

**CDIAC**

**CALIFORNIA  
DEBT AND  
INVESTMENT  
ADVISORY  
COMMISSION**

# SESSION SIX:

## FIXED INCOME ECONOMICS

CDIAC/CMTA  
JANUARY 23, 2019

Hubert R White, III CFA, CTP  
Investment Officer  
City and County of San Francisco

Jacob Oubina  
Director – Senior US Economist  
RBC Capital Markets

# ECONOMIC DATA AND THE INVESTMENT PROCESS: DEVELOPING AN EVALUATION METHOD

2

- Evaluating Economic Forecasts – reading between the data
- Sources for Economic data – Bloomberg (ECO), Federal Reserve Banks, Econoday Monthly Economic Journal
- Evaluating market expectations in the yield curve versus Economic forecasts

# SOURCES FOR ECONOMIC DATA: BLOOMBERG ECO [GO]

3

1) Calendars ▾ 2) Alerts 3) Export ▾ 4) Settings ▾ Economic Calendars											
United States		6) Browse		13:46:06		01/11/19		- 01/21/19			
Economic Releases				All Economic Releases				View <input checked="" type="radio"/> Agenda <input type="radio"/> Weekly			
	Date	Time	A	M	R	Event	Period	Surv(M)	Actual	Prior	Revised
21)	01/11	05:30				CPI MoM	Dec	-0.1%	-0.1%	0.0%	--
22)	01/11	05:30				CPI Ex Food and Energy MoM	Dec	0.2%	0.2%	0.2%	--
23)	01/11	05:30				CPI YoY	Dec	1.9%	1.9%	2.2%	--
24)	01/11	05:30				CPI Ex Food and Energy YoY	Dec	2.2%	2.2%	2.2%	--
25)	01/11	05:30				CPI Core Index SA	Dec	259.987	260.027	259.481	--
26)	01/11	05:30				CPI Index NSA	Dec	251.074	251.233	252.038	--
27)	01/11	05:30				Real Avg Weekly Earnings YoY	Dec	1.2%	1.2%	0.5%	0.6%
28)	01/11	05:30				Real Avg Hourly Earning YoY	Dec	--	1.1%	0.8%	--
29)	01/11	05:45				Bloomberg Jan. United States Economic Survey (Table)					
30)	01/11	11:00				Treasury monthly budget statement postponed by govt shutdown					
31)	01/15	05:30				Empire Manufacturing	Jan	10.0	--	10.9	--
32)	01/15	05:30				PPI Final Demand MoM	Dec	-0.1%	--	0.1%	--
33)	01/15	05:30				PPI Ex Food and Energy MoM	Dec	0.2%	--	0.3%	--
34)	01/15	05:30				PPI Ex Food, Energy, Trade...	Dec	0.2%	--	0.3%	--
35)	01/15	05:30				PPI Final Demand YoY	Dec	2.5%	--	2.5%	--
36)	01/15	05:30				PPI Ex Food and Energy YoY	Dec	3.0%	--	2.7%	--
37)	01/15	05:30				PPI Ex Food, Energy, Trade...	Dec	--	--	2.8%	--
38)	01/16	04:00				MBA Mortgage Applications	Jan 11	--	--	23.5%	--
39)	01/16	05:30				Retail sales data postponed by govt shutdown					

# SOURCES FOR ECONOMIC DATA: FEDERAL RESERVE BANK OF NEW YORK

[WWW.NEWYORKFED.ORG/RESEARCH/DATA\\_INDICATORS](http://WWW.NEWYORKFED.ORG/RESEARCH/DATA_INDICATORS)

home > economic research >

## Data and Indicators

The Research and Statistics Group provides the following links to online sources of economic data produced by the New York Fed and other Reserve Banks.

### KEY DATA FROM THE NEW YORK FED



#### Business Leaders Survey

A monthly survey of service firms in New York State, northern New Jersey and southwestern Connecticut, conducted by the New York Fed.



#### Empire State Manufacturing Survey

A monthly survey of manufacturers in New York State, conducted by the New York Fed.

#### Supplemental Survey Report

Summary of responses to topical questions from the *Empire State Manufacturing Survey* and the

### DYNAMIC DATA AND MAPS FROM THE NEW YORK FED

#### Eight Different Faces of the Labor Market

New monthly release provides timely updates on national labor market conditions. Dynamic charts depict trends in eight key categories: unemployment, employment, hours, labor demand, job availability, job loss rate, wages, and mismatch.



#### The Labor Market for Recent College Graduates

This interactive web feature presents a wide range of job market metrics for recent college graduates, including trends in unemployment rates, underemployment rates, and wages. Data are updated regularly and available for download.

#### For-Profits in the Higher Education Landscape

Interactive maps and charts shed light on the unprecedented growth, market share, student loans, tuition pricing, federal grants, and more for for-profit

### TOOLS AND INDICATORS FROM THE NEW YORK FED



#### Economic Indicators Calendar

A calendar showing the date and time of key economic data releases. Links to data sources are provided when available.



#### Underlying Inflation Gauge (UIG)

The New York Fed Staff UIG measures capture sustained movements in inflation from information contained in a broad set of price, real activity, and financial data. We share estimates and downloadable data on a monthly basis.

### FROM OTHER RESERVE BANKS

#### FRED (Federal Reserve Economic Data) [OFFSITE](#)

A database developed by the St. Louis Fed that consists of more than 213,000 U.S. and international economic time series. Users can download and interact with the data.

#### Real-Time Data Set for Macroeconomists [OFFSITE](#)

A data set developed by the Philadelphia Fed that consists of vintages, or snapshots, of time series of major macroeconomic variables.

# SOURCES FOR ECONOMIC DATA: FEDERAL RESERVE BANK OF NEW YORK

[WWW.NEWYORKFED.ORG/RESEARCH/DATA\\_INDICATORS](http://WWW.NEWYORKFED.ORG/RESEARCH/DATA_INDICATORS) - ECONOMIC CALENDAR

## Economic Indicators Calendar



[Printer version](#)

Provides the date and time of key economic data releases. When available, links on the calendar direct you straight to the data source (often [OFFSITE](#) ).

[← PREVIOUS MONTH](#)

JANUARY 2019

[NEXT MONTH →](#)

Monday	Tuesday	Wednesday	Thursday	Friday
	01	02 <b>CoreLogic Home Price Index</b> (10:00) <b>Dallas Fed Service Sector Survey</b> (10:30)	03 <b>ADP National Employment Report</b> (08:15) <b>Initial Claims</b> <a href="#">PDF</a> (08:30) <b>Construction</b> <a href="#">PDF</a> (10:00) <b>ISM Manufacturing</b> (10:00) <b>Dallas Fed Energy Survey</b> (10:30)	04 <b>Employment Situation</b> (08:30) <b>Chicago Fed National Activity Index</b> (09:45) <b>Motor Vehicle Sales</b> (04:00)
07 <b>ISM Non-Manufacturing</b> (10:00) <b>Manufacturing, Shipments, And Orders</b> (10:00)	08 <b>Trade Balance</b> (08:30) <b>JOLTS</b> (10:00)	09	10 <b>Initial Claims</b> <a href="#">PDF</a> (08:30) <b>Wholesale Trade</b> <a href="#">PDF</a> (10:00)	11 <b>Consumer Price Index</b> (08:30) <b>Real Earnings</b> (08:30)
14 <b>Survey Of Consumer Expectations</b> (11:00)	15 <b>Empire State Manufacturing Survey</b> (08:30)	16 <b>Advance Retail Sales</b> <a href="#">PDF</a> (08:30) <b>Business Leaders Survey</b> (08:30) <b>Imports And Exports</b> (08:30)	17 <b>Initial Claims</b> <a href="#">PDF</a> (08:30) <b>New Residential Construction</b> <a href="#">PDF</a> (08:30) <b>Philadelphia Fed Manufacturing Survey</b> (08:30)	18 <b>Industrial Production and Capacity Utilization</b> (09:15) <b>Michigan Consumer Survey (Preliminary)</b> (10:00)

# SOURCES FOR ECONOMIC DATA: FEDERAL RESERVE BANK OF ST LOUIS

[WWW.STLOIUSFED.ORG](http://WWW.STLOIUSFED.ORG)

FRED ECONOMIC DATA

6



ECONOMIC RESEARCH  
FEDERAL RESERVE BANK OF ST. LOUIS

REGISTER | SIGN IN

Search FRED

FRED Economic Data Information Services Publications Working Papers Economists About

St. Louis Fed Home

Download, graph, and track **528,000 US** and international time series from **87** sources.

Search FRED data e.g., gdp, inflation, unemployment



Browse data by [Tag](#), [Category](#), [Release](#), [Source](#), [Release Calendar](#) or [Get Help](#)

**FRED News**

FRED Expands GDP and NIPA Data

Some FRED Data Not Updated Due to the U.S. Government Shutdown

**FRED Blog**

Which workers quit more?

**Research News**

Modernizing Monetary Policy Rules

## PAGE ONE Economics

Read the newsletter with class room application, search the glossary, and browse a data "starter set".

THE BACK STORY ON FRONT PAGE ECONOMICS

AT A GLANCE POPULAR SERIES LATEST RELEASES TOOLS NEED HELP?

**Consumer Price Index for All Urban Consumers: All Items**  
+1.9 % Chg. from Yr. Ago on Dec 2018



**Real Gross Domestic Product**  
3.4 % Chg. from Preceding Period on Q3 2018



**Industrial Production Index**  
+0.6 % Chg. on Nov 2018



**10-Year Treasury Constant Maturity Rate**  
2.72 % on 2019-01-15



**U.S. / Euro Foreign Exchange Rate**  
1.1479 U.S. \$ to 1 Euro on 2019-01-11



**Civilian Unemployment Rate**  
3.9 % on Dec 2018



**All Employees: Total Nonfarm Payrolls**  
+312 Chg., Thous. of Persons on Dec 2018

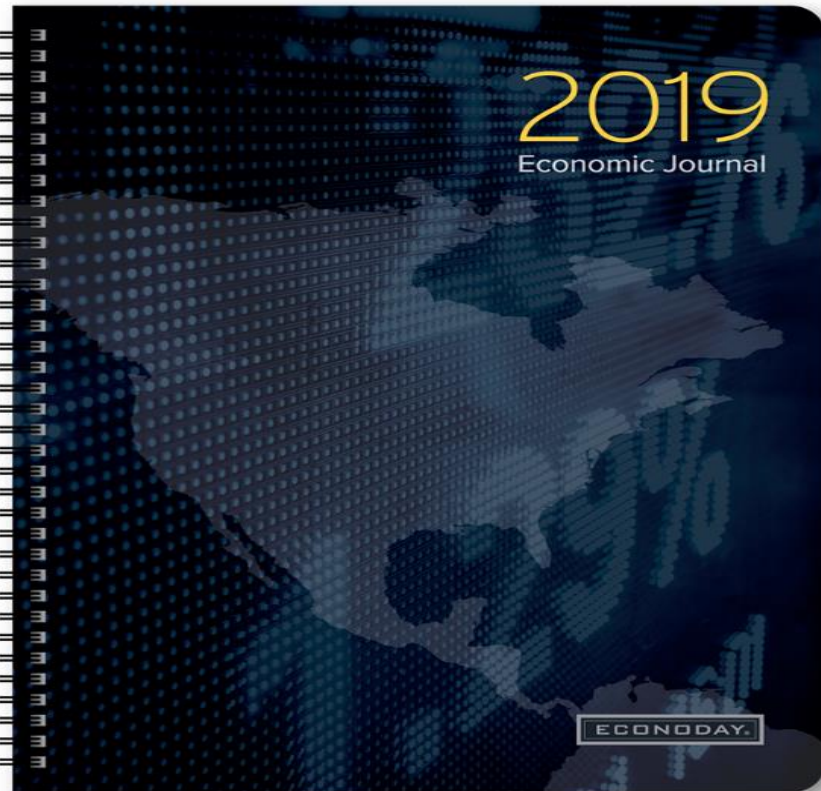


**4-Week Moving Average of Initial Claims**  
221750 on 2019-01-05



## SOURCES FOR ECONOMIC DATA: 2019 ECONODAY MONTHLY ECONOMIC JOURNAL

7



### 2019 ECONODAY MONTHLY ECONOMIC JOURNAL

\$ 39.95

Quantity

1

Add to cart

### MARKET-MOVING EVENTS FOR AN ENTIRE YEAR

Strategic investing and analysis are a lot easier when you can identify patterns and see how economic events and announcements correlate with specific market movements. The Econoday Journal provides a convenient and easy way to follow important economic events every day, every month, throughout the year.

And now you have a place where you can capture notes about influencing factors in the market.

### EVERY CALENDAR PAGE INCLUDES:

- ✦ FOMC Meetings
- ✦ US Economic Announcements with Market-Moving Events Highlighted
- ✦ US Banking Holidays
- ✦ Equity Settlement Dates

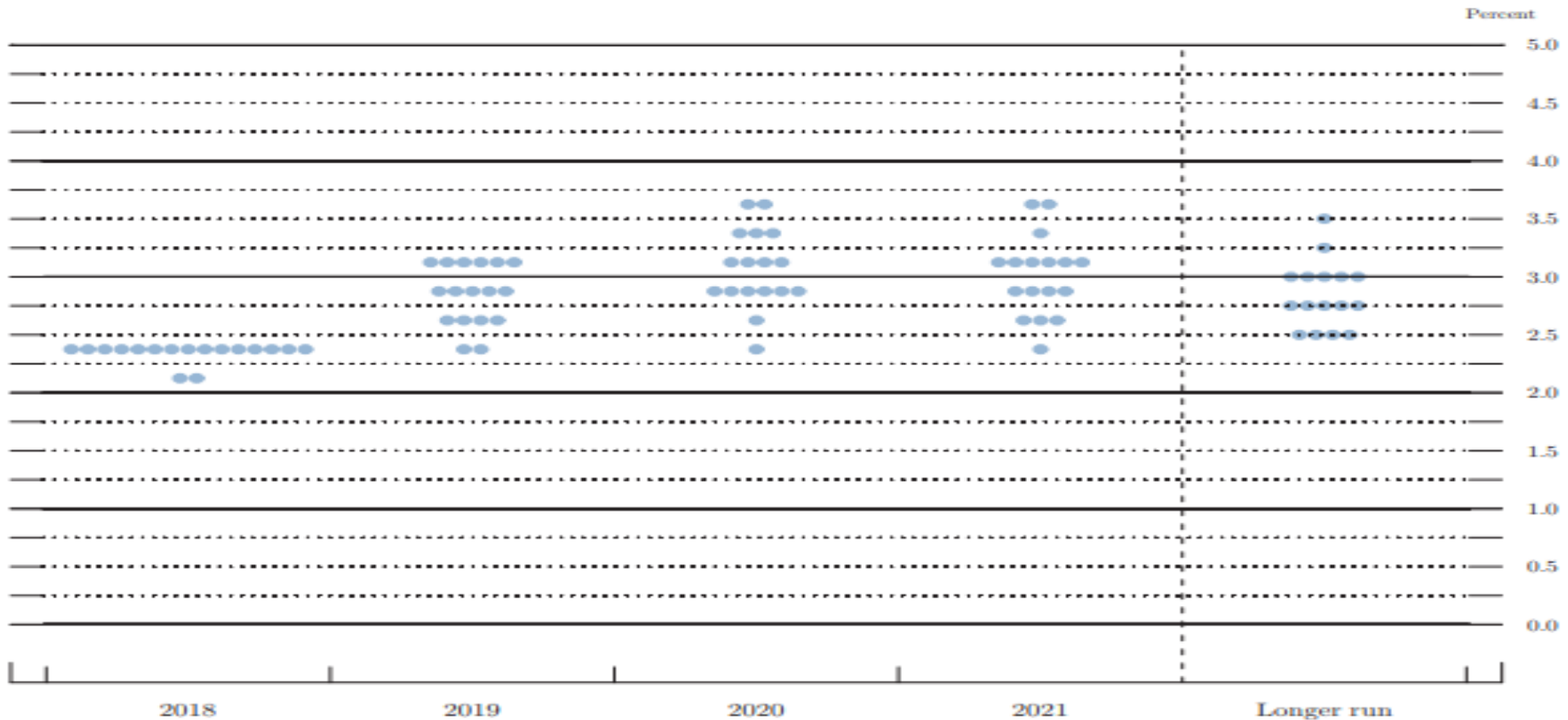
### ADDITIONAL RESOURCES INCLUDE:

- ✦ Introduction to the Federal Reserve
- ✦ Map of Federal Reserve Districts
- ✦ Federal Reserve Board of Governors
- ✦ Federal Reserve Bank Presidents
- ✦ Federal Reserve Historic Policy Actions
- ✦ Key FOMC Dates for 2019
- ✦ Glossary of Terms
- ✦ Market Impact Notes Page – capture your notes on the page facing each calendar

EVALUATING MARKET EXPECTATIONS: FEDERAL OPEN MARKET COMMITTEE DOT PLOT  
DECEMBER 2018

For release at 2:00 p.m., EST, December 19, 2018

Figure 2. FOMC participants' assessments of appropriate monetary policy: Midpoint of target range or target level for the federal funds rate





EVALUATING MARKET EXPECTATIONS: BLOOMBERG INTEREST RATE PROBABILITY  
FED FUNDS – EFFECTIVE CONTRACTS WIRP [GO]

9

99) Export World Interest Rate Probability

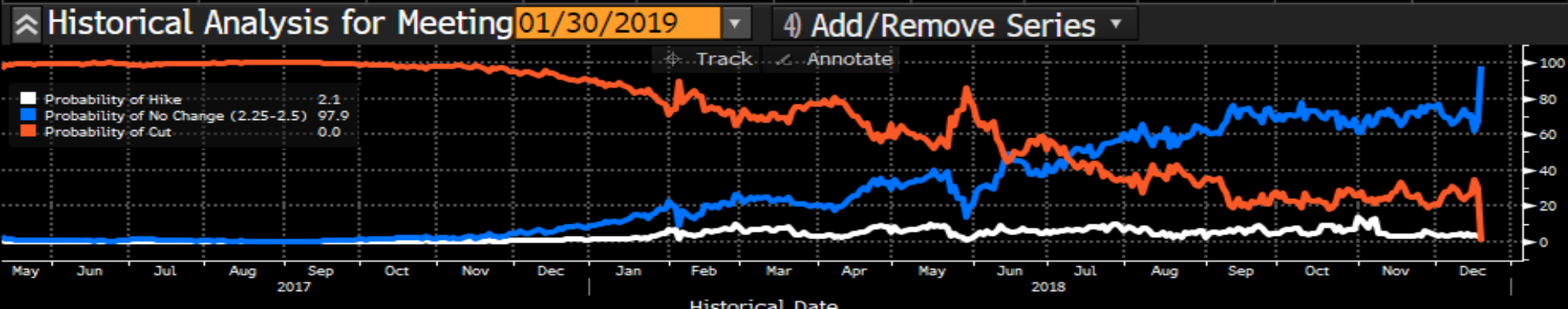
United States Instrument Futures: Fed Funds - Effective Fed Effective Rate 2.40

1) Overview 2) Future Implied Probability

Current Implied Probabilities 3) Add/Remove Rates

Dates  Meeting  Calculation Calculated 12/19/2018 Based on rate 2.25-2.50

Meeting	Hike Prob	Cut Prob	2-2.25	2.25-2.5	2.5-2.75	2.75-3	3-3.25	3.25-3.5	3.5-3.75	Fwd Rate
01/30/2019	2.1%	0.0%	0.0%	97.9%	2.1%	0.0%	0.0%	0.0%	0.0%	2.41
03/20/2019	21.9%	0.0%	0.0%	78.1%	21.5%	0.4%	0.0%	0.0%	0.0%	2.46
05/01/2019	26.8%	0.0%	0.0%	73.2%	25.0%	1.7%	0.0%	0.0%	0.0%	2.47
06/19/2019	36.2%	0.0%	0.0%	63.8%	31.3%	4.7%	0.2%	0.0%	0.0%	2.50
07/31/2019	39.3%	0.0%	0.0%	60.7%	32.8%	6.0%	0.5%	0.0%	0.0%	2.51
09/18/2019	44.5%	0.0%	0.0%	55.5%	35.2%	8.3%	0.9%	0.1%	0.0%	2.53
10/30/2019	44.8%	0.0%	0.0%	55.2%	35.3%	8.4%	1.0%	0.1%	0.0%	2.54
12/11/2019	43.2%	2.4%	2.4%	54.4%	34.1%	8.1%	0.9%	0.1%	0.0%	2.52
01/29/2020	38.2%	10.4%	10.0%	51.4%	30.3%	7.1%	0.8%	0.0%	0.0%	2.49





# EVALUATING MARKET EXPECTATIONS: CASH FLOW ANALYSIS MODEL – DETERMINING WHAT’S BUILT INTO THE TERM STRUCTURE OF INTEREST RATES

## US Treasury Model (Actual / Actual Day Count)

Settlement Date	1/10/2019			Cash At Maturity	IRR
Maturity Date	1/15/2020			Over-Night Cash Value	10,212,091.10 2.649%
Par Value Purchased	10,000,000.00			Bond Cash Value	10,209,057.68 2.646%
Price Paid	98.78125000			Bond Less Over-Night	(3,033.42) -0.0027%
Coupon Rate	1.375%			Conclusion	Stay Cash Stay Cash
Price + Accrued (to Buy)	9,945,006.79				
Over-Night Investment Rate	2.3500				
Day Count	360.0				
Enter most recent coupon date ----->	7/15/2018	68,750.000			
	1/15/2019	68,750.000			
	7/15/2019	68,750.000			
	1/15/2020	68,750.000			
	7/15/2020	68,750.000			
	1/15/2021	68,750.000			
	7/15/2021	68,750.000			
	1/15/2022	68,750.000			
	7/15/2022	68,750.000			
	1/15/2023	68,750.000			
	7/15/2023	68,750.000			

# of Fed Rate Increases	2
Increases in 2019	2
Increases in 2020	0
Increases in 2021	0

Day Count	
For Accrued	
179	

9,878,125.00	Price
66,881.79	Accrued
9,945,006.79	Total Paid

Fed Rate Increase Dates	Low	High
1/30/2019	-	2.25
3/20/2019	-	2.25
5/1/2019	-	2.25
6/12/2019	0.250	2.50
7/31/2019	-	2.50
9/25/2019	0.250	2.75
11/7/2019	-	2.75
12/18/2019	-	2.75
1/29/2020	-	2.75
3/20/2020	-	2.75
5/1/2020	-	2.75
6/12/2020	-	2.75
7/31/2020	-	2.75
9/25/2020	-	2.75
11/7/2020	-	2.75
12/18/2020	-	2.75

## Topics of discussion

12

- FOMC policy and the multi-faceted mandate
- What the Fed watches and how it sets policy
- Exogenous influences on the mandate (Fiscal Policy, global economies, markets)
- How Fed narratives and actions permeate the interest rate markets

The Fed's statutory mandate has three components, not two

13

## Section 2A. Monetary policy objectives

The Board of Governors of the Federal Reserve System and the Federal Open Market Committee shall maintain long run growth of the monetary and credit aggregates commensurate with the economy's long run potential to increase production, so as to promote effectively the goals of maximum employment, stable prices, and moderate long-term interest rates.

[12 USC 225a. As added by act of November 16, 1977 (91 Stat. 1387) and amended by acts of October 27, 1978 (92 Stat. 1897); Aug. 23, 1988 (102 Stat. 1375); and Dec. 27, 2000 (114 Stat. 3028).]

Source: federalreserve.gov, [emphasis ours]

More recently, **financial stability** has become part of the directive

14

The [Global Financial Crisis] made clear that **there can be no macroeconomic stability without financial stability**, and that systemic stability risks often take root and blossom in good times. Thus, as the emergency phase of the crisis subsided, Congress, the Fed, and the other financial regulators began developing a fundamentally different approach to financial stability. Instead of relying on improvised responses after crises strike, **policymakers now constantly monitor vulnerabilities and require firms to plan in advance for financial distress, in a framework that lays out solutions in advance during good times.**

November 28, 2018

The Federal Reserve's Framework for Monitoring Financial Stability

Chairman Jerome H. Powell

At The Economic Club of New York

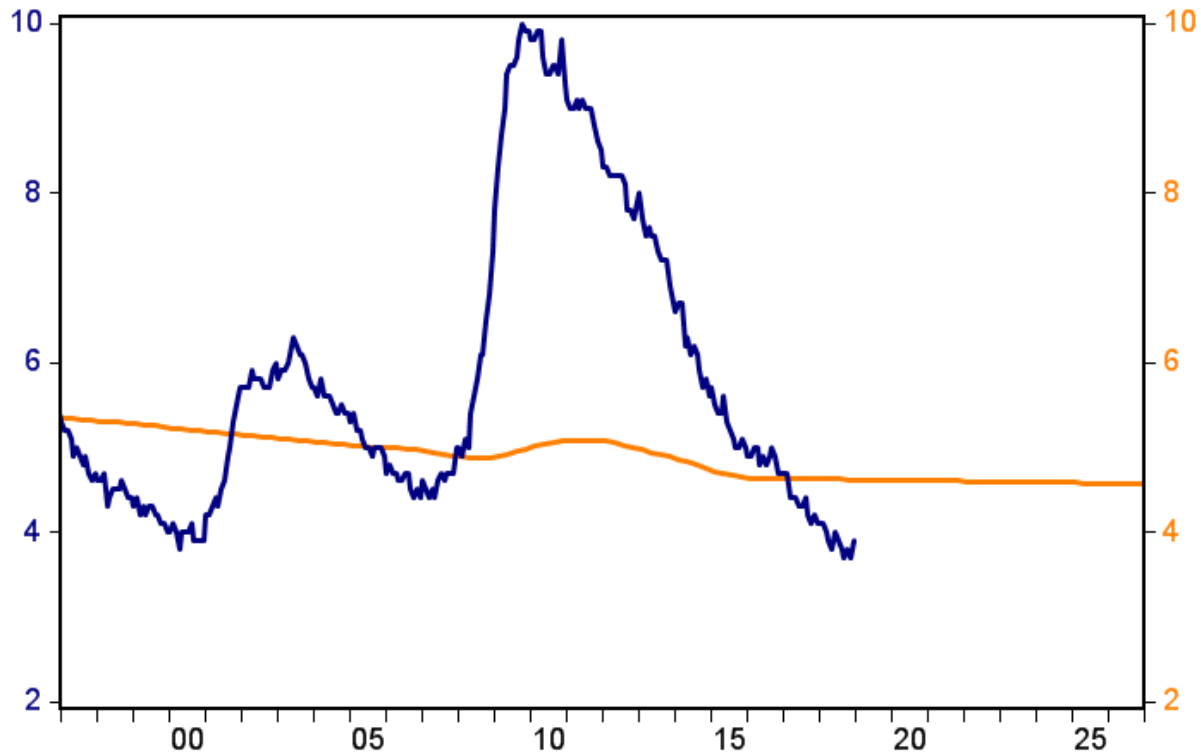
Source: [federalreserve.gov](https://www.federalreserve.gov), [emphasis ours]

# The economy seems to be past “maximum” employment

15

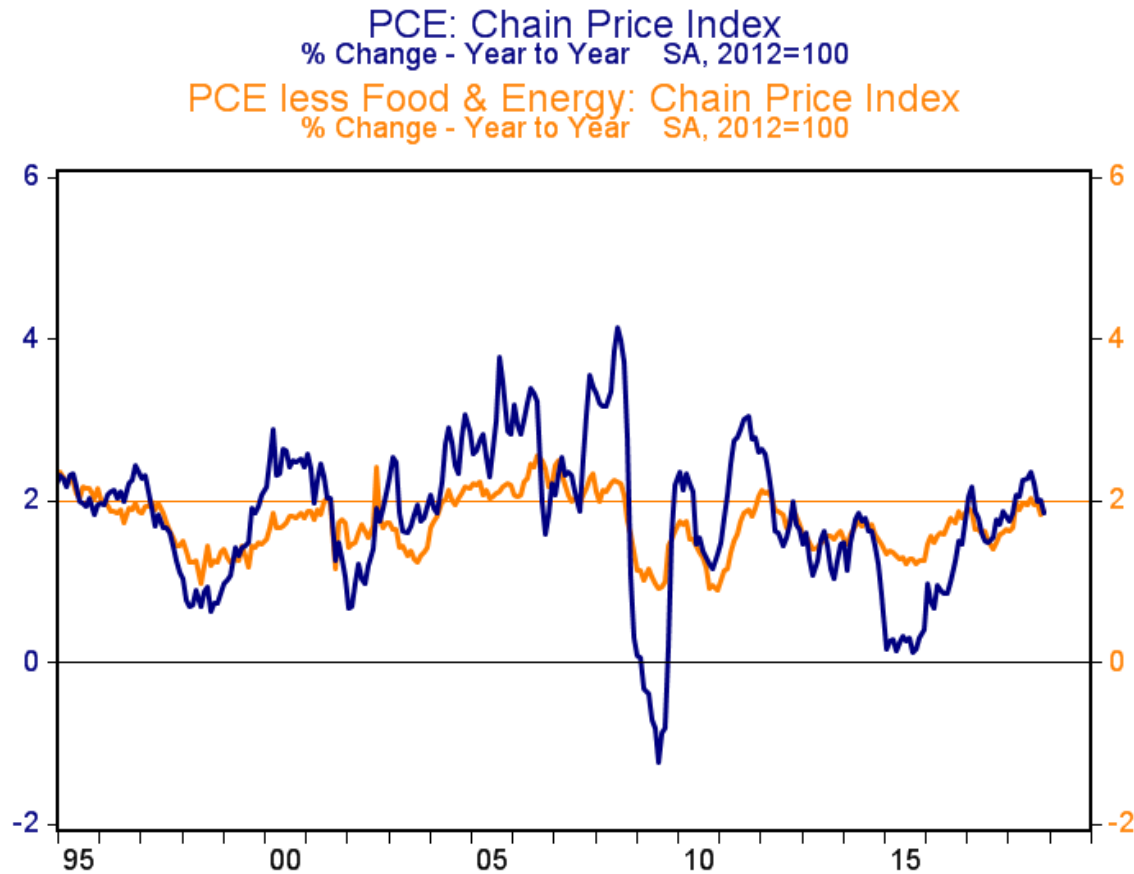
Civilian Unemployment Rate: 16 yr +  
SA, %

Natural Rate of Unemployment [CBO]  
%



Sources: BLS, CBO/Haver/RBC Capital Markets US Economics

# Inflation is “stable” and near the 2% target

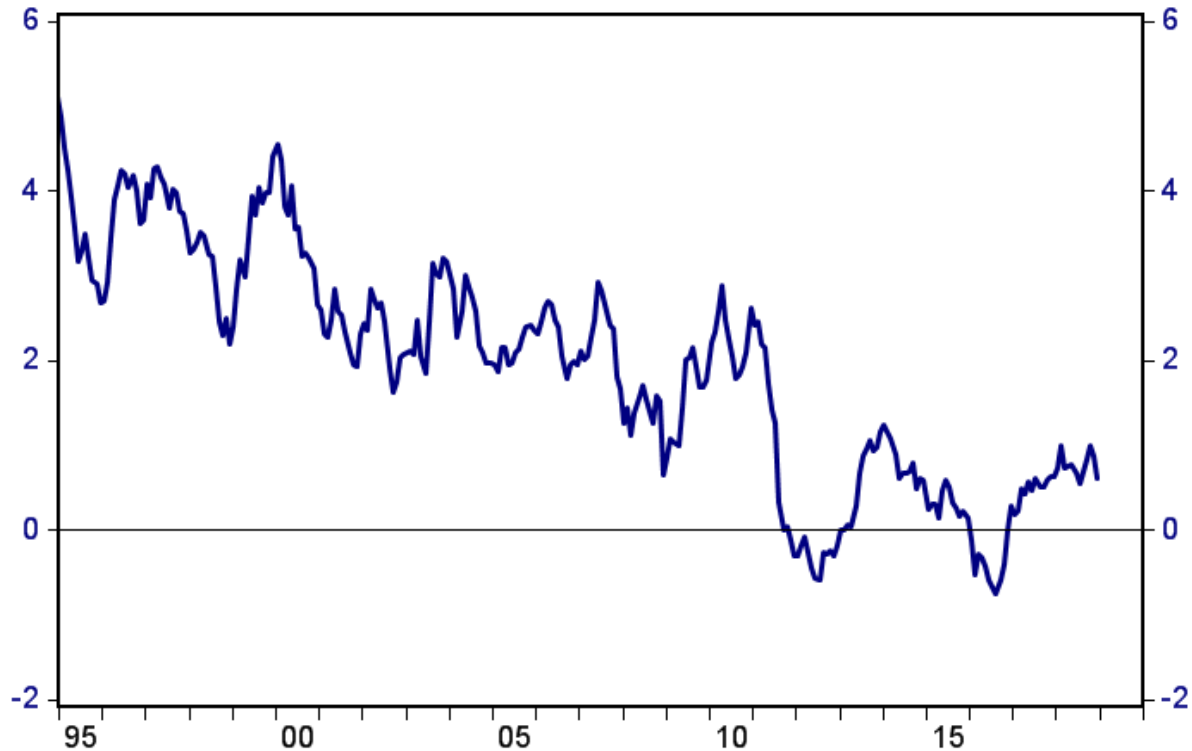


Source: BEA/Haver/RBC Capital Markets US Economics



# Interest rates seem to be quite “moderate”

US 10-year Treasury yield minus inflation

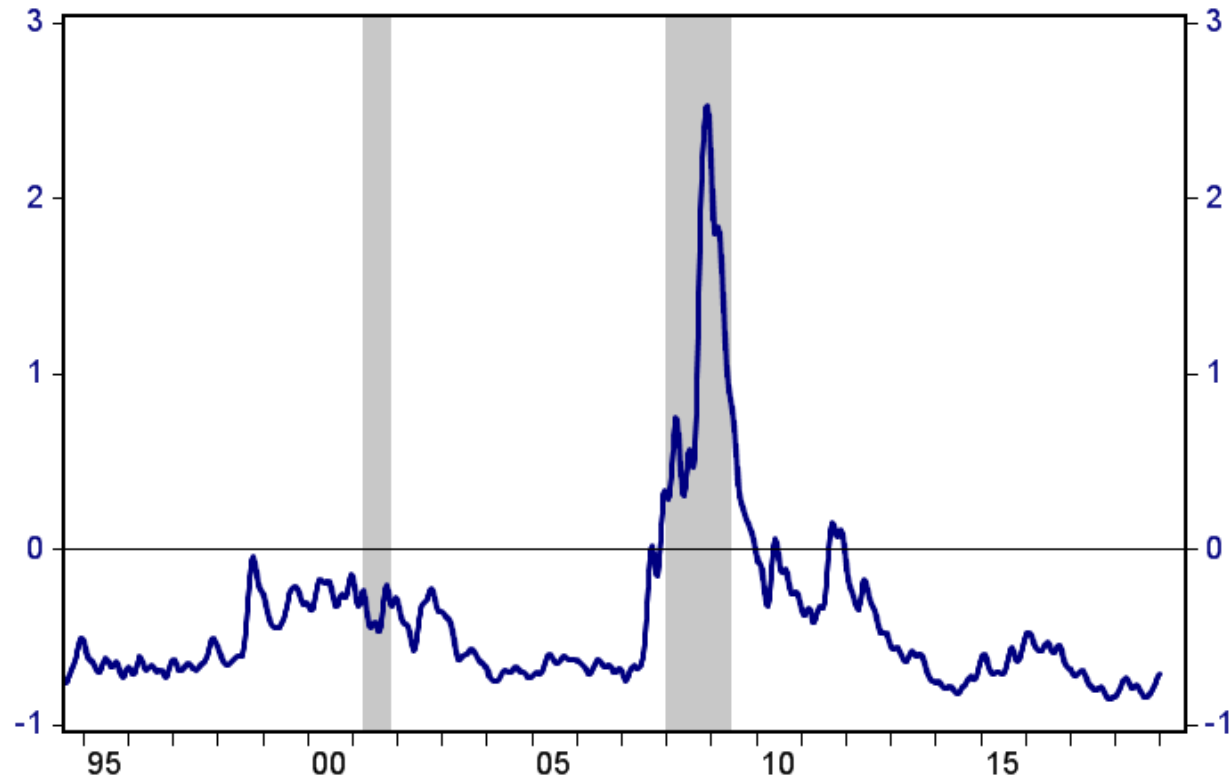


Source: Haver Analytics/RBC Capital Markets US Economics

# Financial conditions are still quite “easy”

## National Financial Conditions Index

+ = Tighter Than Avg



Source: FRBCHI/Haver/RBC Capital Markets US Economics

# Monetary policy rules act as a rule-of-thumb

## A simple Taylor Rule

$$\text{Fed Funds} = \text{Real neutral rate} + \text{inflation} + w1(\text{inflation} - \text{inflation target}) + w2(\text{unemployment natural rate} - \text{unemployment rate})$$

Today this would imply:

$$\text{Fed Funds} = 0.75 + 1.8 + 0.5[1.8 - 2.0] + 1.15[4.4 - 3.9] = 3.025$$

When inflation and Unemployment are at target, then...

$$\text{Fed Funds} = \text{Real neutral rate} + \text{inflation target} = 2.75$$

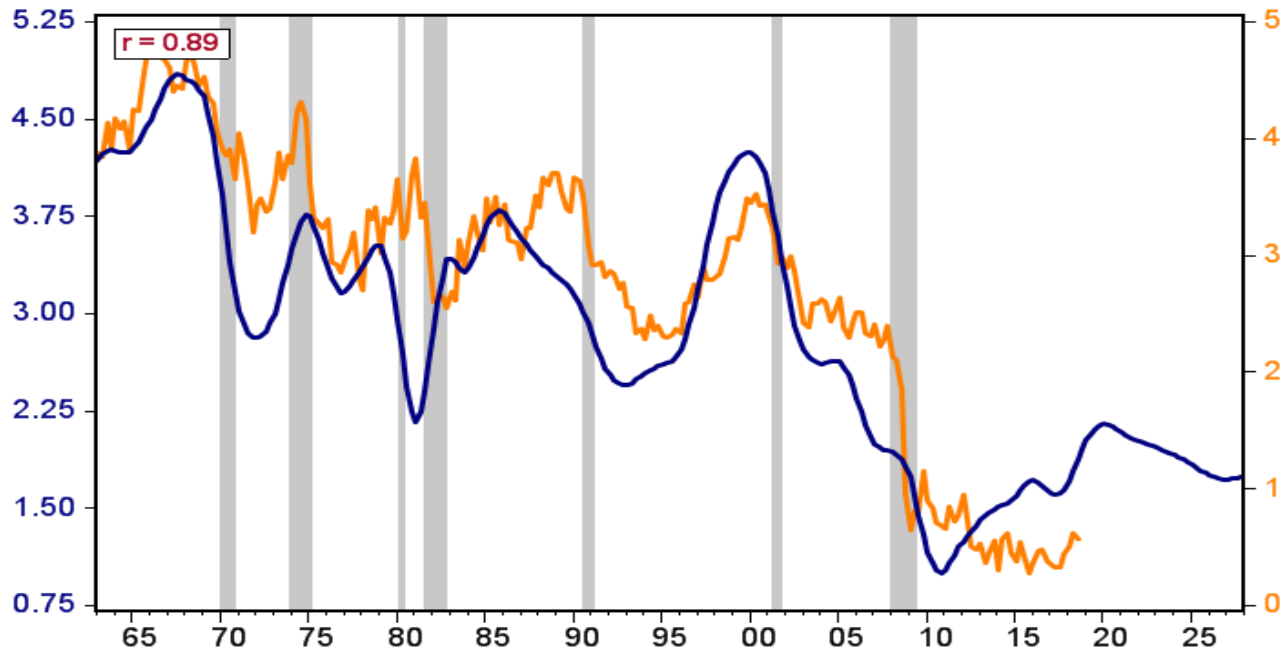
$$\text{current Fed Funds Effective} = 2.40$$

Inflation is easily observable... but what is the real neutral rate?

# The neutral rate is linked to economic growth

The neutral (or, natural) rate of interest is tied to trend real GDP growth over time. While trend growth looks likely to pick up in coming years (the CBO estimate reflects recent tax policy impact), there is enough uncertainty around this that the Fed is likely to move their neutral estimate only gradually.

Real Potential Gross Domestic Product [CBO]  
% Change - Year to Year SAAR, Bil.Chn.2009\$  
Holston-Laubach-Williams: Natural Rate of Interest %

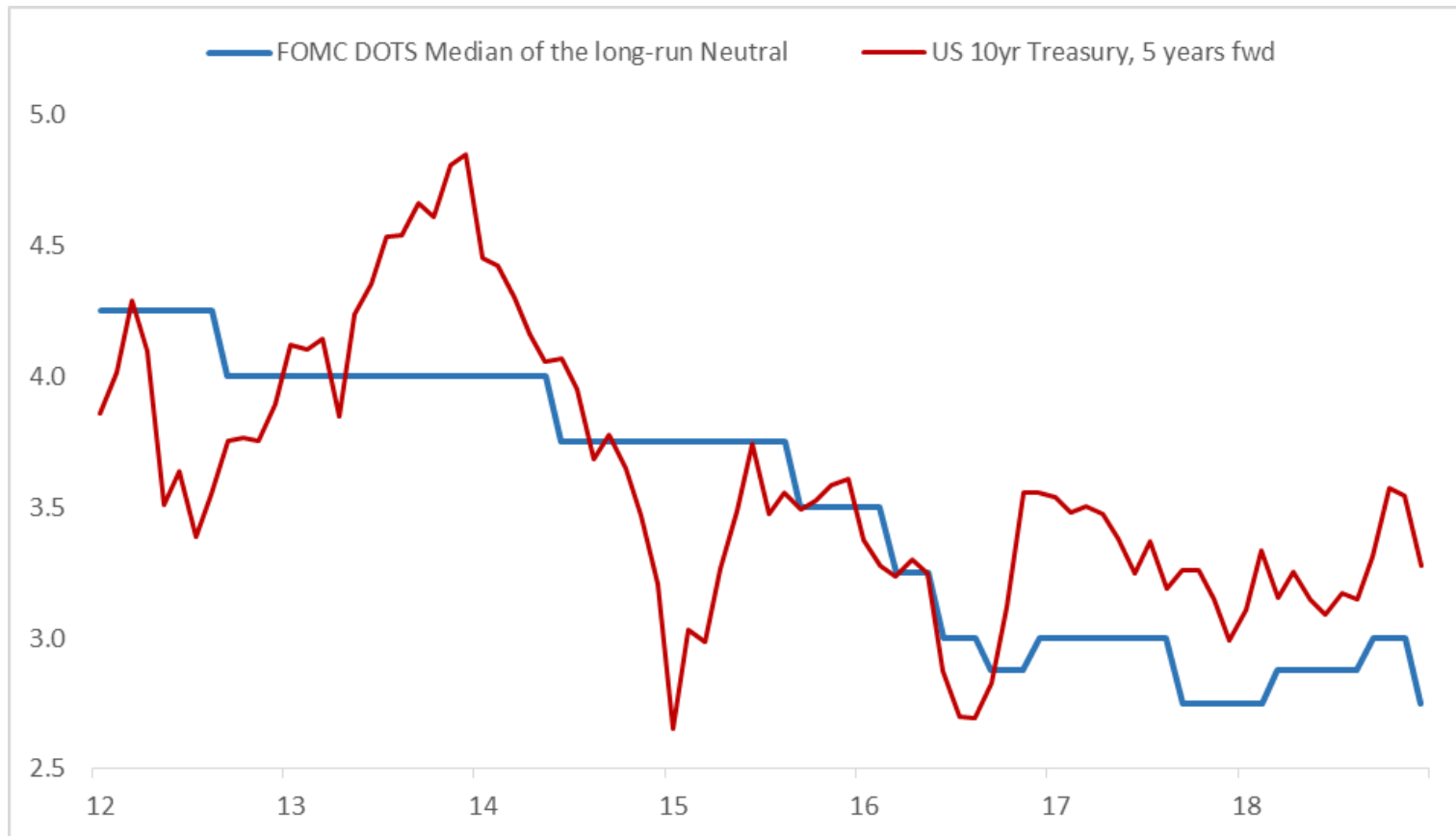


Sources: CBO, FRBNY/Haver/RBC Capital Markets US Economics

# Neutral reassessment has had large impact on market interest rate expectations

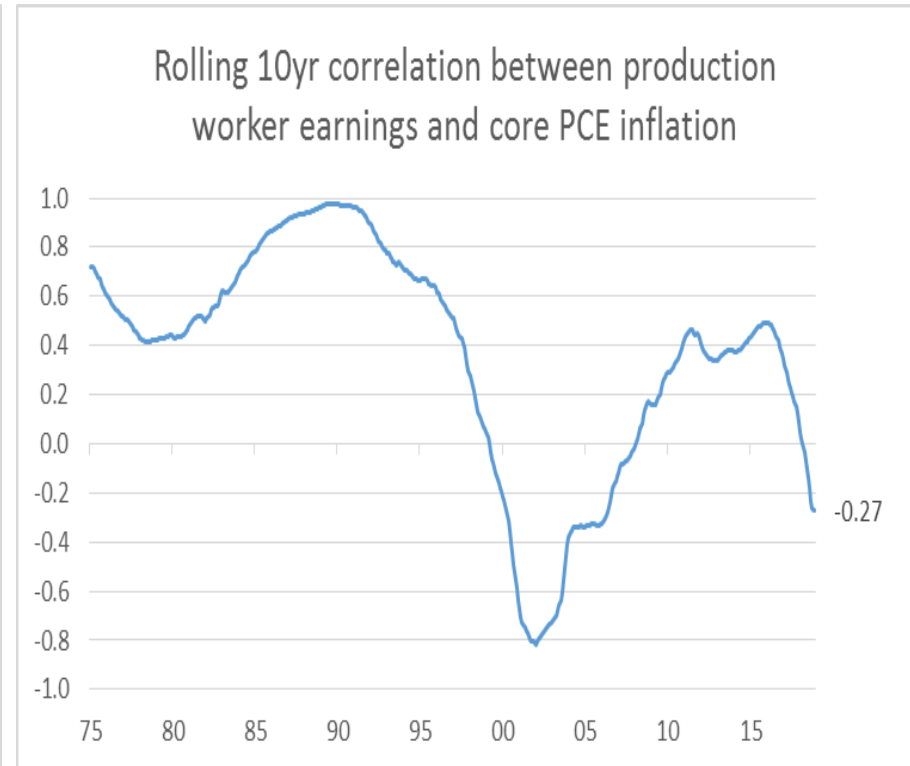
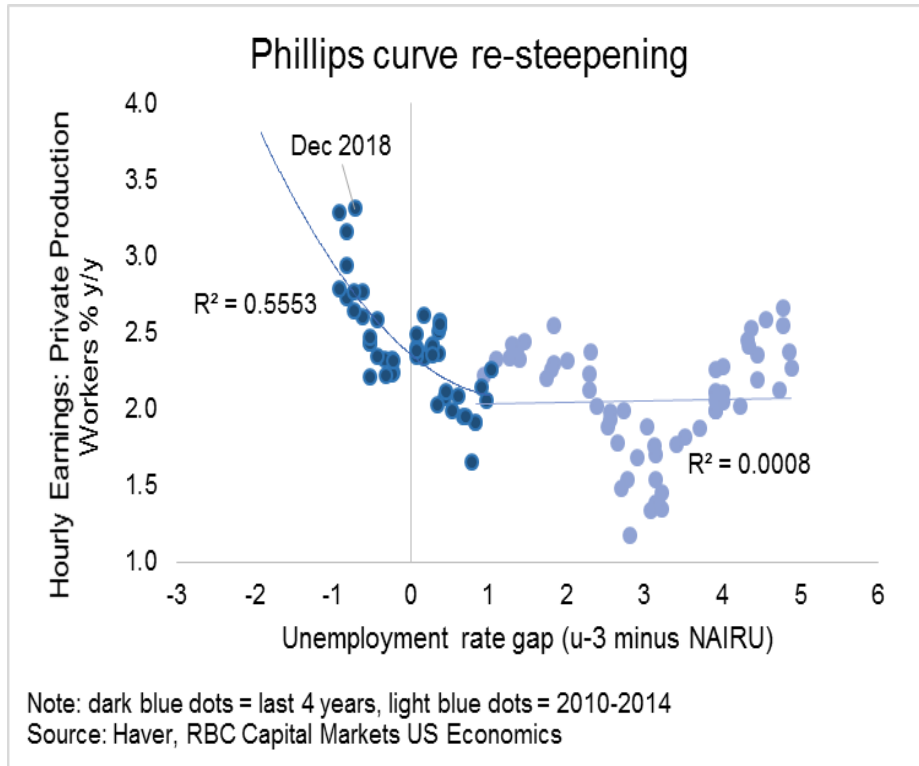
21

Since 2012, the Fed has cut its estimate of the long-run neutral rate by 150 basis points. This has had a direct effect on long run rate expectations. Note the near 100 basis point commensurate drop in 10yr Treasury forward yields.



Source: Bloomberg , RBC Capital Markets US Economics

# Inflation and the Phillips Curve: another important concept, to a point



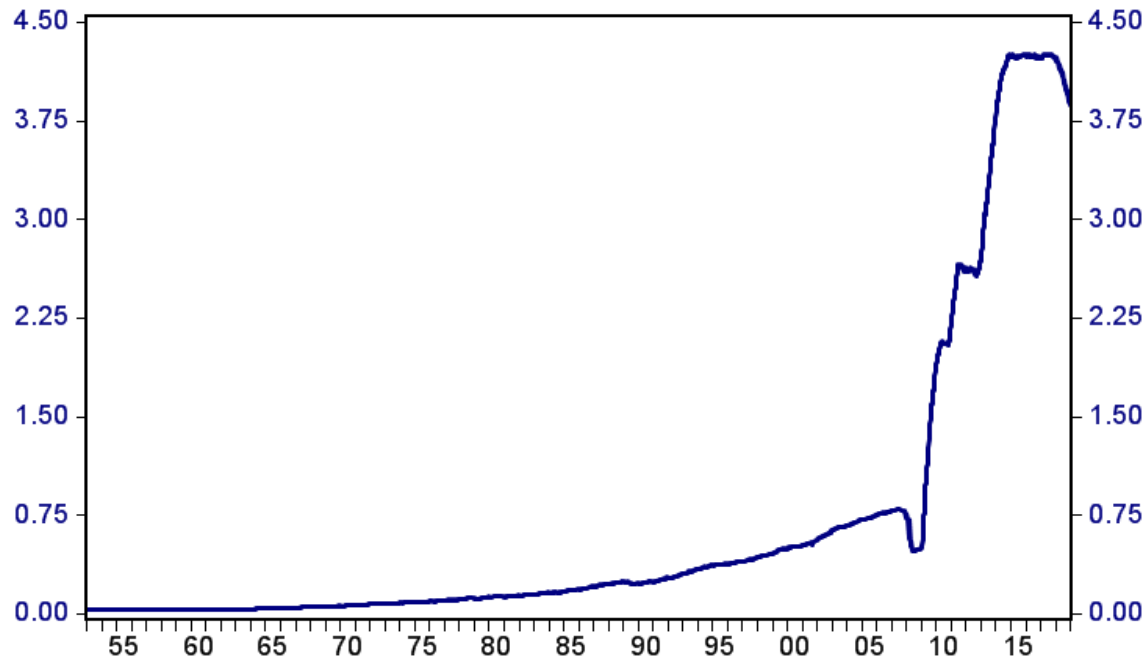
Source: Haver, RBC Capital Markets US Economics

# The other tool: asset purchases

The Fed's asset purchase programs, known as Quantitative Easing, was aimed at purchasing Treasury and MBS securities from the market in an effort to 1) lower interest rates through a demand effect and 2) provide the banking system with ample reserves (liquidity).

Reserve Bank Credit Outstanding: Securities Held Outright

Avg, Tril.\$

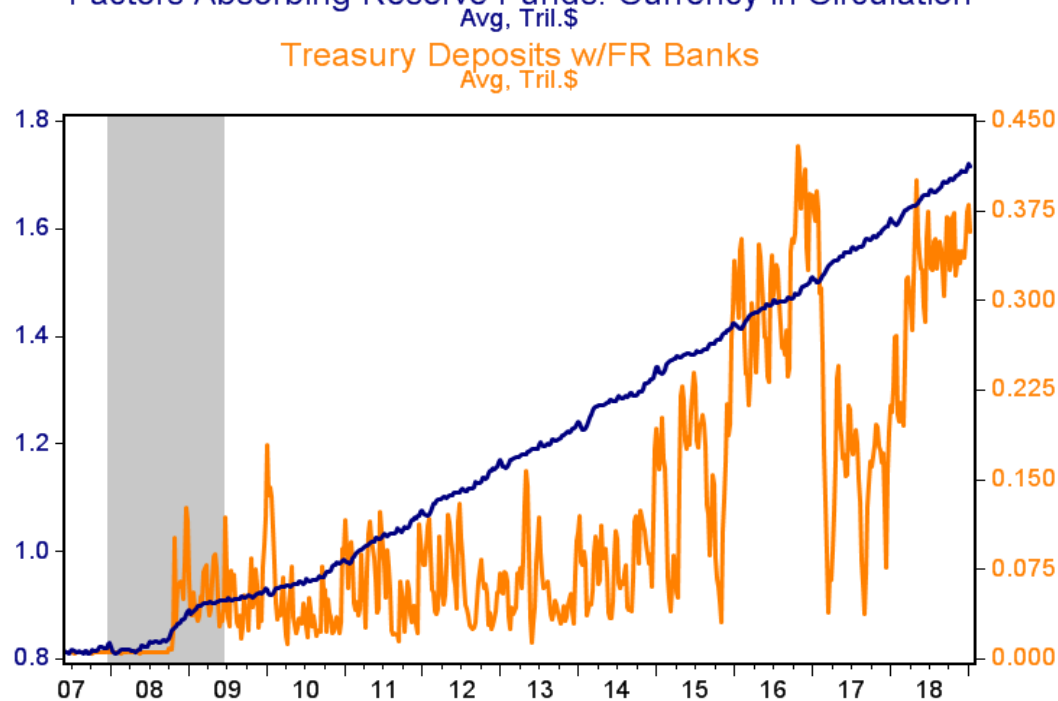


Source: FRB/Haver/RBC Capital Markets US Economics

# The unwind will be less dramatic than feared

The Fed needs to hold assets against a growing level of non-reserve liabilities. For example, currency outstanding (the dollar bills in your pocket) have grown by an average of 7% per year over the last 5 years and up nearly \$1 trillion since the crisis. In addition, the Treasury general account now targets a size of about \$400b (largely to maintain operations in case of a cyber attack). These two items alone mean the Fed's securities holdings must be, at minimum, \$1.2 trillion above 2008 levels.

Factors Absorbing Reserve Funds: Currency in Circulation



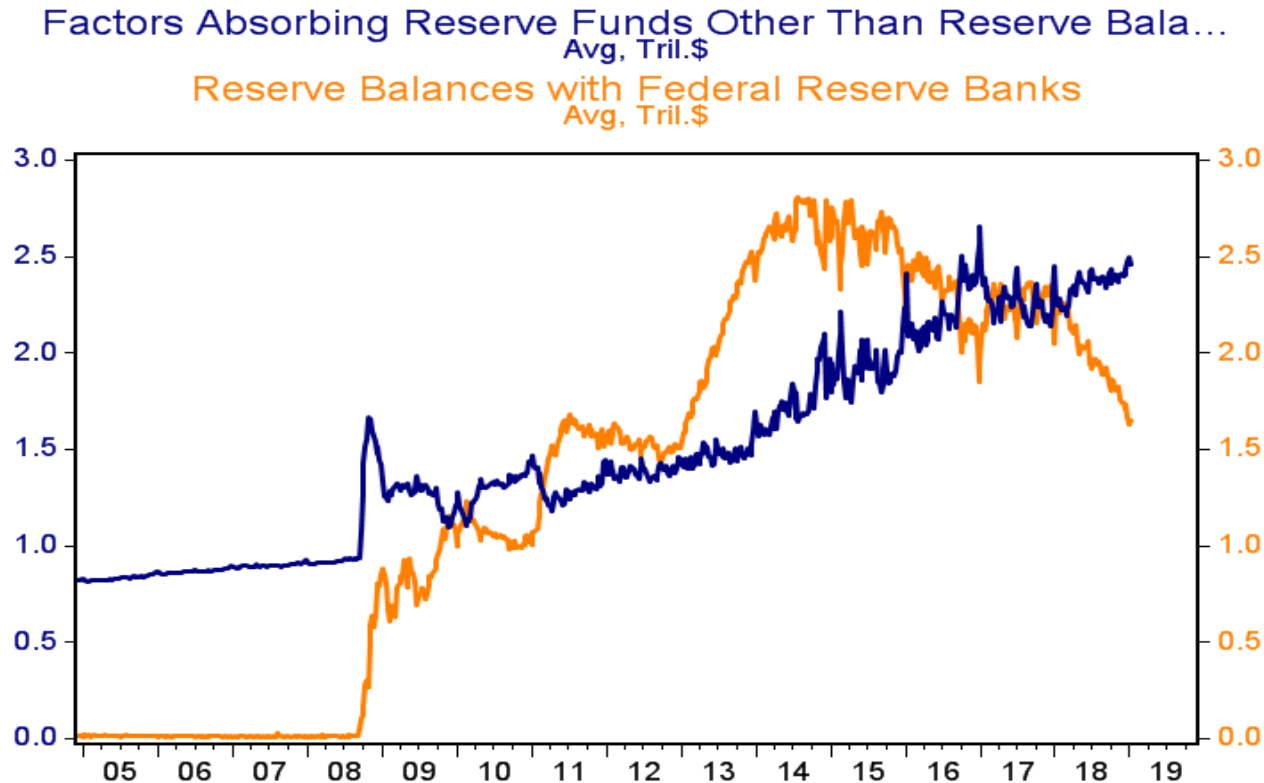
Source: FRB/Haver/RBC Capital Markets US Economics



# The Fed will still have an enormous balance sheet

25

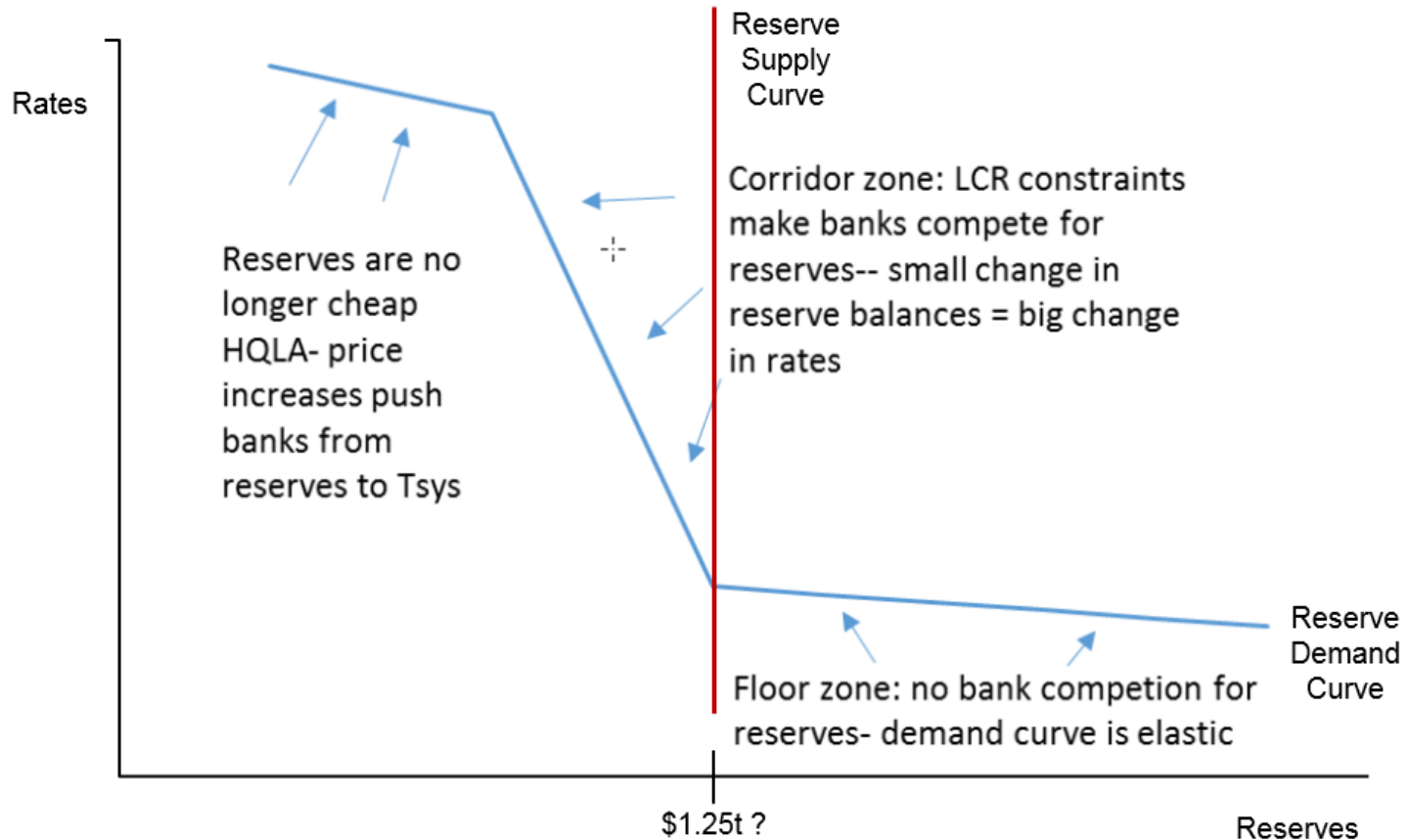
Bank reserves are also poised to remain very elevated as this is a preferred asset with which to meet high-quality-liquid-asset requirements from post financial crisis regulation. At present, the consensus is banks will need about \$1.25t of reserves, which means the Fed balance sheet should be done shrinking sometime in the second half of 2019—with a total size in the \$3.75t area.



Source: FRB/Haver/RBC Capital Markets US Economics

# Potential problem with reducing the Fed portfolio too much

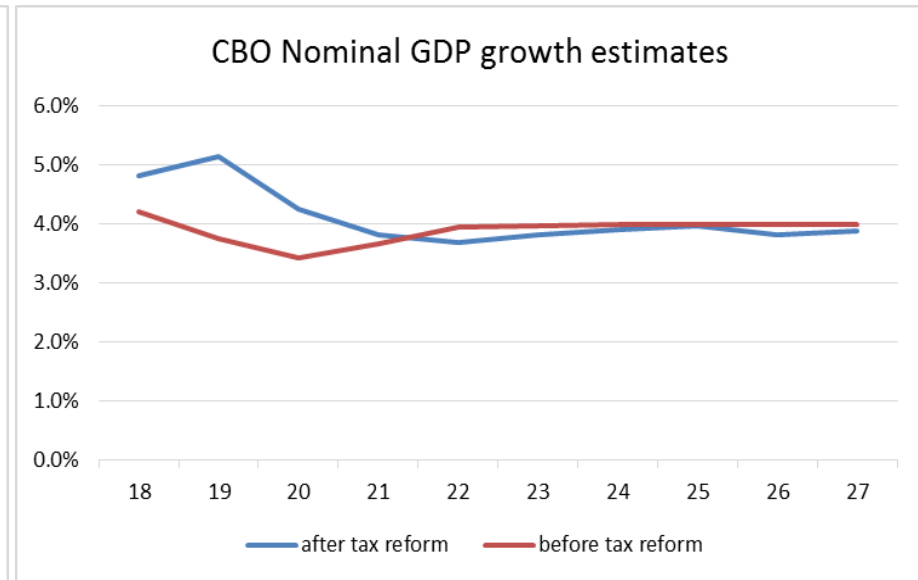
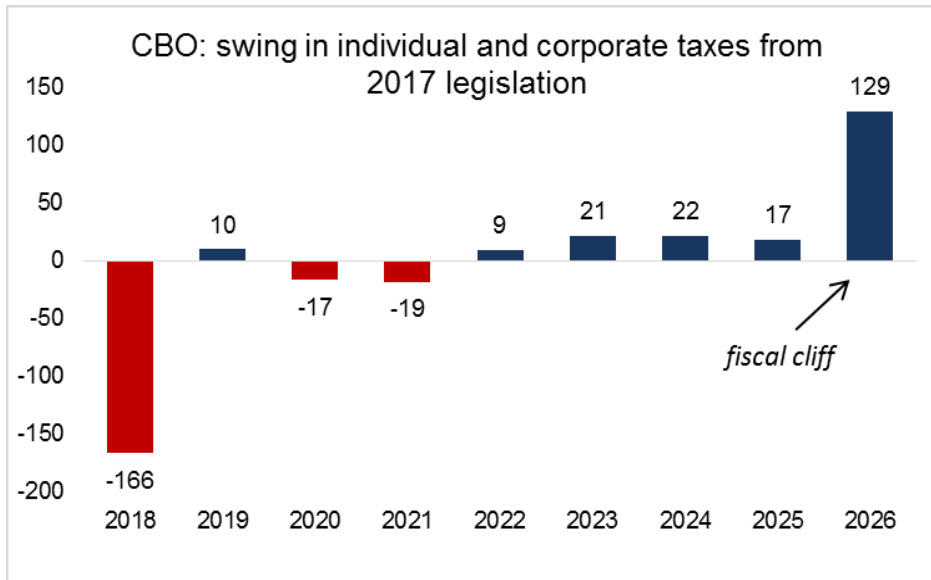
26



Source: RBC Capital Markets

# Fiscal policy: quantifiable policy impacts

The 2017 tax plan is a perfect example of where fiscal policy impacts monetary policy directly. This caused notable upward revisions to GDP forecasts near-term and firmer growth in 2018 allowed the Fed to hike interest rates 4 times despite substantial market turbulence.



Source: CBO, RBC Capital Markets US Economics

## Fiscal policy: esoteric events

28

The Fed also has to weigh the effects of more esoteric policies coming out of the federal government. The significant increase in uncertainty that the tariff war with China imparted on the markets and the recent government shutdown are examples of this. On a short horizon, these can derail prior policy projections. Despite no real shift in the economic outlook, note the sharp shift in tone from the Fed as this fiscal-driven uncertainty permeated the markets.

As we continue to note in our statement, we expect to make further gradual increases in that rate. As a result, if the economy evolves broadly as we anticipate, the federal funds rate will, over the next year or so, **move well within the range of estimates of the normal long run level.**

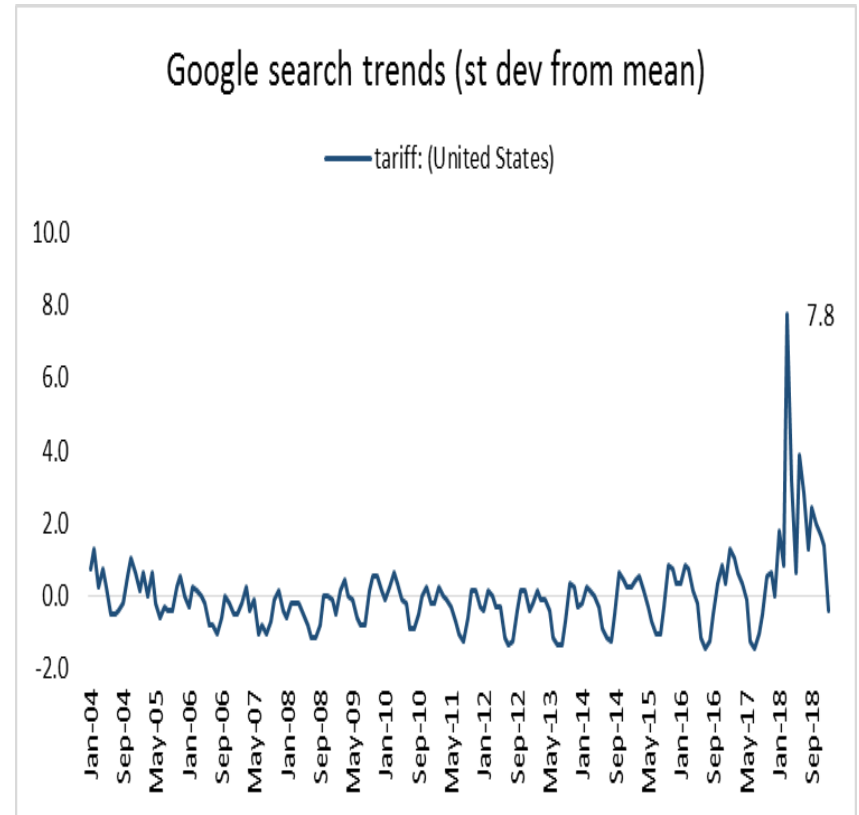
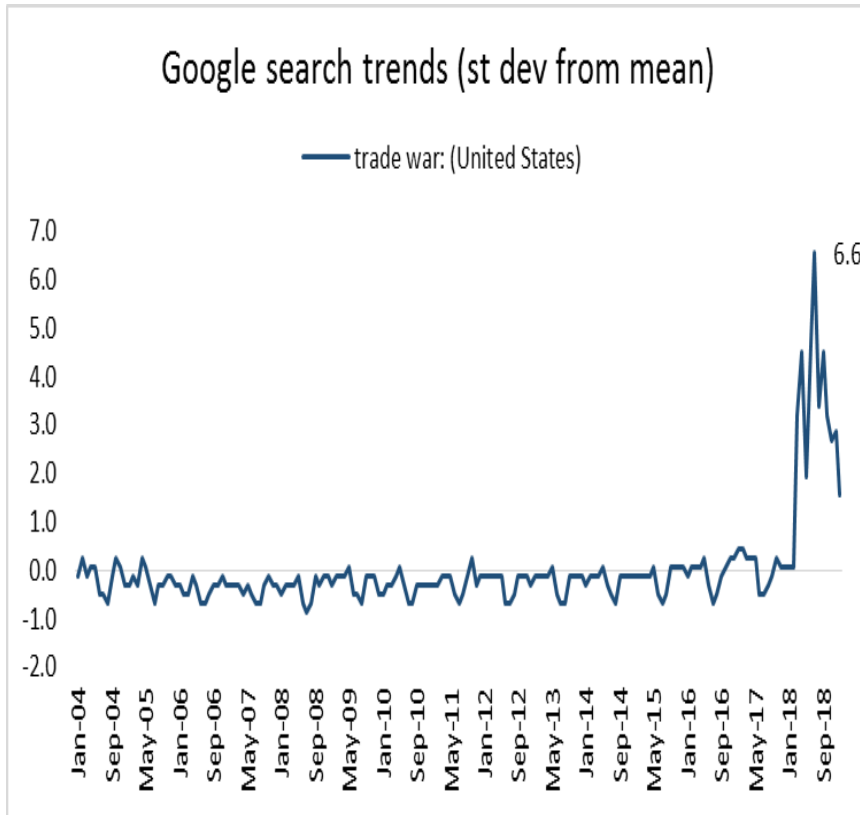
Fed Chair Powell, June 2018

What kind of year will 2019 be? We know that the economy may not be as kind to our forecasts next year as it was this year. History attests that **unforeseen events as the year unfolds may buffet the economy and call for more than a slight change from the policy projections released today.**

Fed Chair Powell, December 2018

# The trade war garnered a lot of attention in 2018 and while it has ebbed...

29

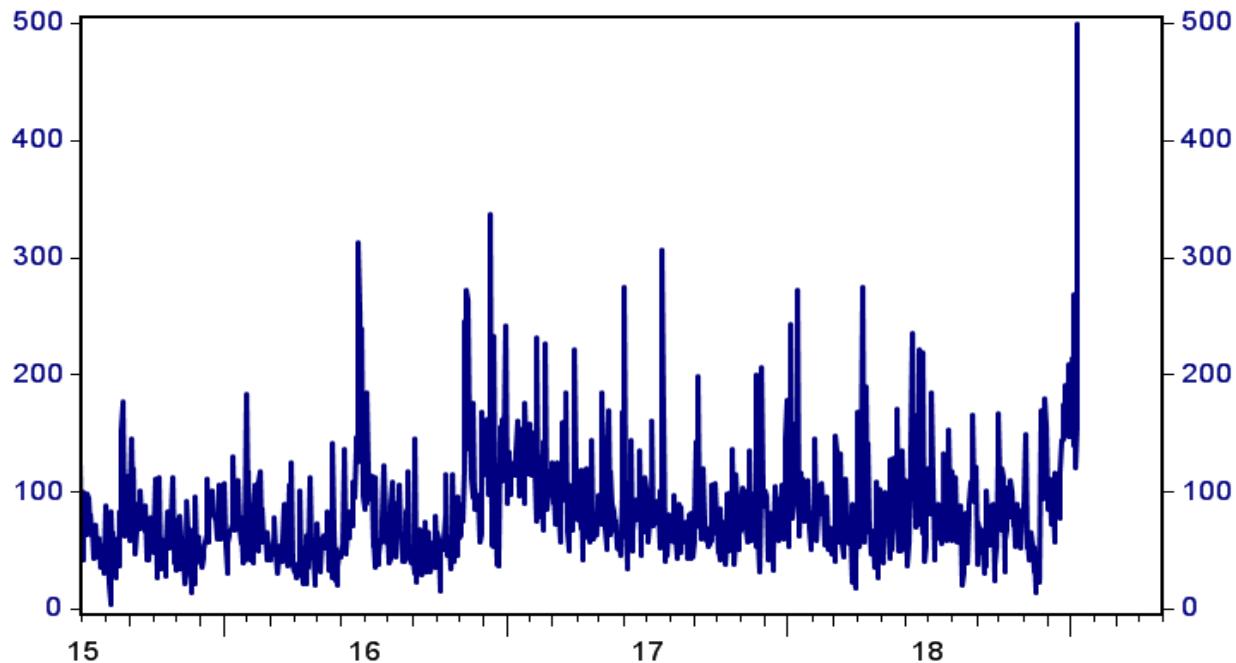


Source: Google, RBC Capital Markets US Economics

... policy uncertainty more broadly remains very elevated as other issues (like the government shutdown) have emerged

### Economic Policy Uncertainty Index

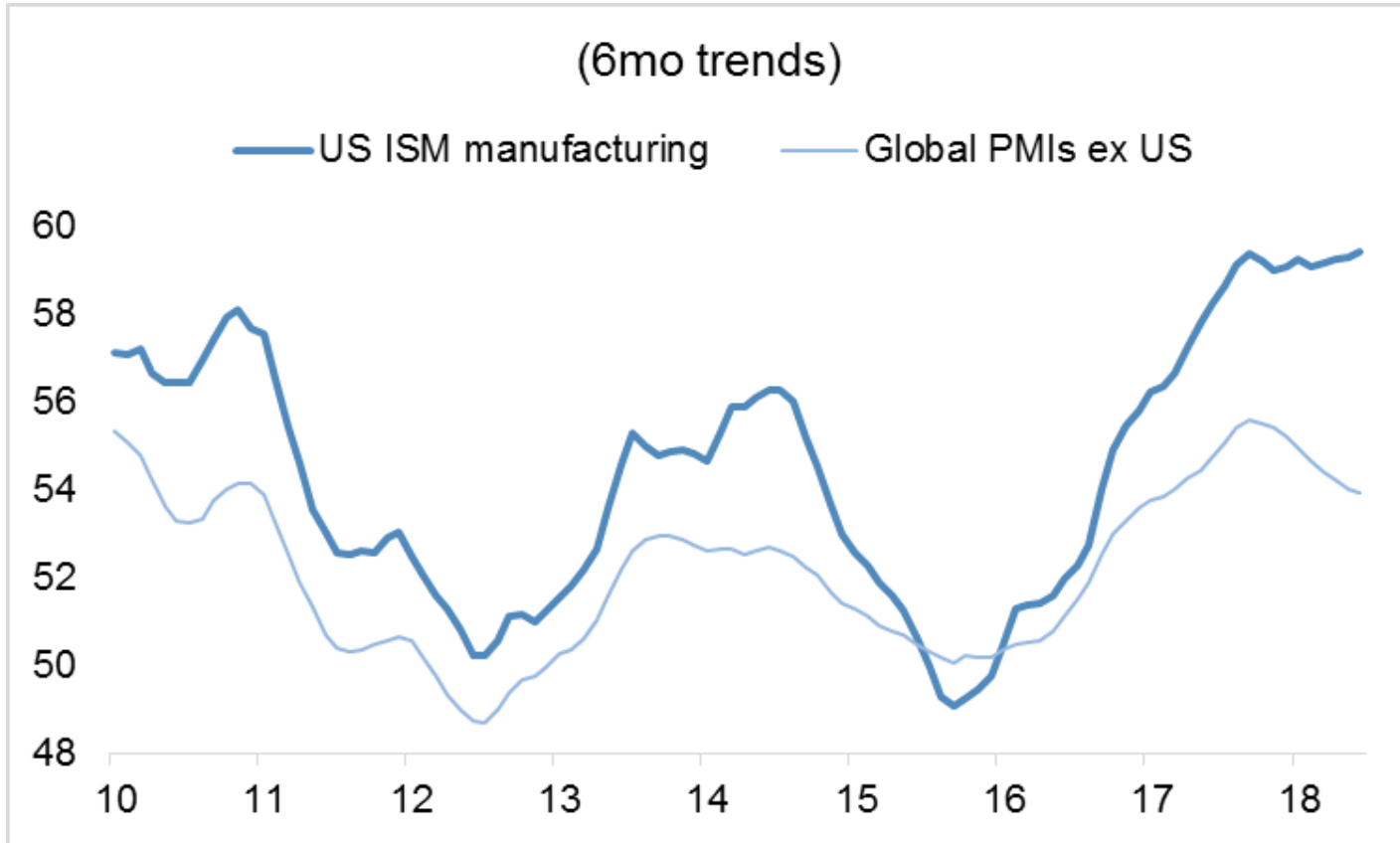
Mean=100



Source: POLICY/Haver/RBC Capital Markets US Economics

Methodology: The primary measure for this index is the number of articles that contain at least one term from each of 3 sets of terms. The first set is economic or economy. The second is uncertain or uncertainty. The third set is legislation or deficit or regulation or congress or federal reserve or white house.

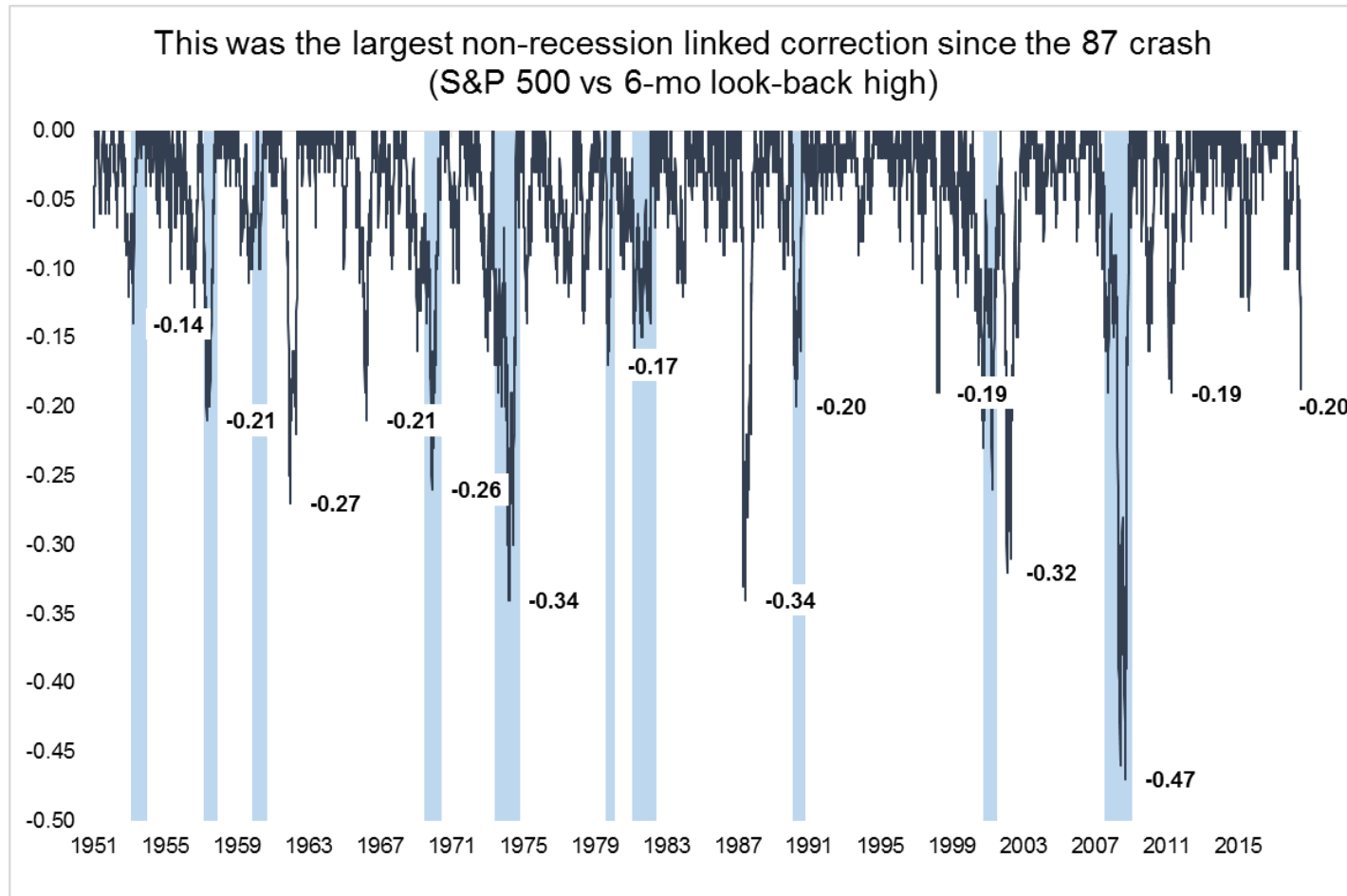
# Global economic growth also on the radar



Source: Haver, RBC Capital Markets US Economics

# All of a sudden, equity markets are of primary interest

32



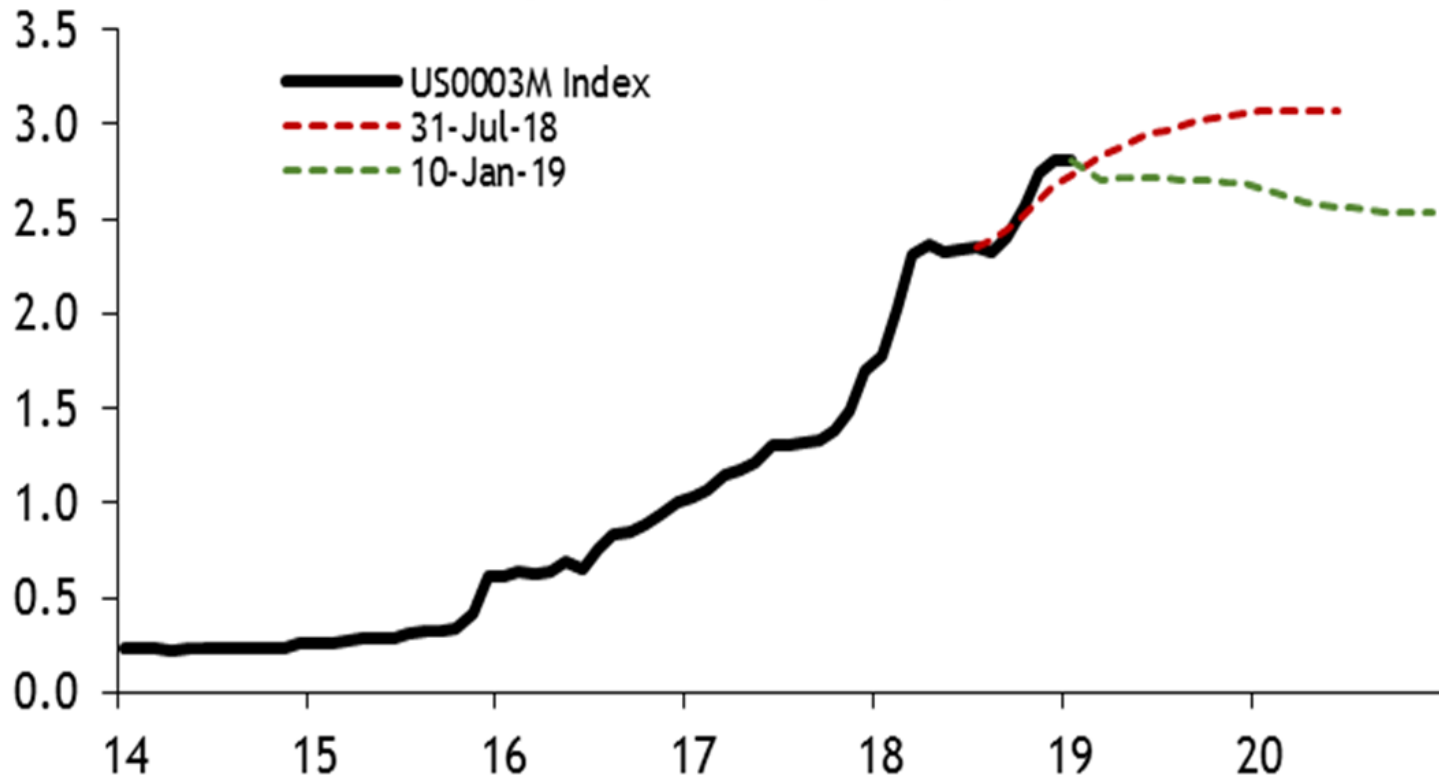
Source: Haver, RBC Capital Markets US Economics



# The market has re-priced Fed expectations significantly following a shift in focus

33

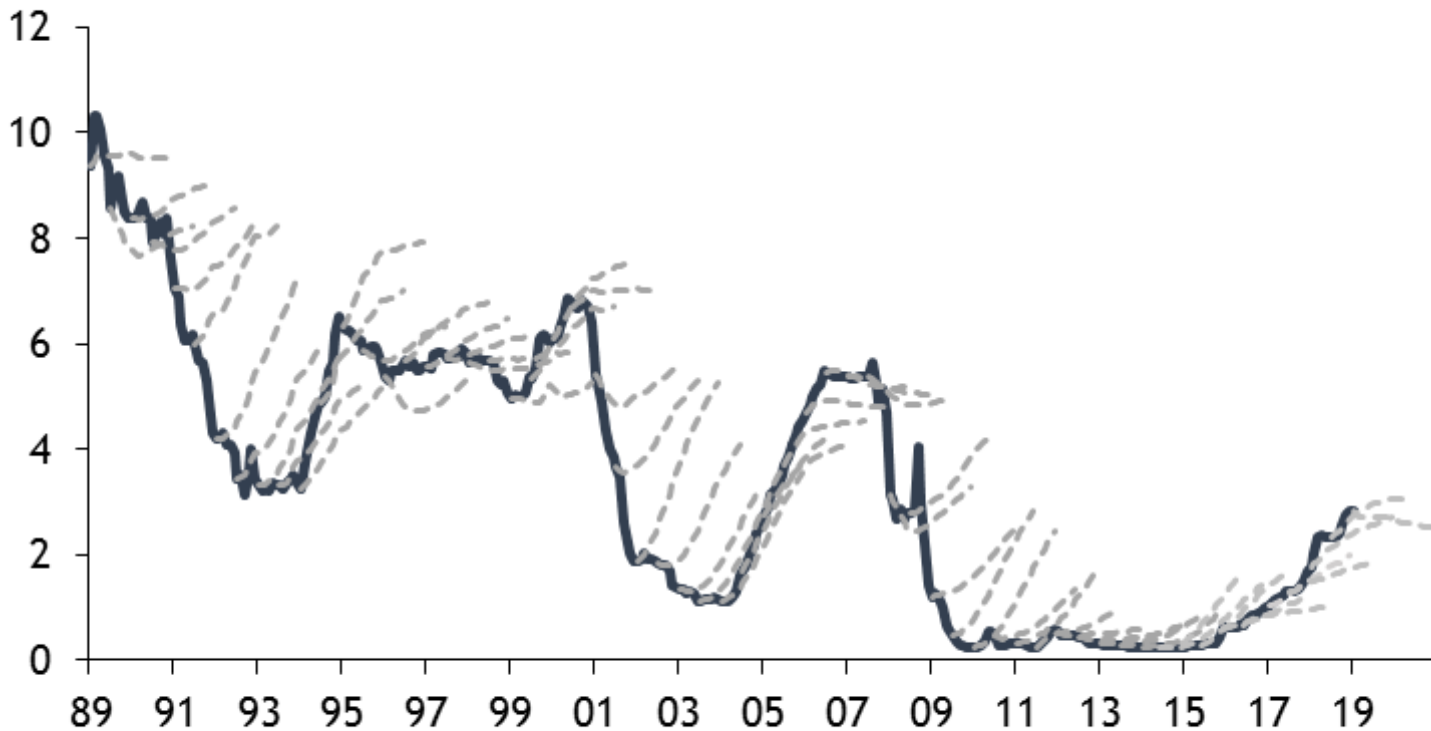
3-month Libor and path of rates implied by Eurodollar futures



Source: Bloomberg, RBC Capital Markets US

# Beware short-term market pricing

3-month Libor and path of rates implied by Eurodollar futures



Source: Bloomberg, RBC Capital Markets US Economics