RAYMOND JAMES®

Gleanings
Published by Raymond James & Associates

Jeffrey D. Saut, Chief Investment Strategist, (727) 567-2644, Jeffrey.Saut@RaymondJames.com
Scott J. Brown, Ph.D., (727) 567-2603, Scott.J.Brown@RaymondJames.com
Andrew Adams, CFA, CMT, (727) 567-4807, Andrew.Adams@RaymondJames.com

April 23, 2018

Gleanings

A Monthly Chart Presentation and Discussion Pulling Together the Disciplines of Economics, Fundamentals, Technical Analysis, and Quantitative Analysis

"Hoisted On One's Own Petard"

"Hoisted on one's own petard" is a Shakespearean idiom from *Hamlet* meaning "To cause the bomb maker to be blown up with his own bomb." A petard is a small bomb used for blowing up gates and walls when breaching fortifications. It is of French origin and dates back to the 16th century. The term means to fall foul of your own deceit, or fall into your own trap. We have recently been "Hoisted on our own petard" regarding Dow Theory and our December Low Indicator. For example, the D-J Industrial Average fell below its December low in February. Recall, Lucien Hooper told us about said indicator over lunch at Harry's Bar & Grill at the American Stock Exchange in the early 1970's. The verbal exchange went like this, as chronicled in a blog from Minyanville:

"When the Dow closes below its December closing low in the first quarter, it is frequently an excellent warning sign. Jeffrey D. Saut, Chief Investment Strategist at Raymond James, brought this to our attention a few years ago. The December Low Indicator was originated by Lucien Hooper, a *Forbes* columnist and Wall Street analyst back in the 1970's. Hooper dismissed the importance of January and January's first week as reliable indicators. He noted that the trend could be random or even manipulated during a holiday-shortened week. Instead, said Hooper, 'Pay much more attention to the December low. If that low is violated during the first quarter of the New Year, watch out!'"

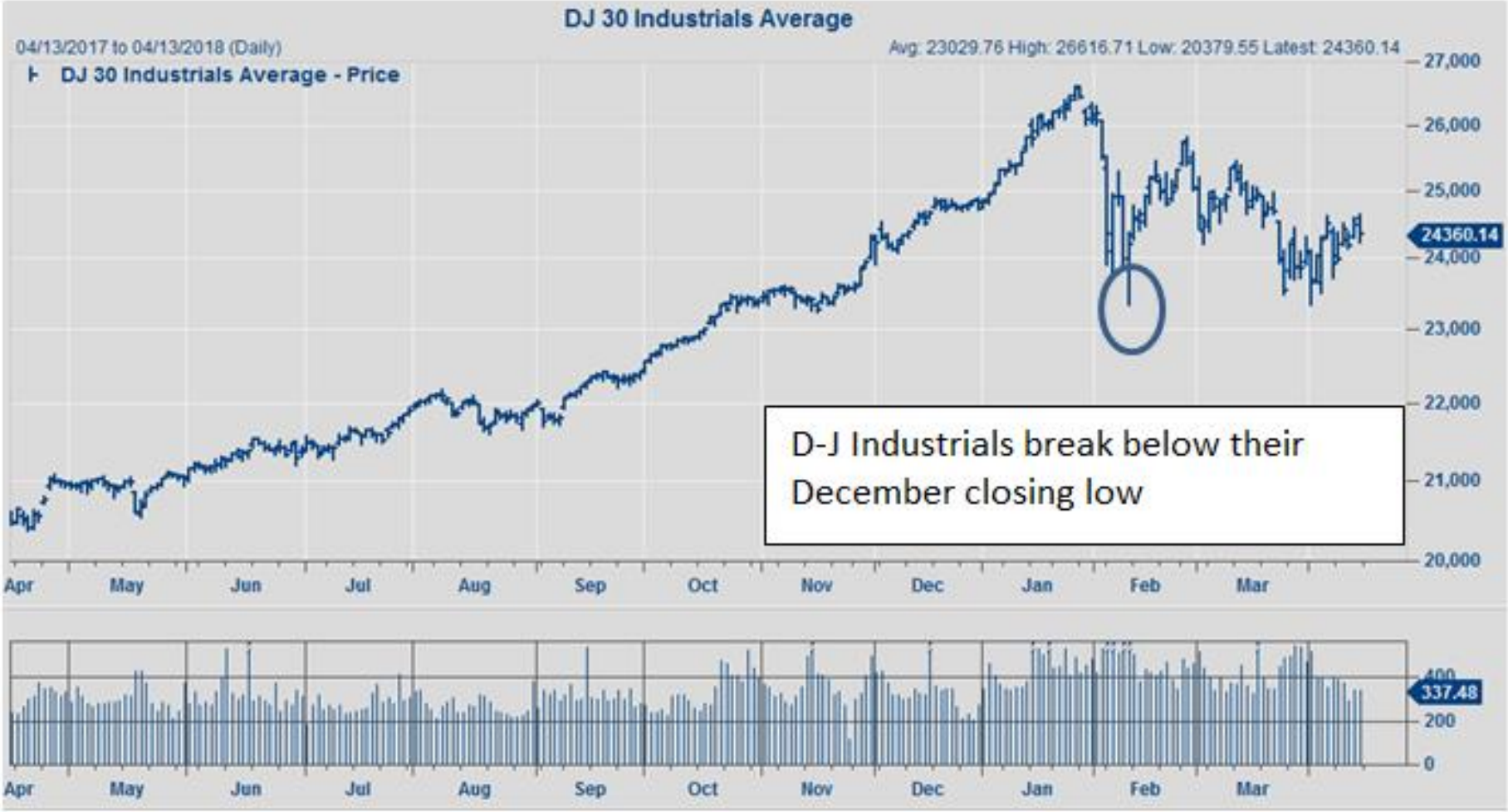
Plainly, we chose to ignore that December Low signal in February, even though our models "called" for the February Flop during the entire month of January, which we wrote about and suggested raising some cash (indeed hoisted). The second "hoist" came the week of April 8, 2018 when the D-J Transportation Average broke below its recent reaction closing low, thus confirming a similar breakdown by the D-J Industrials below their recent reaction low. That, ladies and gentlemen, is a Dow Theory "sell signal." As often stated in our missives, Dow Theory is not always right, and it is subject to interpretation, it still is right more often than most indicators. Dow Theory is basically the relation to both the Industrial and the Transport averages. If the two averages act in harmony, with both reaching new highs or lows around the same period of time, the price action of each is said to be "confirming." It is worth mentioning that the longer it takes for one average to confirm the other average, the less meaningful is the signal.

As stated, Dow Theory is not always right and is subject to interpretation. This is not the first time we have ignored a Dow Theory (DT) signal. We ignored the DT "sell signal" that was registered in the "flash crash" of May 2010 because we thought it to be an aberration. Again in "flash crash" 2, which occurred in August 2015, we ignored the signal because once again we thought it to be an aberration. Similarly, we are ignoring the recent DT "sell signal." However, if the S&P 500 (SPX/2670.14) breaks below its February 9, 2018 intraday low of 2532.69, we will be forced to reevaluate that strategy. Whatever the outcome, we continue to think the secular bull market is alive and well with years left to run.

Contents

Jeffrey Saut

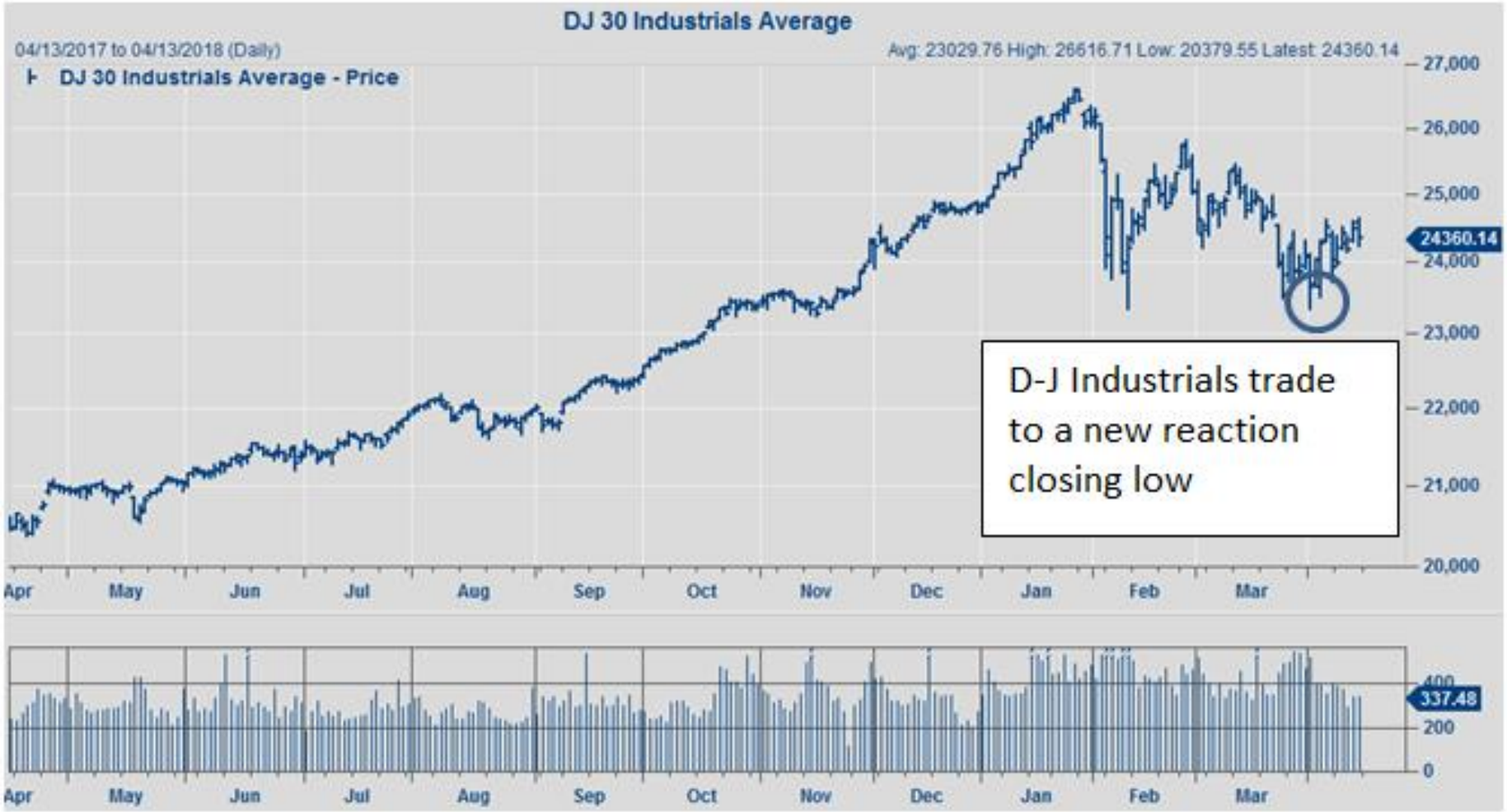
The Dow Jones Industrial Average Breaks Below its December Closing Low



Source: FactSet.

Jeffrey Saut

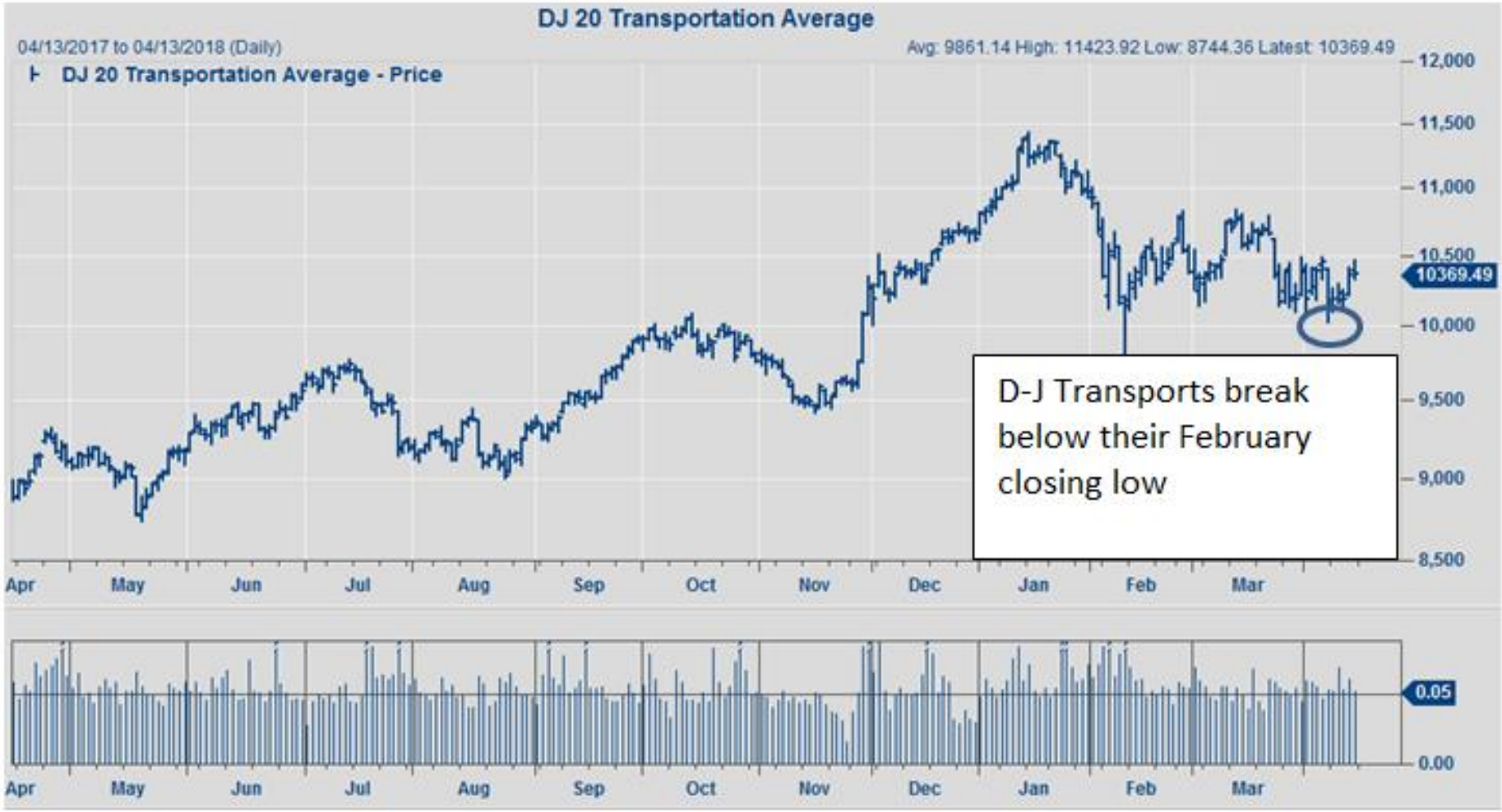
The Dow Jones Industrial Average Breaks Below its February Closing Reaction Low



Source: FactSet.

Jeffrey Saut

Dow Jones Transports Trade to a New Reaction Closing Low, Thus Confirming a Similar Break-down by the Dow Jones Industrials, Rendering a Dow Theory "Sell Signal"

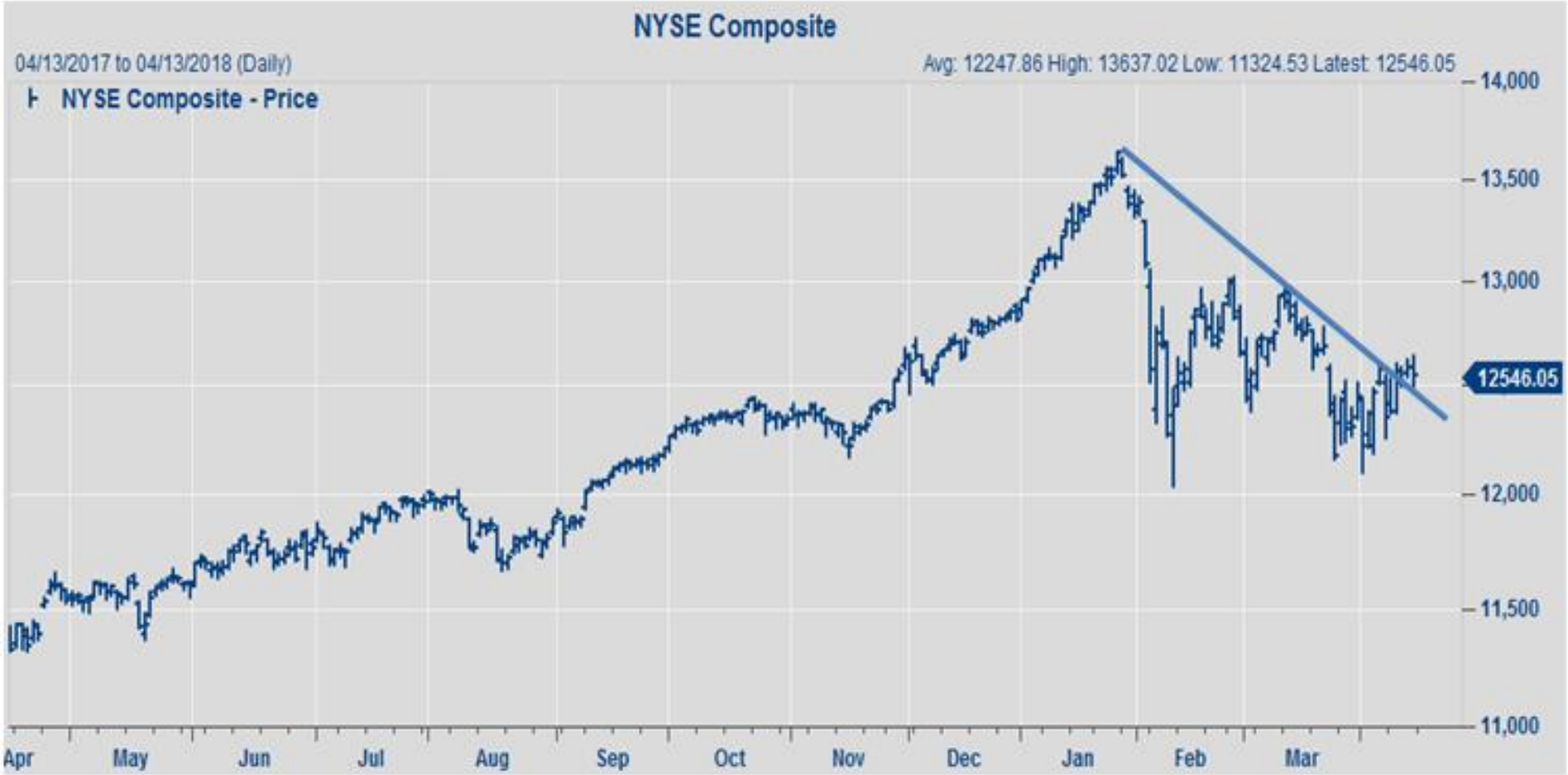


Source: FactSet.

Jeffrey Saut

Ignoring Dow Theory Sell Signal…

At this point, we have chosen to ignore the Dow Theory "sell signal" because bullish sentiment is about as negative as it ever gets, the Advance Decline Index is holding up really well, and because indexes like the NYSE Composite Index did not confirm the downside and has actually broken out to the upside



Source: FactSet.

Jeffrey Saut

…May Have to Rethink That Strategy

However, if the S&P 500 breaks below it February 9, 2018 intraday low of 2532.69, we will be forced to rethink our trading strategy.

Source: FactSet.

Economic & Market Update

Equity Markets/Technical Analysis

- **Market Outlook** – The S&P 500 has rallied off its lows around its 200-day moving average, briefly crossing resistance at its 50-day moving average, but volume has been light. Likely to see consolidation and back-and-forth action, though earnings could provide boost. Tech earnings key.
- **S&P 500 Earnings**
  For 1Q18, 17% of S&P 500 companies have reported – 80% have reported positive EPS surprise, 72% positive sales surprise. 1Q18 S&P 500 earnings growth rate is 18.3%, up from 17.1% on March 31.

  S&P 500 Earnings estimates*
  2018 - $155.88, **2019** - $172.06
  Current P/E: 2018 – 17.1x, 2019 – 15.5x
  Estimates and valuations slightly lower than this time last month.

  S&P 500
  Key support: 2660, 2647, 2605, 2580, 2550, 2532
  Key resistance: 2710, 2740-2750, 2780, 2800

Sectors
All 11 sectors are expected to report y/y earnings growth. Eight sectors are expected to report double-digit earnings growth – Energy, Materials, Financials, Tech, Telecom, Industrials, Utilities, Health Care. Energy leads the way on higher oil prices and easier comps vs. one year ago.

Monetary Policy, Inflation, FX

- **FOMC Minutes** (from March 20-21 policy meeting) – Fed officials see signs of 1Q18 softness as "transitory." Trade policy is not expected to have a significant effect on the economy, but poses downside risks. Despite strong job growth, wage gains remain "moderate." Financial conditions are still "accommodative," despite stock market volatility. Further increases in short-term interest rates are likely to be warranted. **New**: While the neutral federal funds rate is almost certainly lower than in the past, "several" Fed officials felt that it might become appropriate for the Fed to move above that for a period. That is, moving beyond neutral, pressing on the brakes a little harder over time.
- **Consumer Price Index/Producer Price Index:**
  CPI (April 11) – The CPI was up 2.4% from a year ago (vs. +2.2% y/y in February), as the March 2017 drop in wireless telecom (-7.0% y/y) rolled off of the 12-moth calculation. Ex-food& energy, the CPI rose 2.1% y/y (vs. +1.8% y/y in February).
  PPI (April 10) – The headline figures (+0.3% vs. +0.1%) were higher than expected, but the details continued to reflect a build-up of pipeline inflation pressure. This isn't a major threat to the overall consumer inflation outlook, but it is something that that the Fed will notice.
- **Exchange rates (April 23)**
  EUR/USD..... $1.223
  GBP/USD $1.395
  USD/JPY..... ¥108.42
  USD/CAD $1.282

U.S. Economy

- **Retail Sales** (Census Bureau) - Retail sales rose slightly more than expected in March (+0.5% vs. median forecast: +0.4%), with a slight downward revision to the two previous months. Auto sales rose 2.0%, consistent with the rise in unit sales reported by the various automakers. Core retail sales (which exclude autos, building materials, and gasoline) rose 0.4% (median forecast: +0.4%), a 1.6% annual rate in 1Q18 (vs. +5.1% over the second half of 2017).
- **Industrial Production** (Federal Reserve) – The headline figure was a bit stronger than expected in March (+0.5% vs. median forecast: +0.4%), although factory output rose modestly. February's mild weather likely pulled forward some seasonal gains from March. Underlying trend is moderately strong.
- **Jobless Claims** (Labor Dept.) – Initial claims of 233,000 vs. expectation of 230,000 and 236,000 a year ago. Claims trending lower. Consistent with tight labor market.
- **Consumer Sentiment** (University of Michigan) – Softer than expected (97.8 vs. 100.5 median forecast). Confidence remains high, "despite the recent losses that were mainly due to concerns about the potential impact of Trump's trade policies on the domestic economy."
- **March Employment Report (Bureau of Labor Statistics) –** Nonfarm Payrolls rose by 103,000 in the initial estimate for March (median forecast: +190,000). The three-month average gain for private-sector payrolls was 203,000 (vs. an average monthly gain of +180,000 in 2017, +178,000 in 2016). Average Hourly Earnings rose 0.3% (median forecast: +0.2%), up 2.7% y/y (the three-month average was also up 2.7% y/y).

Global Economy

- **ECB Monetary Policy Decision** (April 26) **–** ECB officials will meet in Frankfurt to discuss policy. While in D.C., in advance of meeting, Draghi warns that protectionism poses risks to Eurozone economy in the form of trade disputes. QE runs through September, but a decision on the stimulus program is expected soon.
- **Bank of Japan (BOJ) Monetary Policy Decision** (April 27) – Expectations for inflation to reach 2% target in 2019 likely unchanged. Core CPI rose 0.9% in March (in line with expectations).
- **Bank of England (BOE) Monetary Policy Decision** (May 10) **–** In an interview with the BBC, Governor Carney said public should prepare for a few rate increases over next few years, though downplayed likelihood of May ratchet, sending expectations from ~80% to 40% chance of hike.
- **Bank of China (BOC) –** Despite recently cutting reserve requirement ration (RRR) for commercial and foreign banks, PBOC officials see no signs of policy easing and is likely to maintain neutral policy stance at its May 30 policy decision meeting.

Source: FactSet, Raymond James Research. S&P 500 earnings estimates are bottom-up operating earnings as of 4/11/18 market close, provided by Standard & Poor's.

Andrew Adams

Running in Place

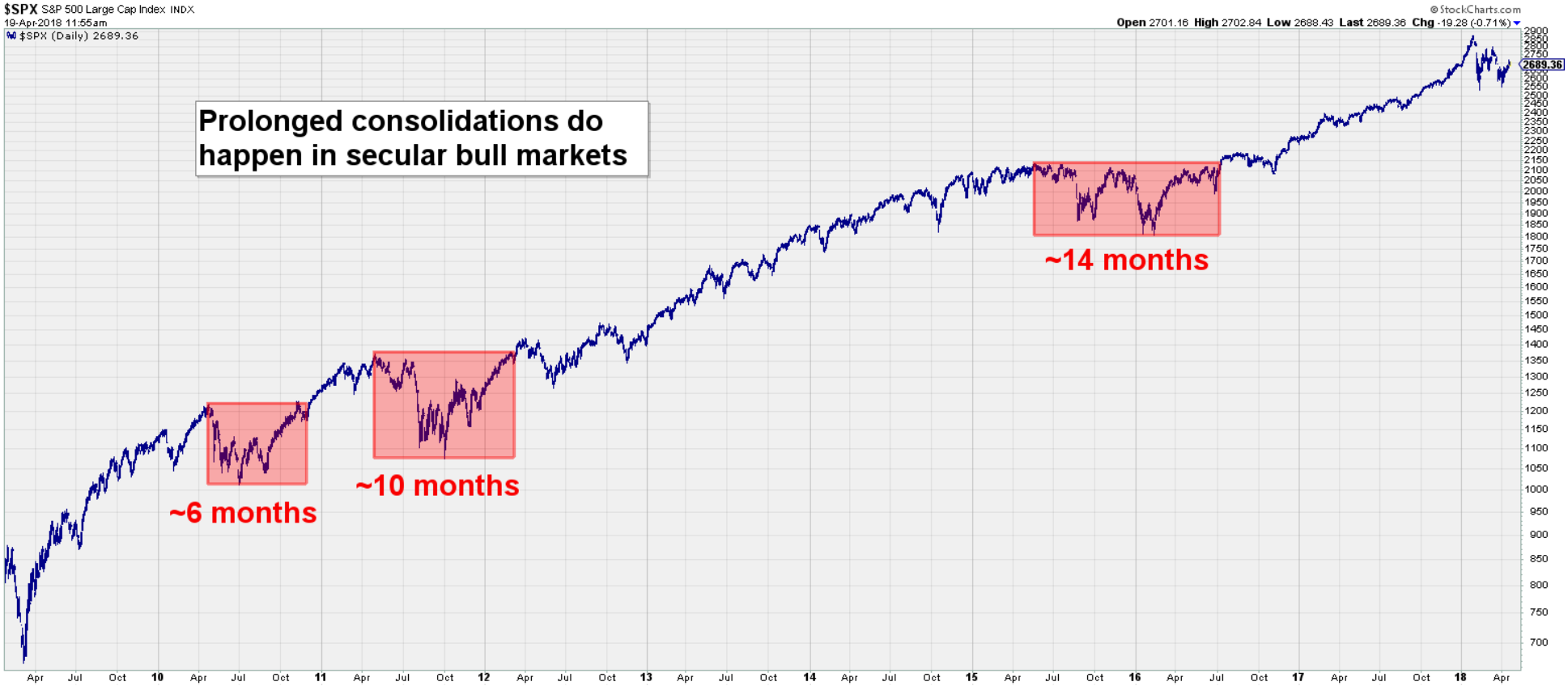
Volatility has obviously picked way up in 2018 (see VIX in lower panel), but all the bouncing around has not really taken the S&P 500 anywhere. Currently, the index remains about at the midpoint of its trading range since early February, which also happens to be right around where we began the year. 2660-2740 looks to be the most likely trading range over the near term, but the broader consolidation might be defined by the two bold green and red lines connecting the highs and lows since January.

Source: Stockcharts.com.

Andrew Adams

Sideways Might Be the New Up

Prolonged trading ranges can be very frustrating on both the bulls and the bears, but they do occur, even during secular bull markets. For instance, since the 2009 low, the S&P 500 has experienced three consolidations of six months or more: a six-month range in 2010, a 10-month range in 2011-2012, and a 14-month range in 2015-2016.

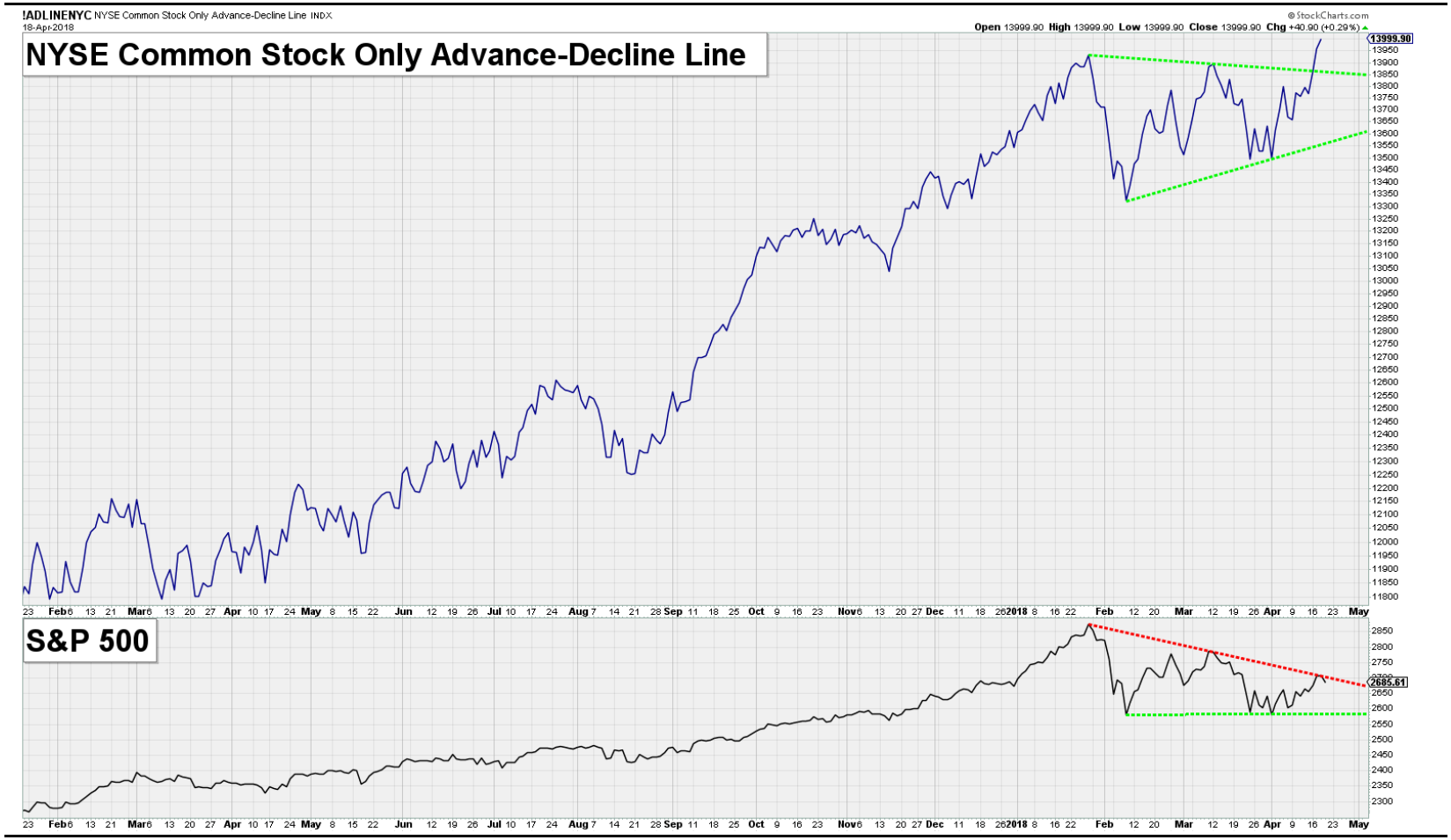


Source: Stockcharts.com.

Andrew Adams

Market Internals Looking Much Better

However, we still believe the odds favor an eventual upside breakout from the current trading range. One key item in the bulls' favor is that market breadth has shown clear improvement, with the NYSE Common Stock Only Advance-Decline Line already breaking out to new highs even as the S&P 500 trades sideways.

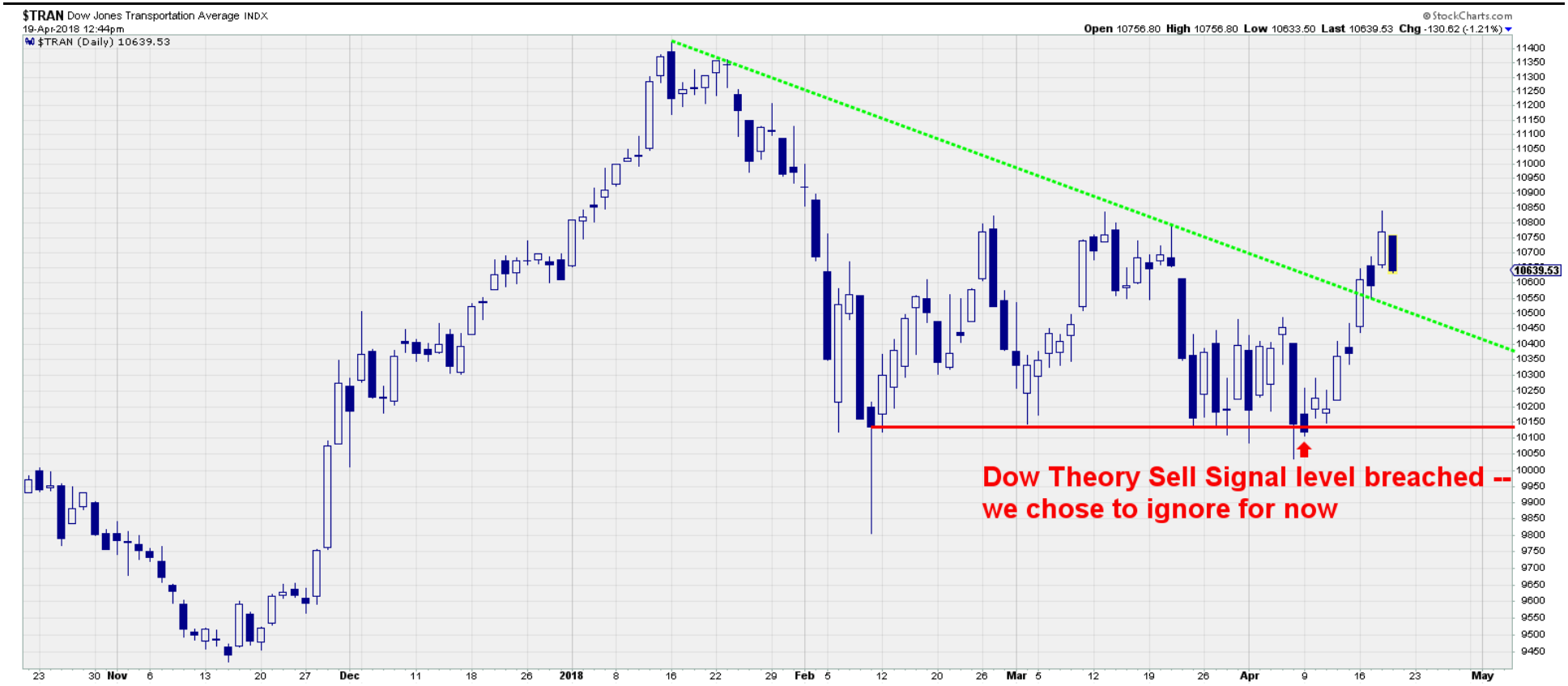


Source: Stockcharts.com.

Andrew Adams

Ignoring Dow Theory Sell Signal Has Been a Good Call So Far

Investors got a scare on April 9th when the Dow Jones Transportation Average joined the Dow Jones Industrial Average by closing below its February closing low. The poor action in the two indices was enough to give a Dow Theory "sell signal" and shift the primary market trend back to bearish. However, we chose to ignore this signal considering downside extremes had already been reached and neither index was even below its 200-day moving average, and so far that looks to be a good call. The Transports have not traded lower since the sell signal was given, and they have even broken up through the downtrend line that connected the highs since January.

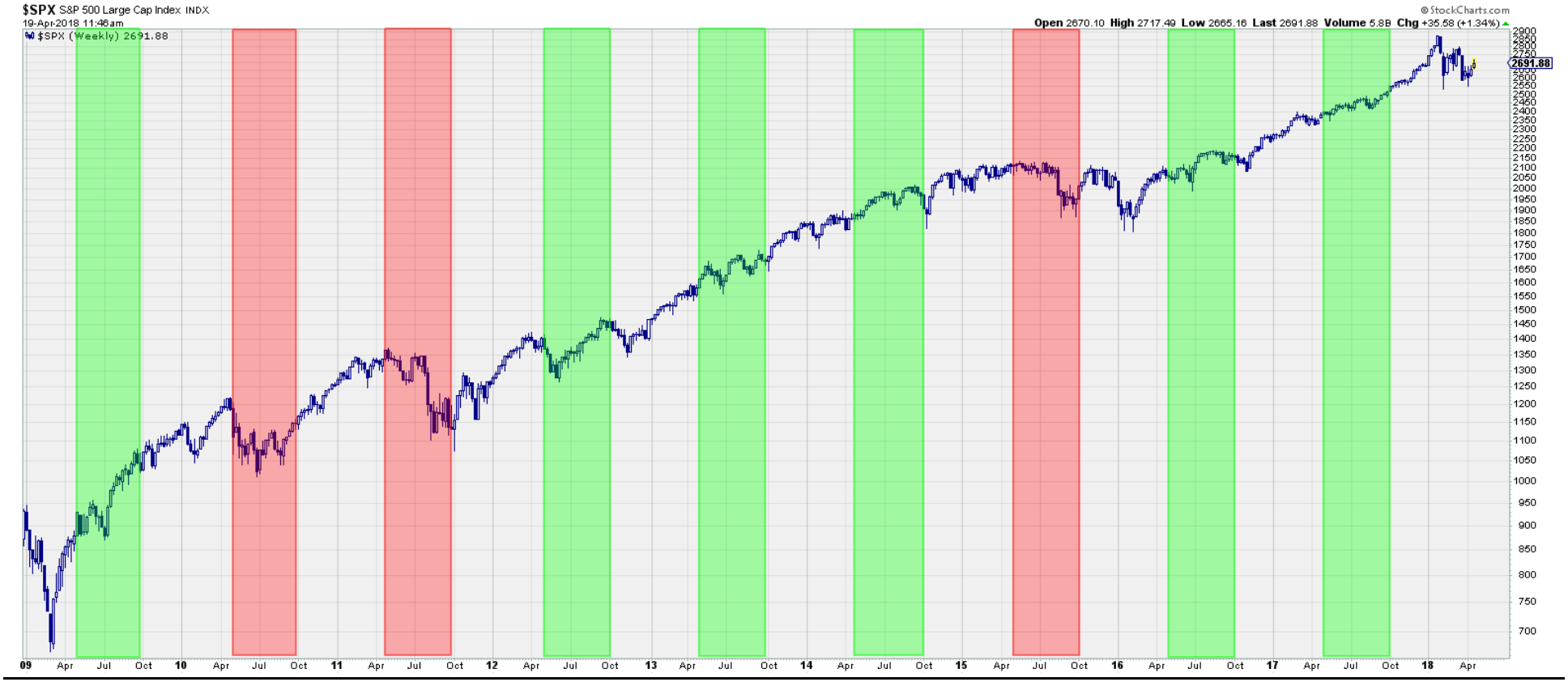


Source: Stockcharts.com.

Andrew Adams

It's "Sell in May" Time

Around this time each year we are inundated by questions about the old market adage "sell in May and go away." The thinking is that because stock market returns have, on average, been historically poorer during the summer months investors might be better served by selling their stocks once May arrives and then buying them back later in the year. However, while we too enjoy a good rhyme, making decisions like that based on averages can come back to haunt an investor. For example, since the 2009 low, the better adage would be "sell in May and you will pay" considering that one probably would have lost out on additional gains in six out of the nine years. The chart below highlights the May-October period in each year and illustrates that investors are probably better served by making decisions based on what the current market is signaling rather than by using set-in-stone rules.

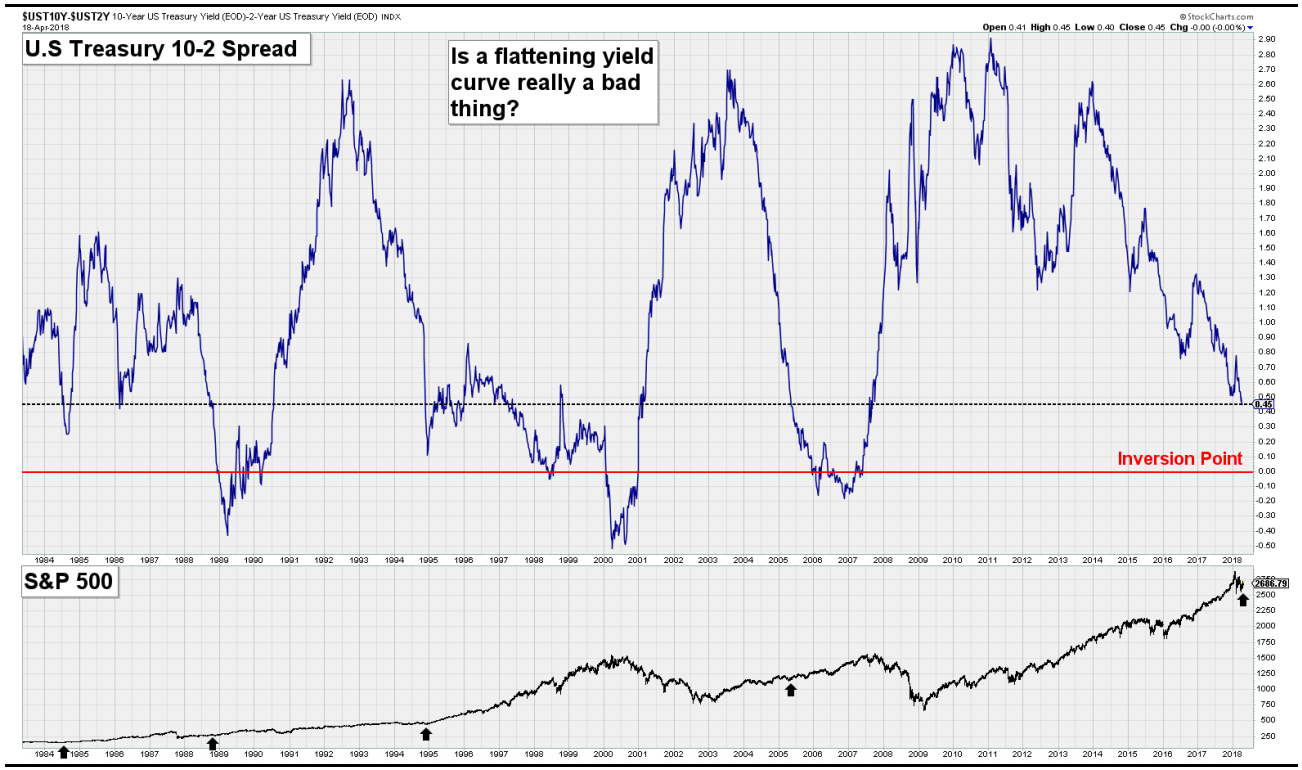


Source: Stockcharts.com.

Andrew Adams

History Says You Should Not Be Worried About a Flattening Yield Curve

Like the "sell in May" axiom, another market "truism" that frequently gets misused is the ubiquitous fact that inverted yield curves always lead to recessions. It is true that all recessions since 1960 have been preceded by an inverted yield curve (defined here when the 2-Year U.S. Treasury yields more than the 10-Year U.S. Treasury), but the problem is that too many people recently have been expanding this concern to a flattening yield curve as well. Yes, the yield curve has been flattening (the spread between the 10-Year and 2-Year has been narrowing), but this is not the same as an inverted yield curve. For one thing, a yield curve as flat as it is now does not always lead to an inverted yield curve and even if it does, the lag time can be years before it occurs. What's more, some of the best stock market returns in history have come after the yield curve became flatter than it is now, including after 1984, 1988, 1994, and 2005 (arrows in lower S&P 500 panel represent when the 10-2 spread first became as narrow as it is currently). In fact, the yield curve was relatively flat for the entirety of the 1994-2000 period, the greatest stock market run in history.



Source: Stockcharts.com.

Andrew Adams

Time for the Next Leg Higher for Rates

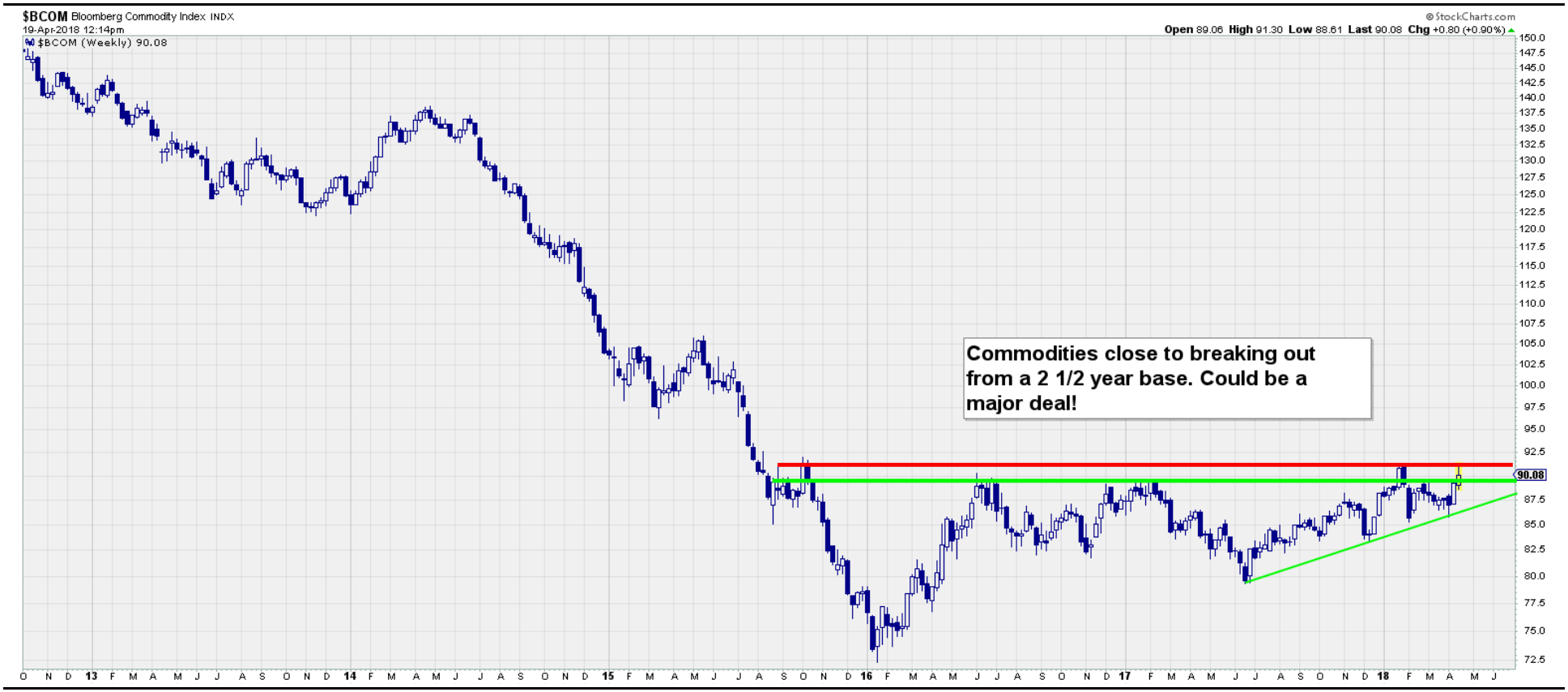
One reason the yield curve has flattened lately is that longer-term rates, including the 10-Year U.S. Treasury have been pulling back since February (the 2-Year rate has mostly continued to rise). However, this week it looks like we may be getting the start of another attempt higher in the 10-Year yield. The 2.95%-3% zone has previously acted as resistance, but getting above 3% would be a huge psychological shift and might lead to an acceleration of rates on the upside.

Source: Stockcharts.com.

Andrew Adams

Commodities Worth Watching Closely Here

Commodities are also attempting to break out above their own major resistance level. The Bloomberg Commodity Index has been building a base since 2015 and is now very close to breaking out above the previous highs of this base. Long bases like this often lead to major moves higher once the asset breaks out above the upside resistance, so this is worth watching closely.

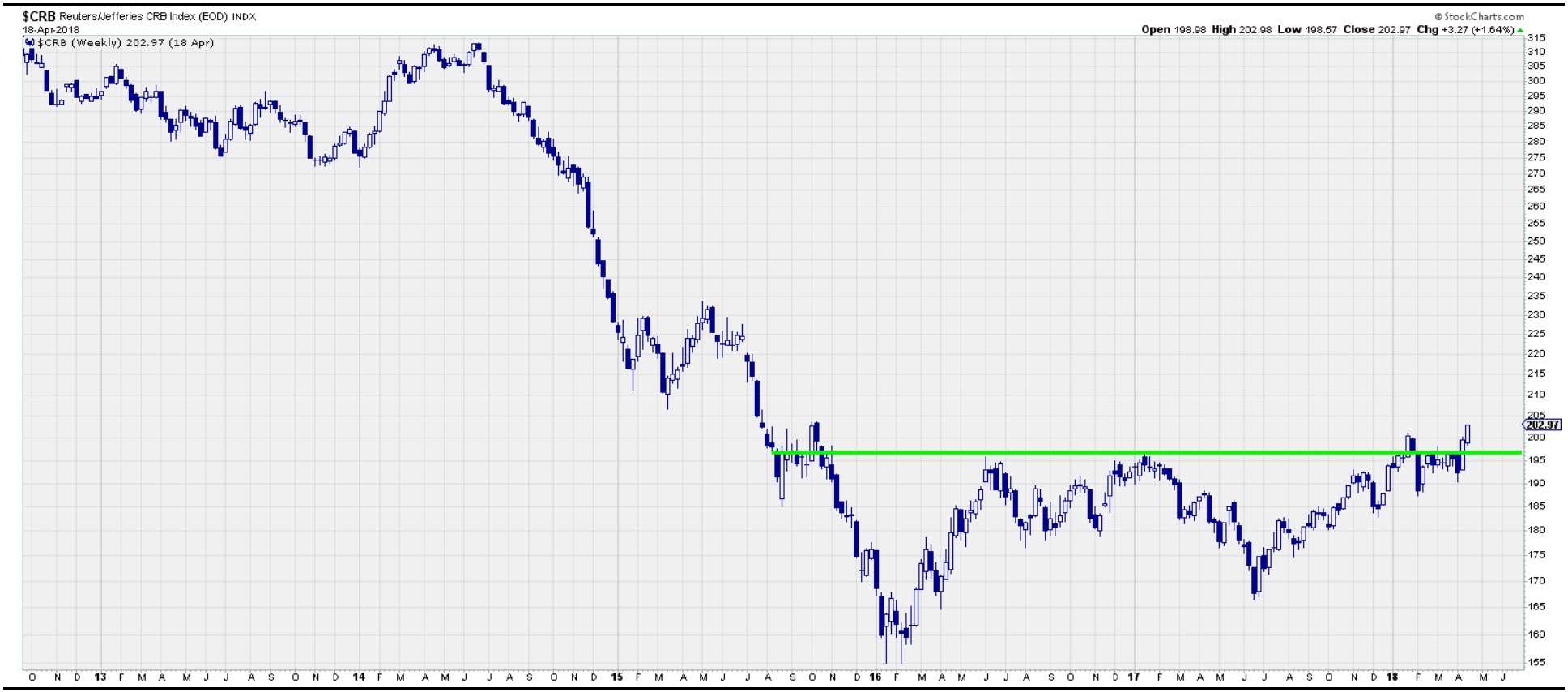


Source: Stockcharts.com.

Andrew Adams

Did the Break Already Come?

The Reuters/Jefferies CRB Commodities Index is weighted a little differently than the Bloomberg Commodity Index and it appears to already be breaking out.

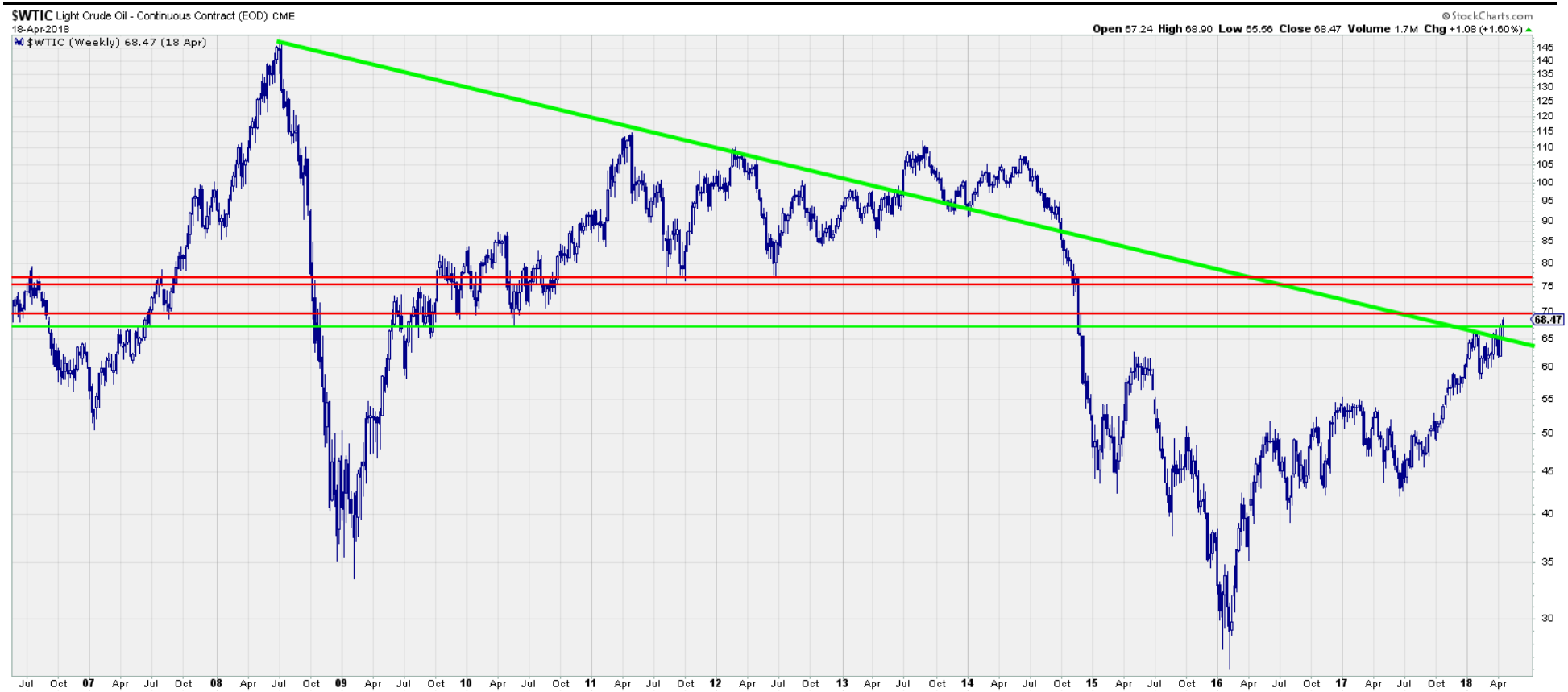


Source: Stockcharts.com.

Andrew Adams

Crude Oil Nears $70

The recent strength in crude oil has obviously been a major reason the commodity indices are rallying. WTI crude has broken above a couple of important former resistance points (green lines) that could now help act as support. $70 has a history of some resistance, too, but the more major resistance zone looks to be higher in the $75-$77 area. Overall, it looks like the prevailing trend in oil is clearly now on the upside and it usually does not pay to fade the trend until clear signs develop that it has ended.

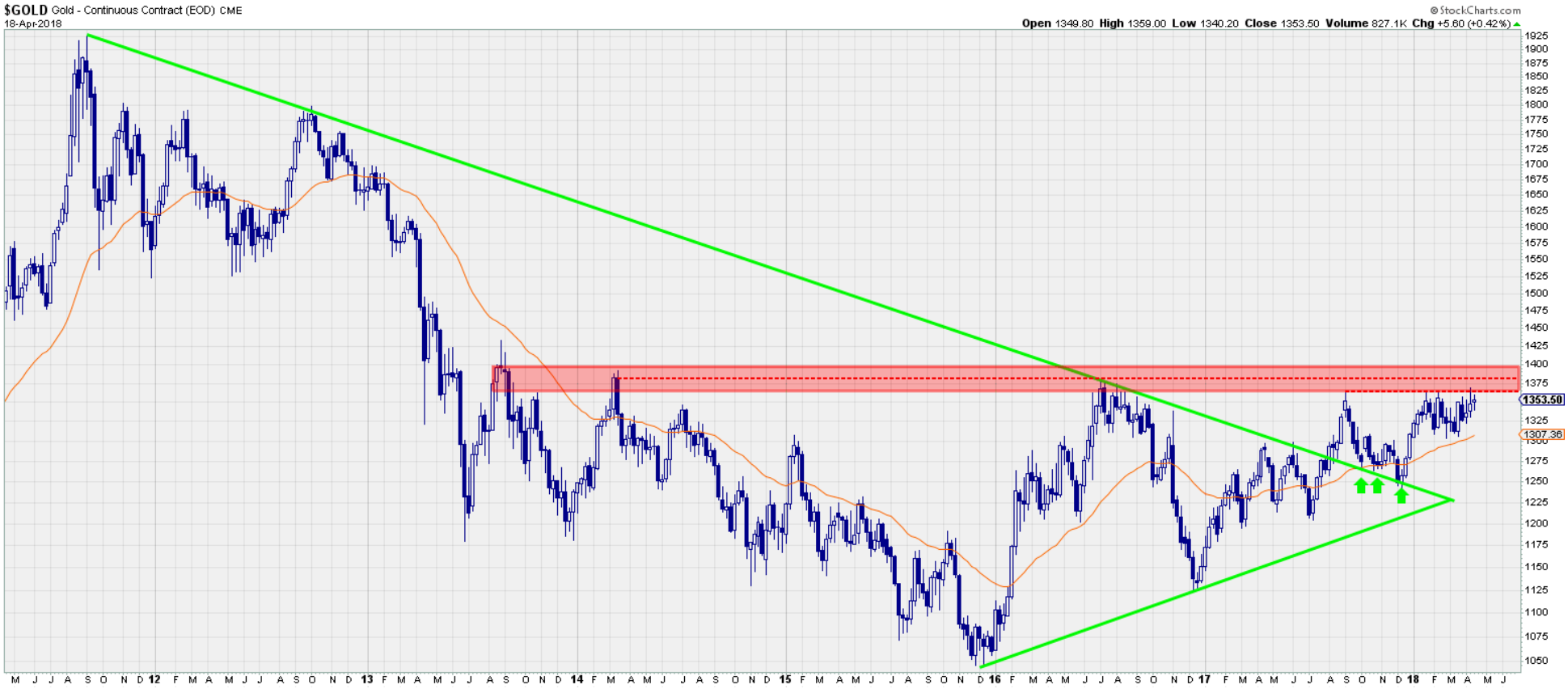


Source: Stockcharts.com.

Andrew Adams

Gold Still Not Doing Much

Meanwhile, gold prices remain trapped in the $1300-$1365 range and we won't really get interested in the metal until it can prove it can get above that $1365 level and stay above there.

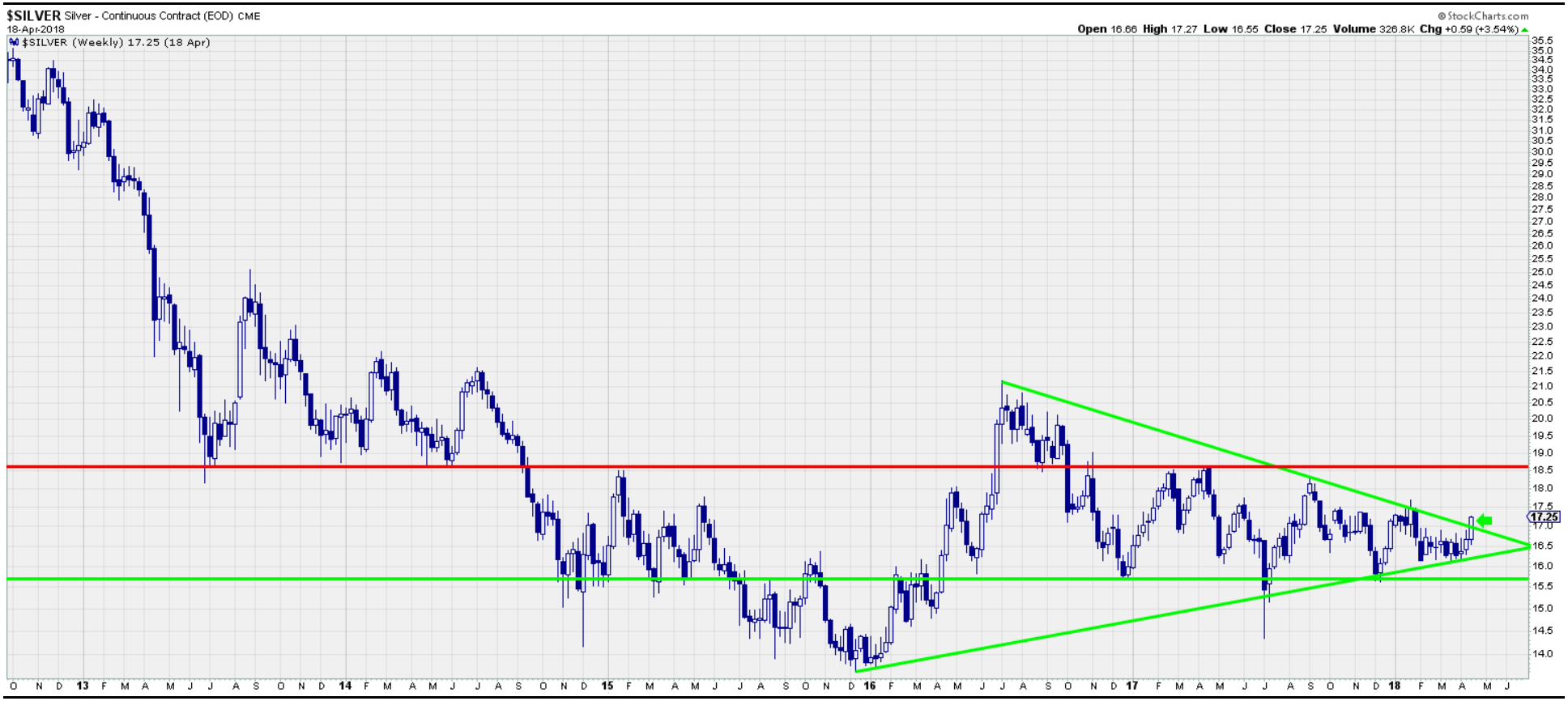


Source: Stockcharts.com.

Andrew Adams

Silver Looking Better

Silver, on the other hand, is showing clearer technical signs that it wants to move higher, as it has now broken the downtrend that it's been in since mid-2016. Getting above $17.50 would help confirm that this breakout is legitimate, but aggressive traders and investors may want to take advantage of this initial breakout even without that further confirmation.



Source: Stockcharts.com.

Andrew Adams

U.S. Dollar Remains Stable

We have not discussed the U.S. Dollar Index much recently, and that's because it really hasn't done anything of note in 2018. The index remains range-bound right at long-term support (green lines), but it is getting close to the point where it will likely have to make a more definitive move since it's nearing resistance from the downtrend in place since early 2017. Its future direction could play a major part in what commodities do going forward.

Source: Stockcharts.com.

Scott Brown

The Economy in Brief

Economic data releases for the first quarter were generally softer than anticipated, but a moderation in growth is not unusual following a strong quarter. Weather may have been a factor and there is evidence of residual seasonality in recent years (that is, first quarter GDP growth figures have tended to be lower than the remaining three quarters of the year). Growth is widely expected to pick up in 2Q18 and beyond, but the tight job market will become more of a constraint, eventually pulling growth down to a more sustainable pace (GDP growth at about 2%).

Increased tariffs may have a small impact on the economy initially, but they risk a wider trade war, invite retaliatory tariffs against U.S. exports, add to inflation for U.S. producers and consumers, disrupt supply chains, and increase global investment uncertainty. Most likely, trade policy negotiations will lead to some minor tweaking of current agreements, but there is some risk of a more serious breakdown in global trade.

Inflation is expected to move toward the Fed's 2% goal, but not much higher, allowing the central bank to tighten gradually over time (25 bps per quarter until growth shows more consistent signs of moderating or if there is a major disruption, such as the 3Q17 hurricanes).

Scott Brown

Economic Outlook – Key Themes

Fiscal Stimulus vs. Labor Market Constraints

- Recent data and outlook
  - Mixed, but generally soft figures for January - March
  - Expectations for growth remain relatively robust
- Tax Cuts and added spending
  - Corporate tax cuts to boost share buybacks
  - Government spending to add somewhat to growth in 2018 and 2019
- Labor Market
  - Currently around full employment
  - Growth in nonfarm payrolls should slow as the job market tightens
  - Population growth is slower and (legal) immigration likely to be cut in half
  - Faster wage growth could lead to more efficient allocation of labor

Federal Reserve Policy

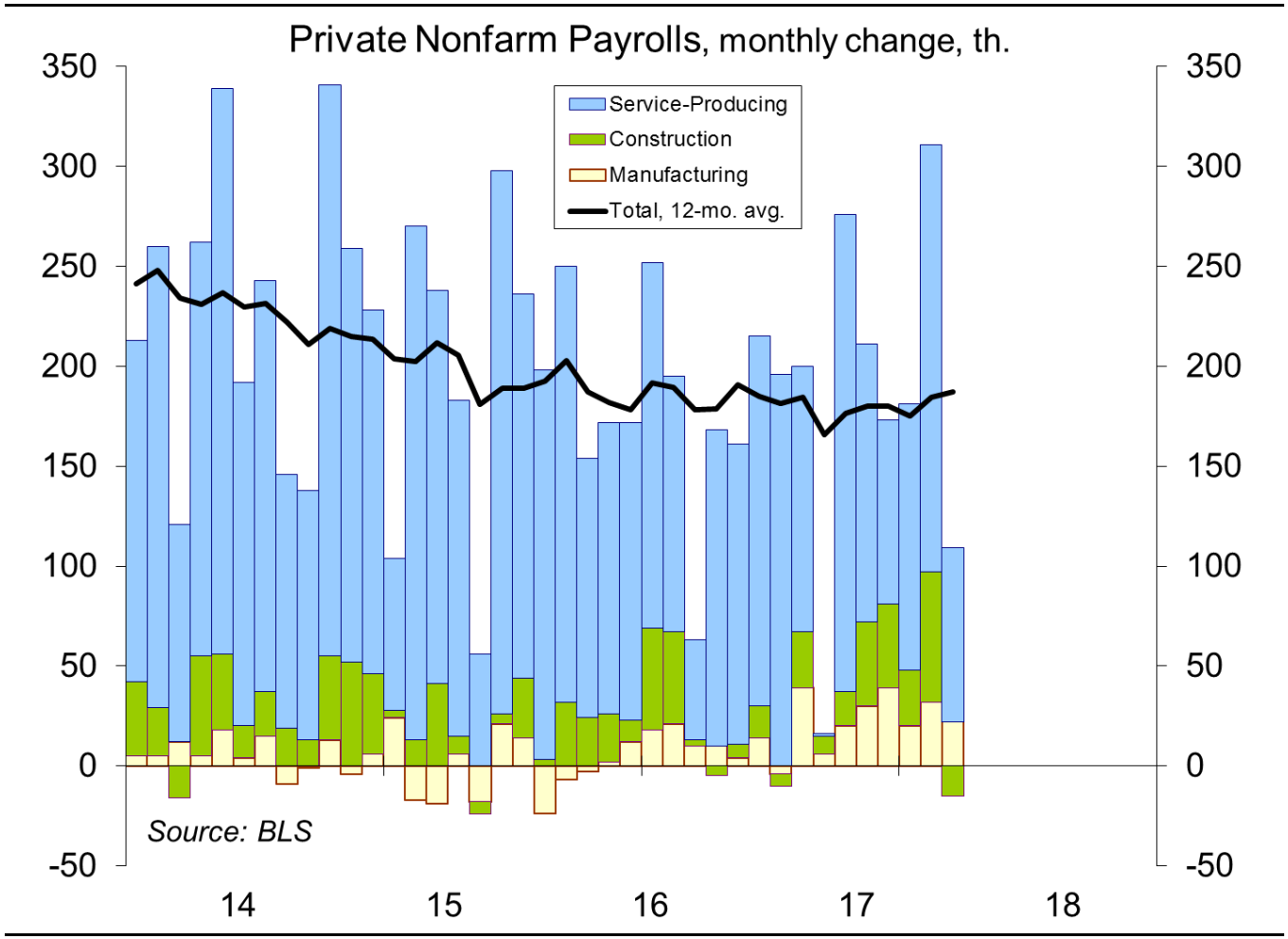
- Policymakers are expected to be a bit more hawkish in 2018
- FOMC should continue to raise short-term interest rates (25 bp/quarter)
- The risks of a monetary policy error are rising

Risks to the Outlook

- Upside potential (stronger wage growth, stronger global economy)
- Downside risks (interest rates, trade war, geopolitical shock)
  - Limited scope for a fiscal or monetary policy response, if needed

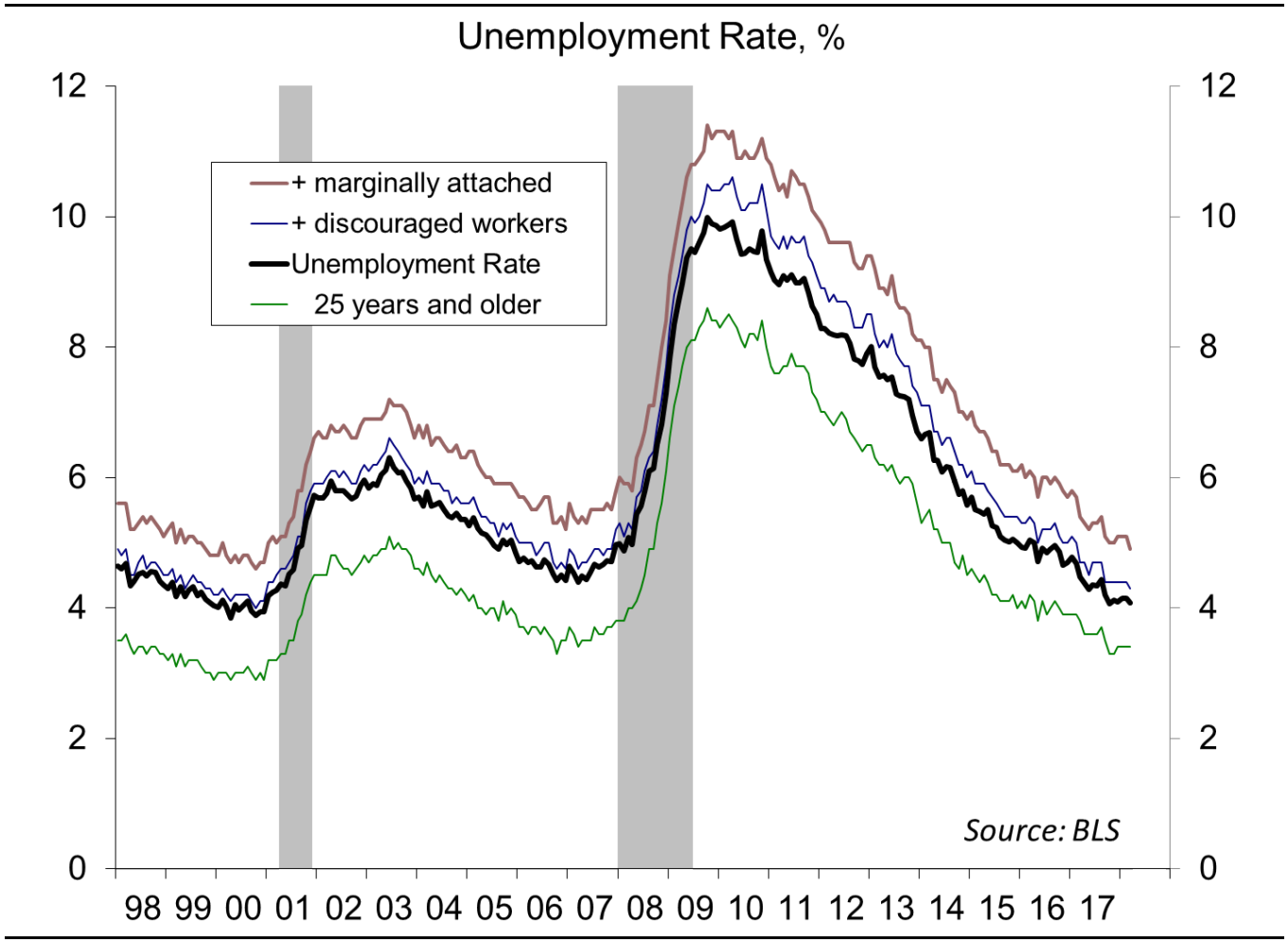
Scott Brown

Mild Weather Pulled Job Gains From March Into February



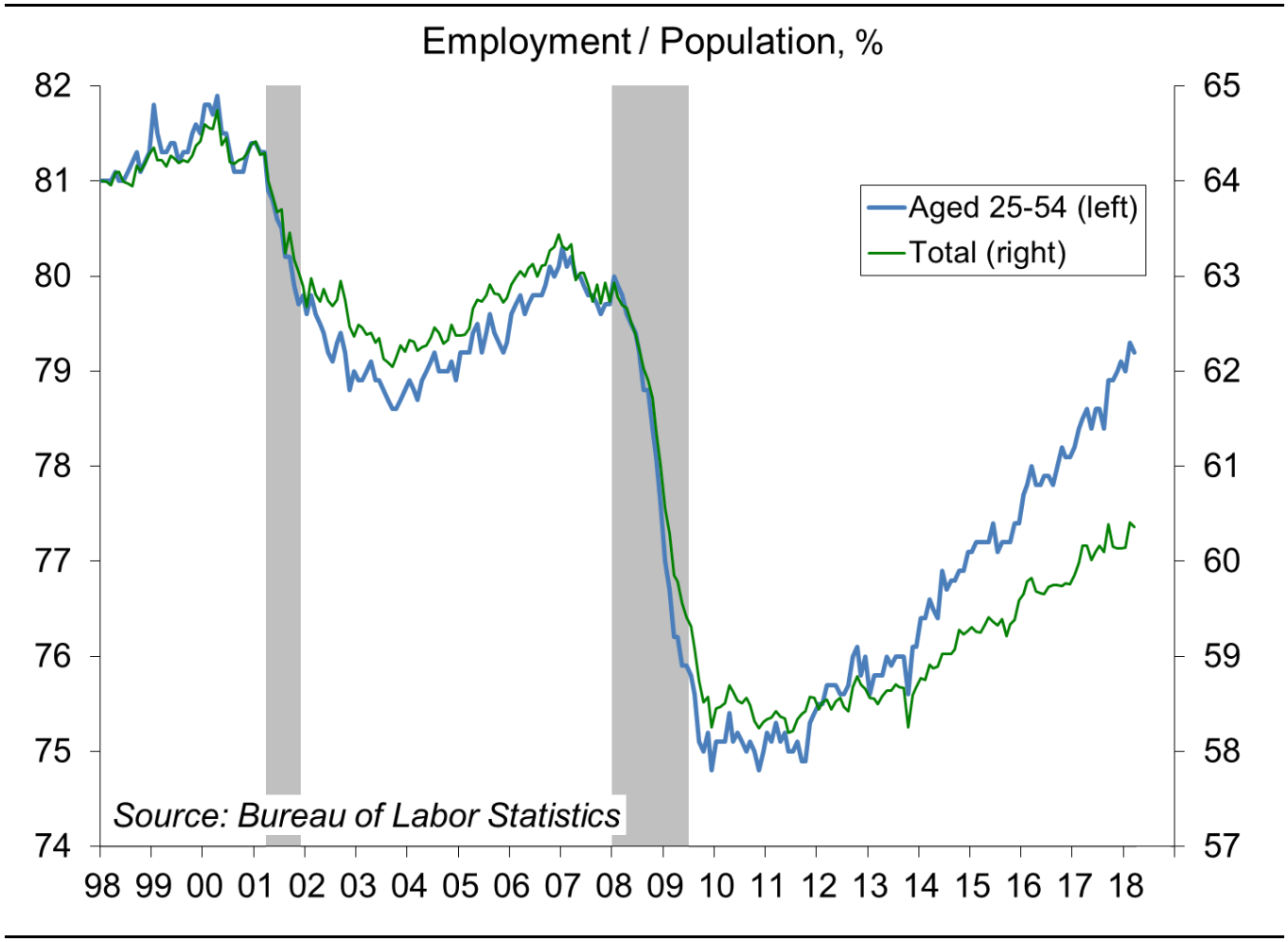
Scott Brown

We Are At or Near Full Employment



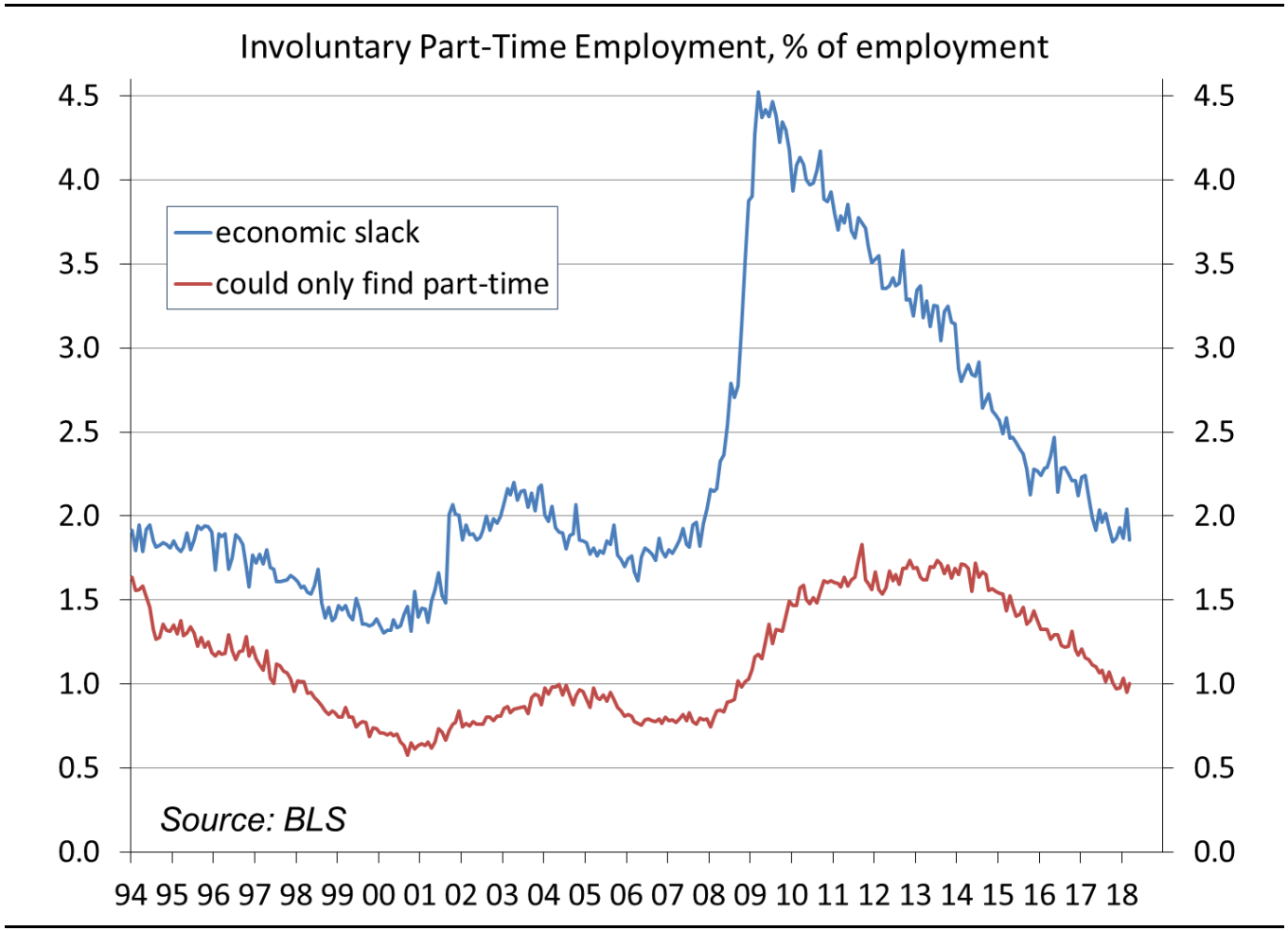
Scott Brown

The Employment/Population Ratio is Trending Higher



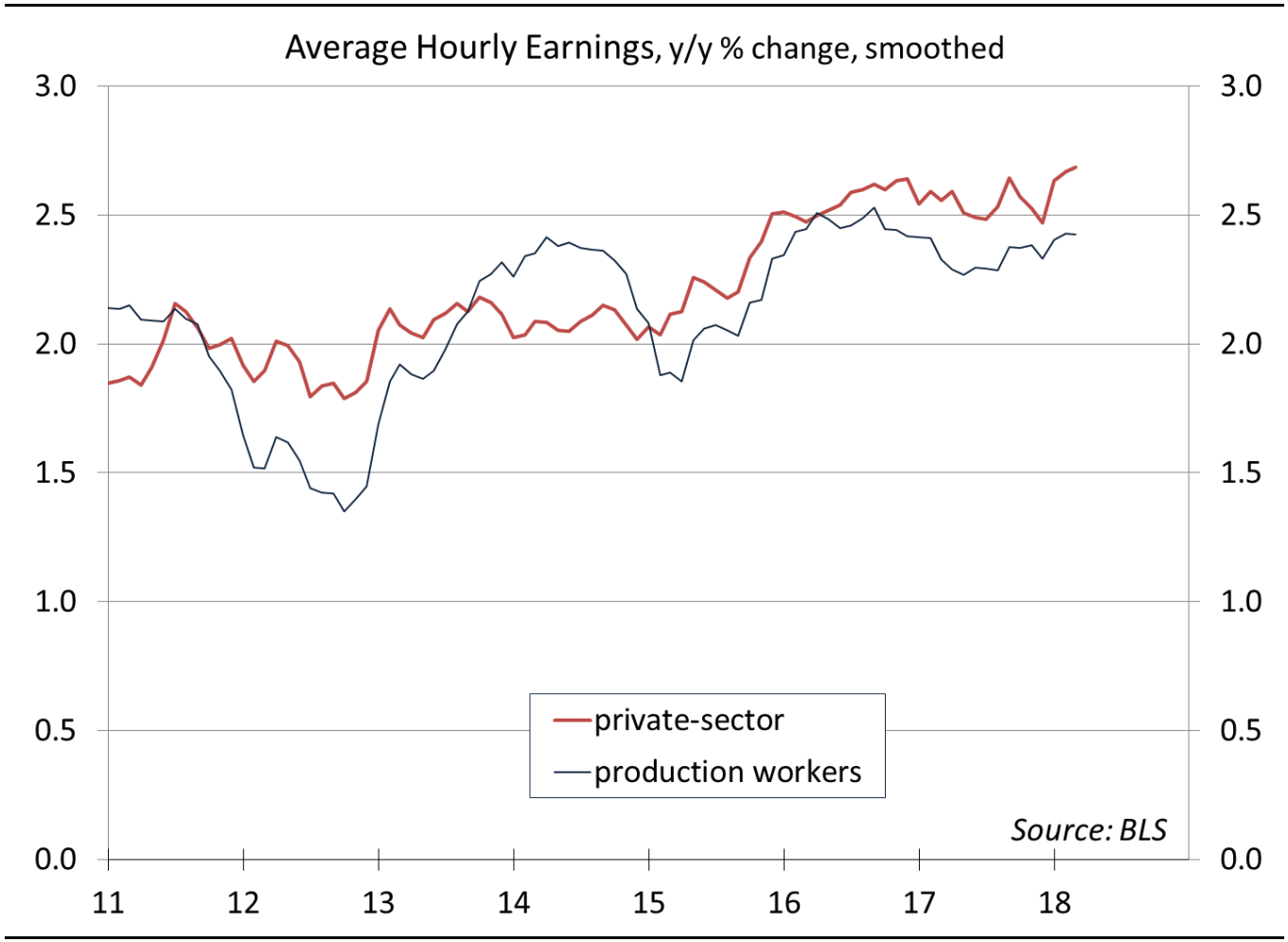
Scott Brown

Involuntary Part-Time Employment is Trending Lower



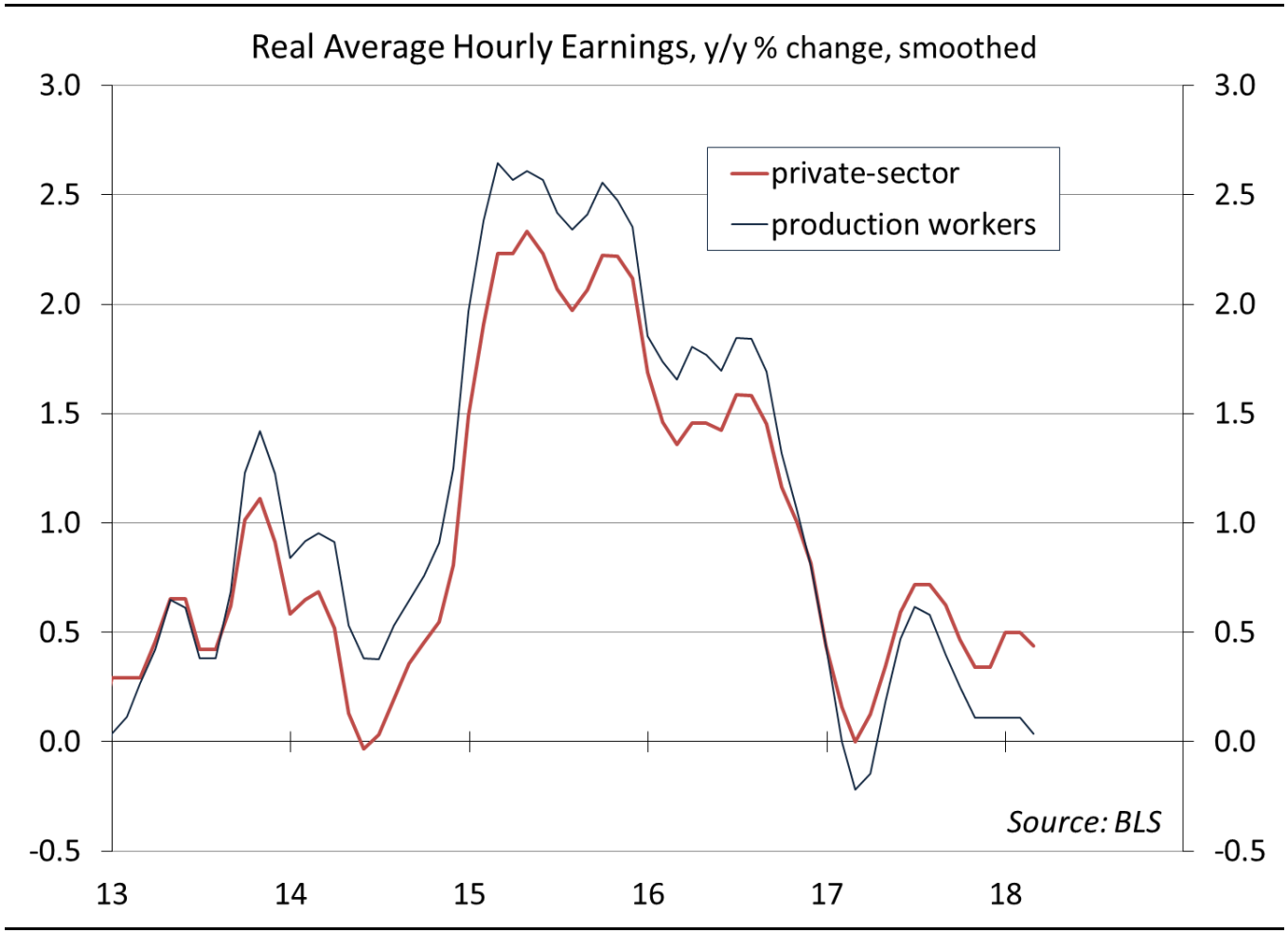
Scott Brown

Wage Growth Has Remained Moderate



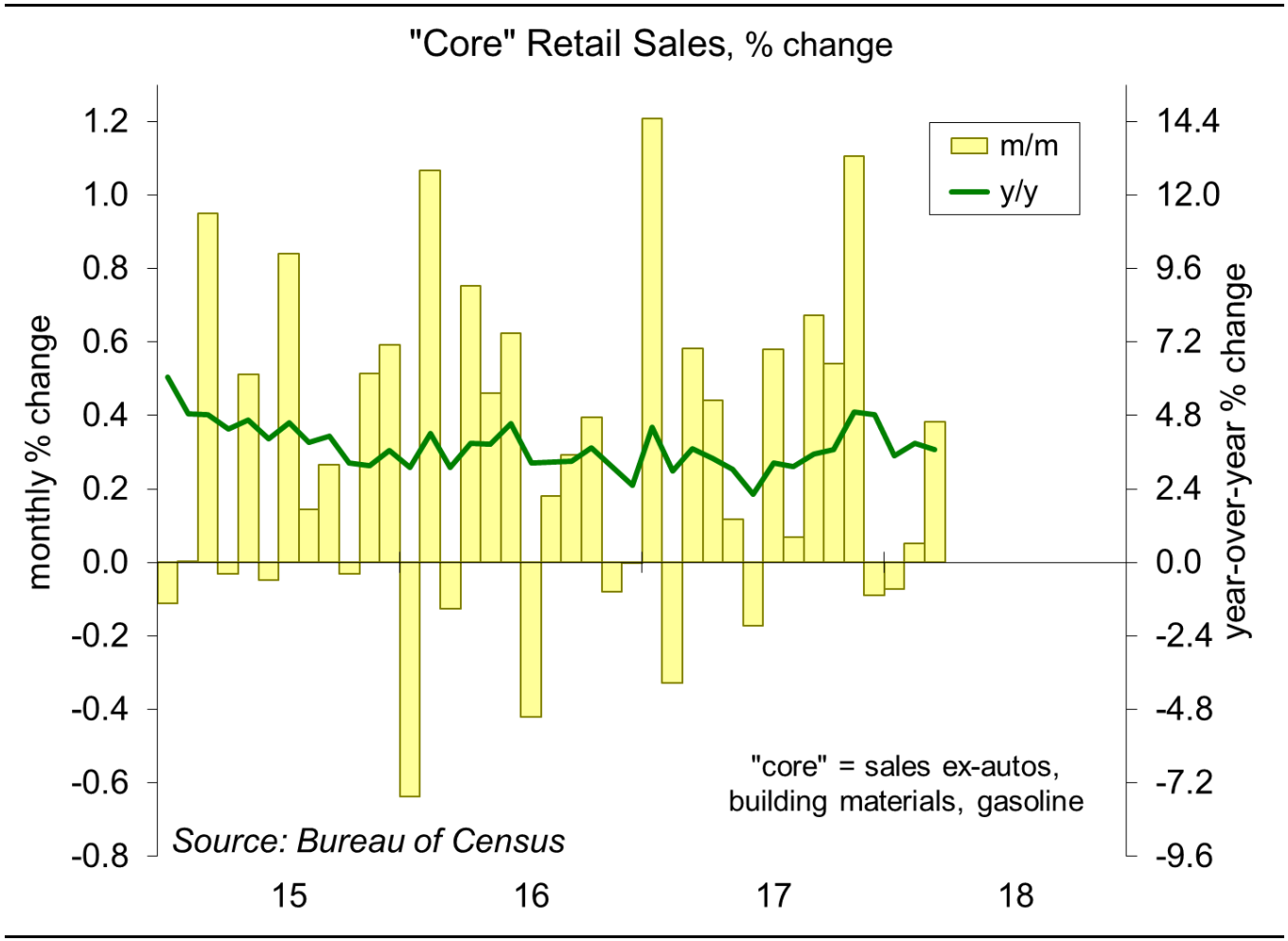
Scott Brown

Inflation-Adjusted Wage Growth Has Been Modest



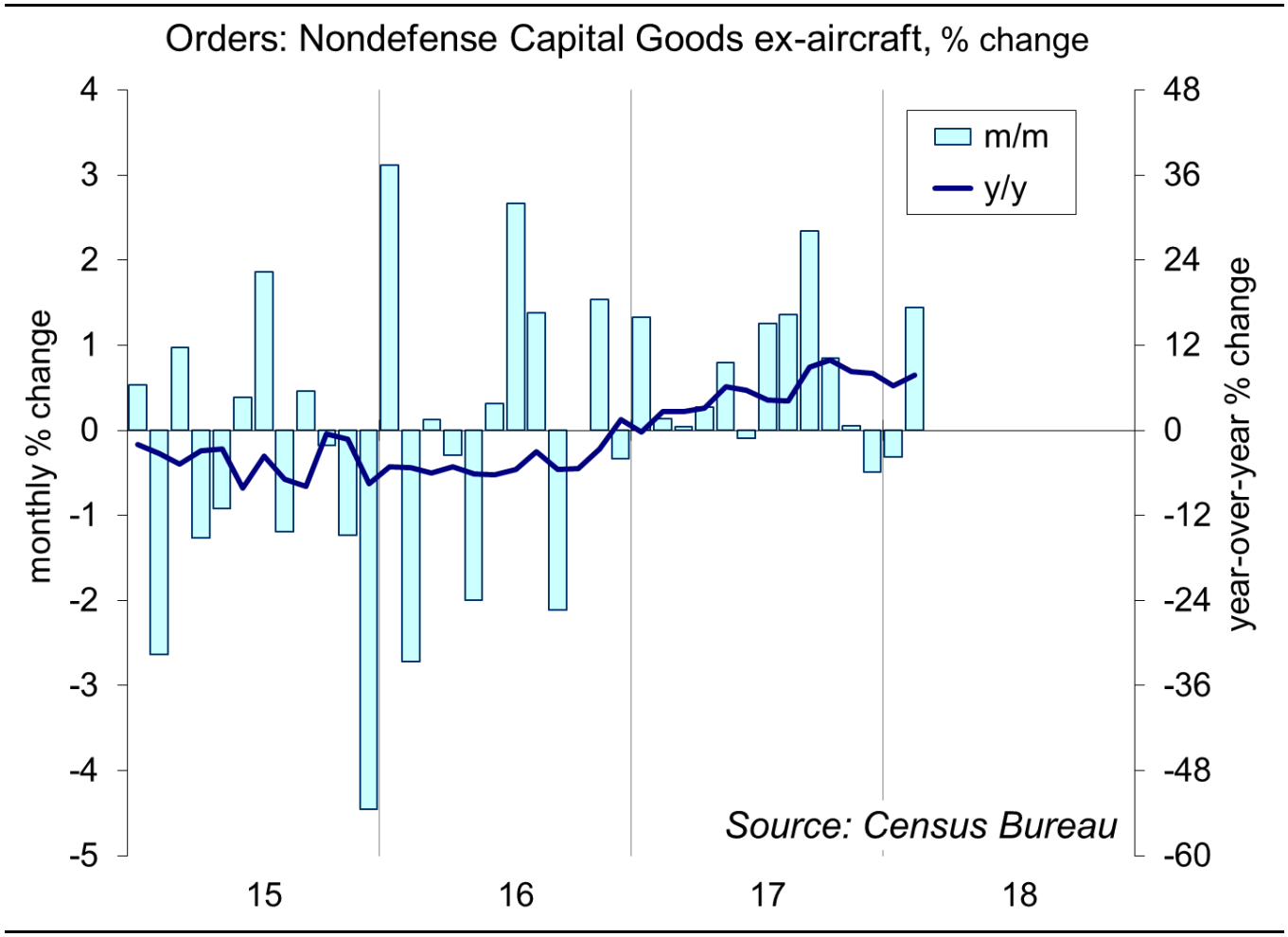
Scott Brown

Retail Sales Growth Was Lackluster in 1Q18



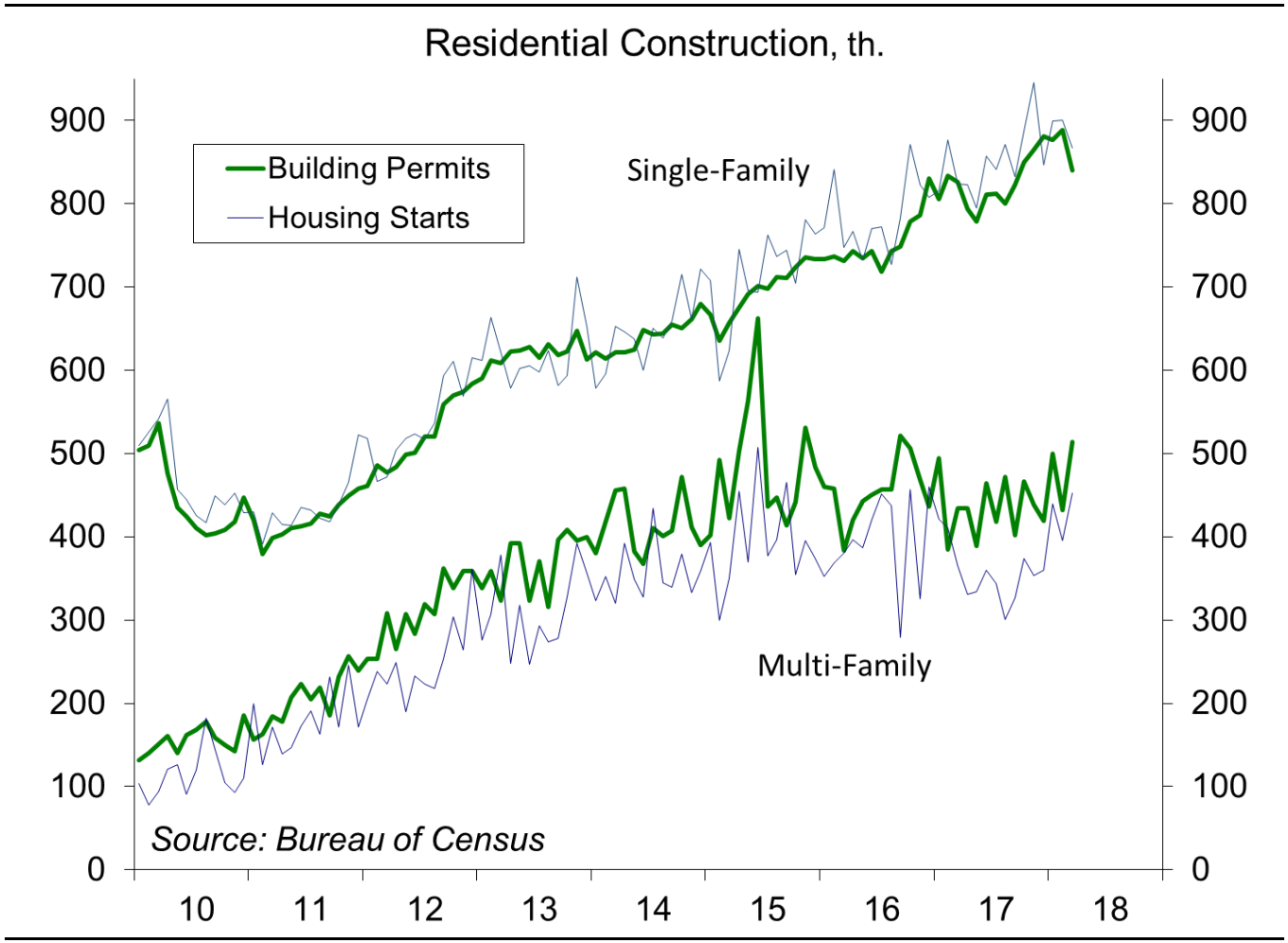
Scott Brown

Orders For Capital Equipment Slowed Into Early 1Q18



Scott Brown

Residential Construction is Choppy, But Trending Higher



Scott Brown

Fed Policy Outlook

*"Participants… expected that **the first-quarter softness would be transitory**, pointing to a variety of factors, including delayed payment of some personal tax refunds, residual seasonality in the data, and more generally to strong economic fundamentals…*

*Participants did not see the steel and aluminum tariffs, by themselves, as likely to have a significant effect on the national economic outlook, but **a strong majority of participants viewed the prospect of retaliatory trade actions by other countries, as well as other issues and uncertainties associated with trade policies, as downside risks for the U.S. economy**. Contacts in the agricultural sector reported feeling particularly vulnerable to retaliation…*

*Regarding wage growth at the national level, several participants noted a modest increase, but **most still described the pace of wage gains as moderate**; a few participants cited this fact as suggesting that there was room for the labor market to strengthen somewhat further…*

*In their discussion of developments in financial markets, some participants observed that **financial conditions remained accommodative** despite the rise in market volatility and repricing of assets that had occurred in February..."*

FOMC Minutes (March 20-21)

Scott Brown

Fed Policy Outlook

"With regard to the medium-term outlook for monetary policy, all participants saw some further firming of the stance of monetary policy as likely to be warranted. Almost all participants agreed that it remained appropriate to follow a gradual approach to raising the target range for the federal funds rate. Several participants commented that this gradual approach was most likely to be conducive to maintaining strong labor market conditions and returning inflation to 2 percent on a sustained basis without resulting in conditions that would eventually require an abrupt policy tightening. A number of participants indicated that the stronger outlook for economic activity, along with their increased confidence that inflation would return to 2 percent over the medium term, implied that the appropriate path for the federal funds rate over the next few years would likely be slightly steeper than they had previously expected. Participants agreed that the longer-run normal federal funds rate was likely lower than in the past, in part because of secular forces that had put downward pressure on real interest rates. ***Several participants expressed the judgment that it would likely become appropriate at some point for the Committee to set the federal funds rate above its longer-run normal value for a time****…"*

FOMC Minutes (March 20-21)

Scott Brown

Fiscal Policy

In its Budget and Economic Update, the non-partisan Congressional Budget Office is expecting 3.3% GDP growth 4Q18/4Q17, at the high end of the range of private economists' forecasts, but far short of the 4-5% put forth by administration officials and exceeding the economy's current potential. Growth is expected to fall below 2% in 2020 (a mild correction, following a moderate overshooting of the economy relatively to its potential in the near term).

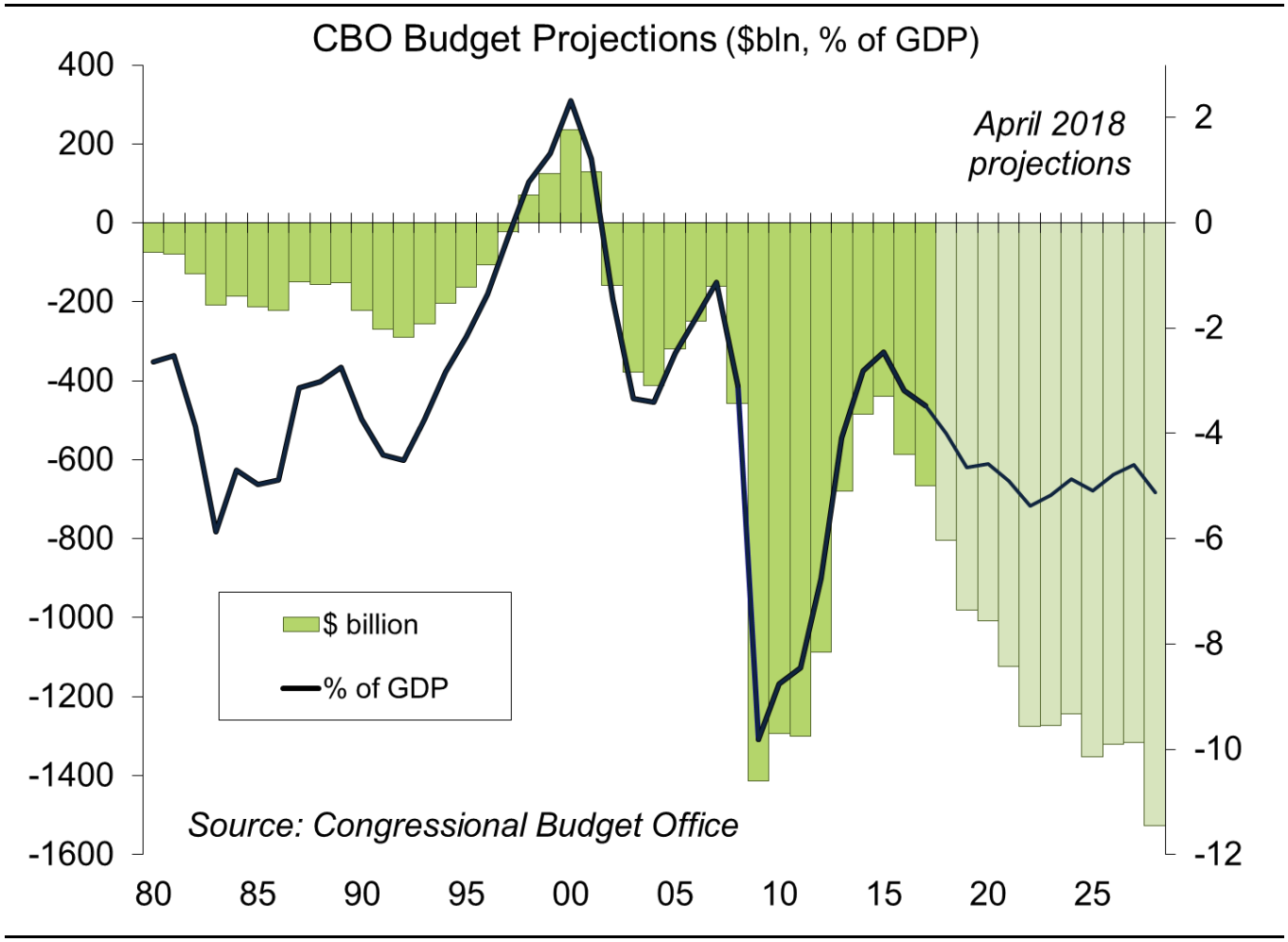
The CBO projects the following deficits by year:

- FY18: $804 billion (4.0% of GDP)
- FY19: $980 billion (4.6% of GDP)
- FY20: $1.008 trillion (4.6% of GDP)
- FY21: $1.123 trillion (4.9% of GDP)
- FY22: $1.276 trillion (5.4% of GDP)

Bear in mind that deficits will almost certainly be larger than the CBO's projections for the later years, as lawmakers are unlikely to hold to existing spending caps.

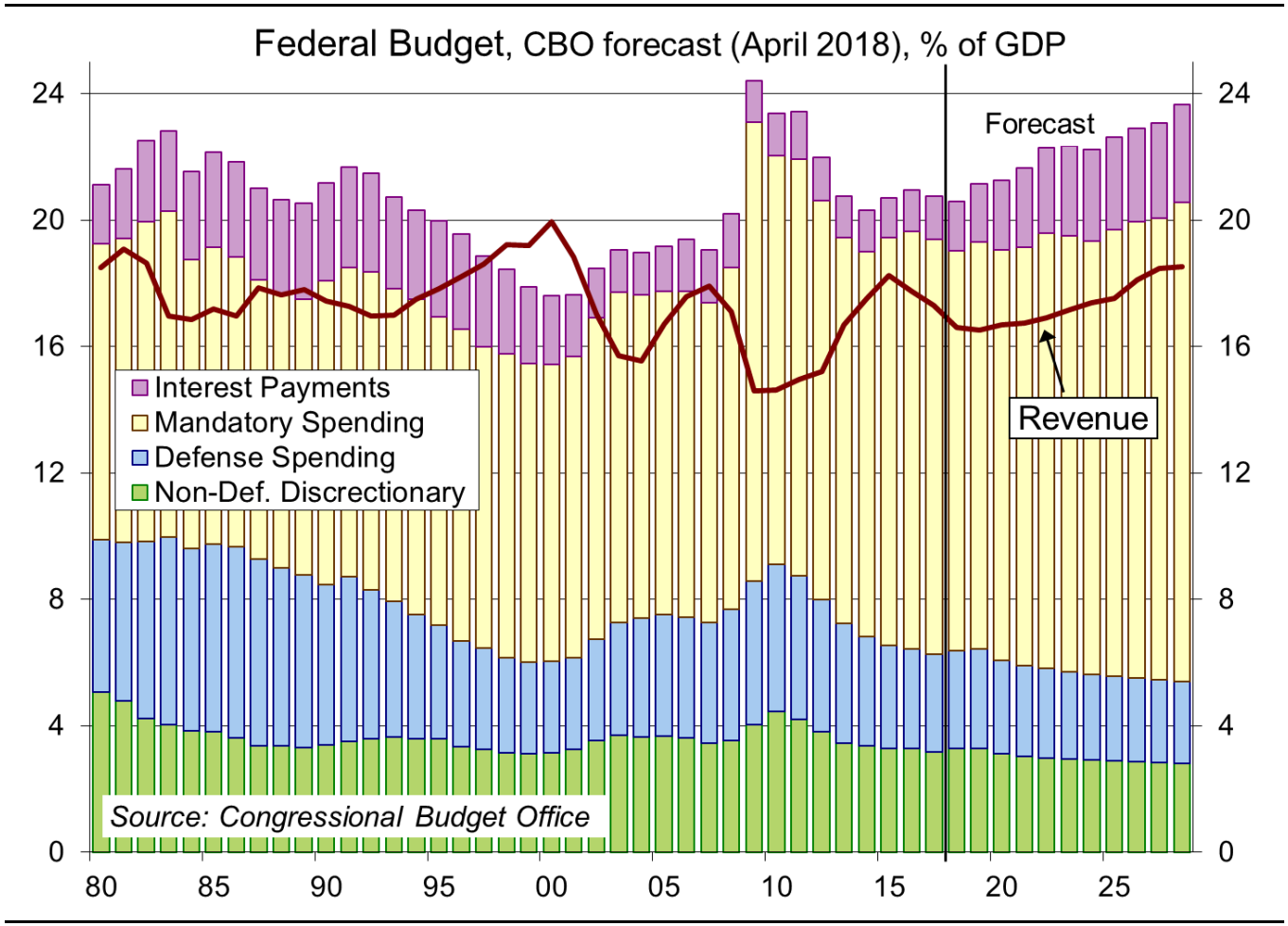
Scott Brown

The Federal Budget Deficit Outlook Has Worsened



Scott Brown

Entitlements and Interest Will Add to Spending



Scott Brown

Trade Policy

Trade policy announcements have been chaotic in recent weeks, as campaign bluster is turned (haphazardly) into action. Tariffs, while perhaps well-intentioned, are a tax on U.S. businesses and consumers.

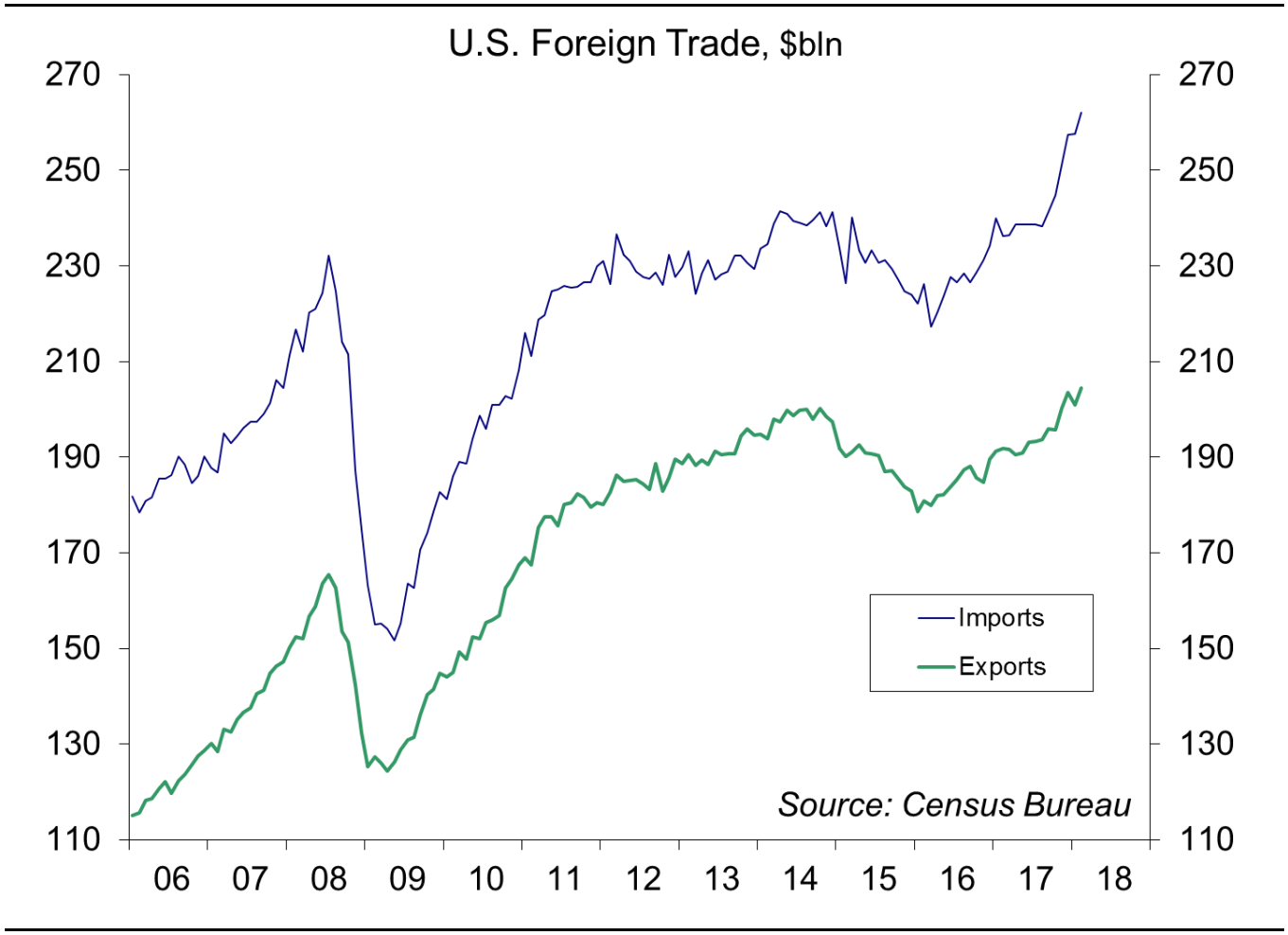
The financial markets should continue to react adversely to signs of protectionism (such as an announcement of further increases in tariffs or a breakdown in trade negotiations) and favorably to signs of reduced tensions (such as a softening in demands). We can expect this back-and-forth on trade policy to continue for a while, but there is some risk of more significant disruptions in the weeks and months ahead.

Financial market participants are generally hopeful that the end result of all this will be some minor tweaking of current trade agreements with minimal disruptions to supply chains. However, the impact of higher steel prices is already being felt and the added uncertainty is a negative for global fixed investment.

Note that higher trade deficits are equivalent to insufficient domestic savings, and government borrowing is part of national savings. Hence, wider federal budget deficits imply that trade deficits will also be higher.

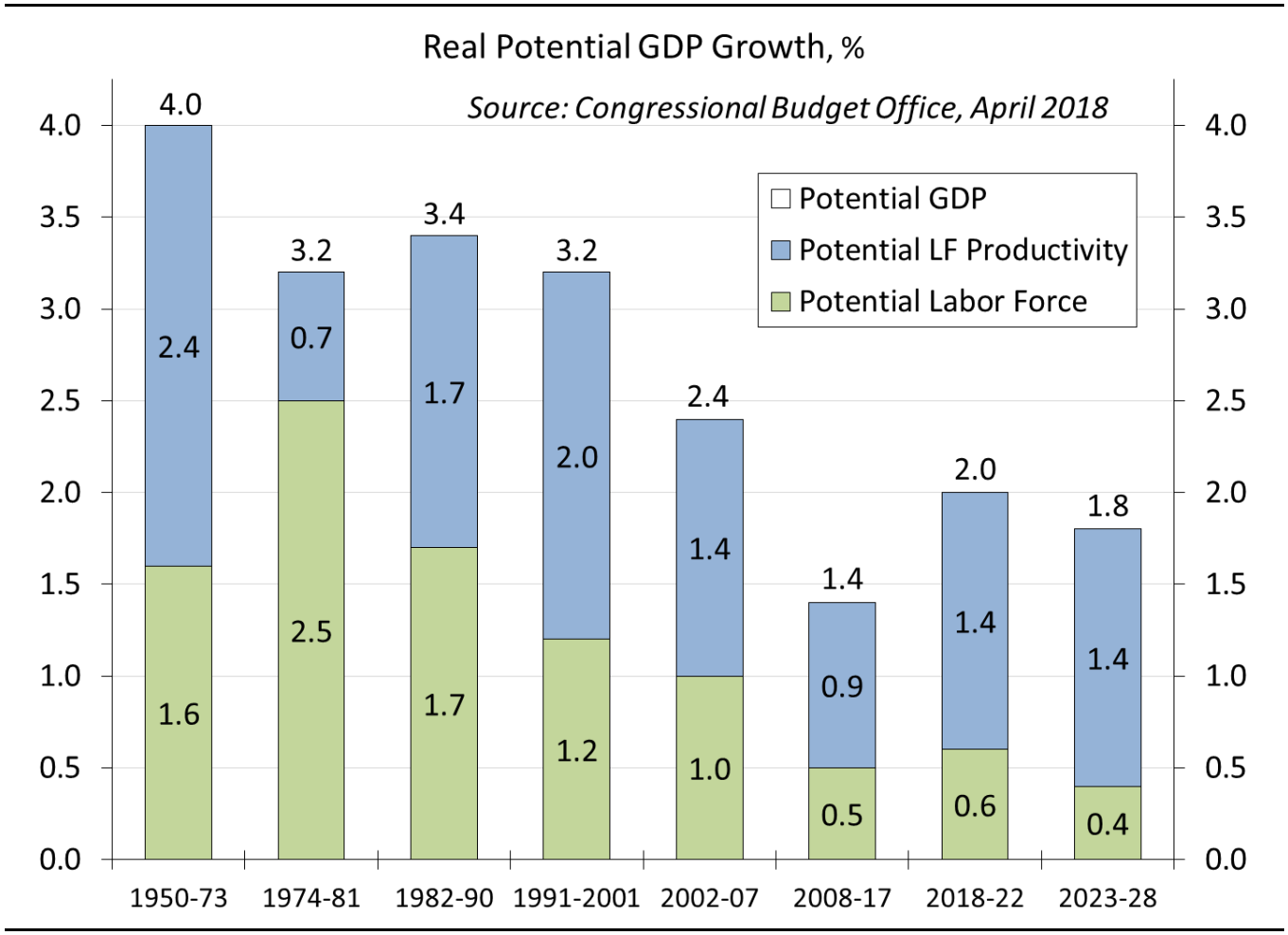
Scott Brown

The Trade Deficit Widened Further in Early 1Q18



Scott Brown

Potential GDP Growth is Slower Than in the Past



Scott Brown

Economic Indicator	Status	Comments
Growth		The economy got off to a mixed, but generally lackluster, start to 2018, but that followed a strong 4Q17 and some of that moderation may be weather. Near-term expectations of growth remain strong, but labor market constraints are expected to restrain GDP growth in 2H18.
Employment		March payrolls rose less than expected, but weather shifted gains into February. The underlying trend remains well beyond a pace that would be consistent with labor force growth.
Consumer Spending		Retail sales were lackluster in 1Q18. That's not necessarily bad, as 4Q18 was very strong. However, real average hourly earnings have risen modestly from a year ago.
Business Investment		Business optimism remains elevated. Corporate tax cuts ought to be supportive (but most of that will show up as share buybacks and dividend increases).
Manufacturing		Factory output has been uneven, but underlying trends appear strong, buoyed by a strong U.S. economy, a rebound in energy exploration, and a robust global economy.
Housing and Construction		The combination of strong housing demand and continued supply constraints has pushed prices higher. Affordability is expected to remain an ongoing issue.
Inflation		Data on producer prices and import prices point to increase pipeline pressures, mostly in industrial supplies and materials. Wage pressures have been moderate, but are likely to pick up somewhat as the job market tightens further.
Monetary Policy		Fed officials see 1Q18 softness as "transitory" and are expected to continue raising short-term interest rates at a gradual pace (25 bp per quarter). The risks of a monetary policy error (moving too fast or too slow) increase in a late-cycle economy.
Long-Term Interest Rates		An improving economy, the Fed's balance sheet unwinding, and increased government borrowing should add upward pressure to bond yields. However, low interest rates abroad and moderate inflation expectations should prevent a sharp rise in long-term rates.
Fiscal Policy		Tax cuts and added spending should add to growth in the near term, but it's a question of how much, as the economy is already near full employment. Federal budget deficits are projected to be a lot larger (follow the Tax Cut and Jobs Act).
The Dollar		Tighter Fed policy is usual dollar positive, but the strengthening global economy has led to greater capital flows away from the U.S. A wider federal budget deficit is also a negative.
Rest of the World		The global economic growth outlook is strong, but trade policy missteps and uncertainty have the potential to restrain world growth.

Scott Brown

Key Calendar Dates

April 26	Durable Goods Orders (March)
April 27	Real GDP (1Q18, advance estimate) Employment Cost Index (1Q18)
May 1	ISM Manufacturing Index (April)
May 2	ADP Payroll Estimate (April) FOMC Policy Decision (no press conference)
May 3	ISM Non-Manufacturing Index (April)
May 4	Employment Report (April)
May 9	Producer Price Index (April)
May 10	Consumer Price Index (April)
May 15	Retail Sales (April)
May 16	Building Permits, Housing Starts (April) Industrial Production (April)
May 23	FOMC Minutes (May 1-2)
May 28	Memorial Day Holiday (markets closed)
June 1	Employment Report (May)
June 13	FOMC Policy Decision (Powell Press Conference)

Important Investor Disclosures

Raymond James & Associates (RJA) is a FINRA member firm and is responsible for the preparation and distribution of research created in the United States. Raymond James & Associates is located at The Raymond James Financial Center, 880 Carillon Parkway, St. Petersburg, FL 33716, (727) 567-1000. Non-U.S. affiliates, which are not FINRA member firms, include the following entities that are responsible for the creation and distribution of research in their respective areas: in Canada, Raymond James Ltd. (RJL), Suite 2100, 925 West Georgia Street, Vancouver, BC V6C 3L2, (604) 659-8200; in Europe, Raymond James Euro Equities SAS (also trading as Raymond James International), 40, rue La Boetie, 75008, Paris, France, +33 1 45 64 0500, and Raymond James Financial International Ltd., Broadwalk House, 5 Appold Street, London, England EC2A 2AG, +44 203 798 5600.

This document is not directed to, or intended for distribution to or use by, any person or entity that is a citizen or resident of or located in any locality, state, country, or other jurisdiction where such distribution, publication, availability or use would be contrary to law or regulation. The securities discussed in this document may not be eligible for sale in some jurisdictions. This research is not an offer to sell or the solicitation of an offer to buy any security in any jurisdiction where such an offer or solicitation would be illegal. It does not constitute a personal recommendation or take into account the particular investment objectives, financial situations, or needs of individual clients. Past performance is not a guide to future performance, future returns are not guaranteed, and a loss of original capital may occur. **Investors should consider this report as only a single factor in making their investment decision.**

For clients in the United States: Any foreign securities discussed in this report are generally not eligible for sale in the U.S. unless they are listed on a U.S. exchange. This report is being provided to you for informational purposes only and does not represent a solicitation for the purchase or sale of a security in any state where such a solicitation would be illegal. Investing in securities of issuers organized outside of the U.S., including ADRs, may entail certain risks. The securities of non-U.S. issuers may not be registered with, nor be subject to the reporting requirements of, the U.S. Securities and Exchange Commission. There may be limited information available on such securities. Investors who have received this report may be prohibited in certain states or other jurisdictions from purchasing the securities mentioned in this report. Please ask your Financial Advisor for additional details and to determine if a particular security is eligible for purchase in your state.

The information provided is as of the date above and subject to change, and it should not be deemed a recommendation to buy or sell any security. Certain information has been obtained from third-party sources we consider reliable, but we do not guarantee that such information is accurate or complete. Persons within the Raymond James family of companies may have information that is not available to the contributors of the information contained in this publication. Raymond James, including affiliates and employees, may execute transactions in the securities listed in this publication that may not be consistent with the ratings appearing in this publication.

Raymond James ("RJ") research reports are disseminated and available to RJ's retail and institutional clients simultaneously via electronic publication to RJ's internal proprietary websites (RJ Investor Access & RJ Capital Markets). Not all research reports are directly distributed to clients or third-party aggregators. Certain research reports may only be disseminated on RJ's internal proprietary websites; however such research reports will not contain estimates or changes to earnings forecasts, target price, valuation, or investment or suitability rating. Individual Research Analysts may also opt to circulate published research to one or more clients electronically. This electronic communication distribution is discretionary and is done only after the research has been publically disseminated via RJ's internal proprietary websites. The level and types of communications provided by Research Analysts to clients may vary depending on various factors including, but not limited to, the client's individual preference as to the frequency and manner of receiving communications from Research Analysts. For research reports, models, or other data available on a particular security, please contact your RJ Sales Representative or visit RJ Investor Access or RJ Capital Markets.

Links to third-party websites are being provided for information purposes only. Raymond James is not affiliated with and does not endorse, authorize, or sponsor any of the listed websites or their respective sponsors. Raymond James is not responsible for the content of any third-party website or the collection or use of information regarding any website's users and/or members.

Additional information is available on request.

Simple Moving Average (SMA) - A simple, or arithmetic, moving average is calculated by adding the closing price of the security for a number of time periods and then dividing this total by the number of time periods.
Exponential Moving Average (EMA) - A type of moving average that is similar to a simple moving average, except that more weight is given to the latest data.

Relative Strength Index (RSI) - The Relative Strength Index is a technical momentum indicator that compares the magnitude of recent gains to recent losses in an attempt to determine overbought and oversold conditions of an asset.

International securities involve additional risks such as currency fluctuations, differing financial accounting standards, and possible political and economic instability. These risks are greater in emerging markets.

Small-cap stocks generally involve greater risks. Dividends are not guaranteed and will fluctuate. Past performance may not be indicative of future results.

Investors should consider the investment objectives, risks, and charges and expenses of mutual funds and exchange-traded funds carefully before investing. The prospectus contains this and other information about mutual funds and exchange –traded funds. The prospectus is available from your financial advisor and should be read carefully before investing.

Not approved for rollover solicitations.

For clients in the United Kingdom:

For clients of Raymond James Financial International Limited (RJFI): This document and any investment to which this document relates is intended for the sole use of the persons to whom it is addressed, being persons who are Eligible Counterparties or Professional Clients as described in the FCA rules or persons described in Articles 19(5) (Investment professionals) or 49(2) (High net worth companies, unincorporated associations etc) of the Financial Services and Markets Act 2000 (Financial Promotion) Order 2005 (as amended) or any other person to whom this promotion may lawfully be directed. It is not intended to be distributed or passed on, directly or indirectly, to any other class of persons and may not be relied upon by such persons and is therefore not intended for private individuals or those who would be classified as Retail Clients.

For clients of Raymond James Investment Services, Ltd.: This report is for the use of professional investment advisers and managers and is not intended for use by clients.

For purposes of the Financial Conduct Authority requirements, this research report is classified as independent with respect to conflict of interest management. RJFI, and Raymond James Investment Services, Ltd. are authorised and regulated by the Financial Conduct Authority in the United Kingdom.

For clients in France:

This document and any investment to which this document relates is intended for the sole use of the persons to whom it is addressed, being persons who are Eligible Counterparties or Professional Clients as described in "Code Monétaire et Financier" and Règlement Général de l'Autorité des Marchés Financiers. It is not intended to be distributed or passed on, directly or indirectly, to any other class of persons and may not be relied upon by such persons and is therefore not intended for private individuals or those who would be classified as Retail Clients.

For clients of Raymond James Euro Equities: Raymond James Euro Equities is authorised and regulated by the Autorité de Contrôle Prudentiel et de Résolution and the Autorité des Marchés Financiers.

For institutional clients in the European Economic Area (EEA) outside of the United Kingdom:

This document (and any attachments or exhibits hereto) is intended only for EEA institutional clients or others to whom it may lawfully be submitted.

For Canadian clients:

This report is not prepared subject to Canadian disclosure requirements, unless a Canadian analyst has contributed to the content of the report. In the case where there is Canadian analyst contribution, the report meets all applicable IIROC disclosure requirements.

Proprietary Rights Notice: By accepting a copy of this report, you acknowledge and agree as follows:

This report is provided to clients of Raymond James only for your personal, noncommercial use. Except as expressly authorized by Raymond James, you may not copy, reproduce, transmit, sell, display, distribute, publish, broadcast, circulate, modify, disseminate or commercially exploit the information contained in this report, in printed, electronic or any other form, in any manner, without the prior express written consent of Raymond James. You also agree not to use the information provided in this report for any unlawful purpose.

This report and its contents are the property of Raymond James and are protected by applicable copyright, trade secret or other intellectual property laws (of the United States and other countries). United States law, 17 U.S.C. Sec.501 et seq, provides for civil and criminal penalties for copyright infringement. No copyright claimed in incorporated U.S. government works.