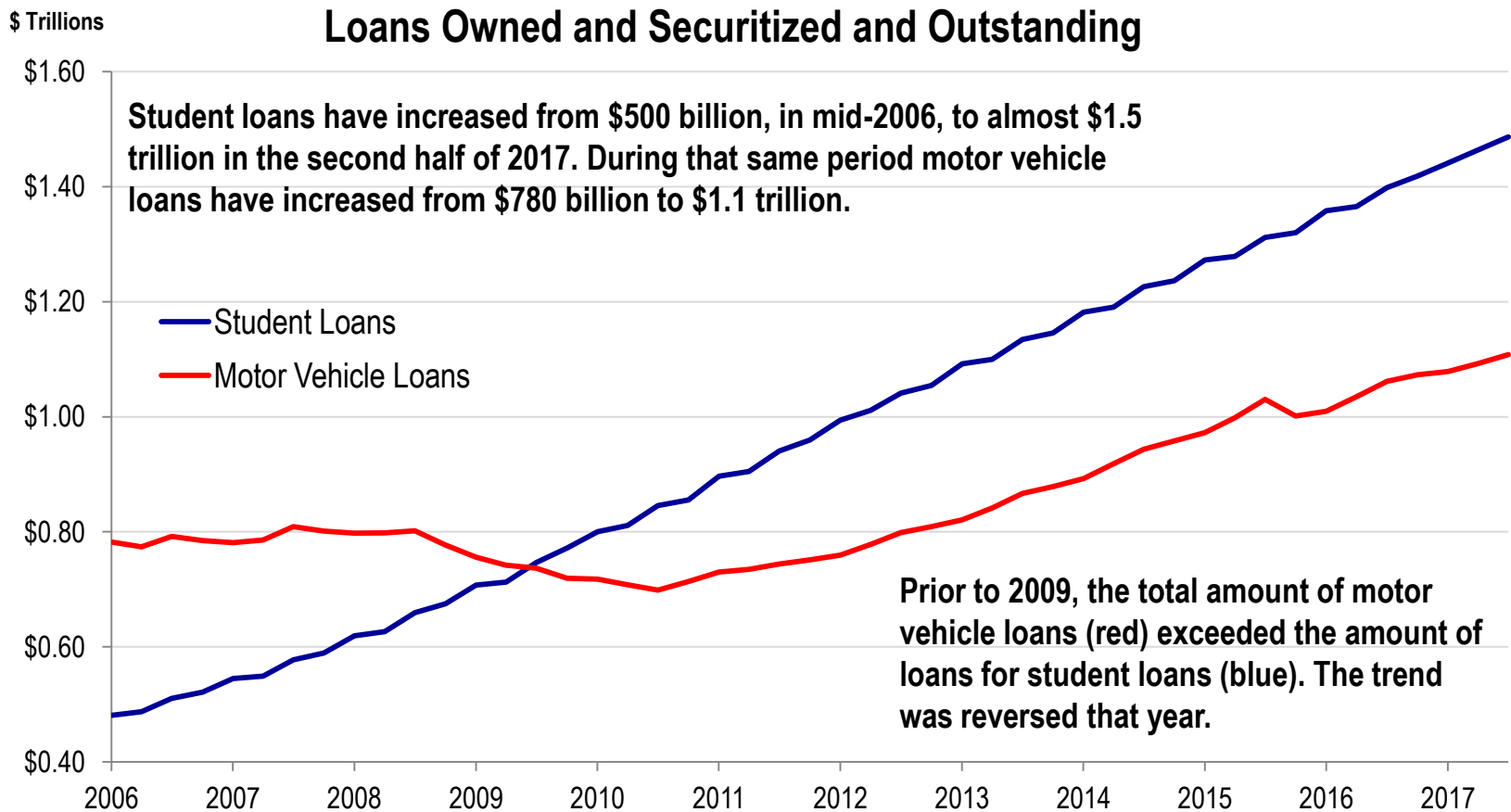
U.S. Federal Government Debt



Source: FRED, cber.co.

U.S. Loans Outstanding

Student Loans vs. Motor Vehicle Loans



Source: FRED, cber.co.



The U.S. Economy

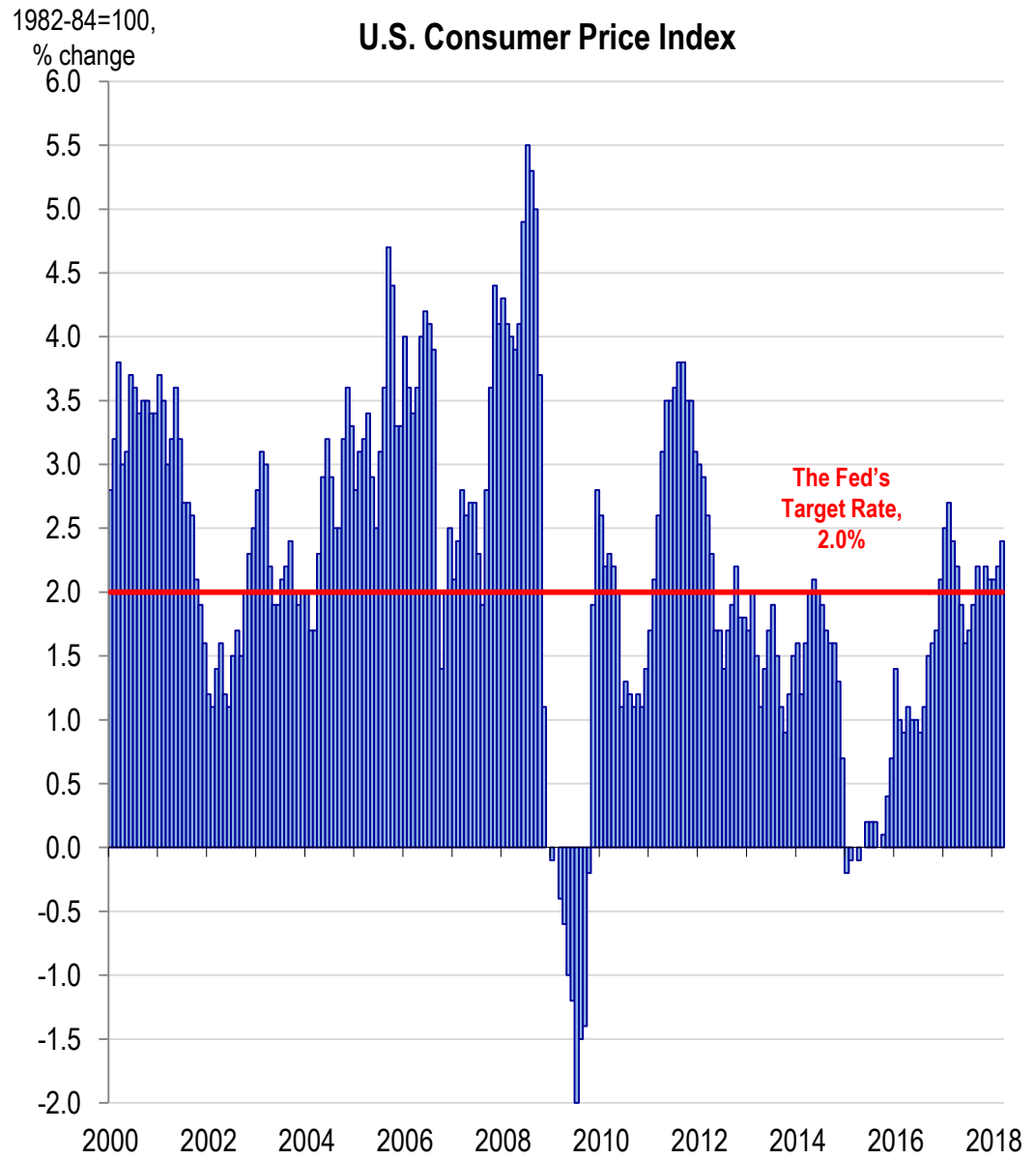
Inflation, Index for Services and Manufacturing, Retail Sales, and Light Truck and Auto Sales

Consumer Price Index (CPI)

U.S. inflation, as measured by the seasonally adjusted CPI, will increase by 2.3% in 2018. This is slightly above the Fed's target rate of 2.0%. Increases in 2018 will be a result of higher interest rates, housing costs, health care costs, and gasoline prices.

Recent annual rates are:

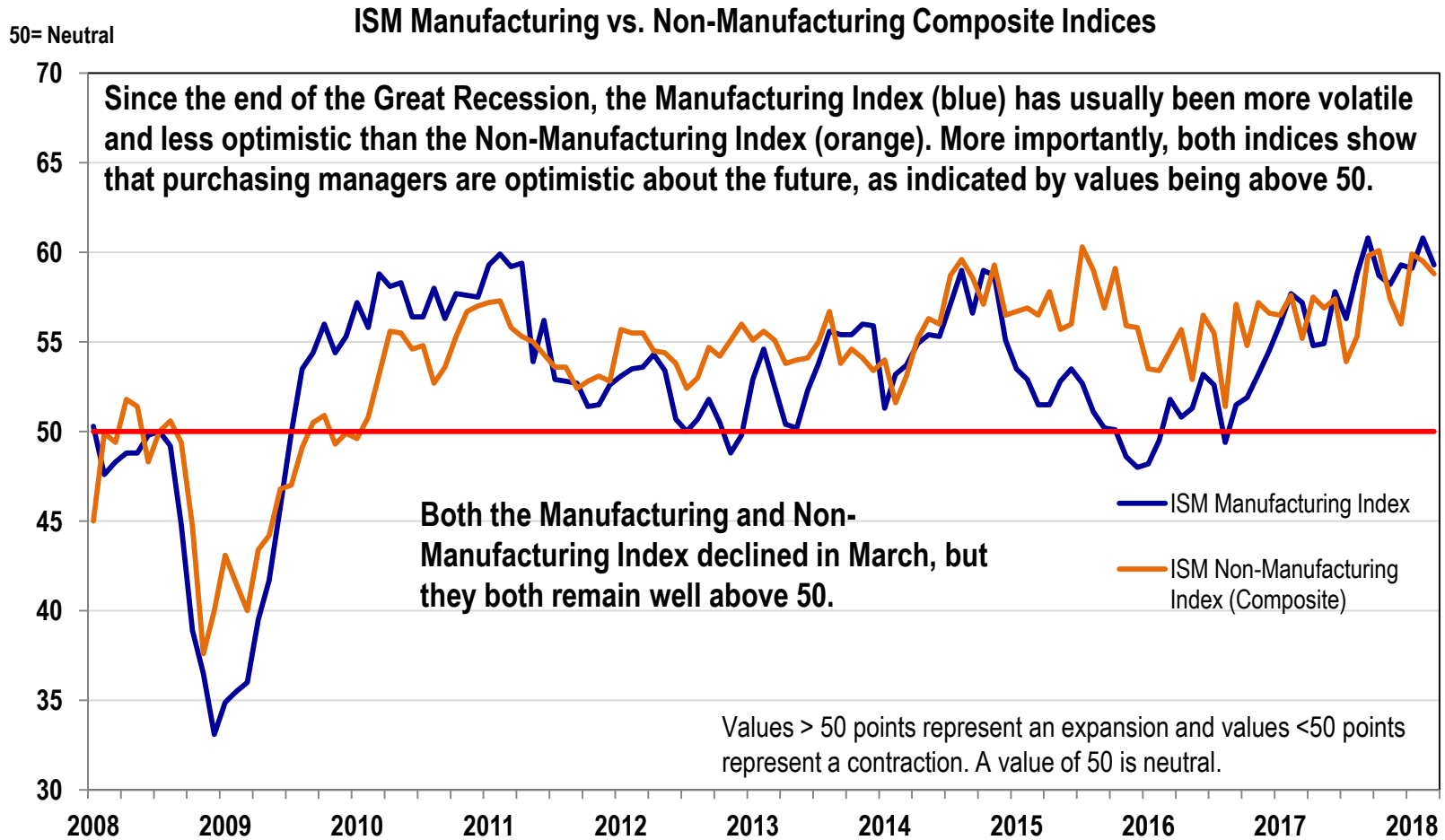
- 2012 2.1%
- 2013 1.5%
- 2014 1.6%
- 2015 0.1%
- 2016 1.3%
- 2017 2.1%
- 2018 2.3 %



Source: Bureau of Labor Statistics, SA, cber.co.

ISM PMI Composite Indices

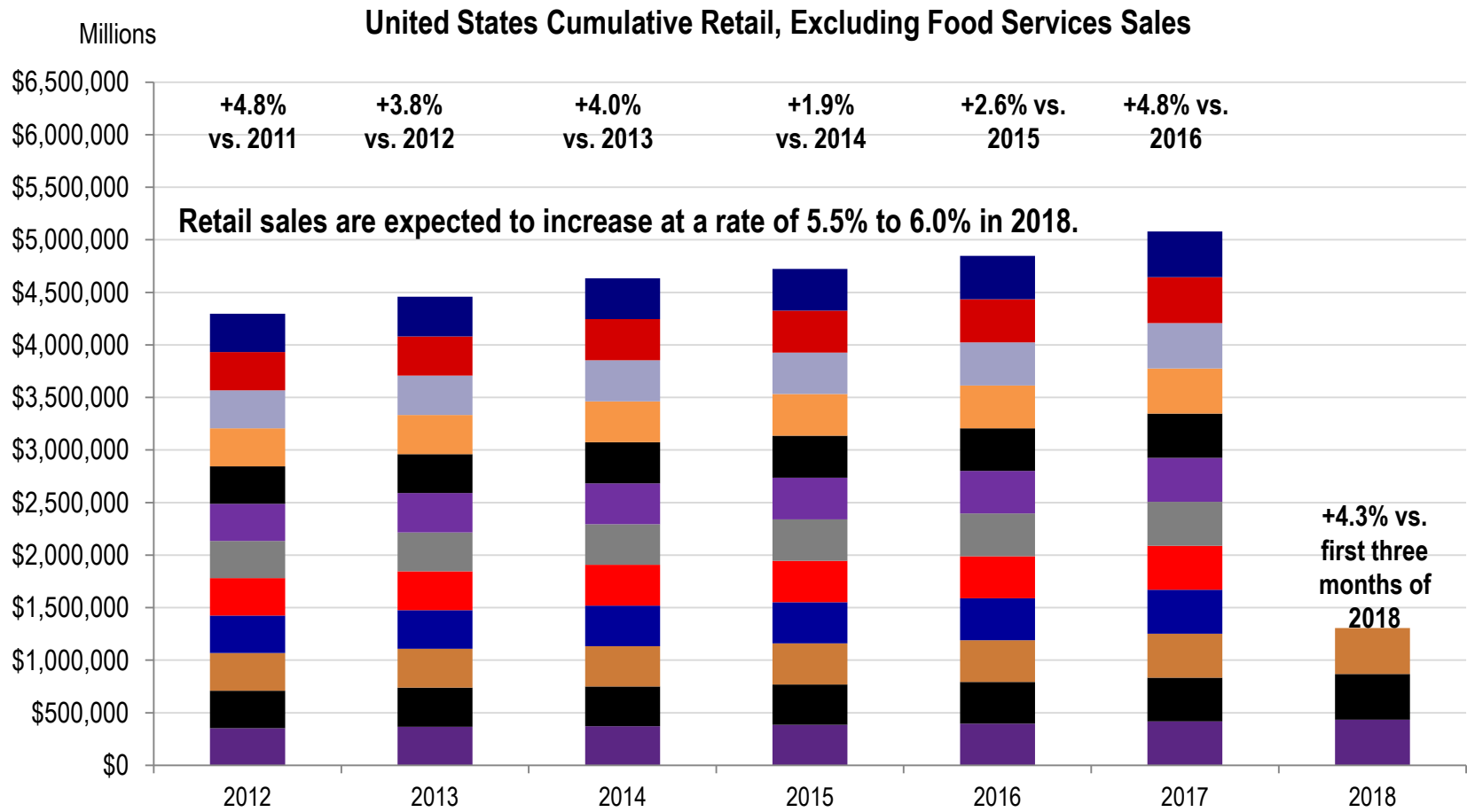
Manufacturing vs. Non-manufacturing



Sources: Institute for Supply Management (ISM), FRED, ISM, cber.co.

Cumulative Retail, Excluding Food Services Sales

Monthly

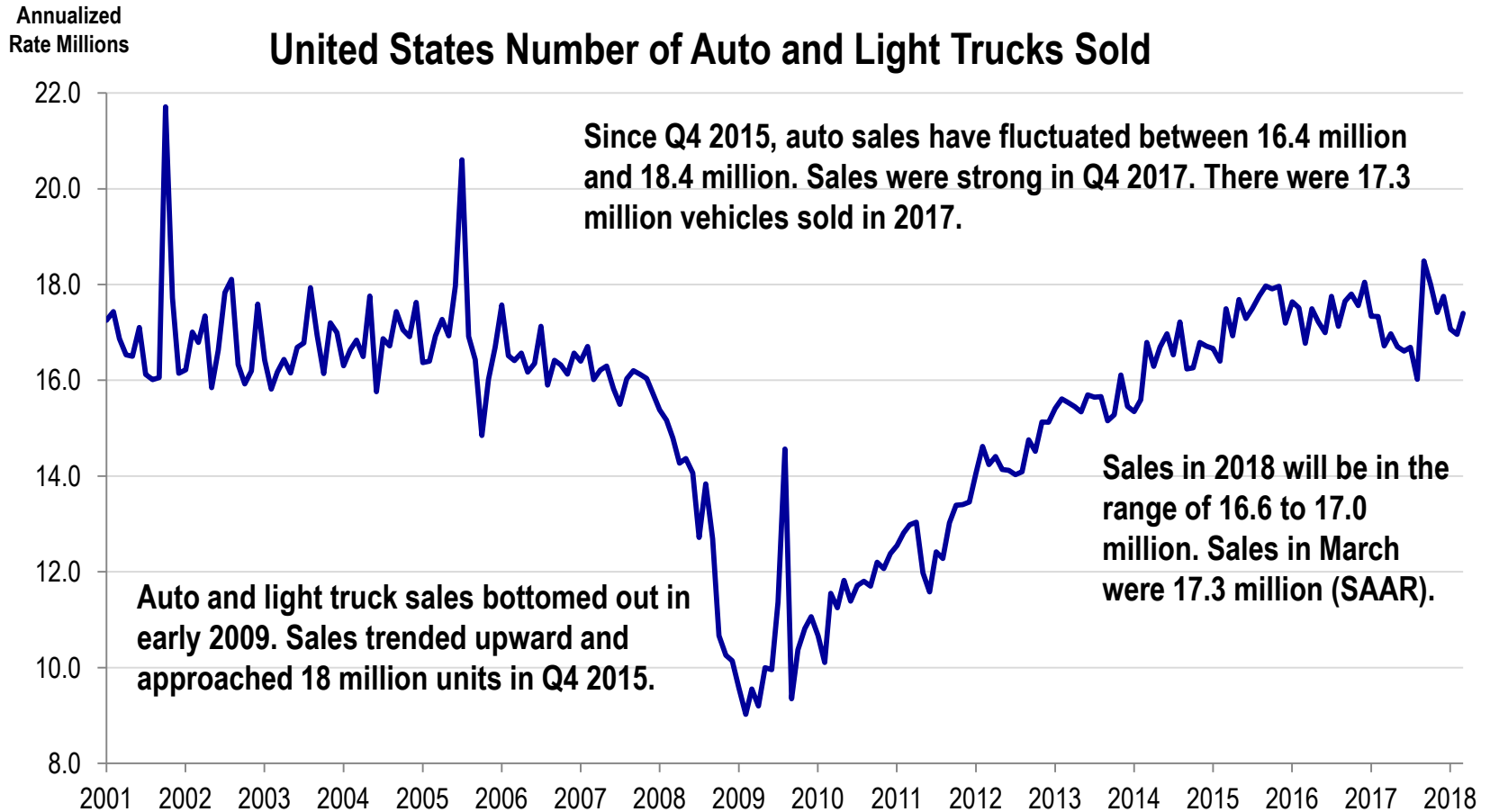


Source: U.S. Census Bureau, FRED, cber.co.

Note: Data is in descending order with December at the top and January at the bottom, not adjusted for inflation.

U.S. Weekly Auto and Light Truck Sales

Monthly (Annualized Rate Millions)



Source: FRED, BEA, cber.co.

Note: Seasonally Adjusted Annualized Rate.

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The United States Economy

Summary

The Economy is Currently on Solid Footing

Positives

There are two reasons to be optimistic about the U.S. economy:

- First, the best summary of the economy was provided by the Philadelphia Federal Reserve when it updated its leading and coincident indicators. It stated that the coincident indices for all 50 states are projected to grow over the next six months.
- Second, the Conference Board is bullish on the U.S. economy. They project 2.8% real GDP growth in 2018 and higher in 2019.

At the moment, the U.S. economy is on cruise control!

Headwinds

There are economic headwinds even during the best of times. The following headwinds are unlikely to derail the economy during the next 18 months:

- Public and private debt.
- Inflation above the target rate.
- Moderation in the growth of the European economy and slower growth in emerging countries.
- Trade conflicts.
- Lack of trust in public sector technology companies such as Facebook and Google.
- Worker shortages in parts of the country, including Colorado.
- Rapid appreciation in housing prices.
- Boomers moving into retirement years without savings.
- Level of Productivity.



The Colorado Economy

Population, Employment, Unemployment, and Labor Force

Q1 2018 Trends

Population, Employment, Employment Mix, Labor Force

Charts for the following trends are provided on the following pages.

- People will continue to move to Colorado because they see opportunity here; however, Colorado companies will struggle to find qualified workers. Can the state's infrastructure support this added growth?
- Population is expected to grow at a slower rate than in recent years. If fertility continues to decline and net migration is slower, will there be a large enough workforce to meet the needs of Colorado's businesses?
- Currently, job growth is broad-based. All three goods producing sectors are adding jobs – the extractive industries are back in positive territory and construction has posted strong gains. In addition, there has been strong growth in the following industries: leisure and hospitality; health care; and professional, scientific and technical services. How long will this continue?
- Typically, when unemployment is low, the scarcity of workers causes wages to increase. Colorado wage growth has been weak for the past ten years. Are companies giving their employees increased benefits rather than wage increases? Will wages increase at a higher rate in the future?
- In 2016 and 2017 the state's labor force (household survey) increased significantly. This increased the pool of potential workers. The rate of growth is tapering off. Will this trend continue in 2018?

Colorado Population

Components of Change

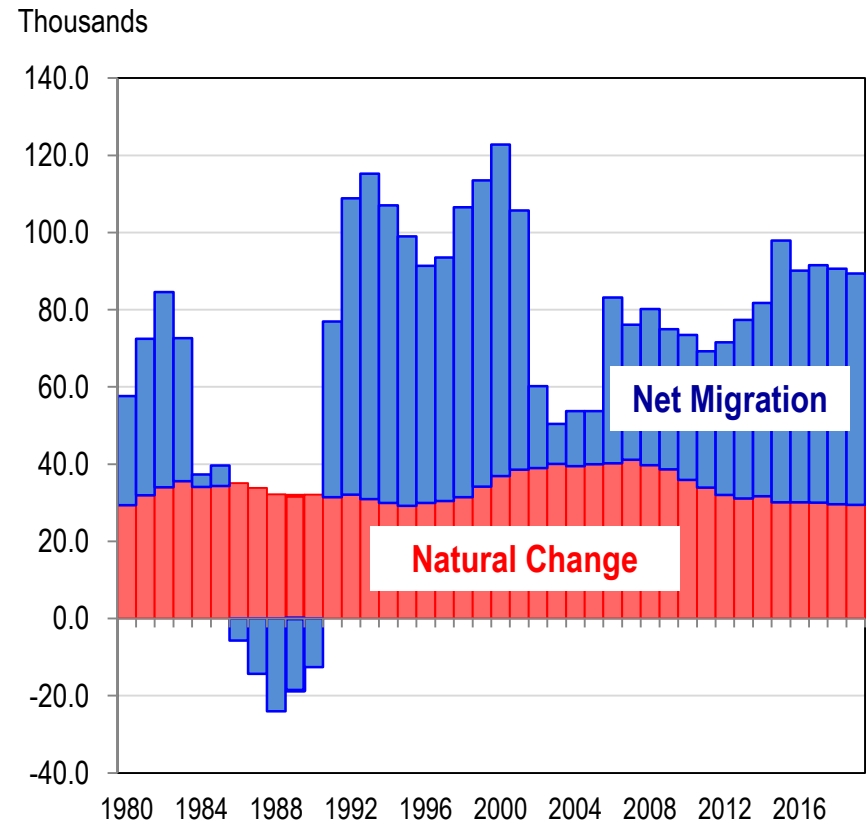
Population increases and decreases are a result of the natural rate of change (births minus deaths) and the change in net migration (people moving into the state minus people moving out of the state).

Over the past 3½ decades the natural rate of change (red bars) varied from a low of 29,145 in 1995 to a peak of 41,124 in 2007. In 2018 it is projected to drop to 29,400. Fertility rates in Colorado have declined.

Changes resulting from net migration (blue bars) are closely tied to the strength of the economy and the change in state employment. For example, there were five years, from 1986 to 1990, when net migration and the change in population were negative. More people moved out of state than moved into the state to escape a regional recession. During the past two recessions (2001 and 2007), net migration declined, but did not turn negative. It was difficult for people to move anywhere to escape the downturn.

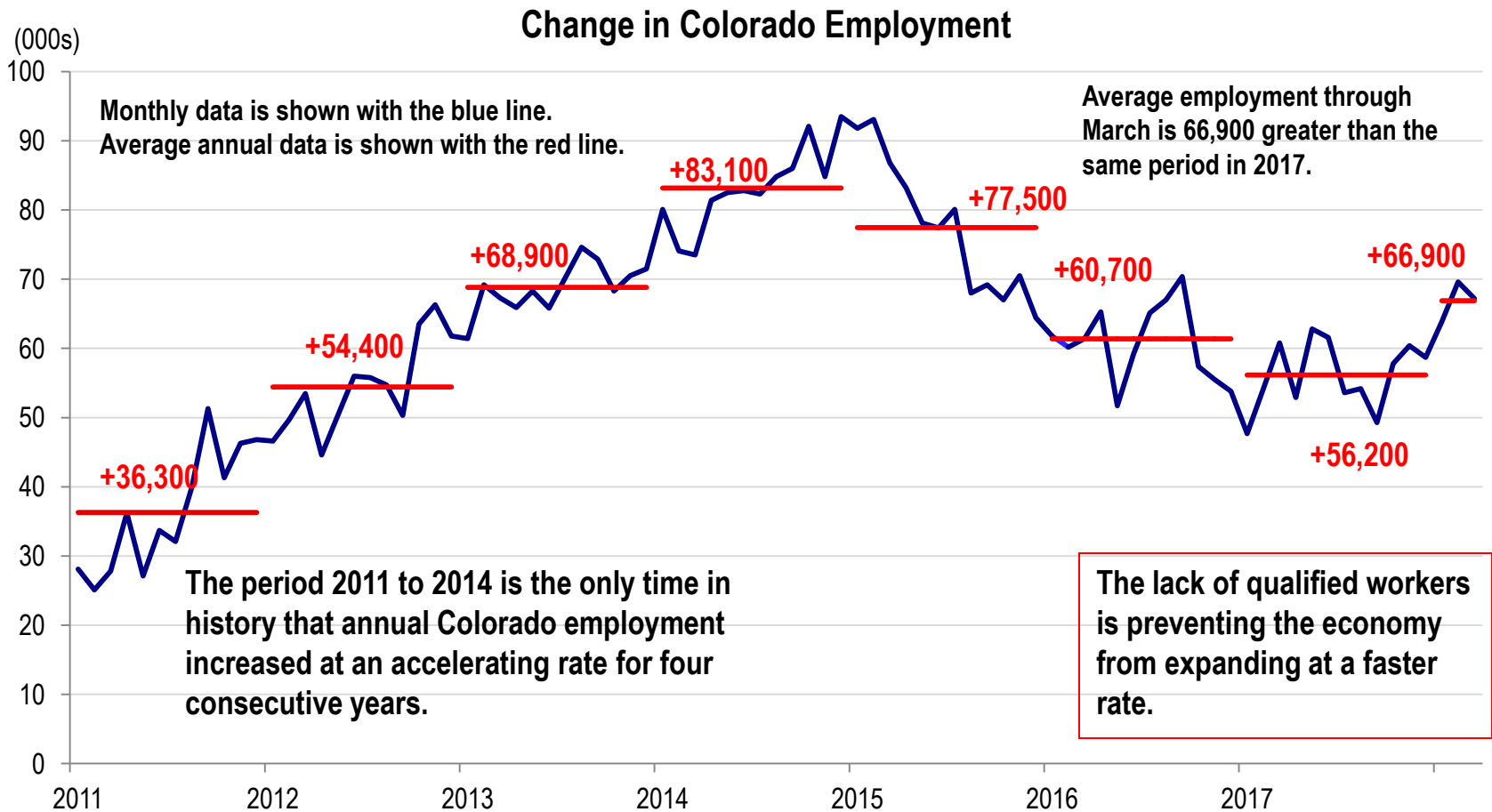
The Colorado population will increase by about 90,000 for the years 2015 to 2018. In 2018 the state's population will increase by 1.6% to 5,720,280.

Change in Colorado Population 1980 - 2019



Change in Colorado Employment

Year-Over-Year

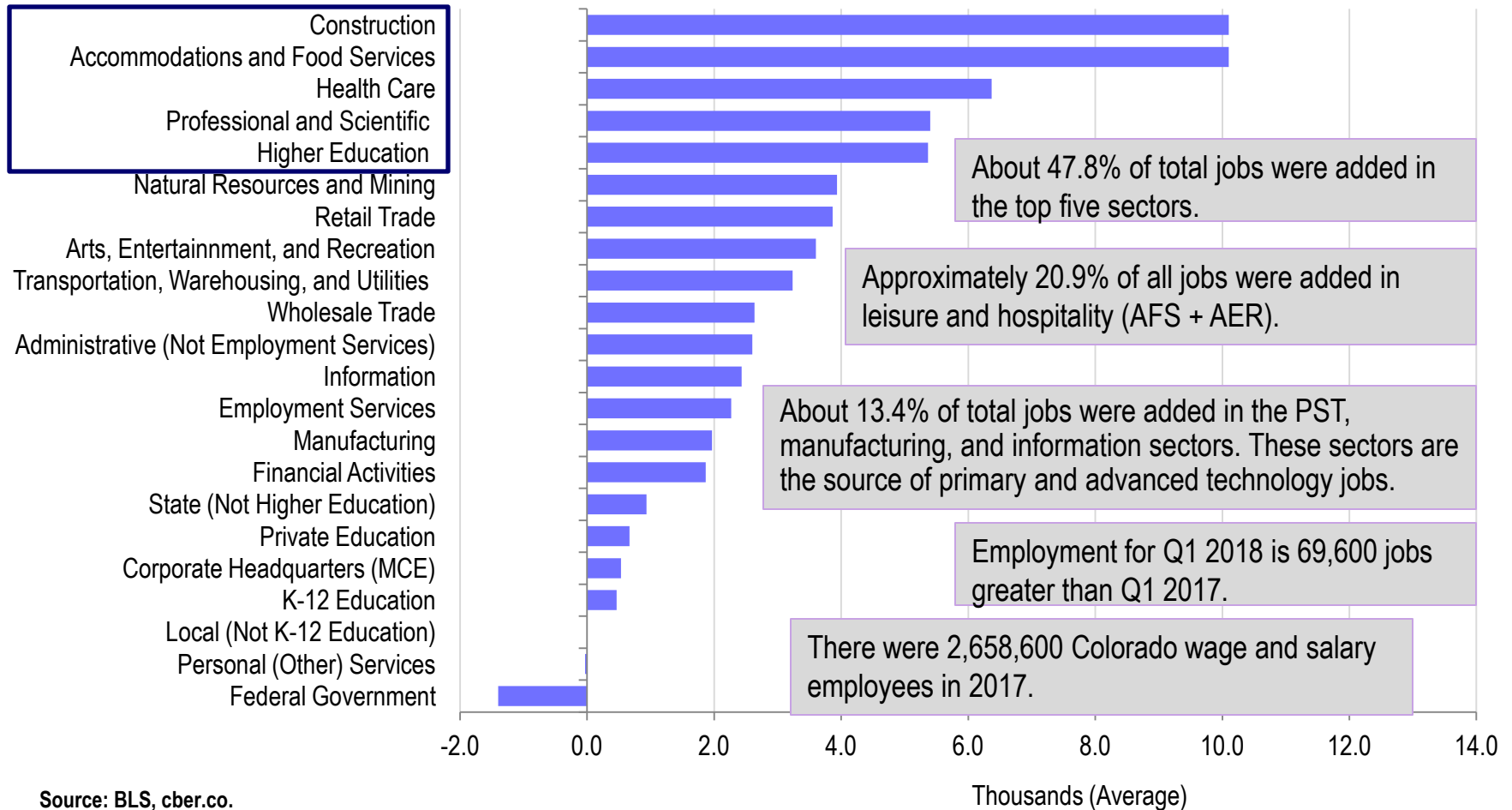


Source: Bureau of Labor Statistics, NSA, cber.co.

Change in Employment

First 3 Months of 2018 vs. First 3 Months of 2017

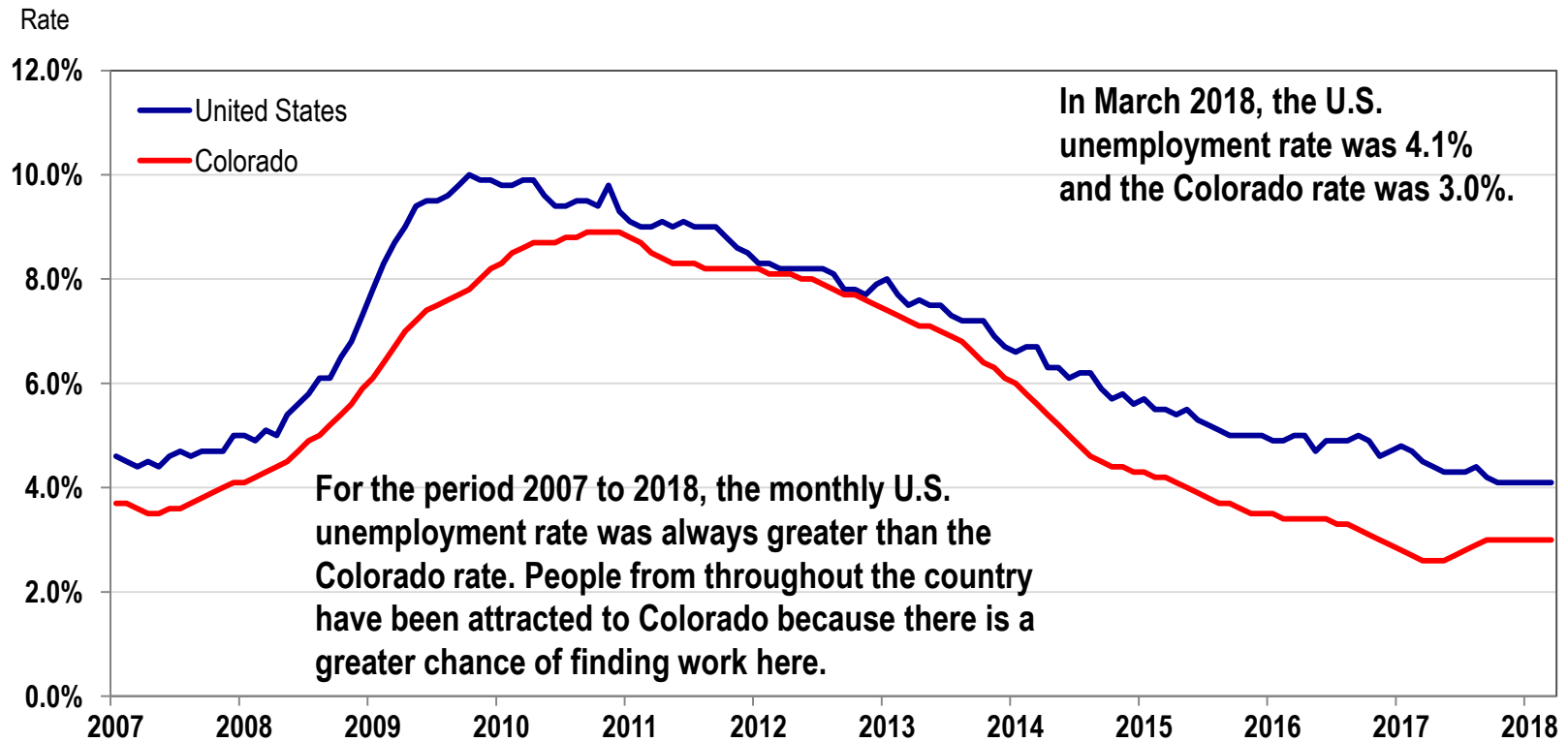
Job Change All Sectors



Annual Unemployment Rate

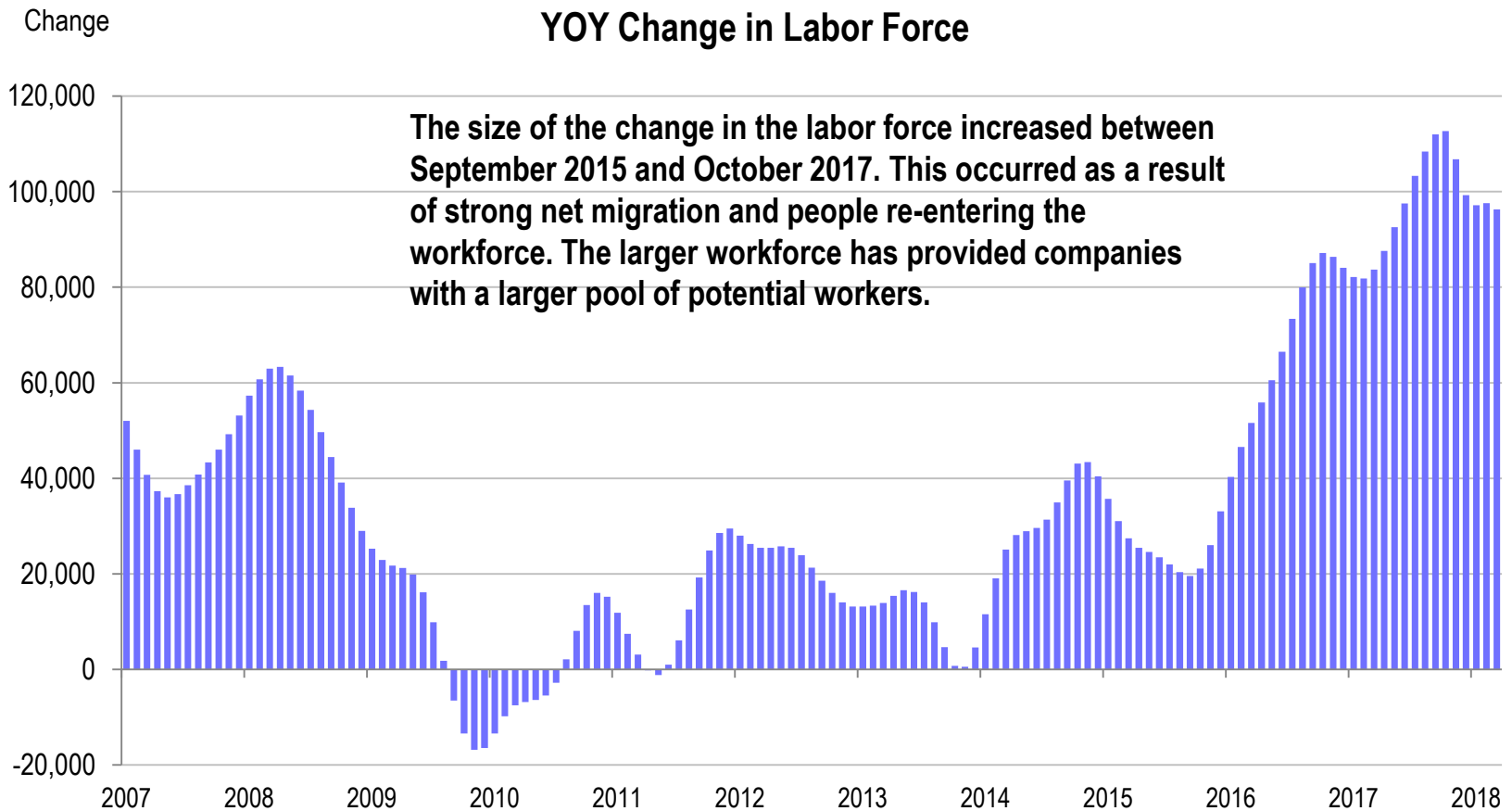
Colorado vs. U.S.

Unemployment Rate – Colorado vs. U.S.



Source: Bureau of Labor Statistics, cber.co.

YOY Change in Colorado Labor Force



Source: Bureau of Labor Statistics, LAUS, SA, cber.co.

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The Colorado Economy

Trends – Inflation, Housing Prices, Construction

Q1 2018 Trends

Inflation, Housing Prices, and Construction

Charts for the following trends are provided on the subsequent pages.

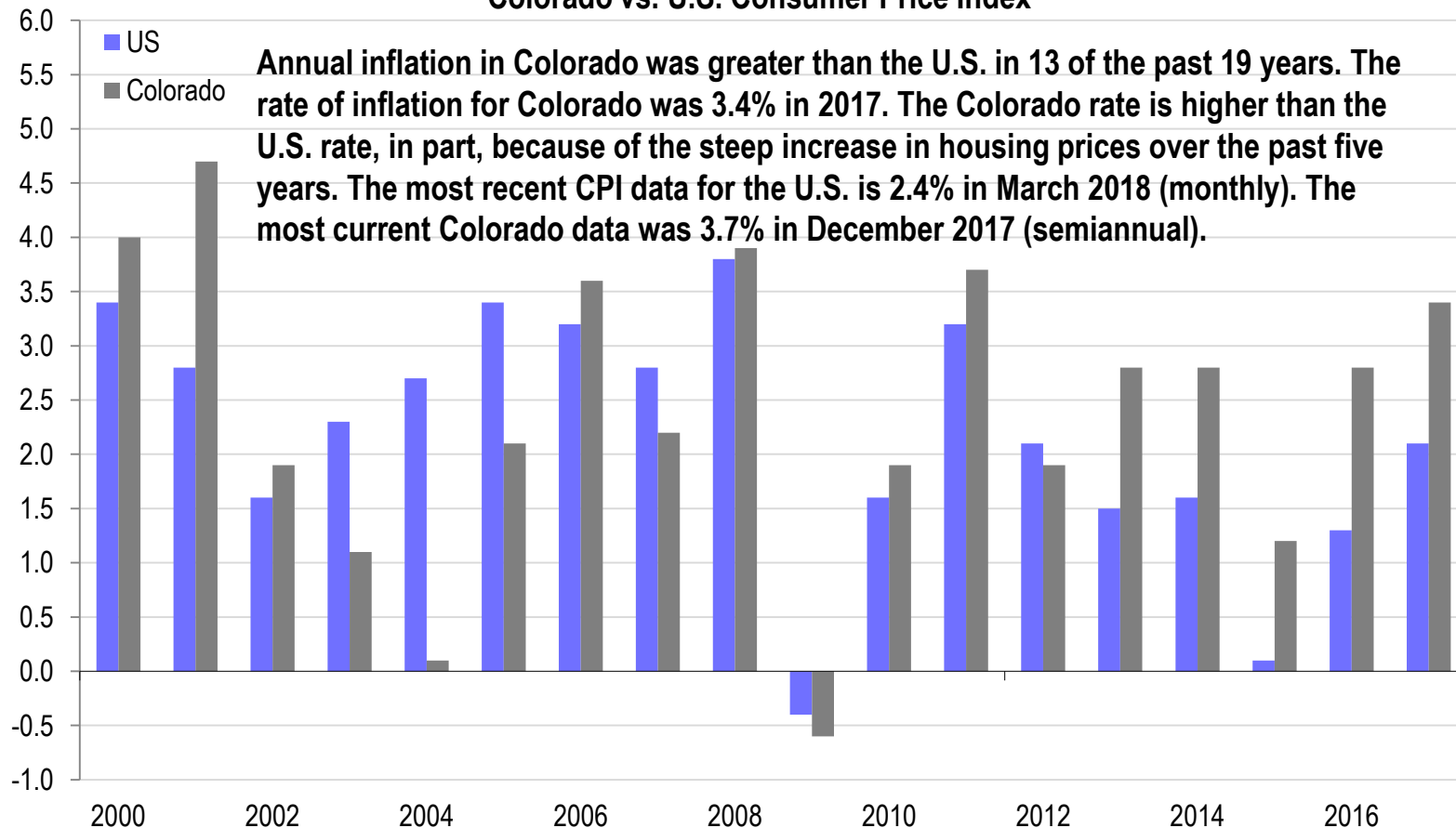
- Colorado's rate of inflation is increasing faster than the U.S. rate, in part because of the increase in housing prices. At what point will inflation be a deterrent to consumer spending and future growth in the state?
- Home prices in Denver are rising faster rate than the U.S. rate. It will become even more difficult for newcomers and residents to find attainable and affordable housing, especially with anticipated rate increases by the Fed. At what point will the lack of affordable housing cause the economy to slow? Will workers leave the state or not move to Colorado because they cannot find housing?
- Colorado construction continues to be strong, although some would argue that it is not strong enough. The recent data shows an increase in the number of single family permits and a decrease in the number of multi-family permits. A number of metro communities have plans for significant increases in housing on the drawing board. Will the supply of affordable housing ever catch up with the demand?

Consumer Price Index (CPI)

Colorado vs. U.S.

1982-84=100,
% change

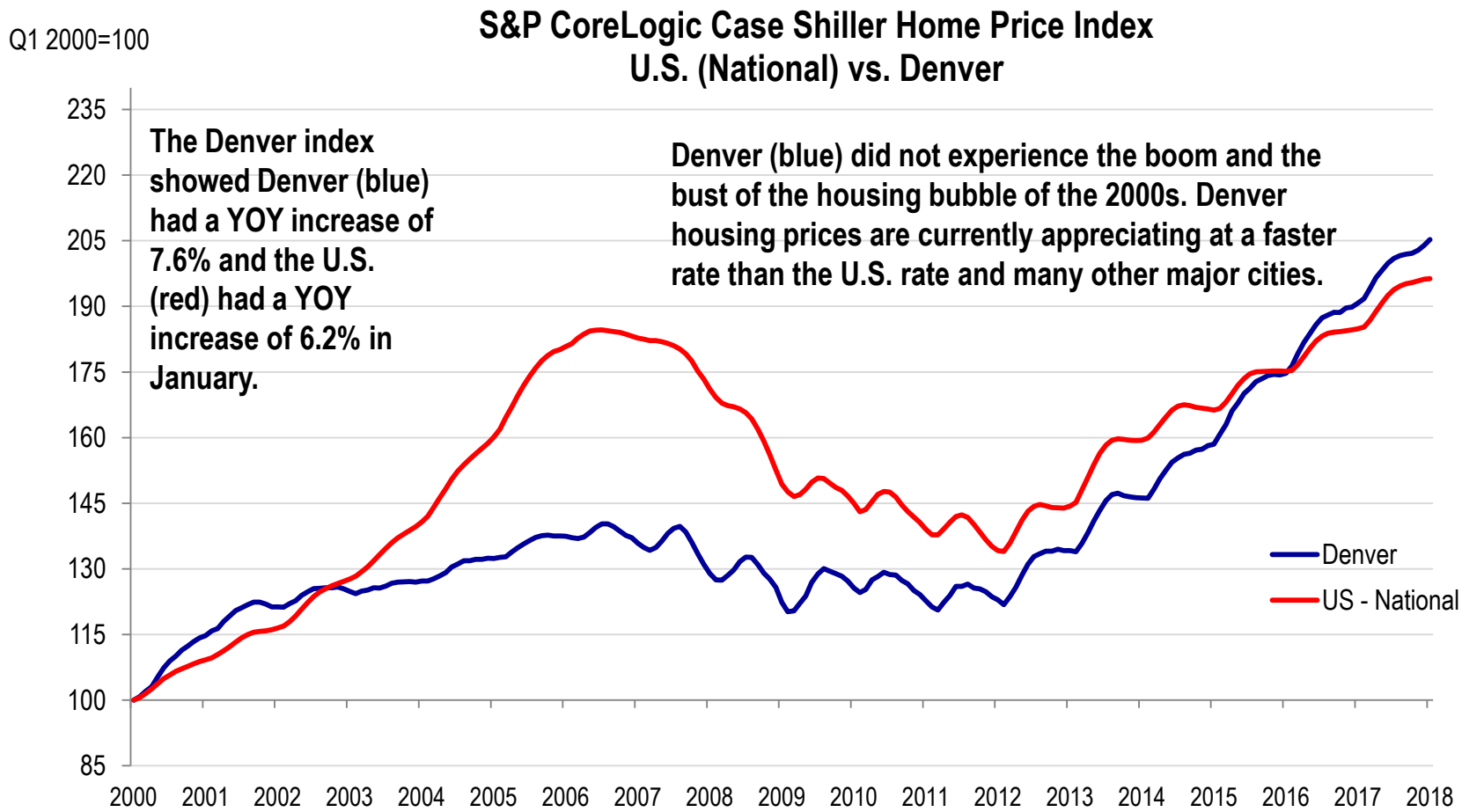
Colorado vs. U.S. Consumer Price Index



Source: Bureau of Labor Statistics, SA, cber.co.

Case Shiller Home Price Index

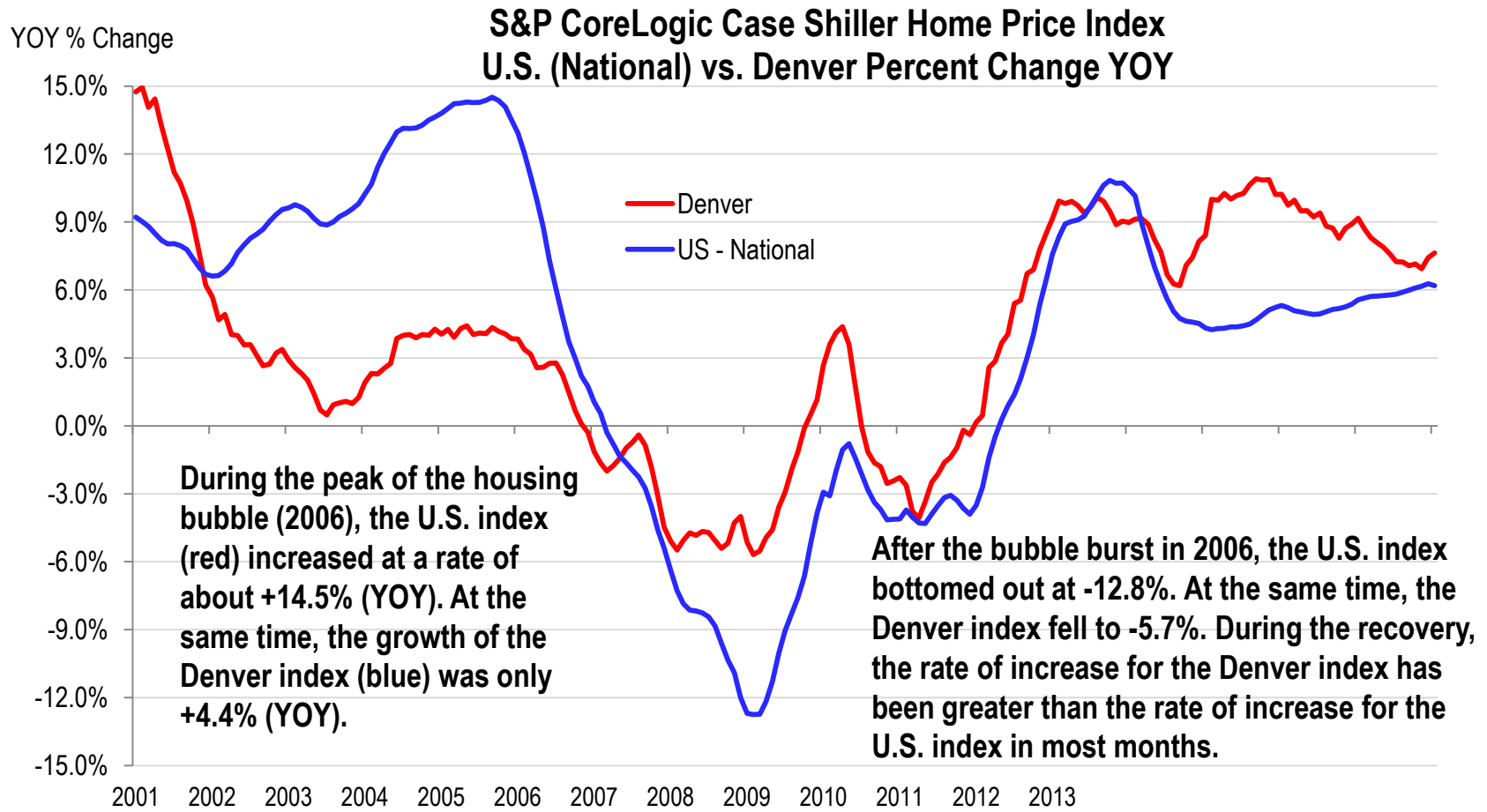
National vs. Denver Index Value



Source: S&P Core-Logic Case-Shiller, cber.co.

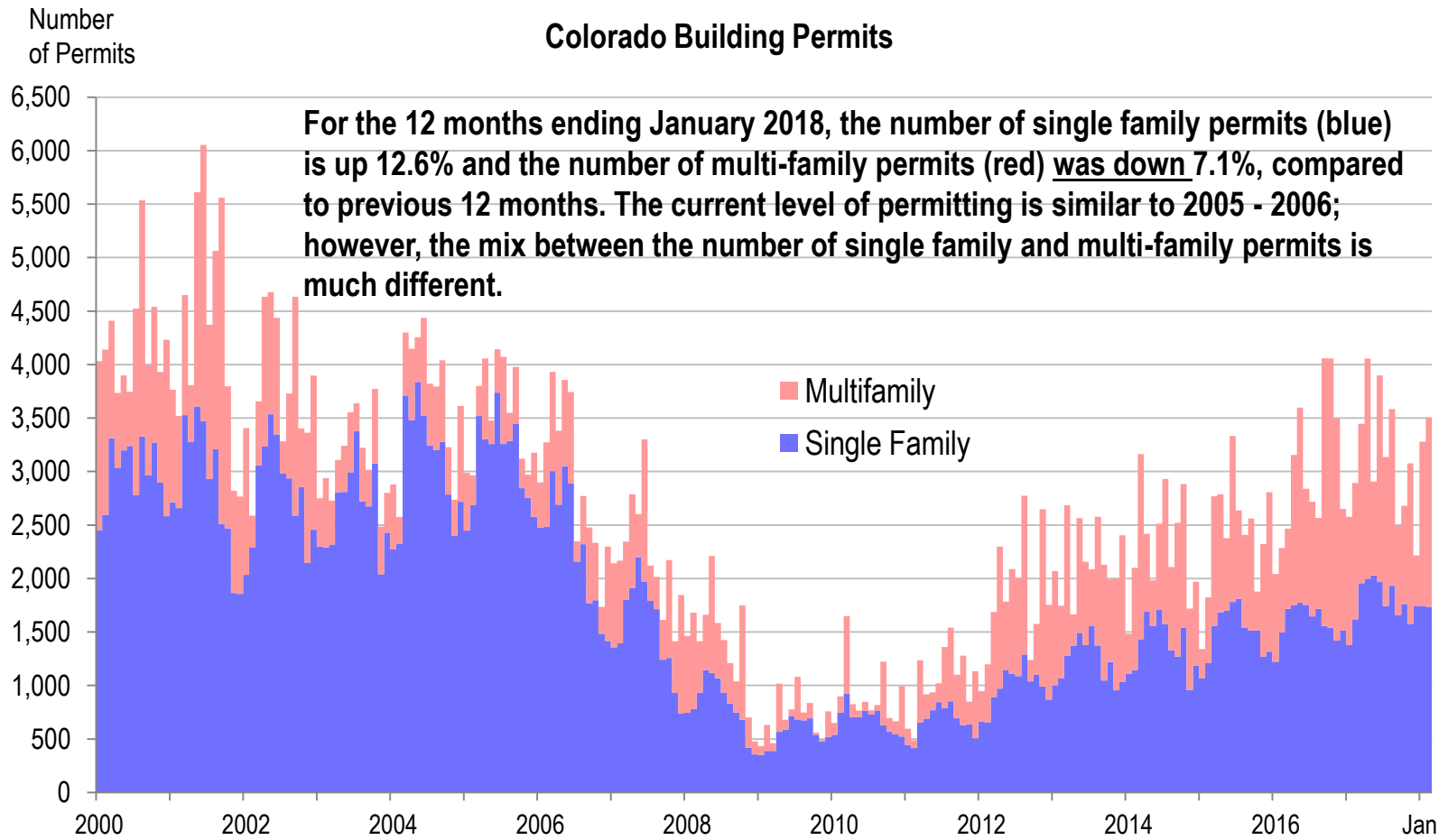
Case Shiller Home Price Index

National vs. Denver YOY Rate of Change



Source: S&P Core-Logic Case-Shiller, cber.co.

Colorado Residential Building Permits - Units



Source: TAMU Real Estate Center, U.S. Census Bureau, cber.co.



The Colorado Economy

Trends – Oil Production, DIA Passengers, Vehicle Sales

Q1 2018 Trends

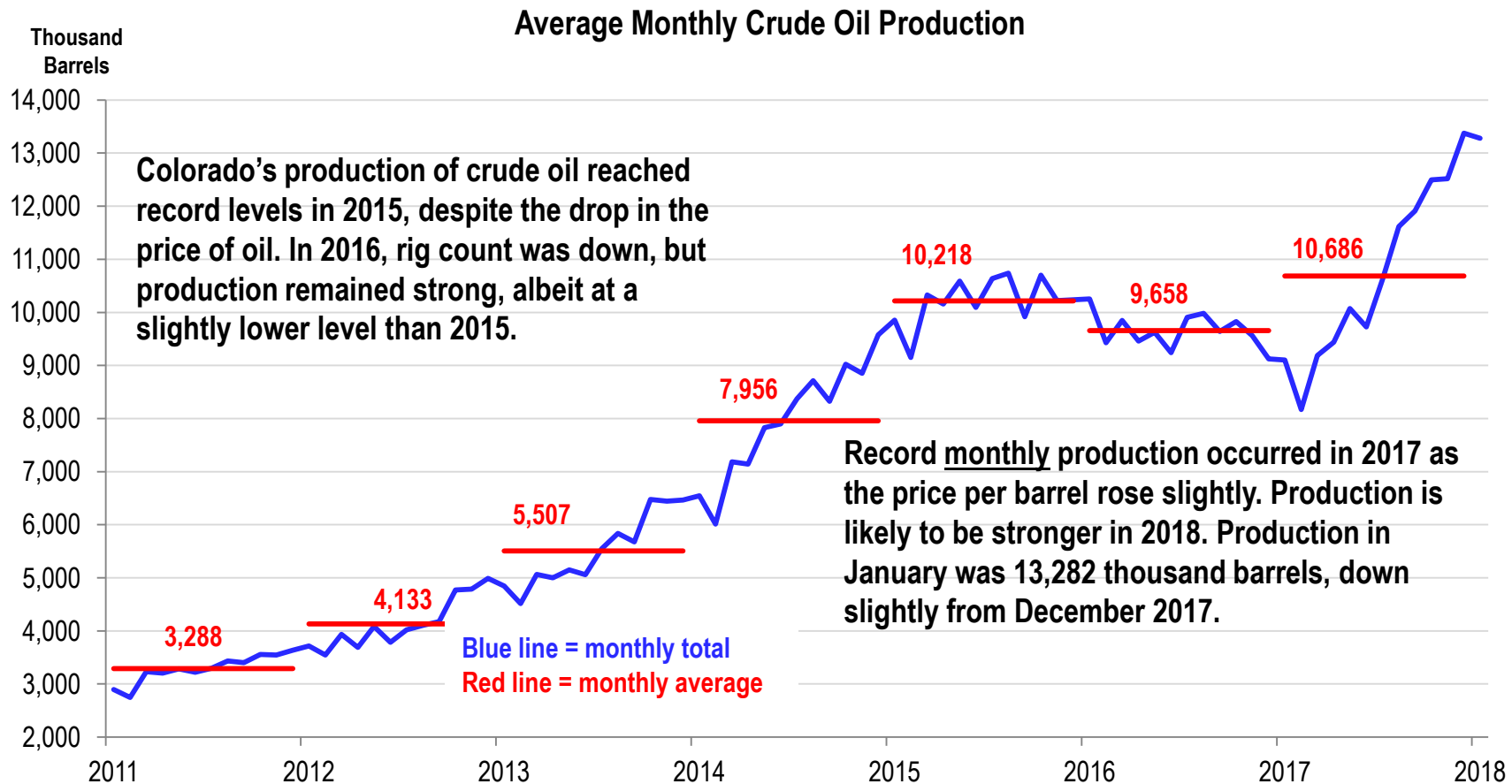
Oil Production, DIA Passengers, Vehicle Sales

Charts for the following trends are provided on the subsequent pages.

- Record-setting oil production in the Niobrara oil patch has kept the Northern Colorado economy strong. Will future production be altered by changes in public policy that affects demand or the price for a barrel of oil?
- More than 61 million passengers passed through DIA in 2017. The new year got off to a strong start (4.6 million). In addition, the area surrounding DIA is growing rapidly. Will the area's infrastructure be able to support the growth surrounding the airport?
- New and used vehicle registrations were at record levels in 2017. This was counter to the national trend. The strong rate of growth for new vehicles has slowed and it appears used vehicle registrations will be stronger than new vehicle registrations in 2018. Will Coloradans continue to have a love affair with light trucks and autos in 2018?

Average Monthly Field Production of Crude Oil

2011 to 2018 (Thousand Barrels)



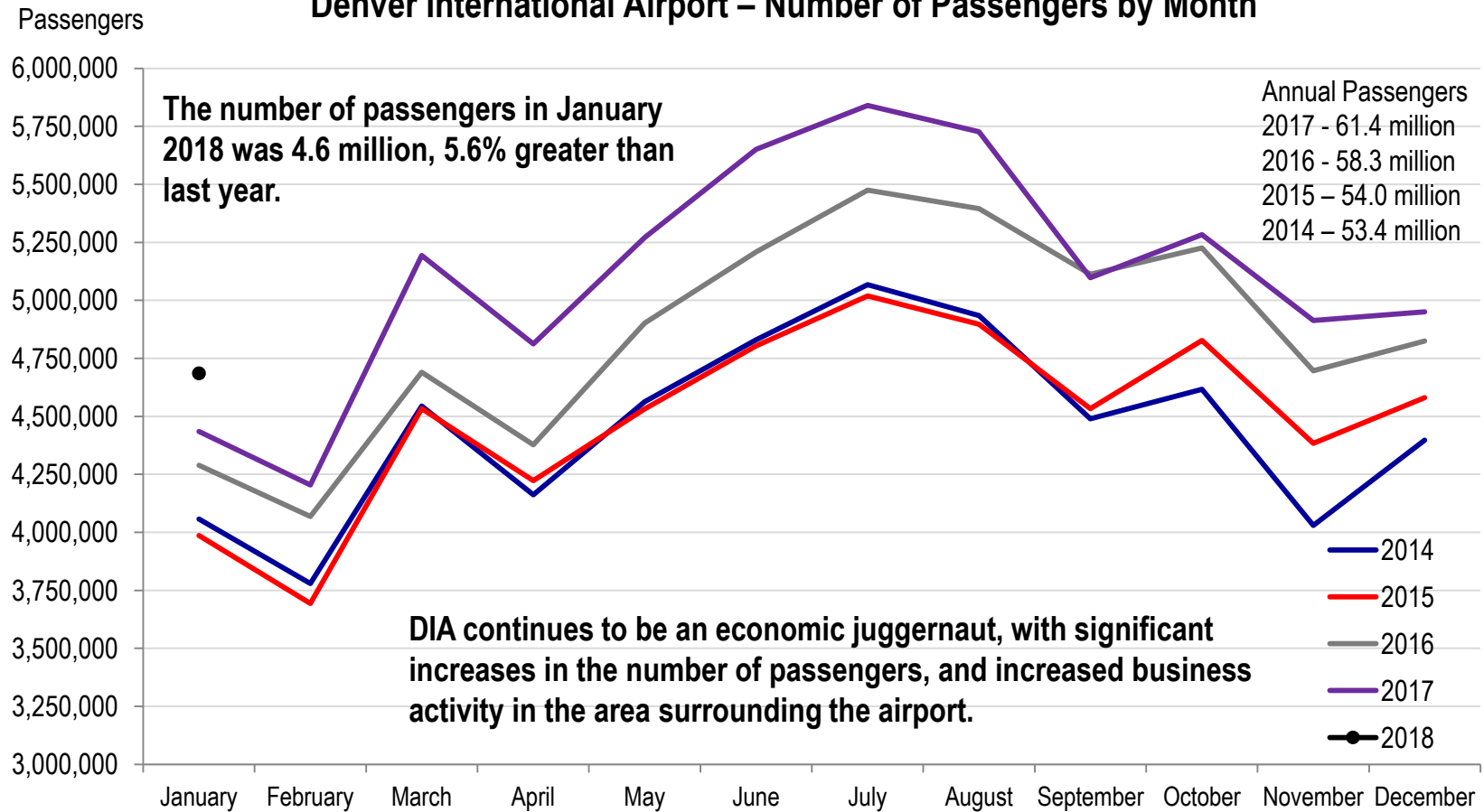
Source: EIA, cber.co.

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Denver International Airport

Passengers

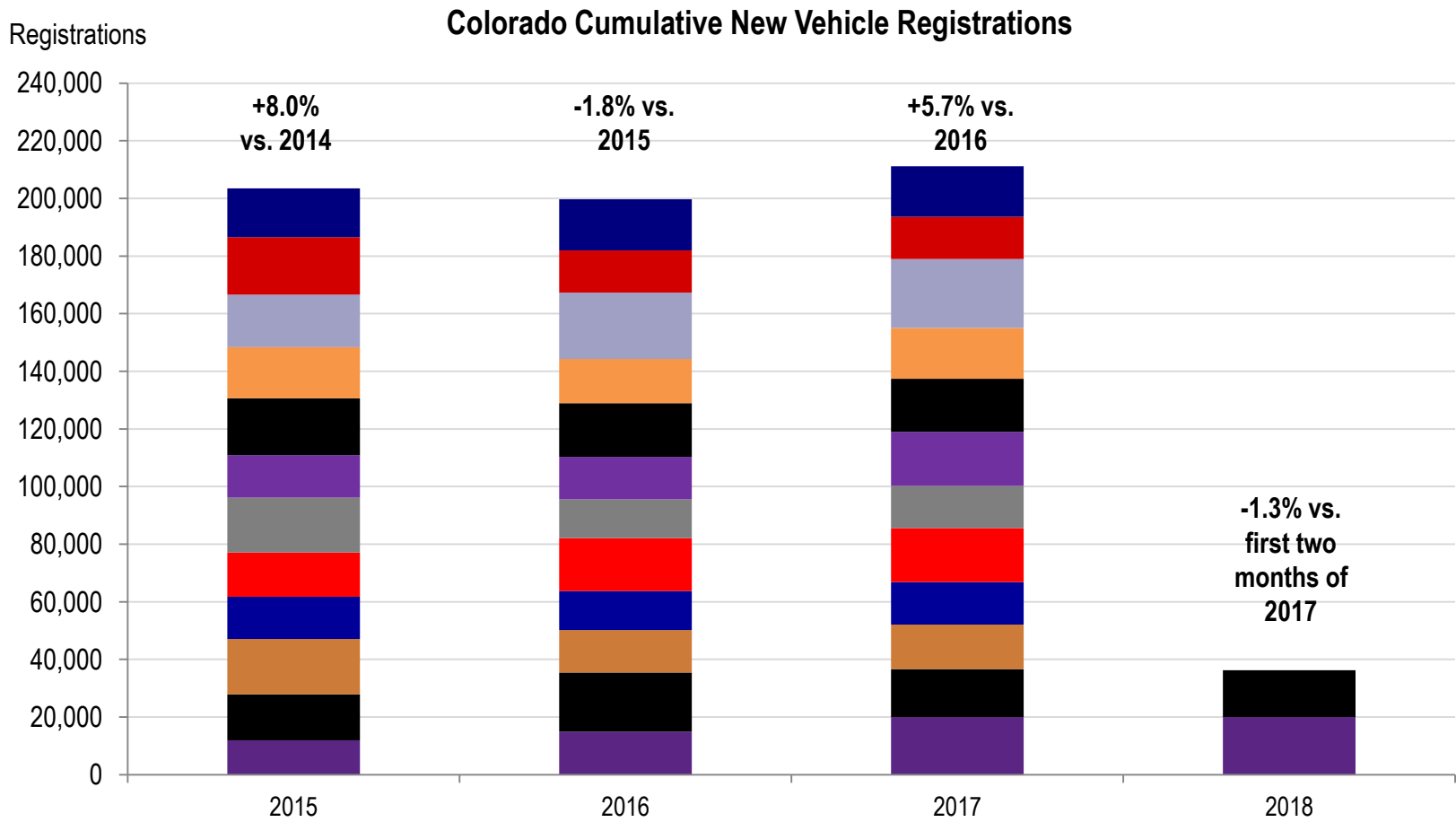
Denver International Airport – Number of Passengers by Month



Source: FlyDenver.com, cber.co.

Cumulative Colorado New Vehicle Registrations

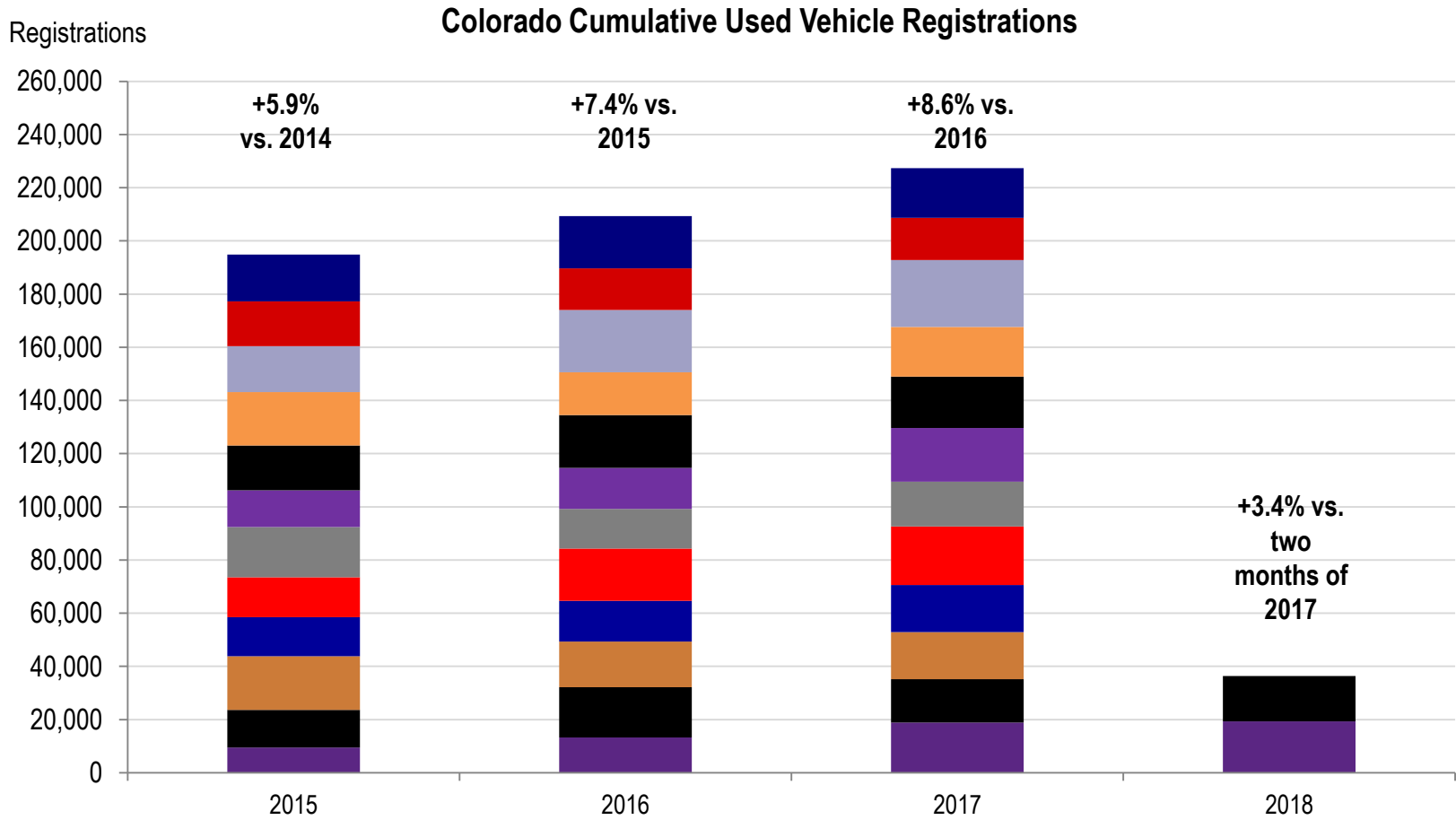
Monthly Registrations



Source: Colorado Auto Dealers Association, cber.co. Note: Data is in descending order with December at the top and January at the bottom, not adjusted for inflation.

Cumulative Colorado Used Vehicle Registrations

Monthly Registrations



Source: Colorado Auto Dealers Association, cber.co. Note: Data is in descending order with December at the top and January at the bottom, not adjusted for inflation.



The Colorado Economy

Trends - Select Industries

Select Industries

Trends - Transportation, Information, Finance/Construction, PST

Job growth is evaluated for six subsectors that are important to the economy for different reasons. In addition, the concentration, or location quotient, of two major sectors is evaluated.

Subsectors

Transportation – There has been minimal growth in transportation employment since 1990. With the growth of DIA, why hasn't there been an increase in air employment? Will the resurgence of manufacturing and the increased presence of Amazon cause an increase in trucking employment?

Information – The sector struggles to add jobs. Will telecommunications and publishing be a source of strong job growth in the future?

Financial Activities – Recently, the insurance industry has shown job growth. Will that continue? Despite a strong real estate market and overall economy, why haven't the credit intermediaries shown stronger job growth?

Major Sectors

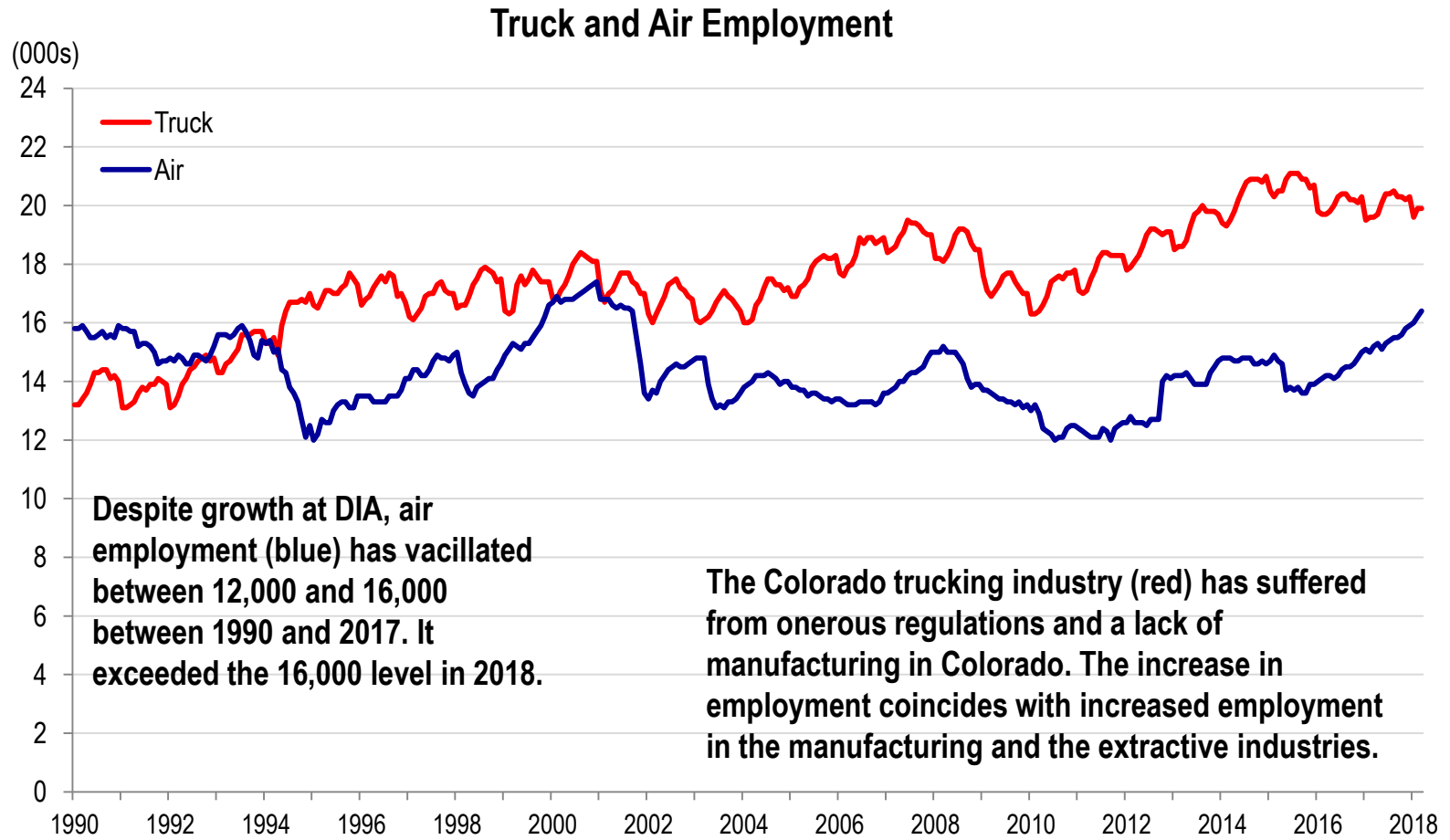
Construction – Employment has not returned to the pre-recession peak. Colorado has a higher concentration of construction workers than the U.S. Where will the Colorado construction companies find workers?

Professional, Scientific, Technical – The growth of the PST sector is critical to Colorado. Colorado has a higher concentration of PST workers than the U.S., but that concentration is gradually declining. Has Colorado lost its ability to recruit and retain PST companies and workers?

Advanced Technologies – The Advanced Technologies cluster has added jobs steadily since the end of the Great Recession. Cluster employment will return to its 2001 peak in 2018. What can the state do to protect and promote its AT cluster?

Employment in Transportation Subsectors

Truck and Air

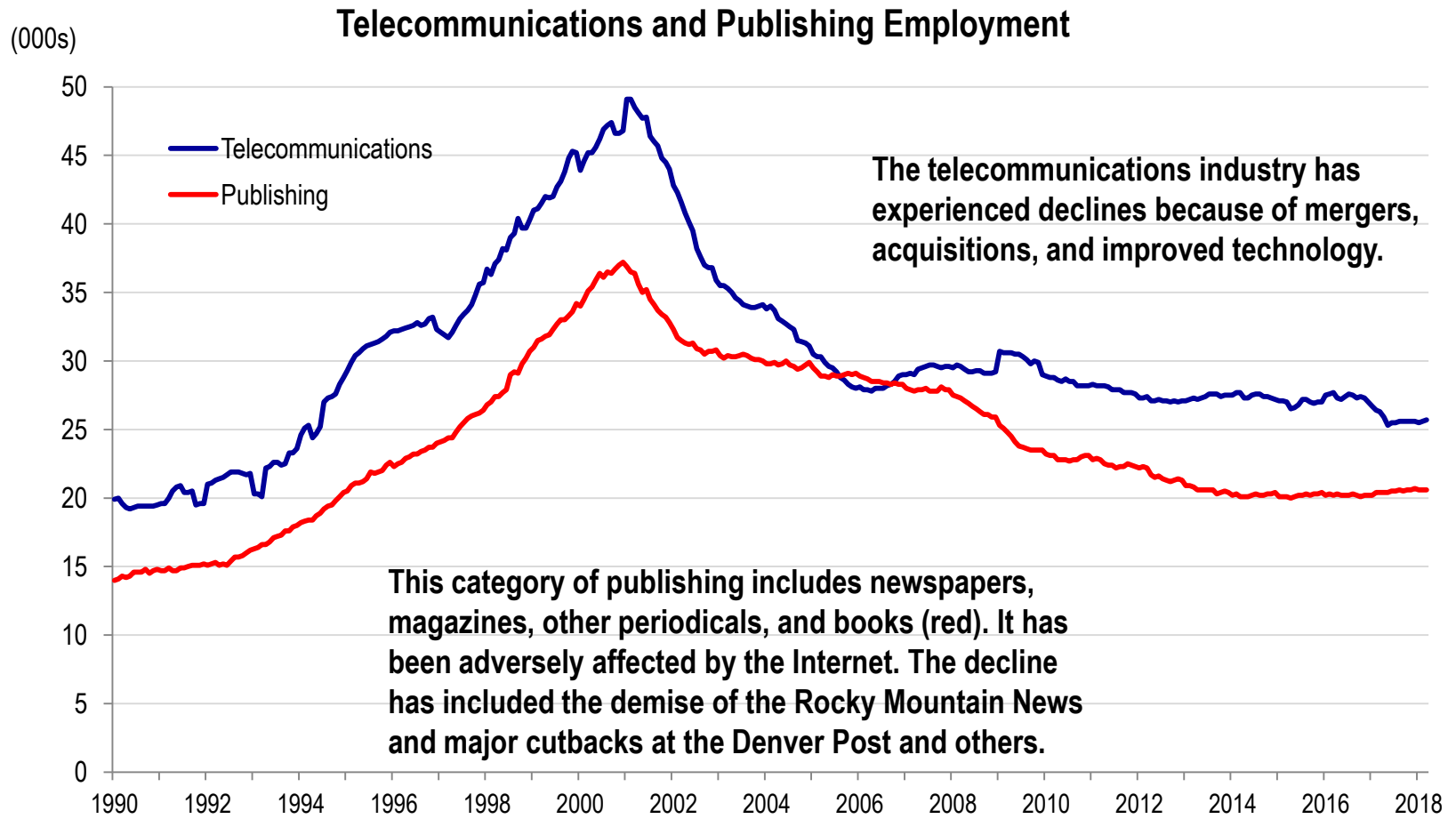


Source: Bureau of Labor Statistics, cber.co.

● Employment in Information Subsectors

● Telecommunications and Publishing

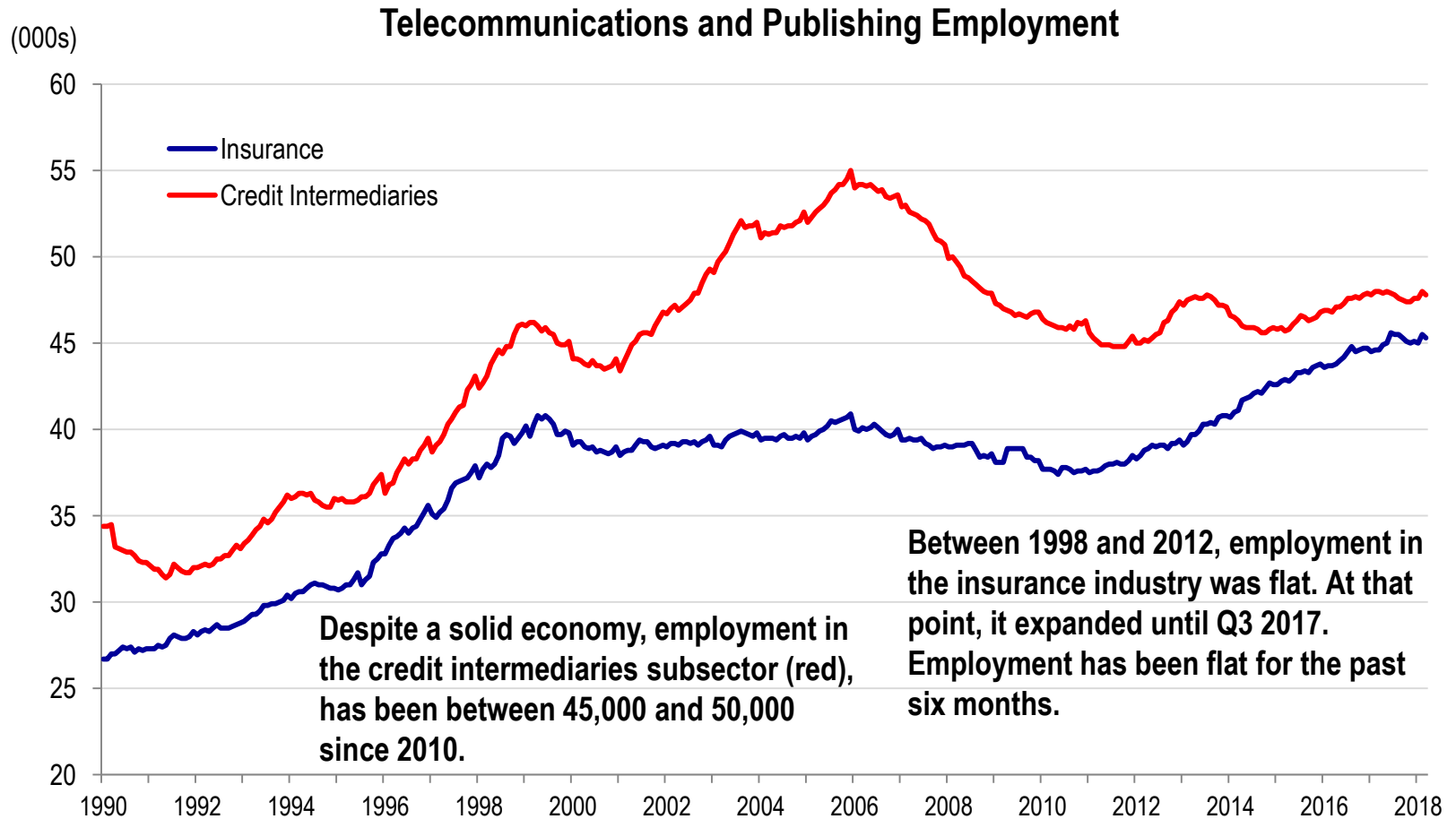
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Source: Bureau of Labor Statistics, cber.co.

Employment in Finance Subsectors

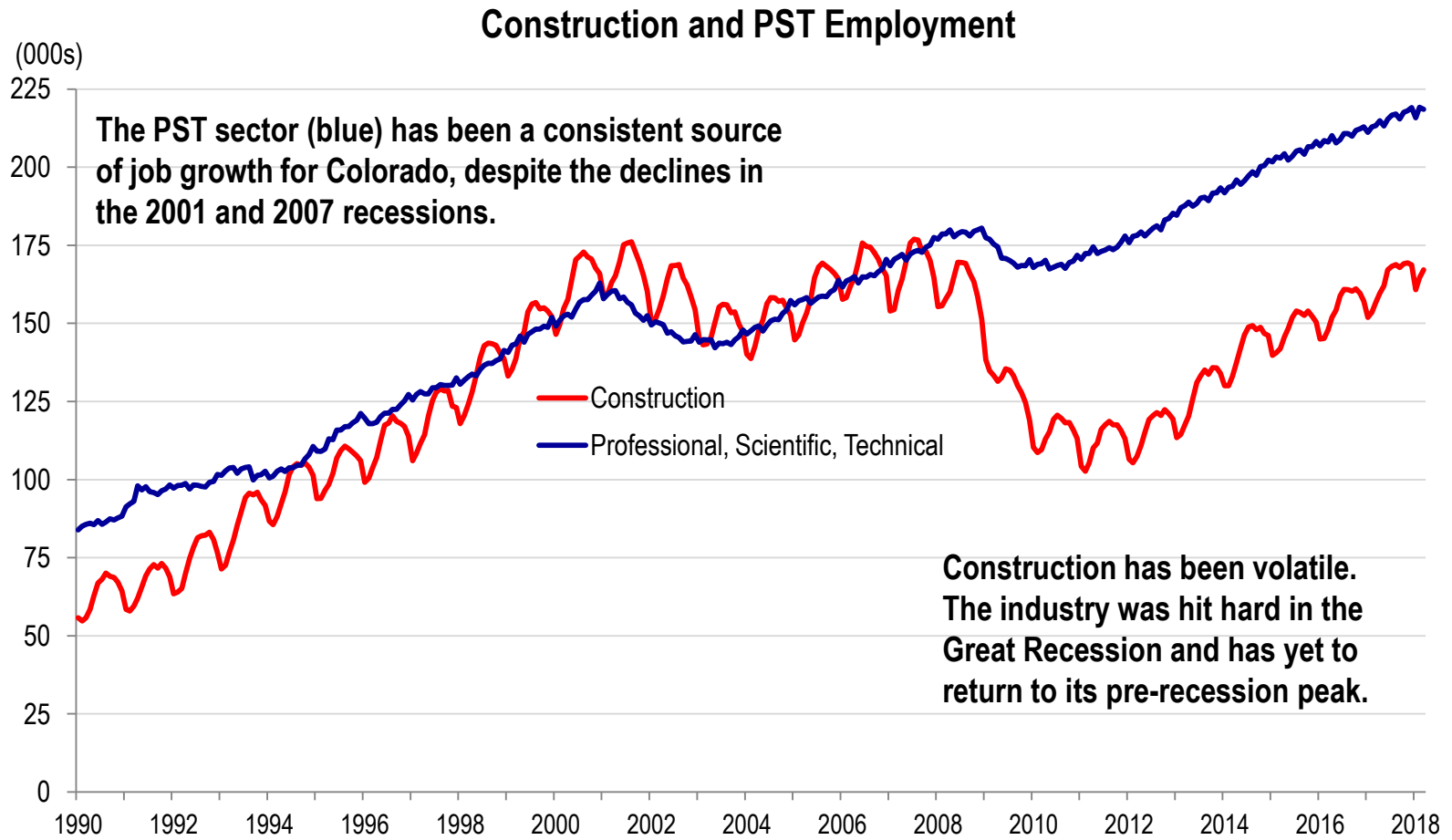
Insurance and Credit Intermediaries



Source: Bureau of Labor Statistics, cber.co.

Employment in Key Sectors

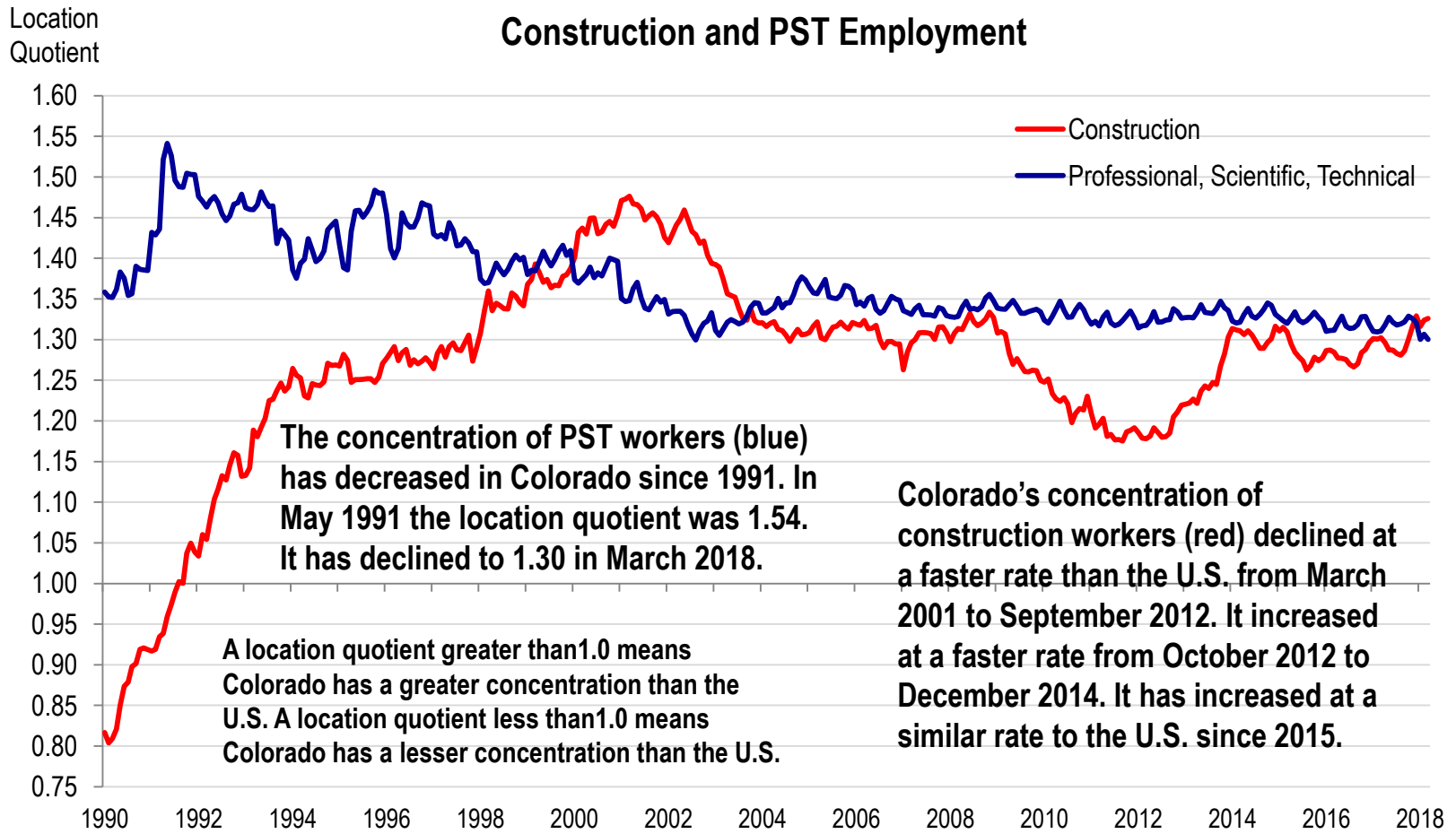
Construction and Professional, Scientific, Technical



Source: Bureau of Labor Statistics, cber.co.

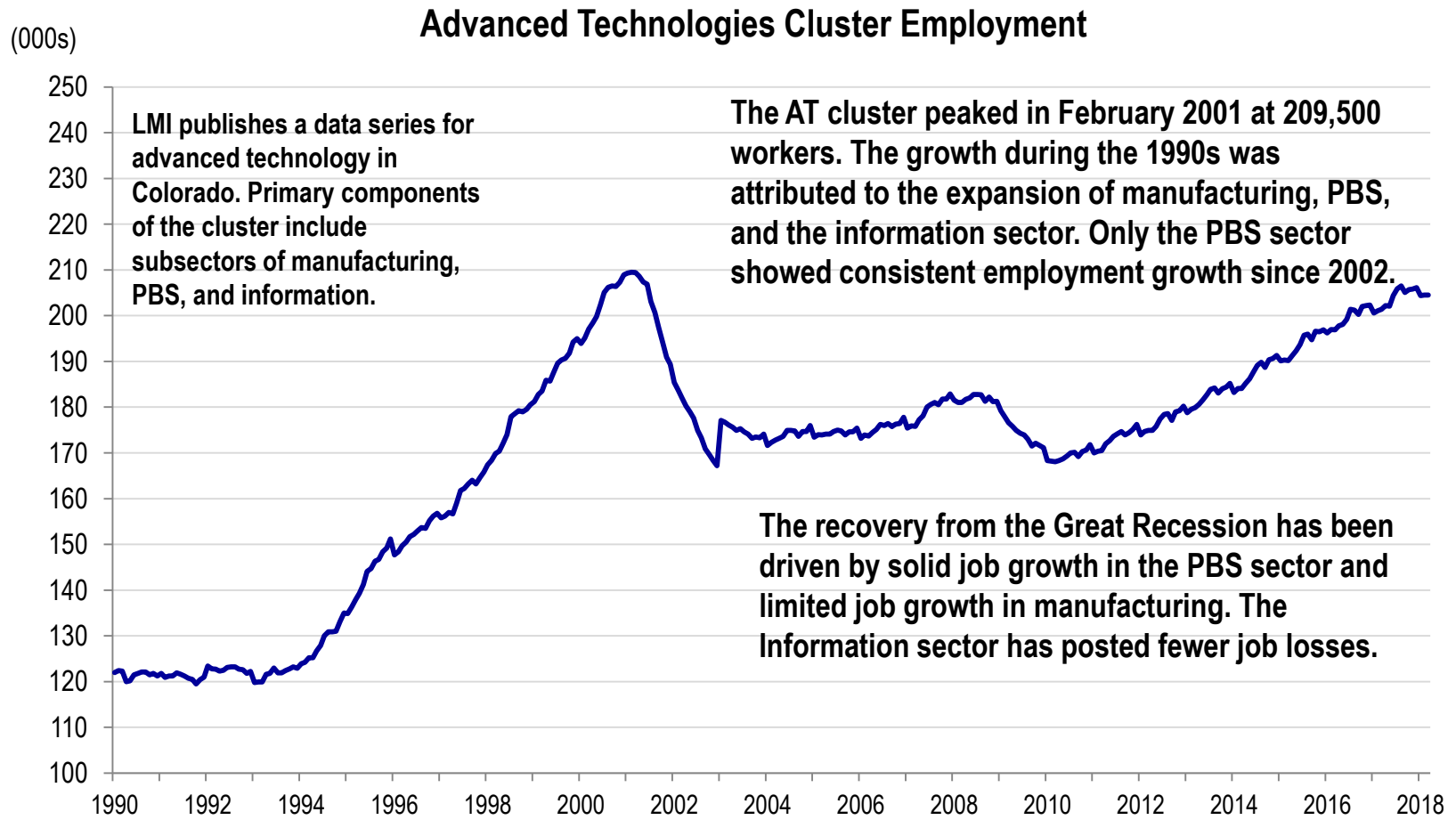
Location Quotient in Key Sectors

Construction and Professional, Scientific, and Technical



Source: Bureau of Labor Statistics, cber.co. Note: LQ calculation on Non-Farm CES data.

Employment - Advanced Technologies



Source: Labor Market Information, Bureau of Labor Statistics, cber.co.



The Colorado and U.S. Economy

Summary



Summary

Colorado

The U.S. Economy is on solid footing which provides a foundation for a solid Colorado economy. As is always the case, there are headwinds.

Positives

- Solid and broad-based job growth.
- Solid GDP growth.

At the moment, the Colorado economy is on cruise control!

Concerns

- The low unemployment rate has caused companies to struggle to find qualified and clean workers.
- Colorado's rate of inflation is greater than the U.S.
- The rate of wage growth has been less than the rate of inflation.
- The rate of appreciation in housing is important to homeowners, but it is making housing unaffordable and unattainable for newcomers and first time buyers.
- There is a lack of funding to improve the state's infrastructure.
- Continued net migration is necessary to fill new jobs, but it puts a strain on the infrastructure and state budget.

Annual Employment Change in Colorado

Employment for Q1 2018 is 66,900 jobs greater than Q1 2017. The number of jobs increased at a rate of 2.6%.

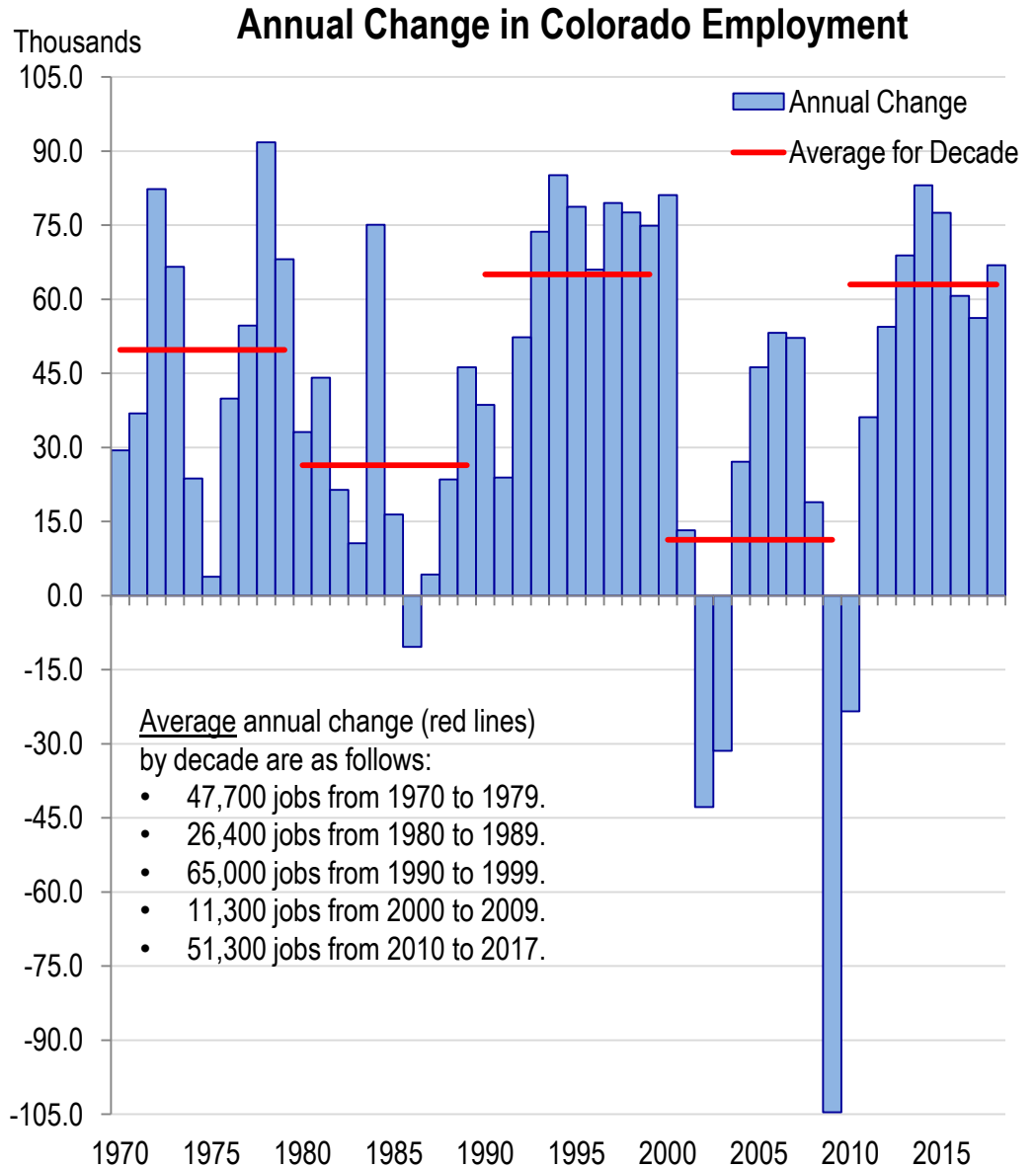
The state added 56,200 jobs in 2017 and employment increased by 2.2%. The cber.co forecast for 2018 calls for slightly slower job growth than 2017, in the range of 1.9% to 2.1%.

Through Q1 2018, job growth is stronger than anticipated. While this is good news, it is likely this level of employment is overstated. When revisions are made, actual job growth will be closer to 2.1%.

On average, employment for the first 9 years of this decade has increased at an average of 63,000 jobs.

Source: Bureau of Labor Statistics, cber.co.

Colorado-based Business and Economic Research <http://cber.co>





cber.co Review of Colorado Employment Data through March 2018

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ABOUT THE AUTHOR

Gary Horvath has produced annual employment forecasts of the state economy for over 25 years. They have been supplemented by monthly economic updates and indices that track economic performance over the short term. In addition, he has directed three statewide analyses that included reviews of all 64 county economies.

Horvath was the principal investigator for a state and federally funded project to prepare a nanotechnology roadmap for Colorado. As well, he was a co-founder of the Colorado Photonics Industry Association, a trade group for Colorado's Photonics cluster. Horvath has been an active board member of the group since its inception.

Horvath has also served on the Board of Directors for the Economic Development Council of Colorado, Northwest Denver Business Partnership, Adams County Economic Development, Broomfield Economic Development Corporation, and Colorado Photonics Industry Association. Horvath has also been the lead for the photonics/electronics cluster in OEDIT's early stage and proof of concept grant programs.