

Investor Advisory Committee on Financial Markets  
Member Presentation Materials

February 13, 2020

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CIO of Global Fixed Income and Global Allocation Funds

February 13, 2020

**BlackRock**

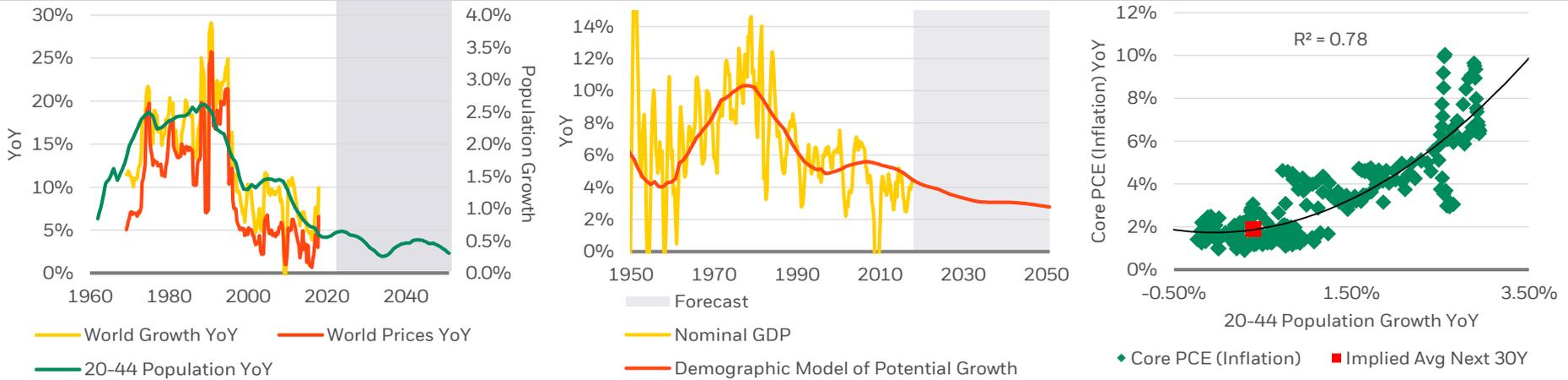
**What outcomes do you expect from the monetary policy framework reviews at the Federal Reserve and ECB?**

**How might the conclusions of these reviews differ?**

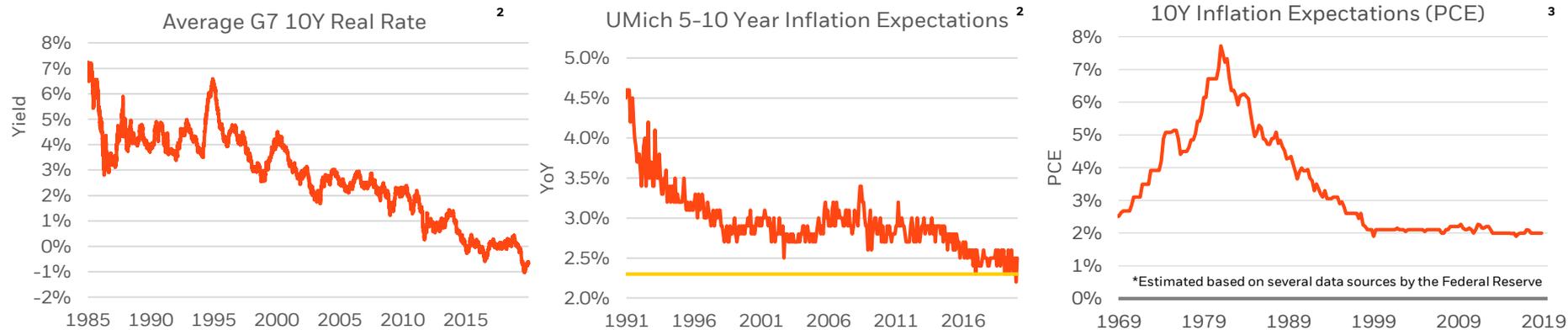
**To what extent has there been an impact on financial markets?**

# The Structural Economic Backdrop: *The medium/long-term risks to growth and inflation are skewed to the downside... The primary reasons for that are structural, like demographics; i.e. interest rate policy isn't particularly effective in combating this*

**Growth and Inflation operate with a stronger correlation to the demographic curve than is generally considered <sup>1</sup>**



**With a backdrop of moderate growth and tepid inflation secularly entrenched, interest rates are anchored lower across the yield curve, which is an immensely different backdrop than we have seen over the prior 50 years...**

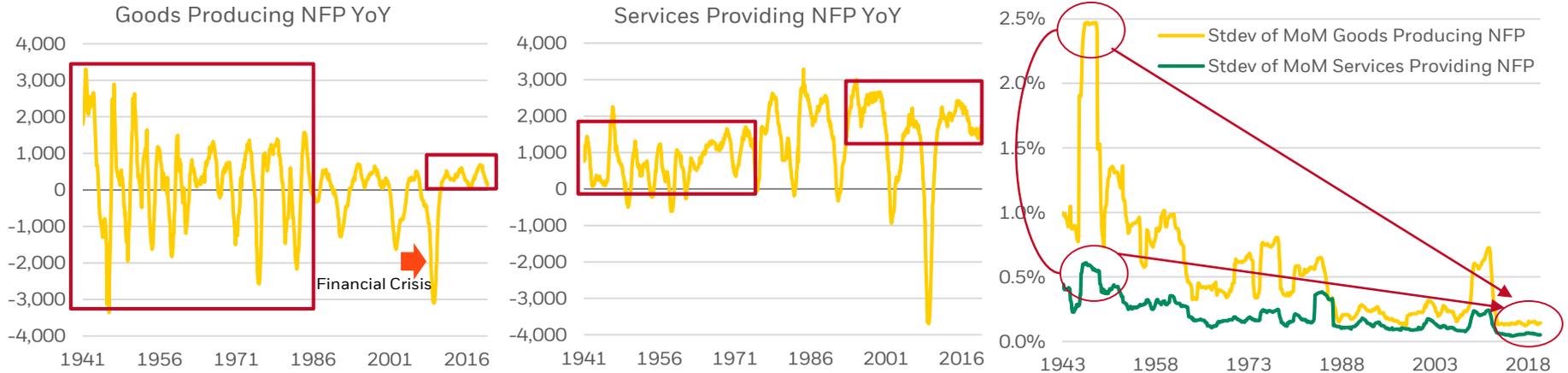


**We are a decade into historically low rate policy, and still the risks to inflation are to the downside in a highly leveraged global economy; keeping rates low and stable becomes a structural prerequisite for policy, and yet there should also be a high bar for rate policy to evolve much from here in either direction...**

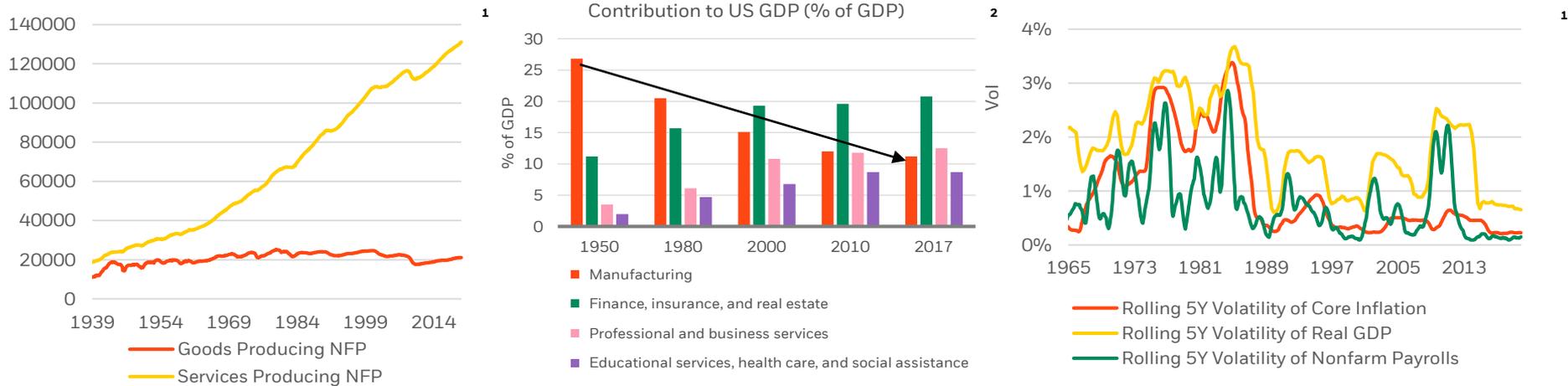
Source: 1) Haver and World Bank, as of 12/31/2019; 2) Bloomberg and BlackRock, as of 1/31/2020; 3) Fed, Bloomberg and BlackRock, as of 10/1/2018

# Relatedly, developed economies – especially the US – are less sensitive to small changes in interest rates than this generation has ever seen as the shift to services is also structural...

The goods sector, which used to be a much larger share of the economy, is much more rate-sensitive than the service sectors. The service sectors now make up >80% of GDP and the labor market, so the US economy today is much less sensitive to small changes in interest rates, which is reflected in much more stable and elongated stretches of labor market and output growth... <sup>1</sup>



**Not only are demographics dulling the influence of interest rates, but so is the structural shift to services... Considered together, lower and more stable rates should allow for continued economic stability, employment, and the lowest vol of inflation ever – i.e. price stability...**

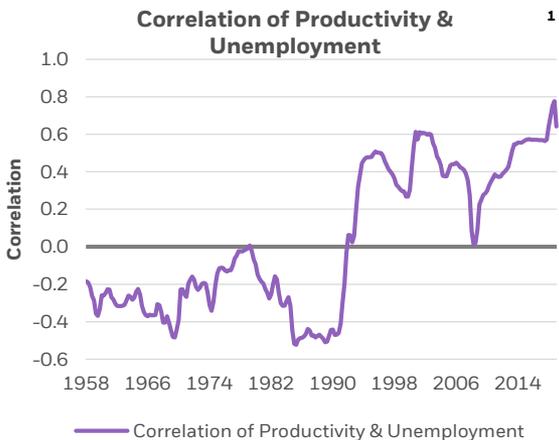


**The SEP projections should reflect a projected path of low/stable rates for an extended period of time...**

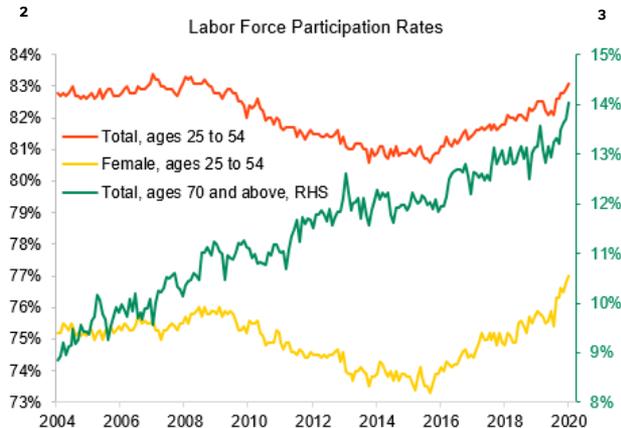
Source: 1) Bloomberg and BlackRock, as of 1/31/2019; 2) BEA and BlackRock, as of 12/31/2017

# These structural shifts are changing how Productivity impacts the economy – it is no longer driven by goods-oriented sectors adding employees as they borrow funds to expand physical capacity in a typical business cycle that is influenced by interest rates...

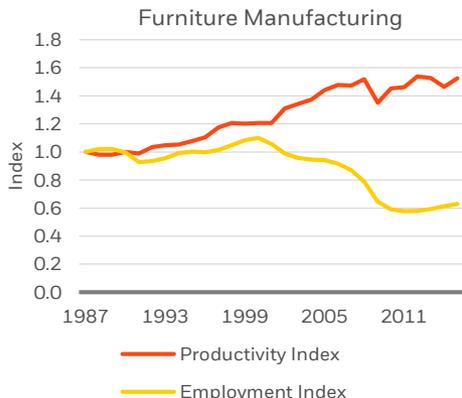
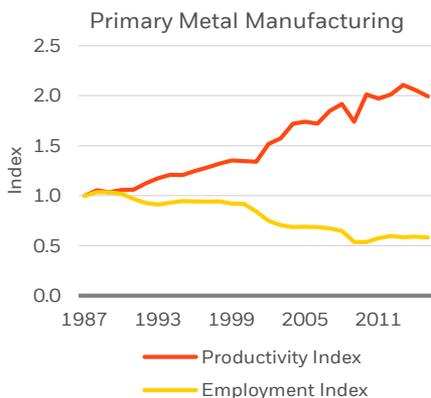
Productivity today is driven by technology displacing labor in the goods sectors, thus increasing the size of the more stable services sector... This is playing out in real-time in the labor market – job growth is healthy, but the labor force is still expanding...



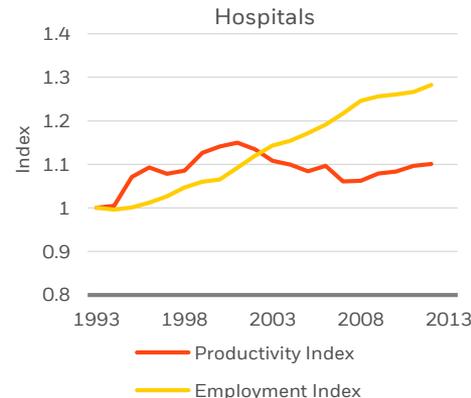
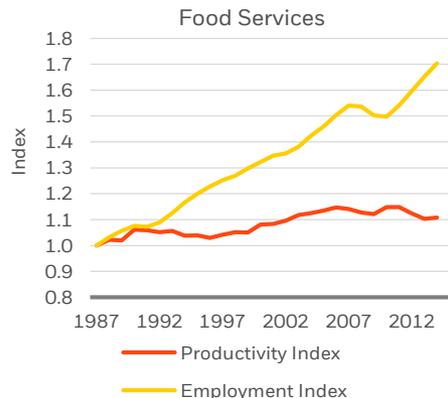
	3M Avg	6M Avg	12M Avg
<b>NFP Total</b>	211	206	171
<b>Private</b>	198	190	156
<b>Goods-producing</b>	24	12	11
Mining and Logging	-7	-4	-3
Construction	18	15	12
Manufacturing	14	15	2
Durable goods	11	-3	-1
Nondurable goods	3	4	3
<b>Private service-producing</b>	174	177	145
Prof. Business Services	24	30	33
Temp help	2	2	-1
Edu. and Health Services	56	54	53
Health Care and Social Assist.	43	46	45
Leisure and Hospitality	38	48	27
Other Services	11	6	7



## Goods sectors: Productivity up and employment down <sup>4</sup>



## Services sectors: Productivity flat and employment up <sup>4</sup>

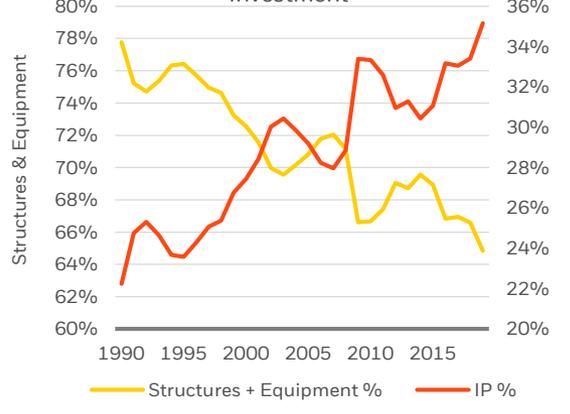


**The goods-oriented, manufacturing business cycle typified by demand for commodities/energy driving inflation higher is a thing of the past... Small moves in rates have virtually no impact today... So Fed inflation projections should reflect stability around 2%, especially since we are not at full employment yet (and certainly not creating wage-induced inflationary pressures...)**

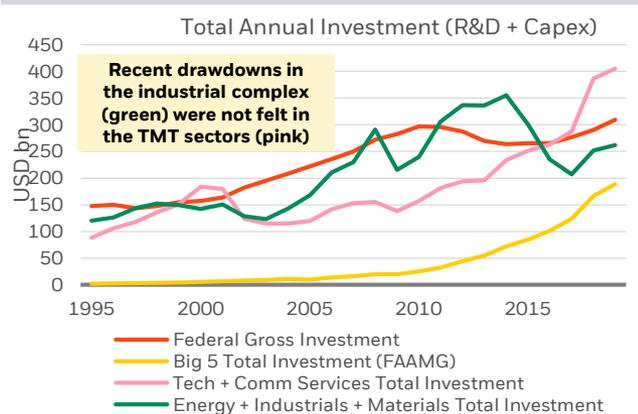
Source: 1) Bloomberg and BlackRock, as of 12/31/2019; 2) Bloomberg and BlackRock, as of 1/31/2020; 3) BLS, as of 1/31/2020; 4) BLS and BlackRock, as of 12/31/2015

# Building on this backdrop for the Fed: The modern economy is less influenced by swings in investment, and increasingly typified by less volatile inputs such as R&D (the “business cycle” concept is alive only in part, and is permanently a much lower portion of the “old” economy)...

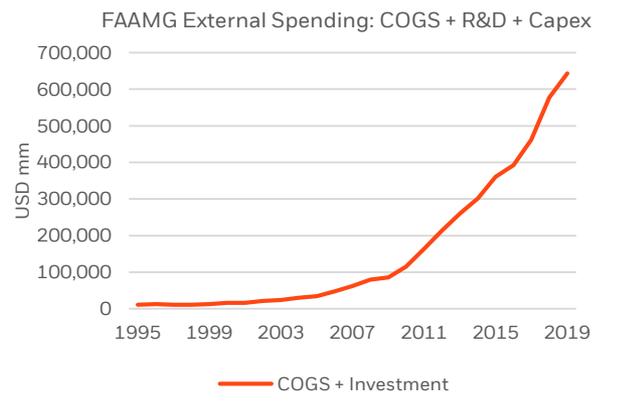
**Non-resi investment is structurally going away from capex and towards R&D**



**The biggest spenders are services companies. Two sectors, tech and comm services, invest more than the Federal gov't. In fact, spending is driven overwhelmingly by the 5 largest US companies.**

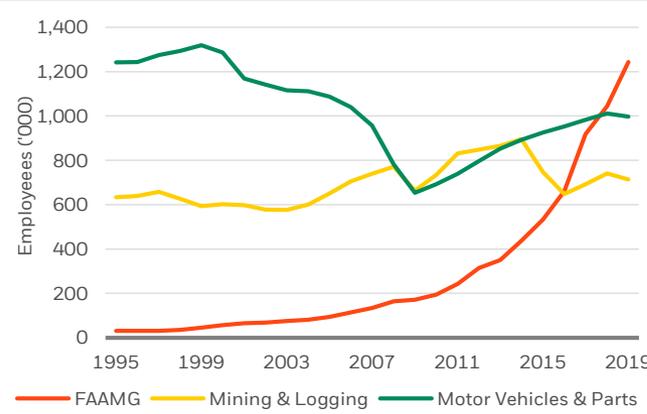


**But a host of secondary industries get supported: these 5 companies spend \$643bn/yr to support growth; spending (and employment in transport, semiconductors, etc.) has been growing >10%/yr**

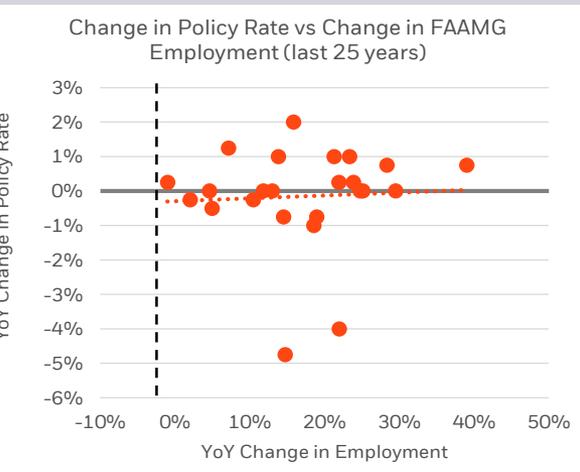
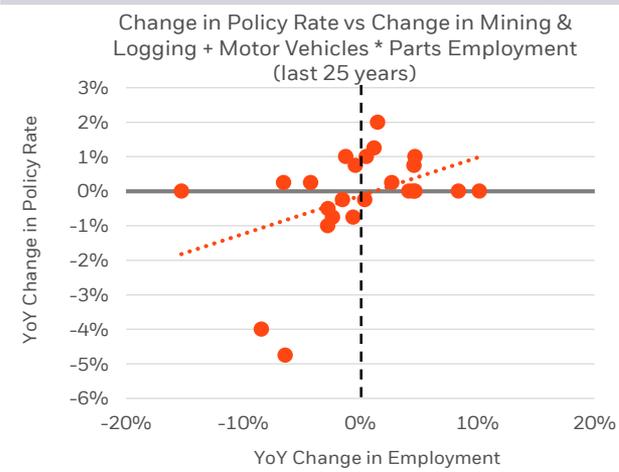


**As the economy becomes increasingly oriented towards services, so does non-resi investment and employment → meaning these become less volatile and the spending plans of corporations driving investment today are much less sensitive to nominal GDP volatility.**

**Companies (and sectors) that did not exist in prior cycles now account for a substantial part of employment gains in the US**



**Monetary policy via the policy rate has an outsized impact on a shrinking part of the economy; sectors that are less influential on the employment rate**

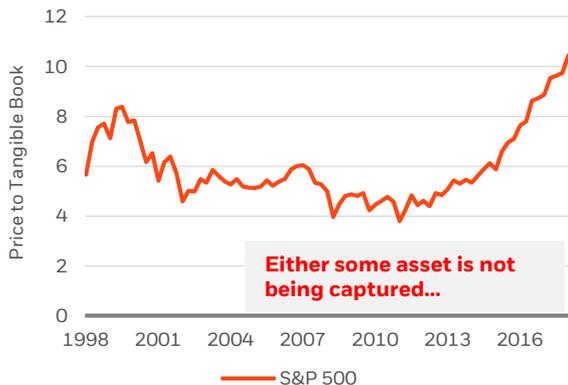


Source: Capital IQ, Bloomberg and BlackRock, as of 12/31/2019

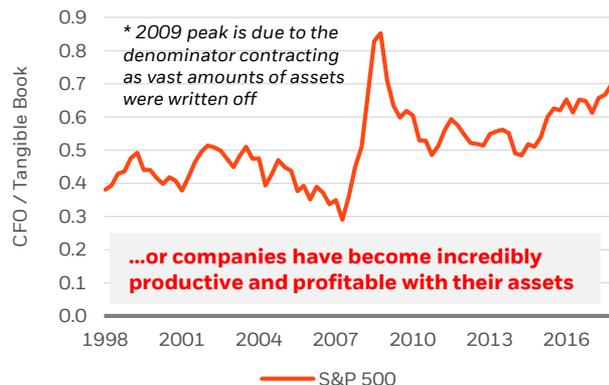
# Real-time influences on Rates and Financial Conditions: Corporate balance sheets are not nearly as rate-sensitive/Fed influenced, or nearly as dangerous as many suggest...

Fed policy should continue to reflect the broad economy's structural dynamics influencing growth and inflation...

Gauging valuations against tangible assets suggests the market is in a bubble...



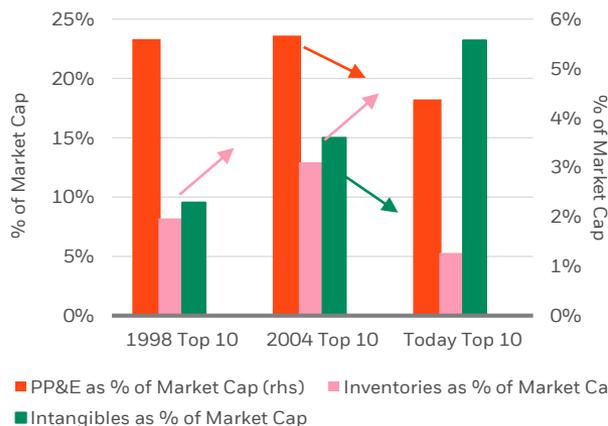
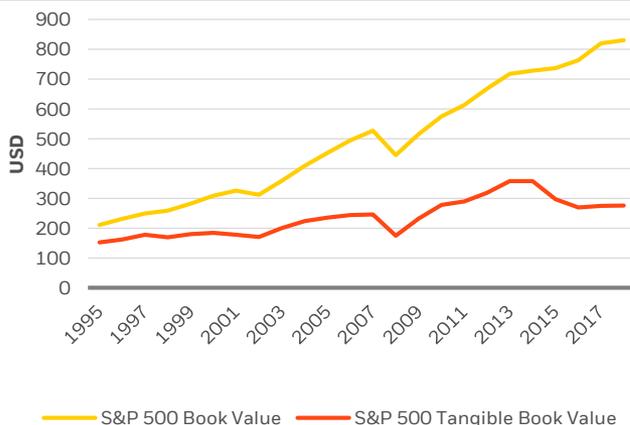
But, value is increasingly in the "intangibles" (R&D v. CapEx), and the cash flow is profound



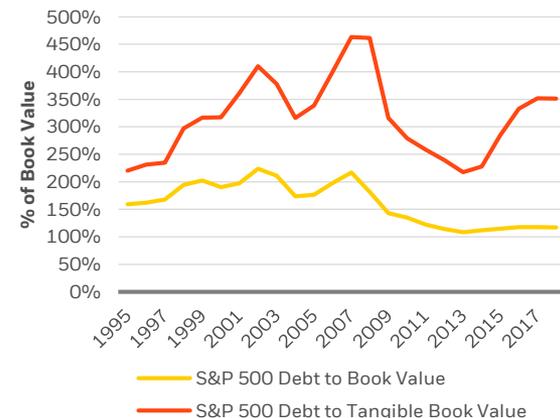
If measured against cash flows, valuations are in-line with historical averages



The natural conclusion is that technology/intangible assets are increasingly driving cash flows



...and corporate debt is increasingly being backed by the same intangible assets

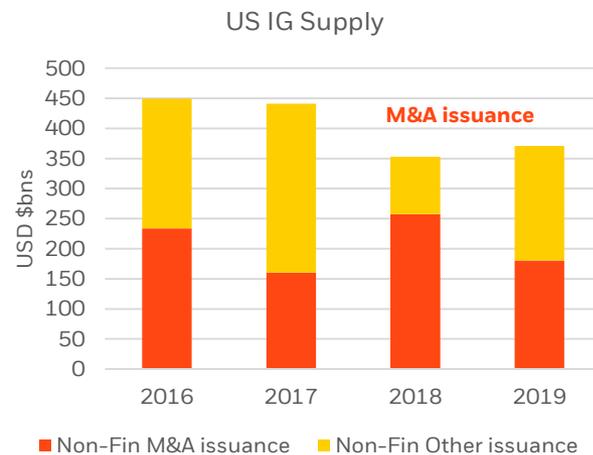
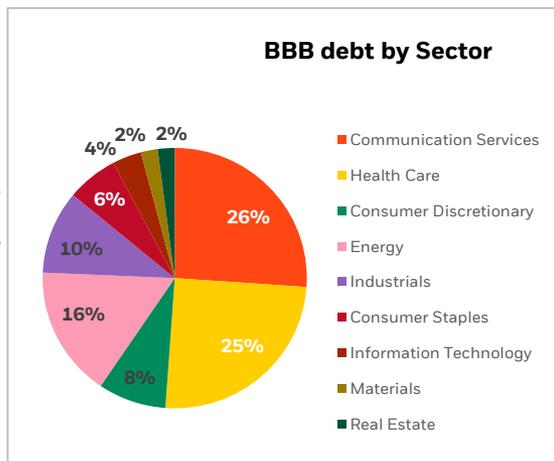
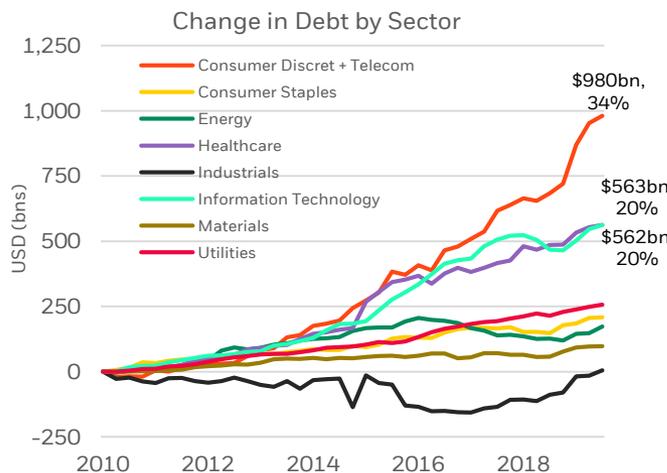


We have observed that inventory is managed much more efficiently today, having the incredible impact of not only dulling the volatility of growth swings, but also of facilitating greater price competition (i.e. lower and more stable prices to the end-consumer)... These are hugely important macro influences from the shift in assets towards Intangibles, and with this, a profound shift in the corporate financing market...

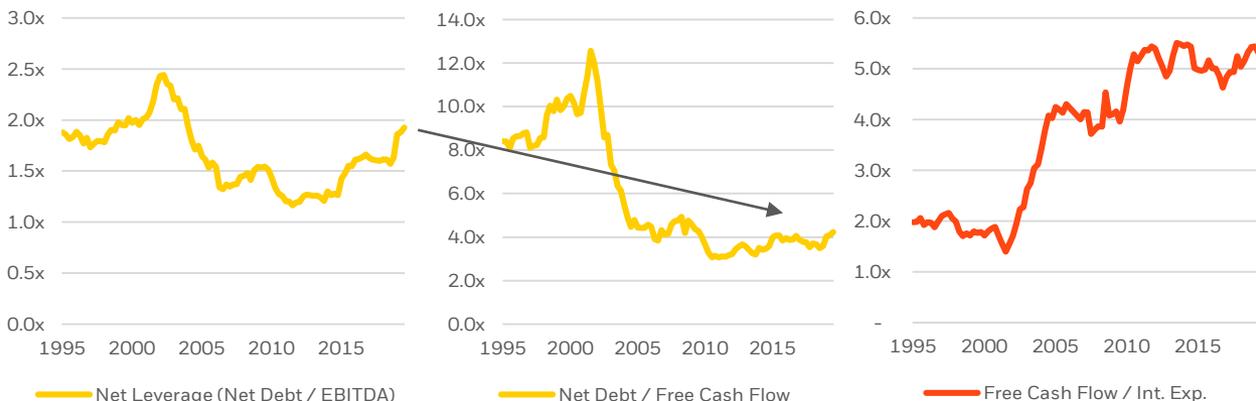
Source: Capital IQ and BlackRock, as of 9/30/2018;

# Corporate debt exposures by sector show minimal relevance to history – many are less cyclical, cash-flow engines with lower sensitivity to interest rates – while others are de-levering...

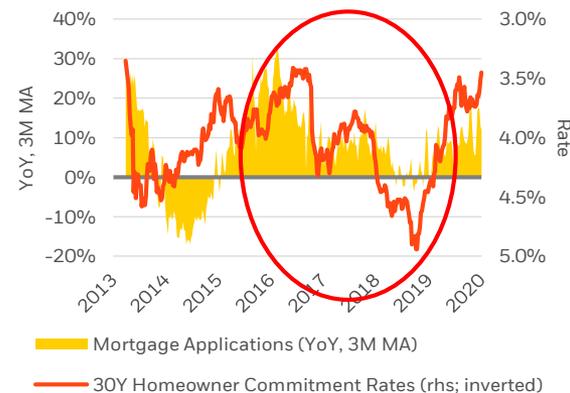
So much of corporate debt growth is coming from large, fast-growing, highly-profitable, high-cash-balance companies in the Tech, Media, Communications, and Healthcare sectors... much of it to fund M&A or, prior to 2017, fund share buybacks against cash held overseas <sup>1</sup>



Some old-line sectors are levered, and thus interest rate sensitive, but the underlying drivers of today's economy make headline leverage less scary... especially against free cash flow <sup>2</sup>



Housing is still rate sensitive though, so big rate moves higher should be avoided <sup>2</sup>

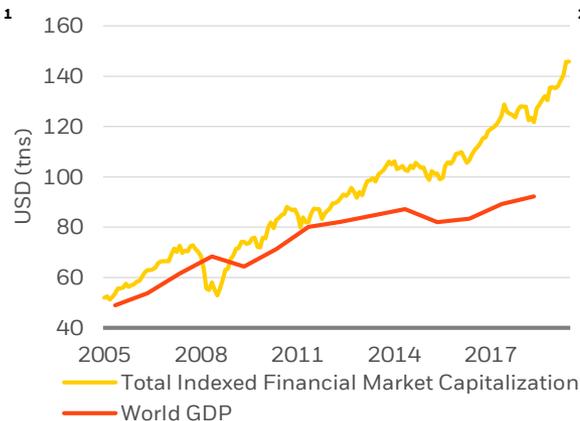
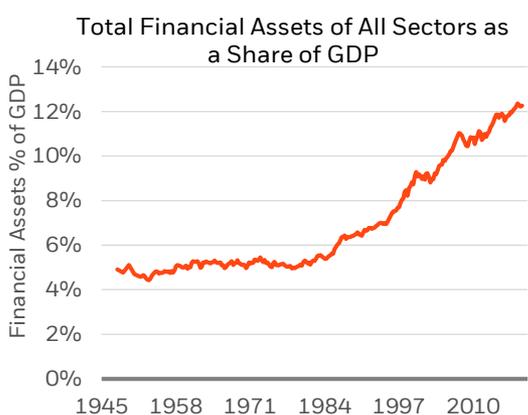


**The transmission of interest rates into the broad economy is muted, with sensitivity really only coming from large moves in rates or financial conditions... But, since there is limited downside on rates (zero bound), policy should reflect the downside skew of risks... Thus, the Fed is rightly not suggesting small tweaks of rate policy from here...**

Source: 1) Capital IQ and BlackRock, as of 9/30/2019; 2) Capital IQ and BlackRock, as of 6/30/2018

# Further on Financial Conditions: These corporate debt trends are, however, rightly feeding into a real debate today on how easy financial conditions actually are in the modern economy, especially as the “financial economy” has overtaken the “real economy” in its scale...

Financial assets have a larger influence on the economy than ever in a very reflexive way – corporate confidence/sentiment feed through to investment and hiring decisions



The most recent recessions suggest financial conditions are increasingly important in driving economic outcomes<sup>3</sup>

Key Contributors to NBER-Dated US Recessions					
Recession	Industrial	Oil	Monetary	Financial	Fiscal
Aug 1918					
Jan 1920					
May 1923					
Oct 1926					
Aug 1929					
May 1937					
Feb 1945					
Nov 1948					
Jul 1953					
Aug 1957					
Apr 1960					
Dec 1969					
Nov 1973					
Jan 1980					
Jul 1981					
Jul 1990					
Mar 2001					
Dec 2007					

Equity valuations are higher, but in a stable growth, moderate inflation environment, are they really too high?

S&P 500	PE	Earnings Yield	EV/ EBITDA	Price to FCF	FCF Yield
Current	19.4	5.2%	13.1	27.1	3.7%
1y Avg	17.9	5.6%	12.2	23.2	4.3%
5y Avg	17.5	5.7%	10.9	20.1	5.0%
10y Avg	16.0	6.2%	9.7	17.3	5.8%

Relative to prices in the credit market, equities could actually be considered cheap to fair



... but one could clearly suggest that credit conditions and availability are too easy today...<sup>6</sup>

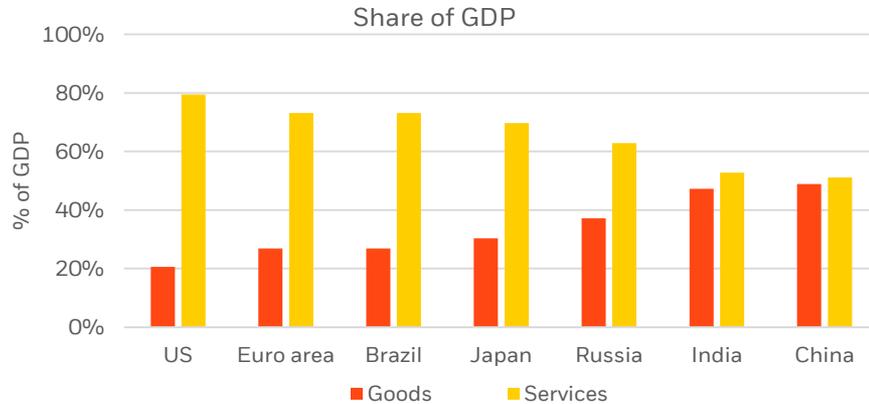


**Financial Conditions will warrant potentially just as much attention as growth and inflation going forward because the Financial Economy is in many ways the tail that wags the dog in today’s economy given the structural downside risks...**

Source: 1) Fed and BlackRock, as of 4/1/2018; 2) Bloomberg and BlackRock, as of 1/31/2020; 3) Goldman Sachs, as of 2/26/2019; 4) Bloomberg and BlackRock, as of 12/31/2019; 5) Bloomberg and BlackRock, as of 1/13/2018; 6) Bloomberg and BlackRock, as of 1/10/2020

# The ECB: Europe is also services oriented – but not as much – and more importantly, investment activity is stuck on low-growth, tangible asset sectors... Hence, rate policy matters more, but needs an “equilibrium level” relative to the associated costs of keeping rates too low...

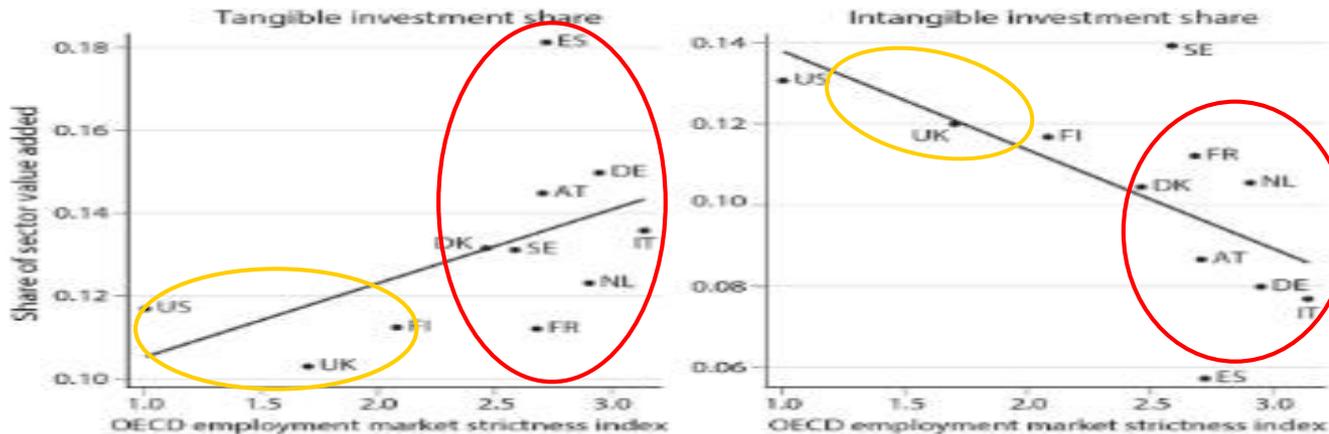
GDP is tilted to services, but investment that drives future GDP growth is geared too heavily to industrial sectors <sup>1</sup>



## Last week's data:

- Q4 German manufacturing fell by the fastest rate since 2009. The level of manufacturing is back to where it was in early 2013.
- Production machinery for food processing fell -15% year-over-year in December
- Production machinery for apparel fell -22% YoY in December
- Paper machinery was down -18% YoY in December
- Plastics and rubber machinery were down -11% YoY in December

Economies which are driven more by tangible investment, as is the case in much of Europe, are growing more slowly. But lending is much more important for tangible-based economies... <sup>2</sup>



US	United States
UK	United Kingdom
FI	Finland
FR	France
NL	The Netherlands
SE	Sweden
DK	Denmark
ES	Spain
AT	Austria
IT	Italy
DE	Germany

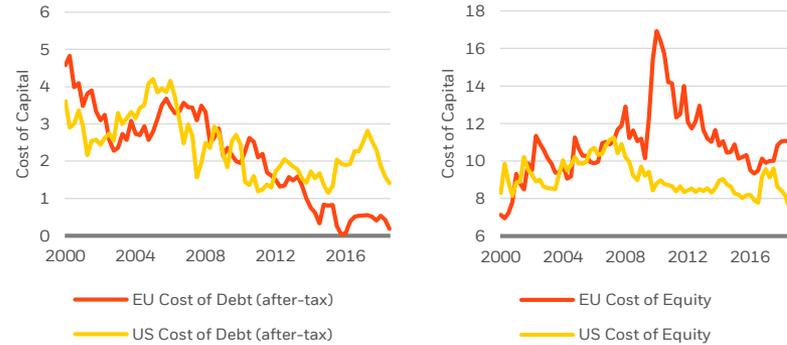
The existing policy of negative rates, and potentially lower rates from here, should and will be debated. The ECB should rightly review the existing policy to determine if it is really having a positive economic/inflationary effect vs. the cost of keeping rates in deeply negative territory...

Source: 1) CS, OECD as of 10/2/2017; 2) *Capitalism without Capital: The Rise of the Intangible Economy* by Jonathan Haskel and Stian Westlake, as of 11/28/2017

# We believe negative interest rate policy has been ineffective in supporting economic growth. Hence, equity capital is generally expensive because the growth outlook has been anemic...

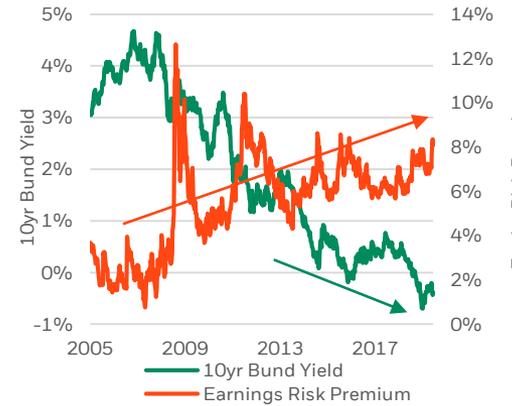
Effective policy needs to jump start the system by reducing the cost of equity capital and raising growth prospects through productivity-enhancing investment, thus incentivizing further private investment...

The CAPM model is clear: projects will get off the ground only if the risk that an investor is taking gets compensated by adequate return <sup>1</sup>

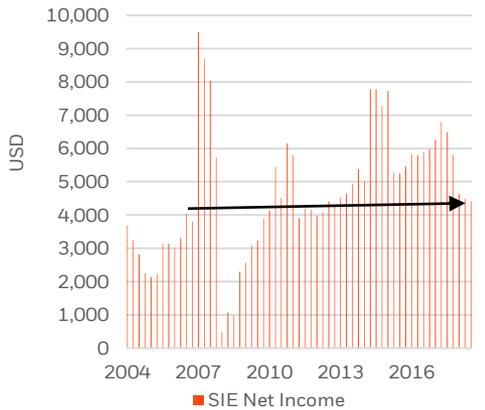


No financier is going to lend at 0% to invest in a project with 11% risk (COD v. COE)

Despite Bund yields falling 500bps since '05, P/E's are unchanged... ERP keeps rising <sup>2</sup>

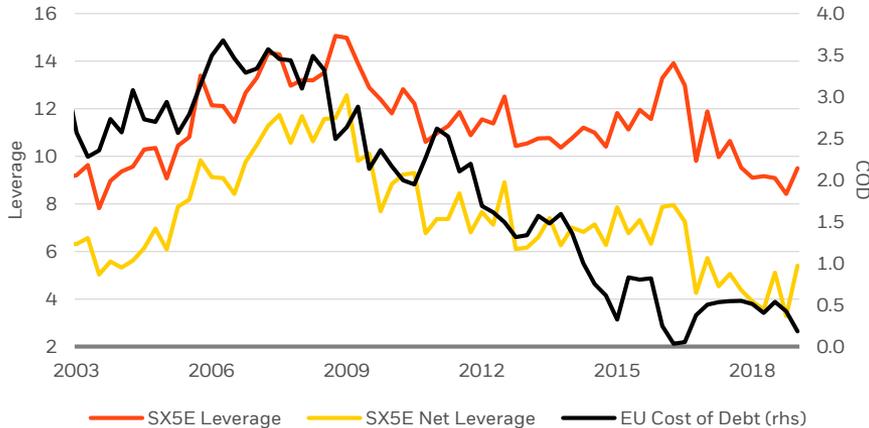


...because Net Income isn't growing... stocks need growth, not negative rates <sup>2</sup>

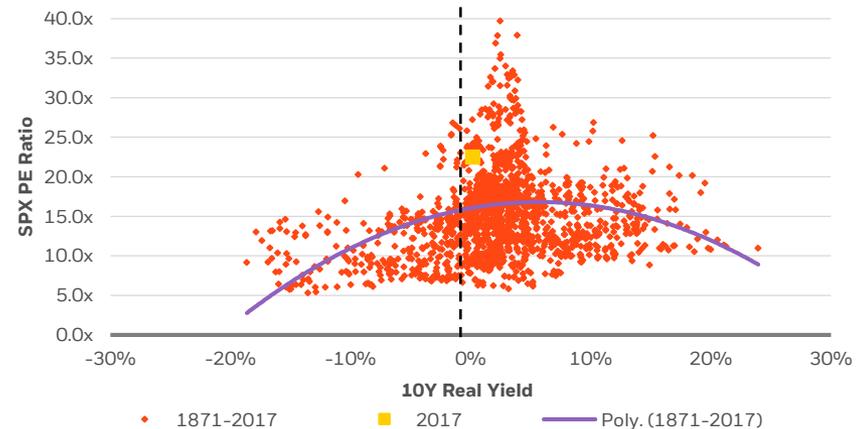


Meaning, there is no marginal benefit from lowering rates further (in Europe), i.e. to stimulate investment, the COE must be lowered instead

COD in Europe is 0%, yet leverage is lower, suggesting easy policy isn't inducing velocity-creating projects... <sup>3</sup>



Relationship between rates and risk is parabolic; rates too low doesn't necessarily reduce cost of equity/ boost equity valuations <sup>4</sup>



Source: 1) Bloomberg and BlackRock, as of 12/31/2019; 2) Siemens, Bloomberg and BlackRock, as of 12/31/2019; 3) Bloomberg and BlackRock, as of 3/29/2019; 4) Bloomberg, Shiller and BlackRock, as of 1/10/2020

# Conclusions for future FED and ECB policy reviews, the impact on Financial Markets, and Liquidity as a tool to be considered within those reviews:

## The Fed:

- Fed officials (and the ECB too) shouldn't be singularly focused on inflation as a risk – especially given the longer-term headwinds – rather, the primary risk to accommodative monetary policy today is overly easy financial conditions
- in essence, rates should stay in a stable, lower range to reflect the downside skew of risks (SEP projections should reflect a path of low rates for an extended period of time), and policy action should shift to liquidity...
- The Fed should recognize that small moves in rates have virtually no economic impact today given the muted transmission of interest rates into a services and R&D led economy
- Monetary policy officials should acknowledge the relationship between interest rates and the economy is not a linear one – it is parabolic: policy rates hurt the economy when they are too high or too low...
- So while there will need to be a high bar for rate hikes going forward, interest rates shouldn't be too low either (and definitely not negative in the US) – because rates that are too low can actually hurt more than help, which is playing out in the markets today...

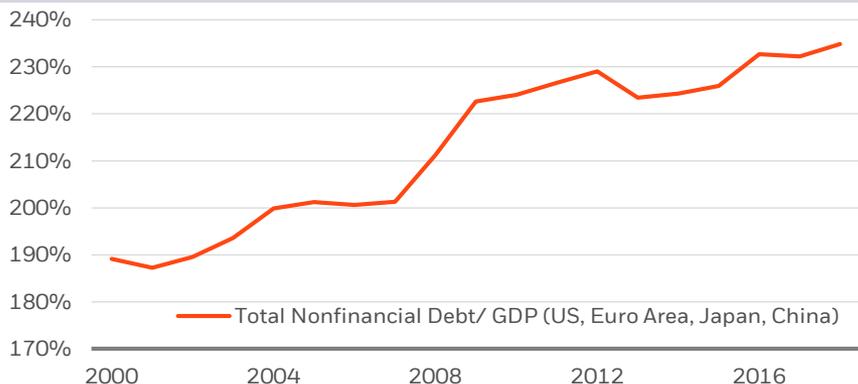
## The ECB:

- Review the existing negative rate policy for its economic/inflationary effect versus the cost of keeping rates in deeply negative territory...
- Recognize that further lowering the cost of debt from here is very unlikely to have any positive impact... rather it is much more likely to continue to dull the velocity of real investment in the sectors which can promote broader and durable growth
- In fact, the providers of capital (banks, insurance companies, and pension funds) in to the sectors that can actually drive sustainable growth improvement will benefit from HIGHER rates/steeper curves.
- Either these investment institutions will have to drive that growth-capital or the ECB should do it directly (through national partnerships in innovative EQUITY-based investment)

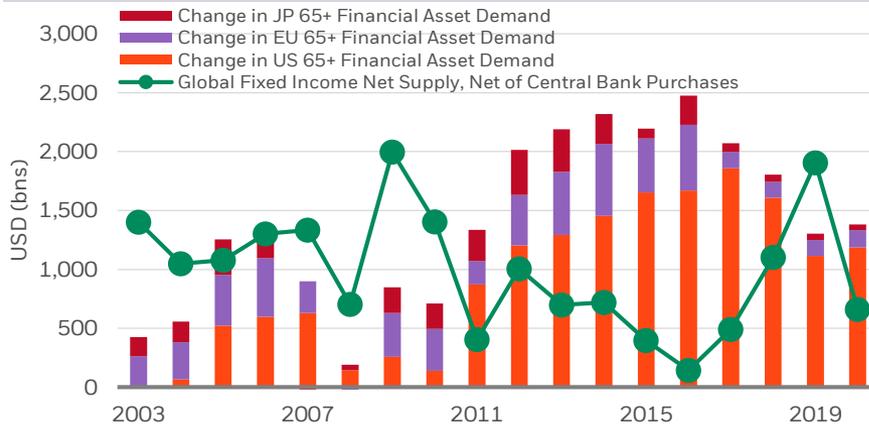
Source: BlackRock, as of 2/10/2020

# Financial Market Impact: lower rates helped repair government, household and corporate balance sheets post-crisis, and then promoted some re-leveraging... but private sector debt loads are moderating here... and there is an organic demand to meet the new supply...

**Global debt, particularly DM sovereigns, has grown concerningly, but many companies are de-levering, and financial institutions and individuals are being judicious on borrowing... <sup>1</sup>**

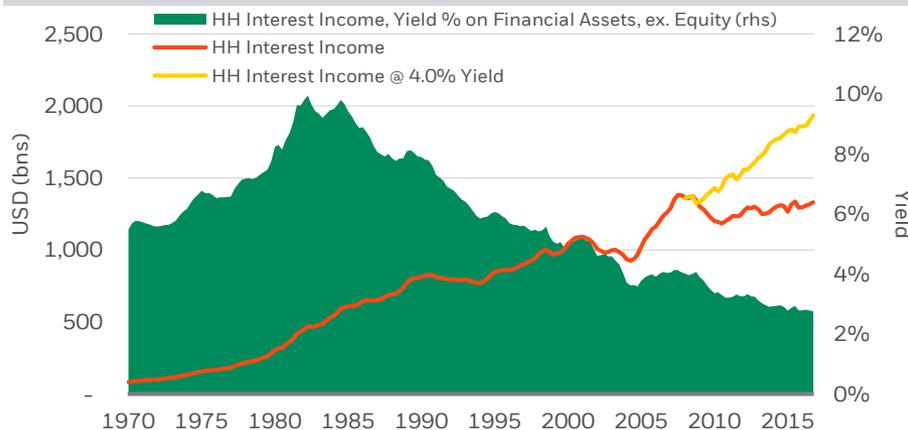


**Meaning new debt supply is not as high today: annual net supply of fixed income isn't keeping up with demographic demand <sup>2</sup>**

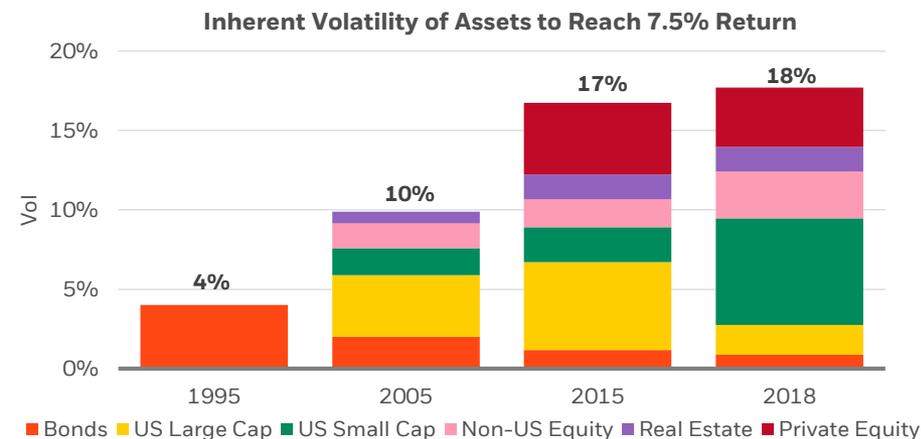


**But pushing rates too low (or negative) can lead to unintended negative consequences in financial markets (and in the real economy)**

**Rates too low harms individual and institutional investors alike, reducing income and creating an incentive to take on more volatility, likely contributing to financial market imbalances if unchecked... <sup>3</sup>**



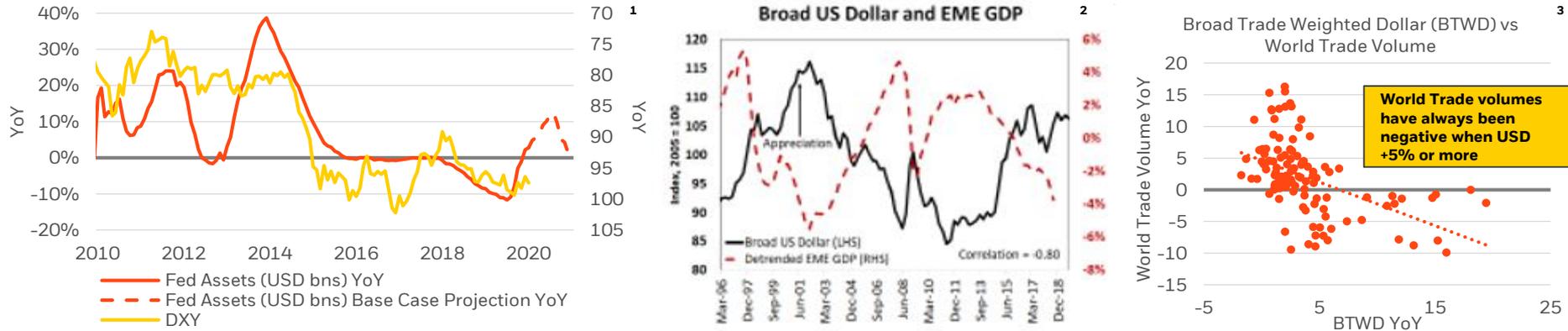
**In order to hit mid-to-high single-digit return targets, investors are being pushed in to an increasingly volatile asset portfolio <sup>4</sup>**



Source: 1) World Bank, Census and BlackRock, as of 12/31/2018; 2) JPM, MS and BlackRock, as of 12/31/2019; 3) Fed, as of 12/31/2016; 4) Bloomberg and BlackRock, as of 2/10/2020

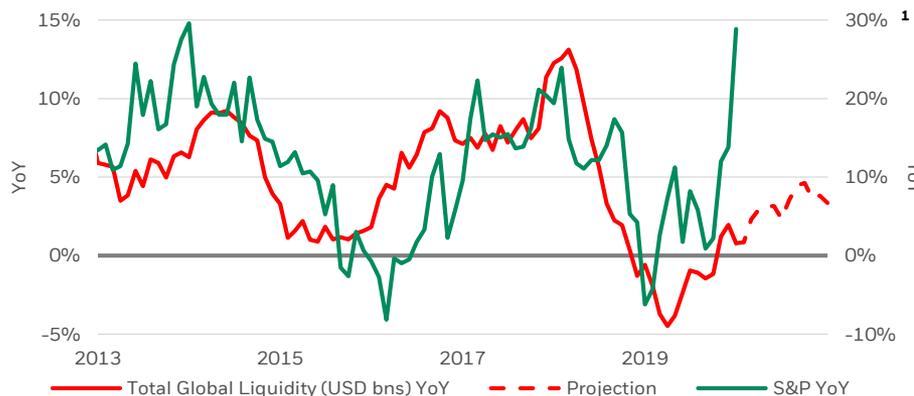
**Liquidity:** Many suggest there is little or no transmission of liquidity growth into the real economy, but there absolutely is... global liquidity impacts growth directly via global supply chains that finance MOST of global trade in wholesale US\$ funding markets... when liquidity deficits crowd-out marginal borrowers, global trade slows and vice versa...

The unprecedented liquidity drain in 2018-19 was a systemic shock that pressured the USD higher, with many associated 'blow-ups' that had their roots in some combination of slower global growth and tighter financing conditions for Emerging Markets... a strong US\$ is a barometer that global liquidity is insufficient to support both the real and the financial economies



Moreover, global liquidity impacts the real economy indirectly via the ebb and flow of sentiment from financial asset prices...

This was the influence that played a large part in the 'risk-off' in late 2018, and risk-on in late 2019 through today...



Attempts to withdraw liquidity outright result in financial market consternation, which influences the real economy...

	Total Global Liquidity	Central Bank Balance Sheets	Fed Assets	S&P
6/30/2011	38%	38%	50%	80%
10/31/2012	14%	14%	-1%	7%
9/30/2014	12%	14%	58%	40%
1/31/2018	24%	35%	-1%	43%
8/31/2019	-3%	-6%	-15%	4%
12/31/2019	2%	3%	11%	10%

S&P 500 was flat (including a very nasty drawdown) from Jan. '18 to Aug. '19 when the Fed's balance sheet contracted -15%

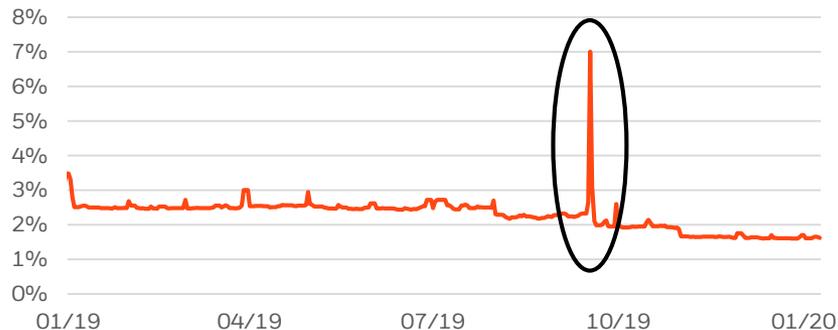
Source: 1) Fed, PBOC, ECB, BoJ, Haver, Bloomberg and BlackRock, as of 12/31/2019; 2) BoE, as of 8/23/2019; 3) Bloomberg and BlackRock, as of 10/15/2019

# The headlines will grow in earnest as risk markets move with liquidity swings (reducing TOMO in Q1 will provide the first test and possibly be the first episode here)...

And of course, the liquidity contraction clearly impacted the funding issues that have been affecting the market since September 2019 <sup>1</sup>

The 2020 liquidity influence looks set to stay profoundly robust... It's very important to track this at the global level - we are projecting a total of \$1.1tr increase in liquidity this year <sup>2</sup>

General Collateral %

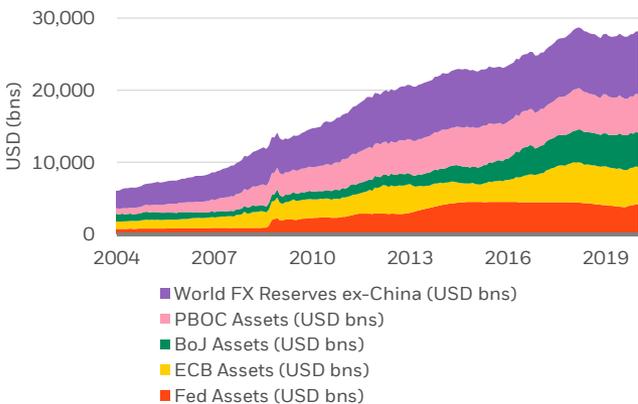


Global Liquidity



At \$30tr, Global Liquidity is more important than ever, with growth coming from all five major components today, something that only happened once before <sup>2</sup>

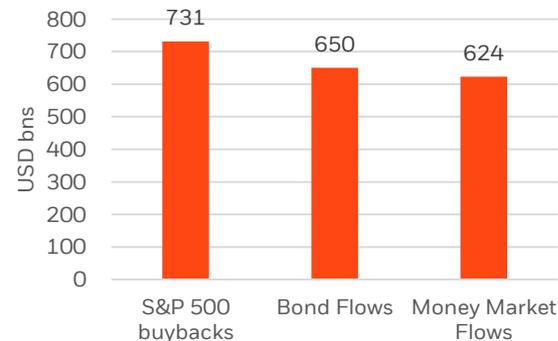
...compounded by immense household and pension rebalancing and corporate buyback flows <sup>3</sup>



2020 Projected Total Liquidity Injection



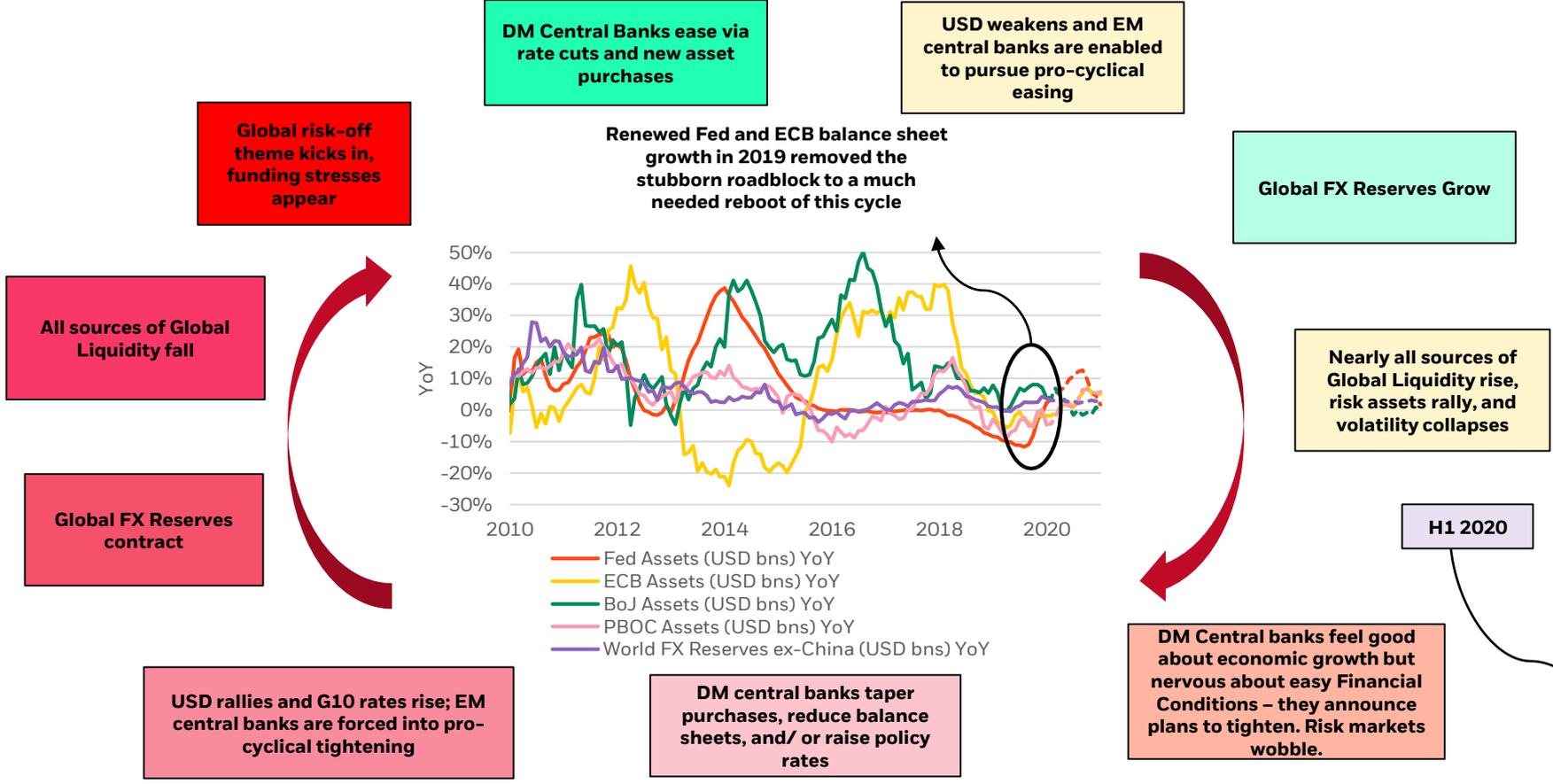
2019 Cumulative Flows



The "crowding in" effect is leading to massive inflows for asset markets so far in 2020. Investors are increasingly facing a diminished opportunity set as surging demand meets a deficit of supply in markets as we have discussed...

Source: 1) Bloomberg and BlackRock, as of 1/10/2020; 2) Fed, PBOC, ECB, BoJ, Haver, Bloomberg and BlackRock, as of 12/31/2019; 3) GS, as of 9/30/2019

**The liquidity cycle is remarkably persistent: A neutral or accommodative Fed soothes global credit conditions, facilitating capital flow towards marginal global borrowers and affording the PBOC and EM central banks greater scope to be accommodative without the risk of capital flight. A restrictive Fed squeezes marginal global creditors and forces them to seek reliable US\$ funding sources, raising the tail risk of capital flight from China and the rest of EM...**



**With global liquidity now amply supplied, global central banks should endeavor to seek a liquidity equilibrium that provides the necessary liquidity infusion sufficient to underpin real and financial economy stability, without overdoing it and creating systemic imbalances. Tapering down the size of the liquidity infusion makes a lot of sense today given the aforementioned financial conditions...**

Source: Fed, PBOC, ECB, BoJ, Haver, Bloomberg and BlackRock, as of 12/31/2019

## **Fed & ECB Reviews**

### **Expectation for Framework Reviews**

- **Moving toward 'soft' average inflation targeting in the US and Europe**
  - This is very prudent as the medium/ long-term risks to growth/ inflation are skewed significantly to the downside
  - There should be a high bar to evolve rate policy from here
  - *"The Committee affirms its judgment that inflation, as measured by the annual change in the price index for personal consumption expenditures, at the rate of 2 percent on average over the longer run is most consistent with the Federal Reserve's statutory mandate. As a result, the Committee would be concerned if inflation were running persistently above or below this objective."*
- Rates should be low in acknowledgement of longer-term headwinds to growth and inflation (but still positive)
  - Developed economies – especially the US – are less sensitive to small changes in interest rates today
    - The rate markets are pricing this in today
- ECB's negative rates will remain in place for a while (as their efficacy will and should be debated), while the discussion regarding fiscal policy will gain traction (and maybe some moderate implementation)
- The expectation is that if the economy goes into a downturn central banks will use 'lower for longer' rate policy and more near-term influential asset purchase programs
- The expectation is for increased acknowledgement of financial stability and potential focus here largely due to easy Credit conditions
  - **Again, this is very prudent as the real and financial economies are more inter-dependent than ever**
  - Liquidity and the USD are both extremely important for financial stability – both should be thought of in a global context

### **Conclusions**

- The focus of monetary policy is shifting from rate policy to liquidity (at all times – not just during downturns); central banks should err on the side of more reserves in the system than less – and liquidity should be monitored on a global basis
  - The 2019 liquidity response was excellent and continues to be in 2020, with evolution of the size from the Fed and ECB going forward
  - Allowing global liquidity to contract creates funding crises and financial market unwinds, which perpetuate directly into real economy contractions, but tapering the size of infusions when financial (credit) conditions are too easy should occur, and is showing some tangible signs of that making sense
  - Tapering down the liquidity infusion size is expected by the markets and can be done deliberately if communicated adequately to markets, especially if it is allowed to grow modestly and permanently alongside of the growth of the economy

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# Be careful what you wish for

Paul Tudor Jones

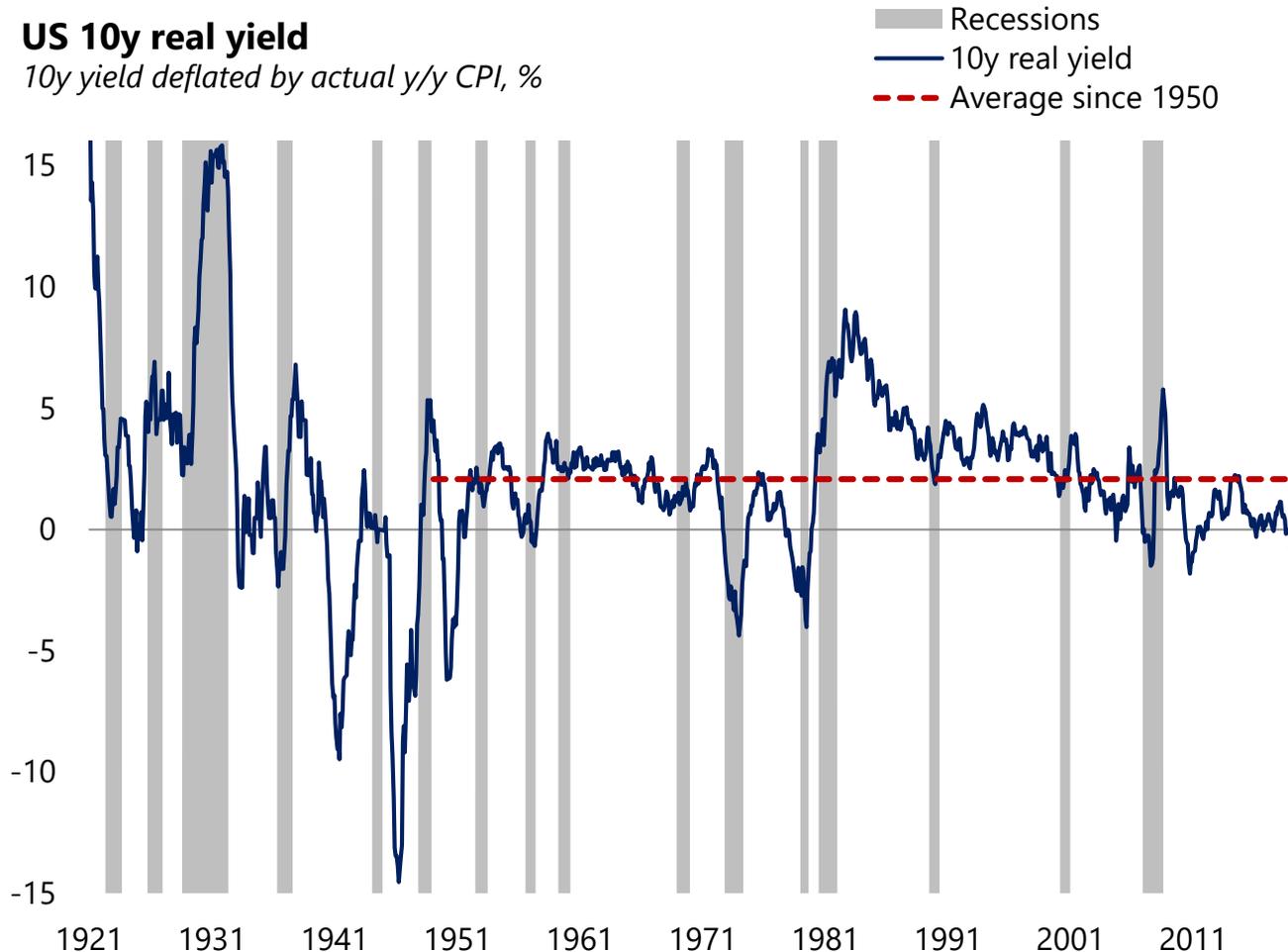
*February 13<sup>th</sup>, 2020*

A deep-seated belief among investors, policymakers is that low interest rates are here to stay. This is also now canonized in the President's budget forecasts.

*The 10y yield minus CPI inflation has averaged 2.1% since WWII; it is -0.8% currently.*

### US 10y real yield

10y yield deflated by actual y/y CPI, %



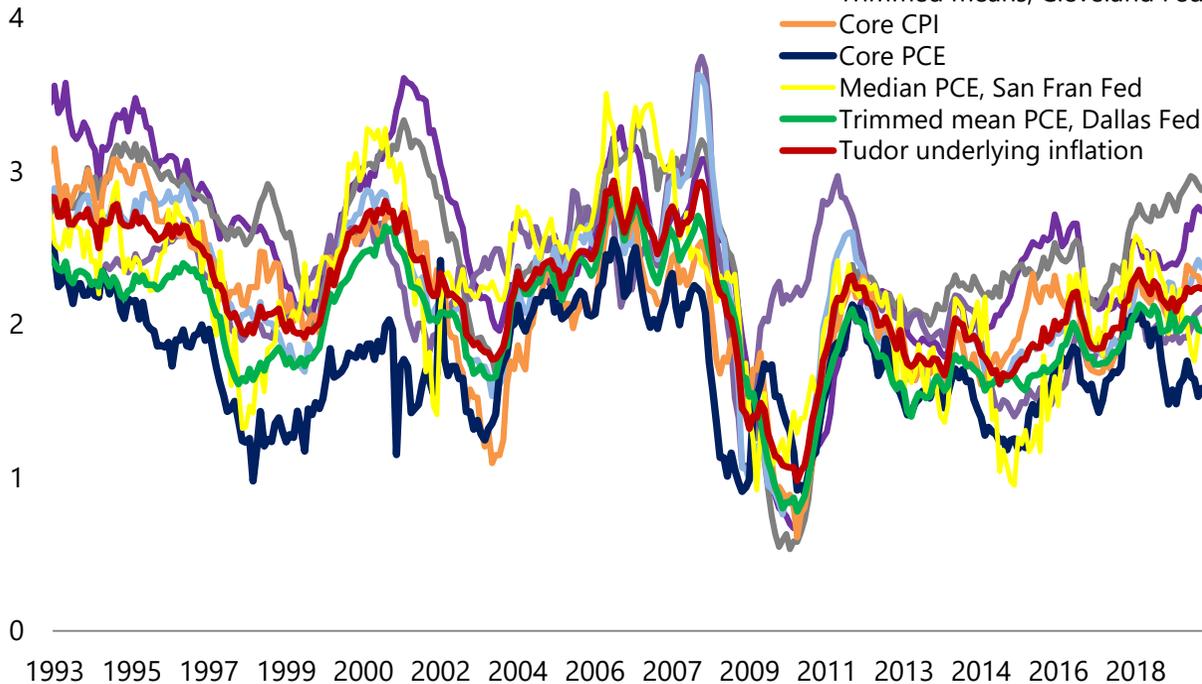
Data Source: Haver and Tudor calculations



The low interest rate belief is supported by the perception that inflation is and will stay low. *At 1.6%, core PCE is the lowest reading of all underlying inflation metrics. Is it prudent to use the tail inflation index for capturing inflation dynamics?*

### US underlying inflation

y/y %

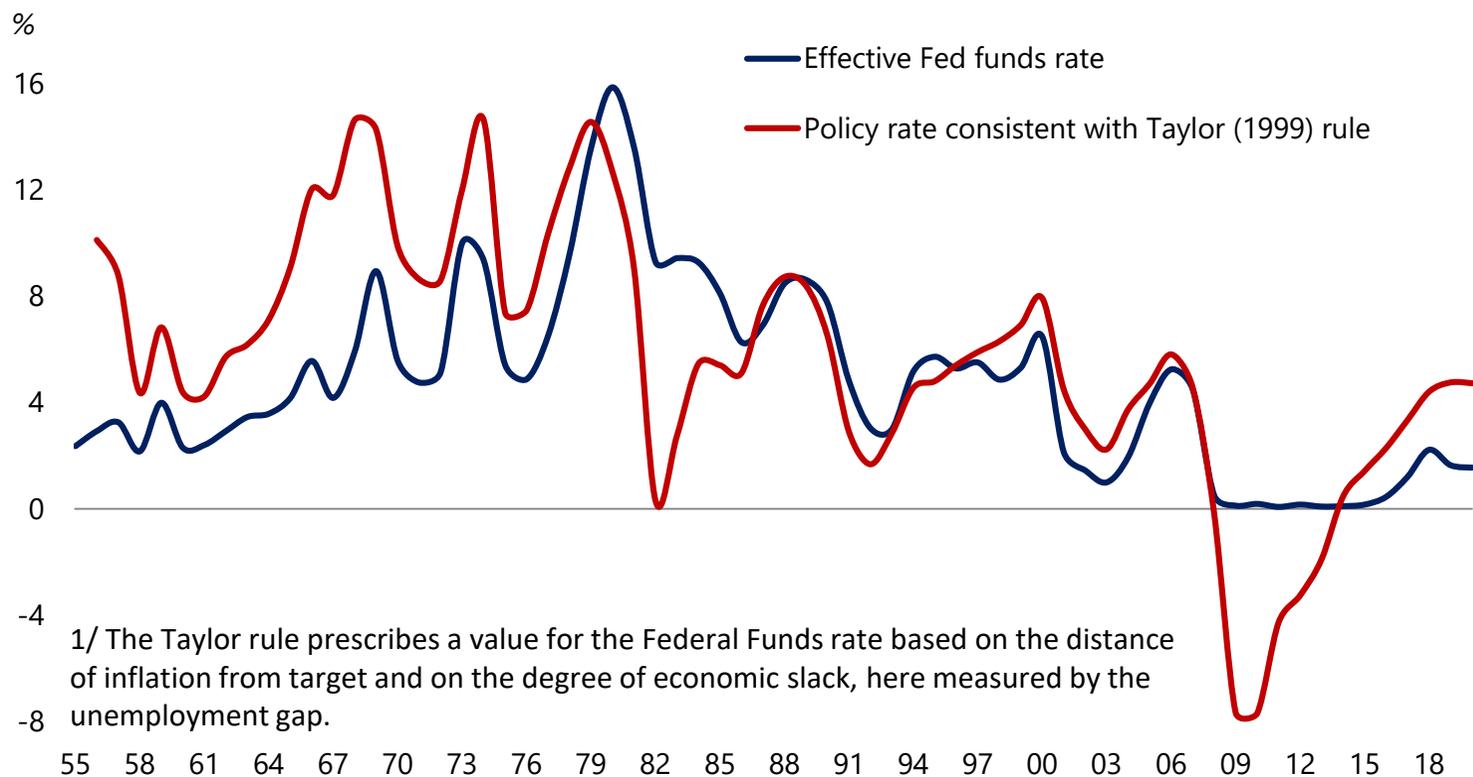


Data Source: Haver

Measures of underlying inflation and expectations		Dec-19
<b>Underlying inflation (average of A and B indicators) excluding core PCE</b>		<b>2.2</b>
		<b>2.3</b>
<b>A. Average of CPI indicators</b>		<b>2.5</b>
A.1	Core	2.2
A.2	Trimmed means, Cleveland Fed	2.4
A.3	Median, Cleveland Fed	2.9
A.4	Core sticky price, Atlanta Fed	2.7
A.5	Underlying Inflation Gauge, New York Fed UIG including non-price data, New York Fed	2.1
<b>B. Average of PCE indicators</b>		<b>1.8</b>
B.1	Core	1.6
B.2	Trimmed means, Dallas Fed	2.0
B.3	Median, San Francisco Fed	2.0
<b>Average of expectations indicators</b>		<b>1.9</b>
C.1	Fed 5y5y breakeven inflation	1.8
C.2	Survey of professional forecasters, 10y ahead CPI	2.2
C.3	Survey of professional forecasters, 10y ahead PCE	2.0
C.4	Cleveland Fed survey, 10y ahead expectations	1.7

The Fed's focus on core PCE has potentially led it to pursue overly stimulative policy. We measure the degree of monetary policy stimulation as the deviation of the policy rate from the Taylor rule, which produces the policy rate consistent with bringing inflation to target and the unemployment rate to neutral. *The current policy rate is below the Taylor rule, suggesting over-stimulation (a finding robust to alternative Taylor rule specifications).*

**US monetary policy Taylor rule 1/**

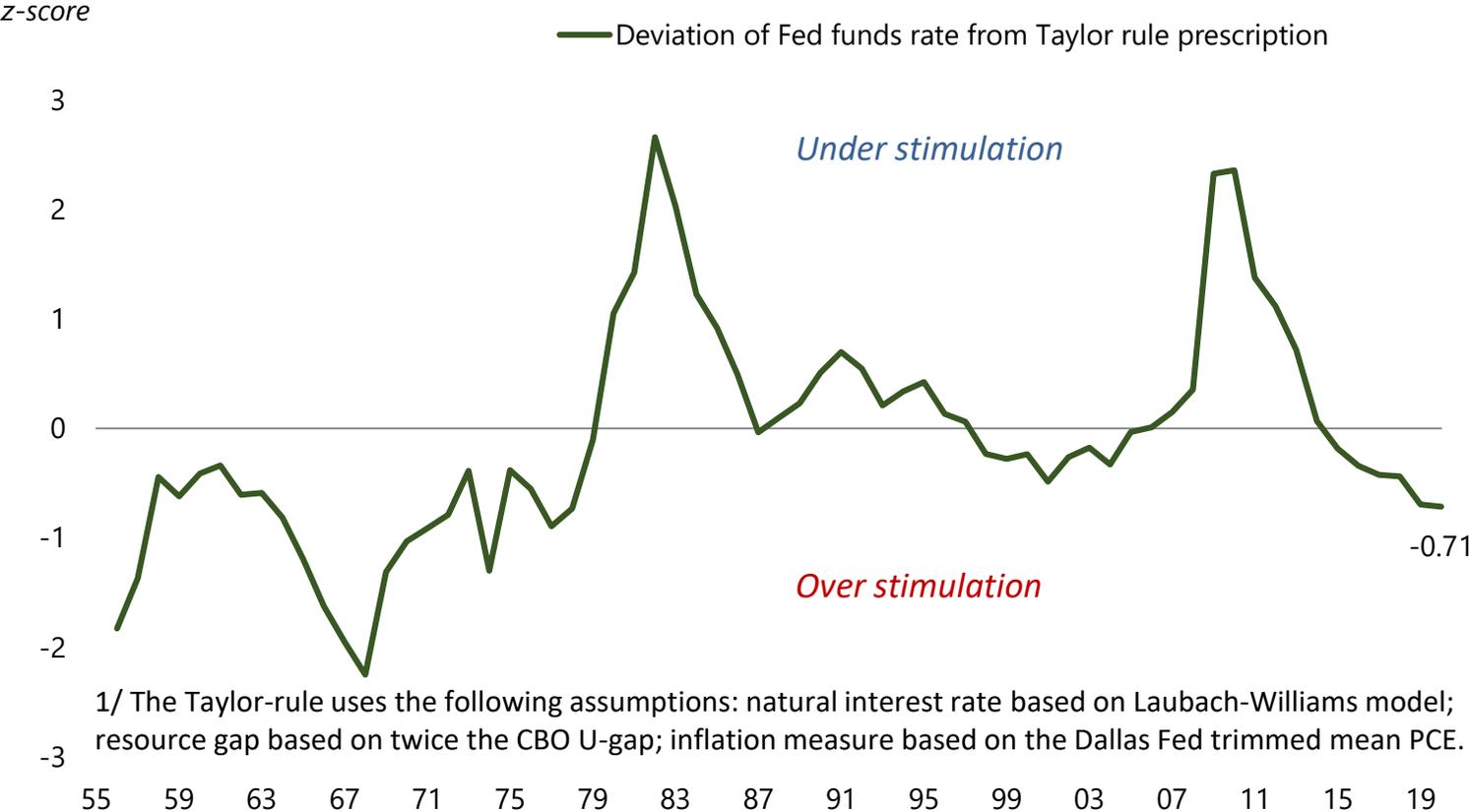


Data Source: Haver and Atlanta Fed



The monetary pulse metric based on the Taylor rule 1999 suggests current policy is stimulative. *The other period in history that saw a greater degree of policy stimulation than currently was the second half of the 1960s.*

**US Degree of monetary stimulation based on the Taylor rule 1999 1/**



Data Source: Haver and Atlanta Fed

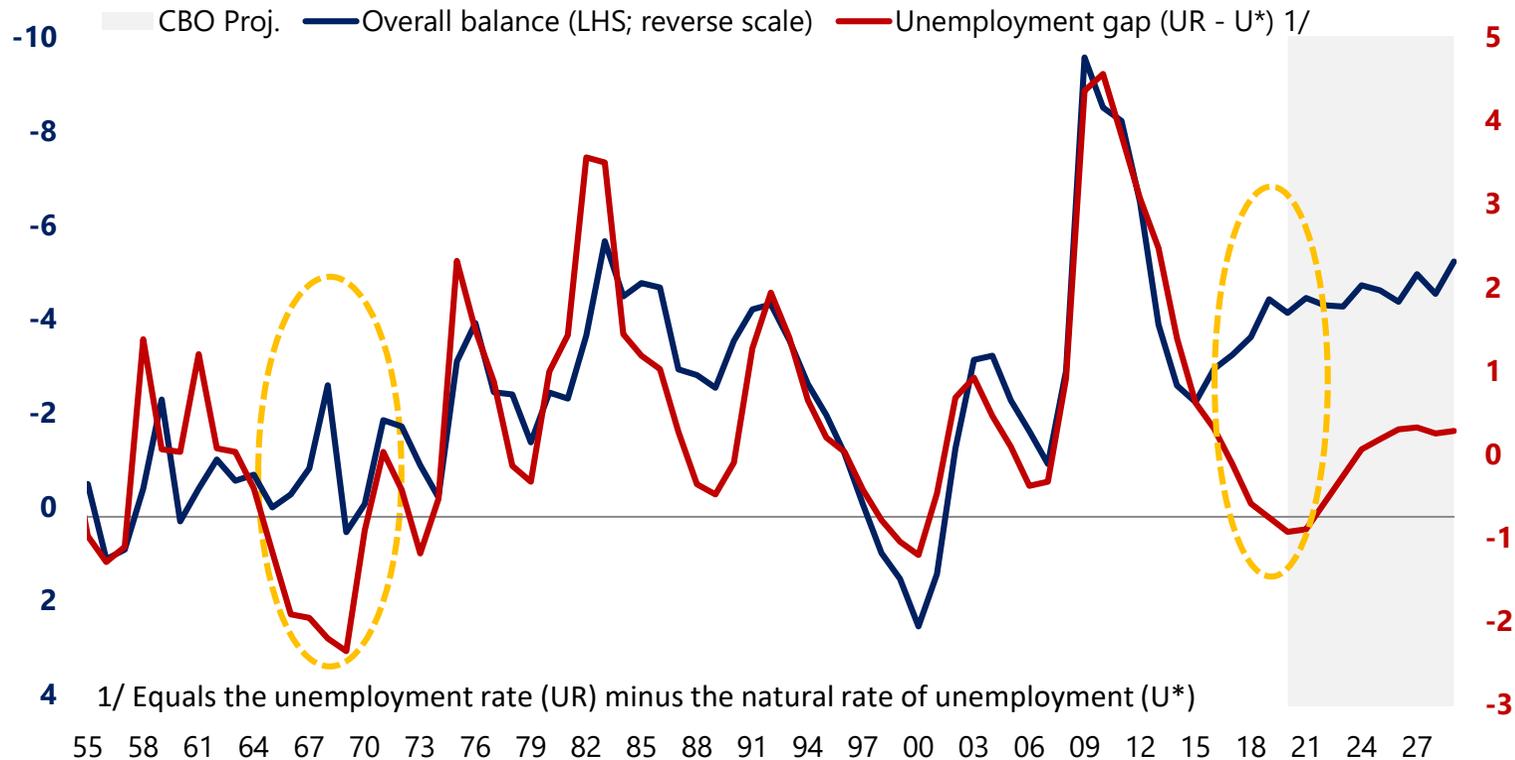


It is possible that monetary policy stimulation enables expansionary fiscal policy. Fiscal outcomes are generally driven by the economic cycle (when employment falls, tax receipts fall thereby widening the deficit, and vice versa). *There have been two exceptions: the late 1960s & today.* Are large deficits with low unemployment a sign of policy over stimulation?

**US fiscal outcomes tend to be driven by the economic cycle**

Overall balance, % GDP

Unemployment gap, %

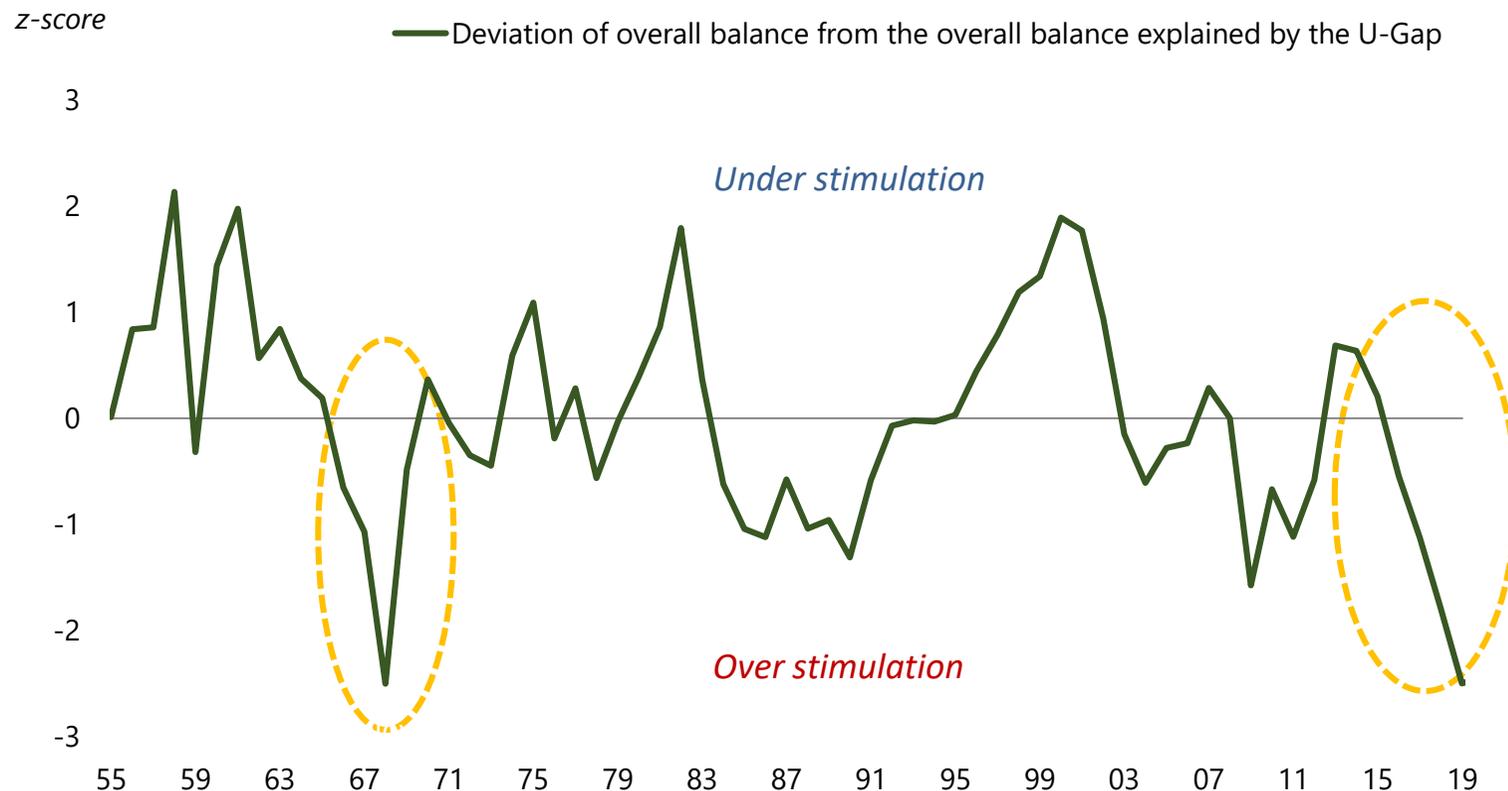


Data Source: Haver



We track the degree of fiscal stimulation in two ways. First, by looking at the deviation of the fiscal balance from the fiscal balance that is explained by economic fluctuations (captured by the unemployment gap<sup>1/</sup>). *This metric suggests a significant degree of fiscal policy stimulation, seen before only in the late 60s.*

### US Degree of fiscal stimulation based on the evolution of the unemployment gap



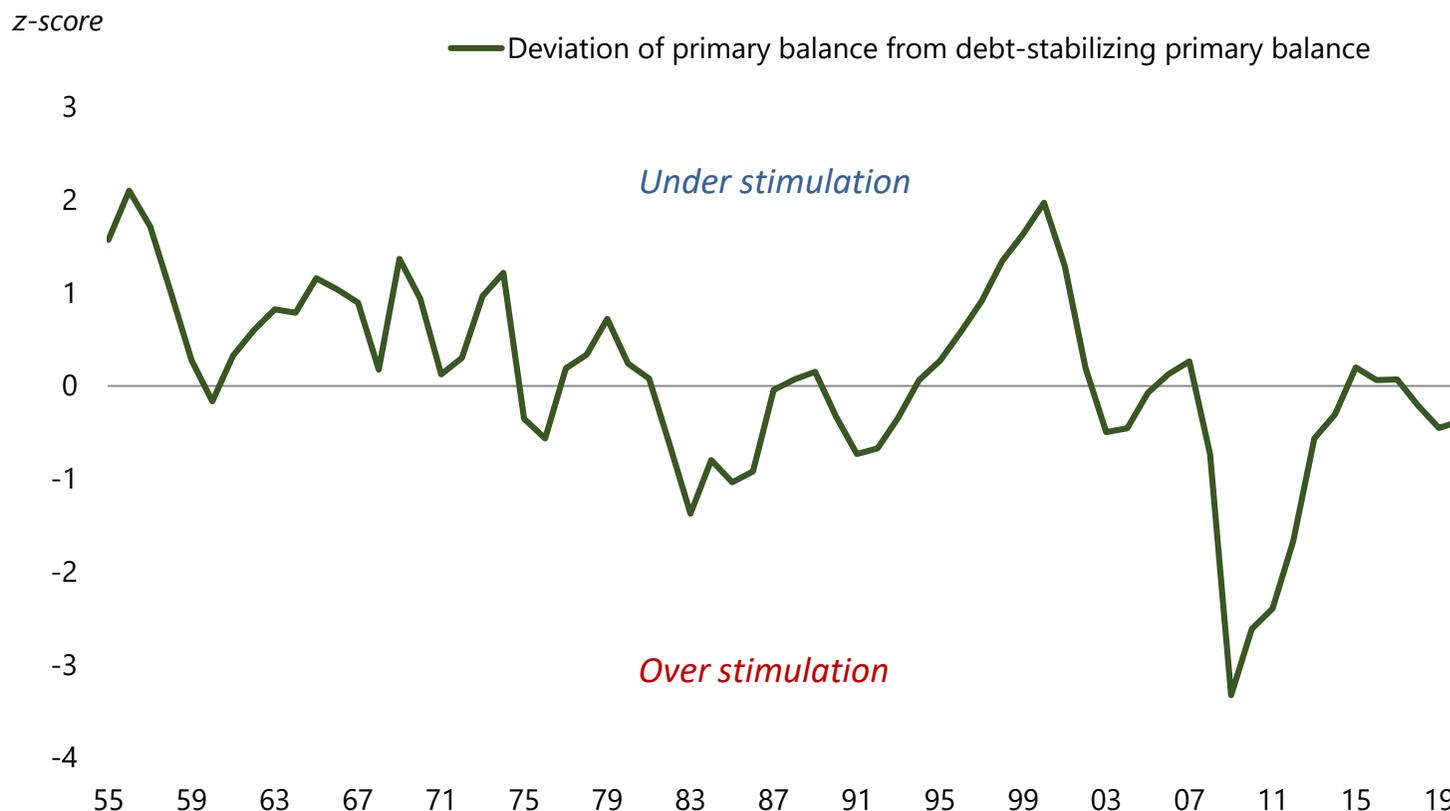
<sup>1/</sup> Unemployment gap = unemployment rate *minus* natural rate of unemployment estimated by the CBO

Data Source: Haver



The second way we assess the degree of fiscal stimulation is by looking at the distance between the actual deficit and the deficit that stabilizes the debt ratio. To stabilize the federal debt at its current ratio, the (primary) deficit would need to be cut by 1½–2% GDP bringing the overall deficit from 4.6% to below 3% of GDP. *A negative value in the metric below suggests the debt ratio will continue to increase unless the deficit is reduced.*

### US Degree of fiscal stimulation, based on debt stabilization

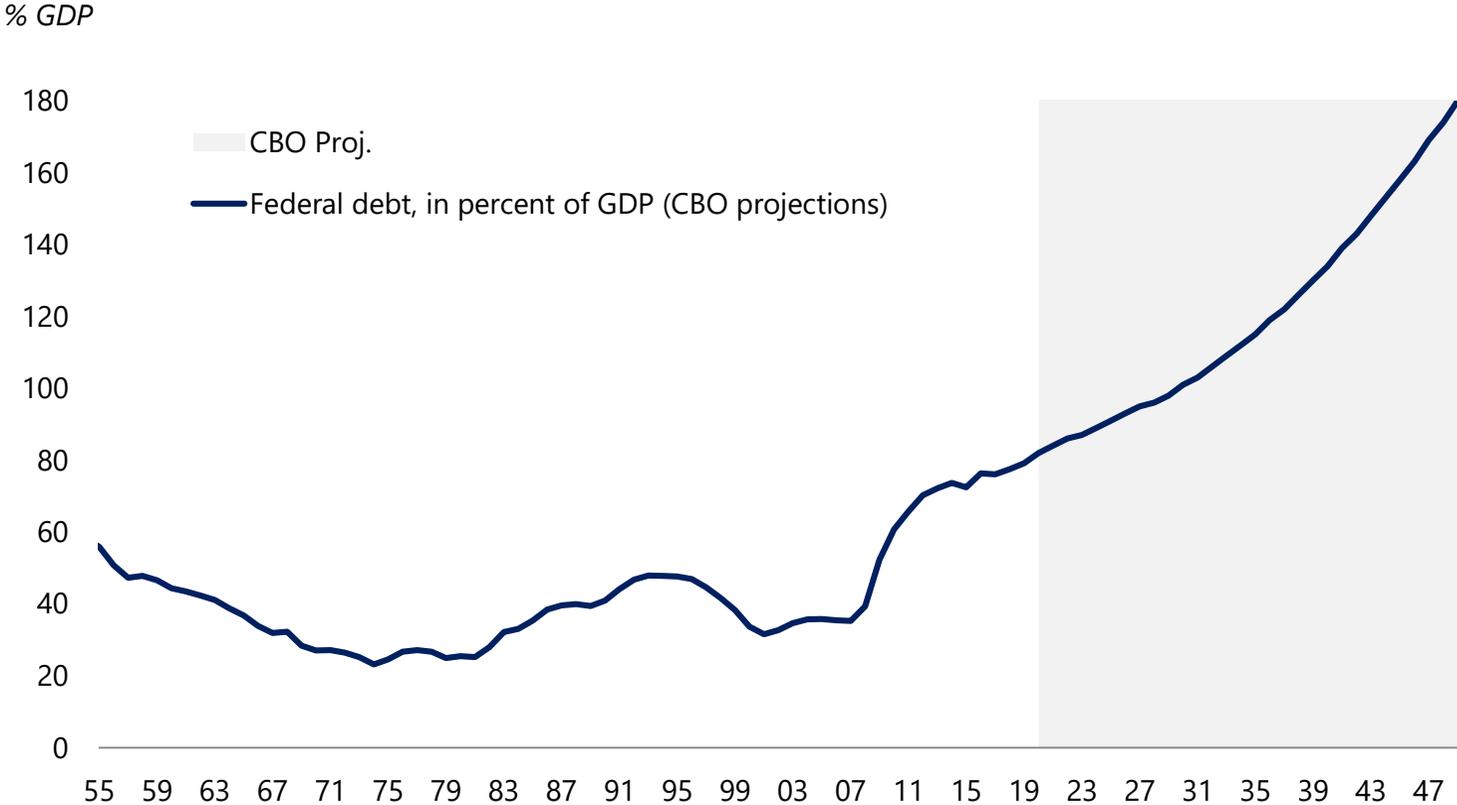


Data Source: Haver



The debt-sustainability metric in the prior chart does not take into account the large future liabilities due to ballooning mandatory spending on social security and healthcare. As such, the true adjustment required to stabilize debt at the current ratio would be much larger than indicated in the prior slide: put differently, our fiscal policy tracker based on debt-sustainability lowballs the current degree of stimulus.

**US Federal debt, CBO projections**

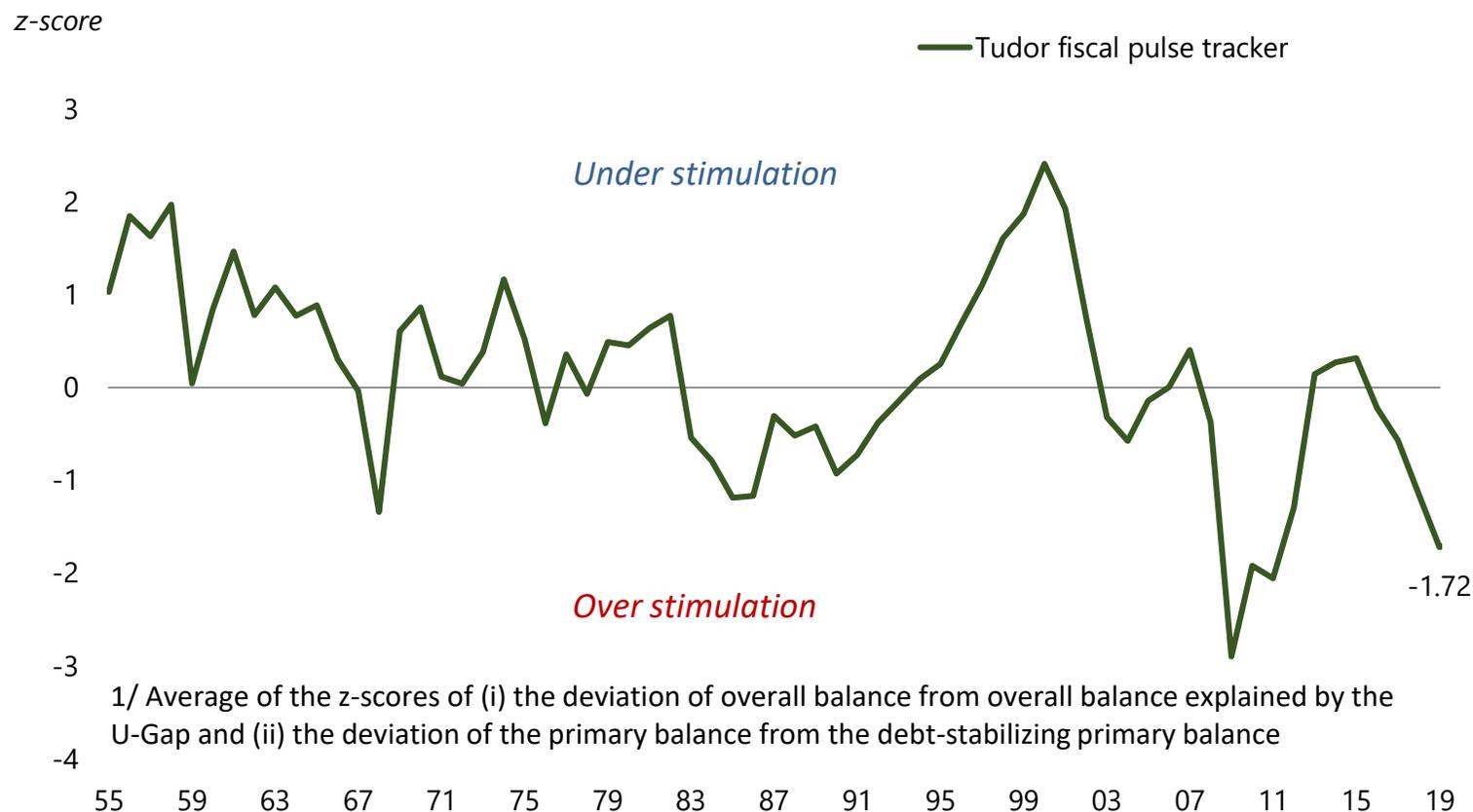


Data Source: Haver and Congressional Budget Office



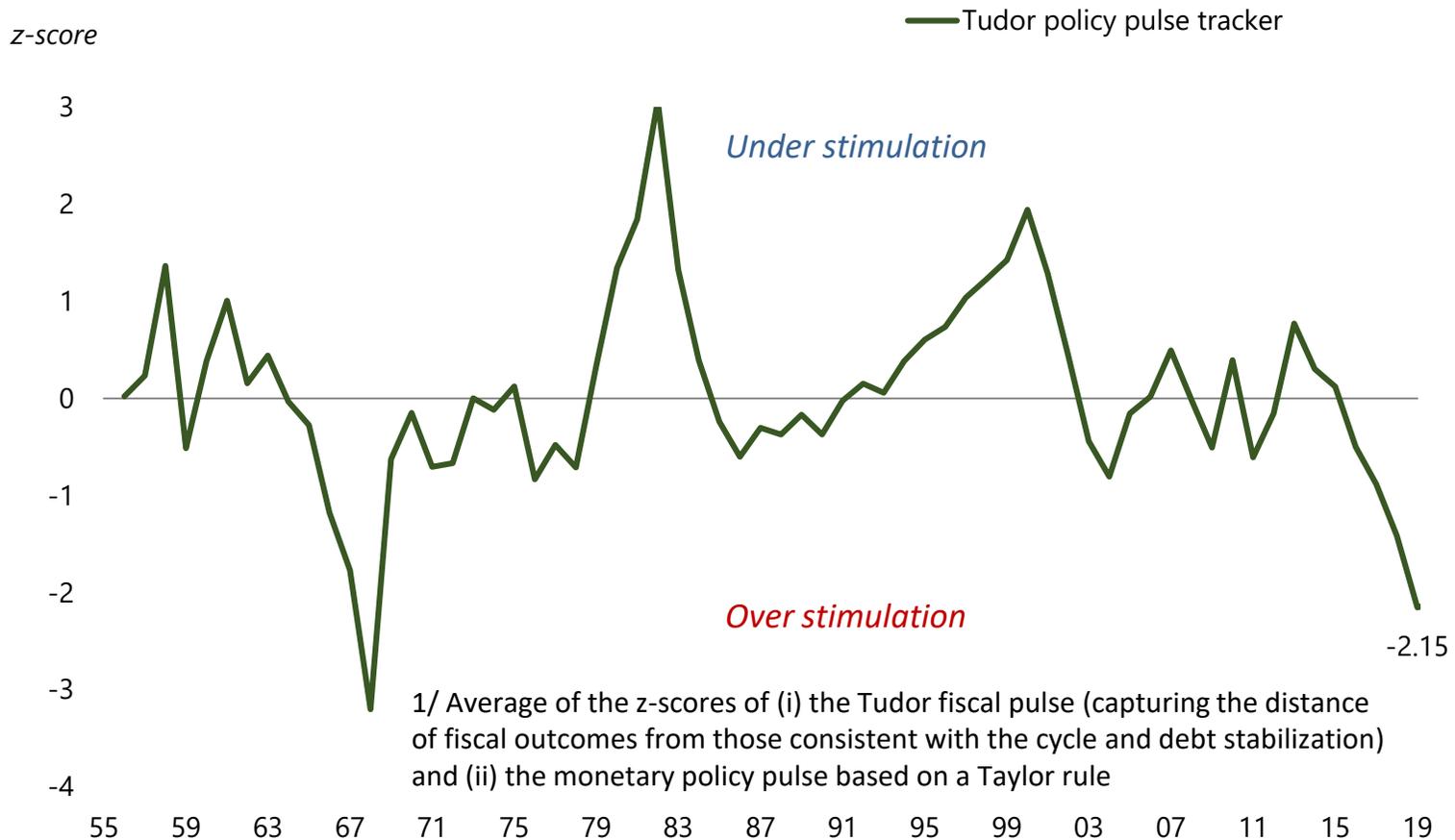
Combining the two ways of measuring stimulation based on the cycle and on debt sustainability, we obtain a simple fiscal policy pulse tracker. As a z-score, the current policy pulse at  $-1.7x$  st.dev. suggests a  $2\frac{1}{2}$ -3% GDP degree of fiscal over-stimulation

### US Tudor fiscal pulse



Since both monetary and fiscal policy can be powerful drivers of economic and financial cycles, we combine the fiscal pulse with the monetary pulse to capture the degree of stimulation of the policy mix. We call this the Tudor policy pulse. It shows that the current degree of policy stimulation has not been seen since the 1960s.

### US Tudor policy pulse 1/



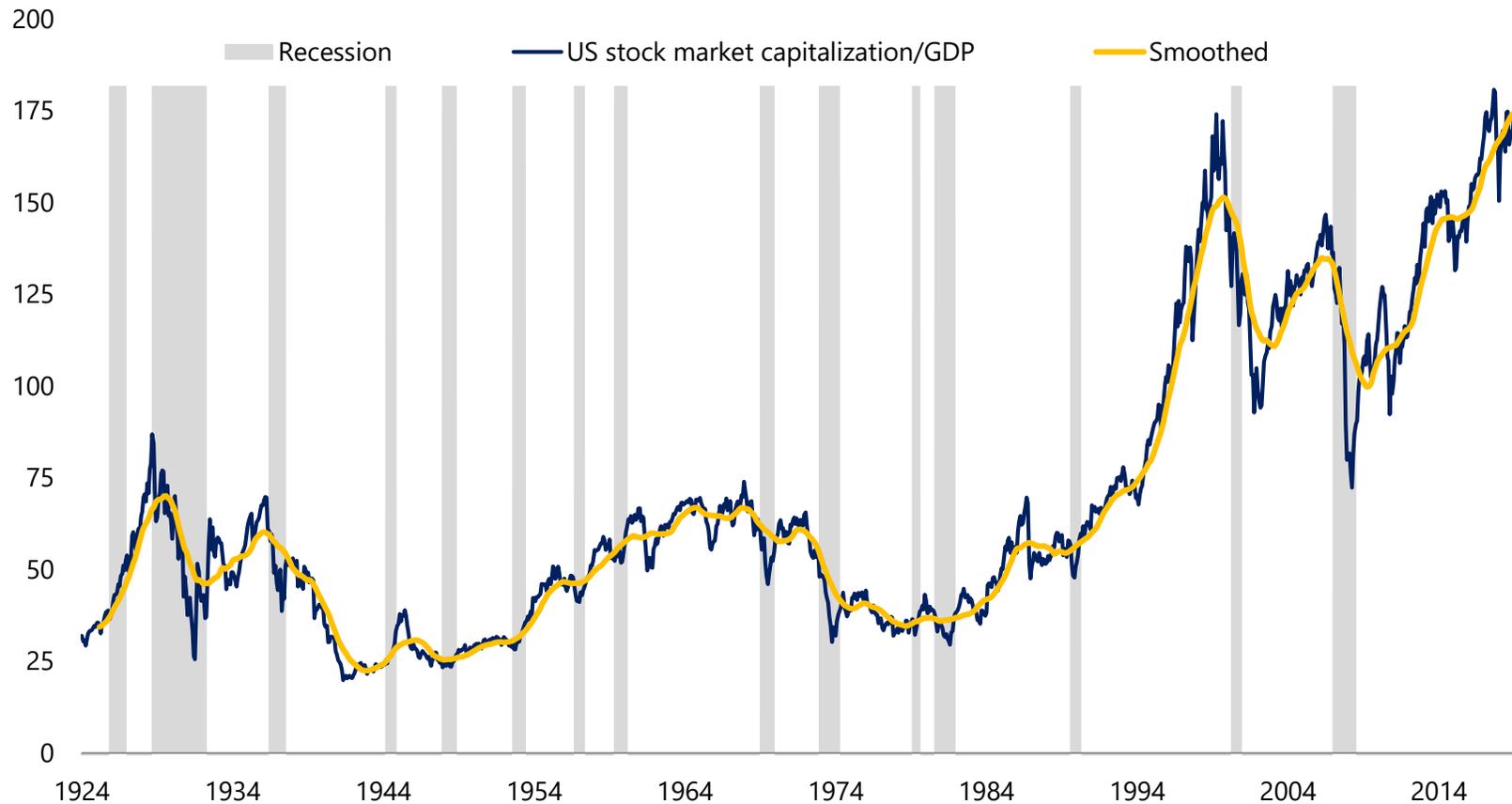
Data Source: Haver and Atlanta Fed



Policy stimulation is encouraging significant risk taking. We measure risk appetite in two ways: (1) the ratio of the stock market capitalization to GDP, which hit a record-high of 188%, surpassing the previous peak of 174% during the tech bubble.

### US stock market capitalization as share of GDP

NYSE and NASDAQ combined capitalization in % of GDP; last observation is Feb 10th, 2020



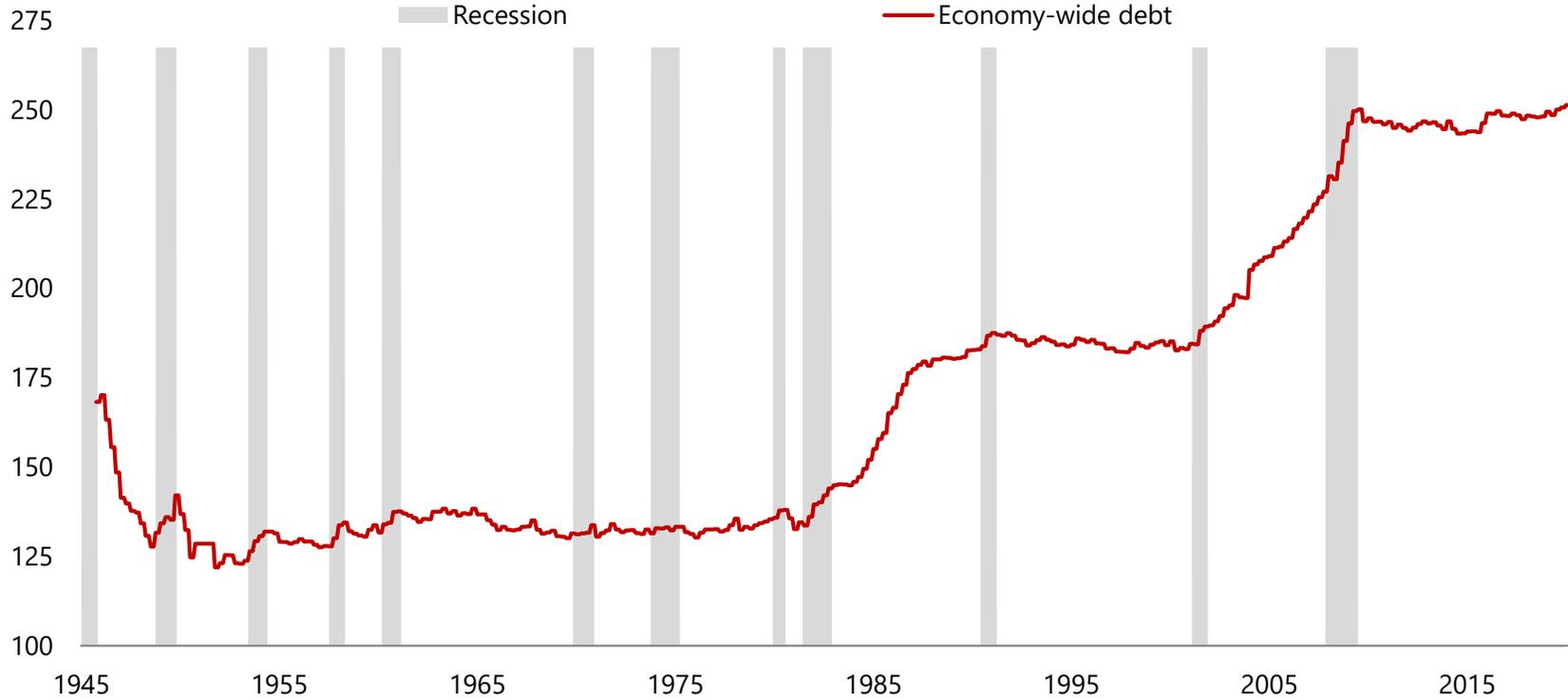
Data Source: Haver



A complementary gauge of risk-taking is the degree of leverage in the economy: (2) *the economy-wide debt ratio to GDP has reached a new high of 250% of GDP*. The flattish evolution of this metric since the Global Financial Crisis masks offsetting trends: a sharp increase in corporate and government debt and a noticeable decline in household debt

### US economy-wide debt as share of GDP

Household + corporate + federal and state & local government debt, in percent of GDP



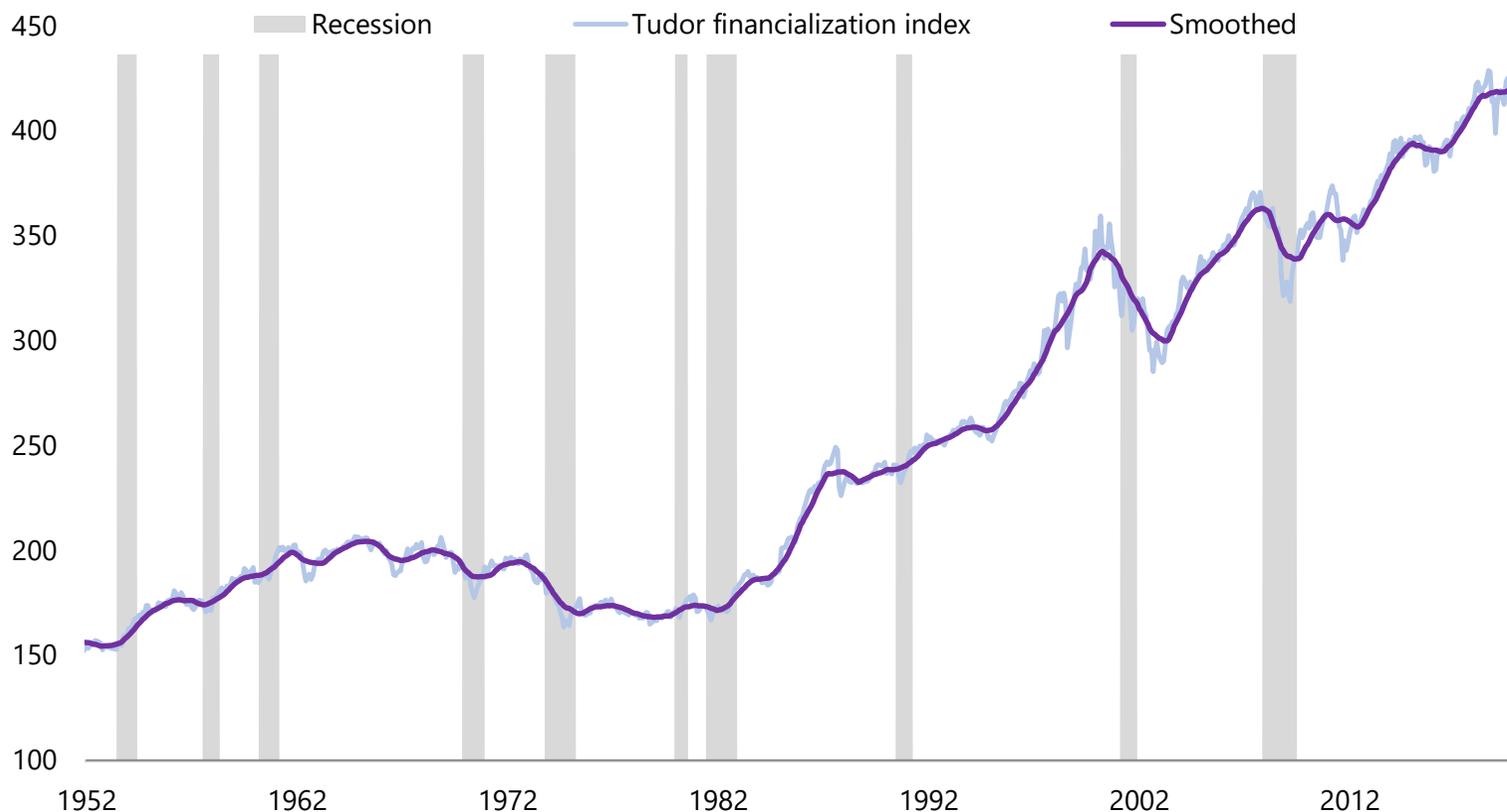
Data Source: Haver and BIS



A simple way to capture overall risk-taking in the economy is to combine the economy-wide debt ratio with the stock market capitalization ratio. Our risk-taking tracker has risen to a record high of 438% of GDP.

### US Tudor financialization index

*Stock market capitalization + economy-wide debt, in percent of GDP*



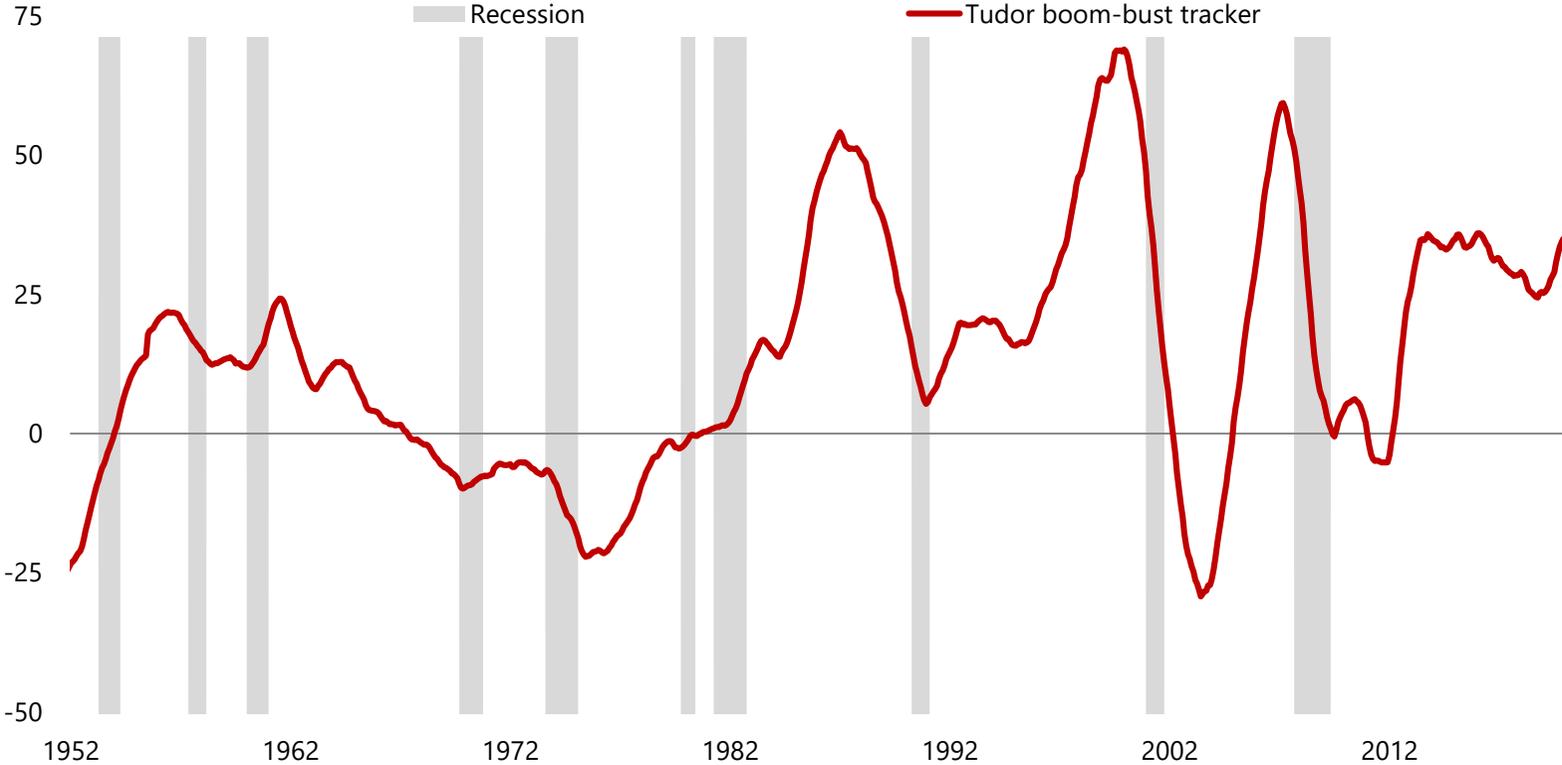
Data Source: Haver and BIS



Fluctuations around our risk-taking tracker capture well the financial cycle: booms associated with excessive leverage and/or equity appreciation followed by busts

### US Tudor boom-bust tracker

4y change in the Tudor financialization index; % of GDP

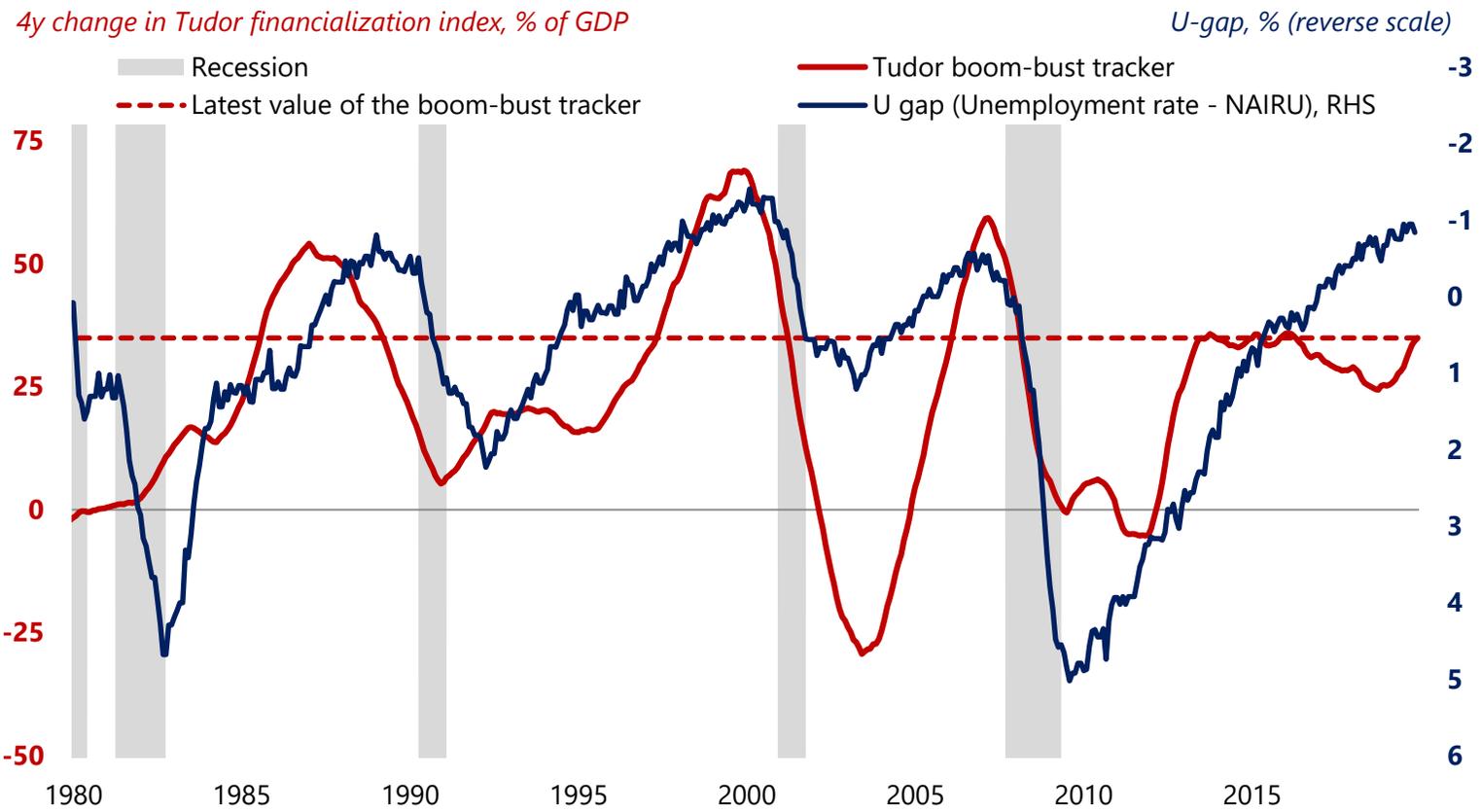


Data Source: Haver and BIS



The financial cycle captured by our boom-bust tracker shows leading properties for the economic cycle over the last 40 years: booms coincide with low/falling unemployment; busts are followed by sharp increases in unemployment.

### US Tudor boom-bust tracker and unemployment gap



Data Source: Haver and BIS



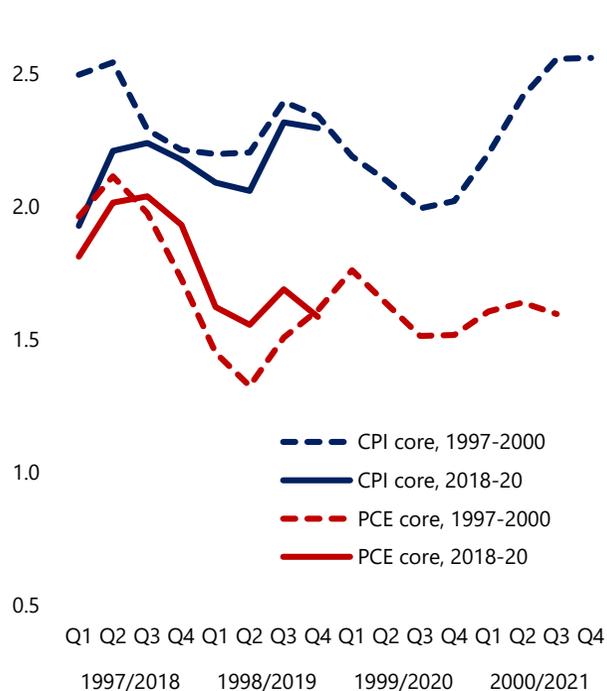
Persevering with current policy stimulation in a hot labor market would continue to support risk-taking, thereby exposing the economy to a boom-bust cycle

- Based on the pattern of financial cycles since 1980, we could be 1½ years away from the top of the boom. By then, the unemployment rate could fall to 3.0% and another 25% of GDP could be added to our boom-bust tracker. This could be accomplished in one of two ways:
  - **Increased leverage.** If increased risk-taking manifested fully in rising leverage (corporate, government?), the marginal addition of 25% of GDP to our boom-bust tracker would be commensurate to the increase in mortgage borrowing in the five years preceding the Global Financial Crisis.
  - **Equity market appreciation.** If the stock market rallied by just 12% from here, it would be enough to increase our boom-bust tracker by 25% of GDP.
- The fall from the top over the following 2½-3½ years would be quite painful using historical patterns: the boom-bust tracker would shed 60% of GDP, implying that the equity market would correct sharply (e.g., the bursting of the tech bubble led to a peak to trough decline in equity market capitalization of 80% of GDP). Over time, the economy would also be forced to de-lever. As public debt tends to rise during recessions (25% of GDP during the GFC), the adjustment on the private sector would be wrenching. On the real economy side, the unemployment rate would increase by more than 3% to almost 7% if we followed historical patterns of booms and busts.

Anecdotally, we are cognizant of two potential parallels: (1) 1999 and (2) the 1960s. Now, as in 1999, appetite for equities seems insatiable; the Fed has delivered 3x insurance cuts; core PCE is 1.6% y/y; the labor market is hot (U-gap was -1.0% vs. -0.9% now); and the President has been impeached. *The critical divergence is that we are now running a fiscal deficit vs a surplus in 1999. There is a heightened risk of equities becoming unhinged to the upside until fiscal and monetary stimulation is removed*

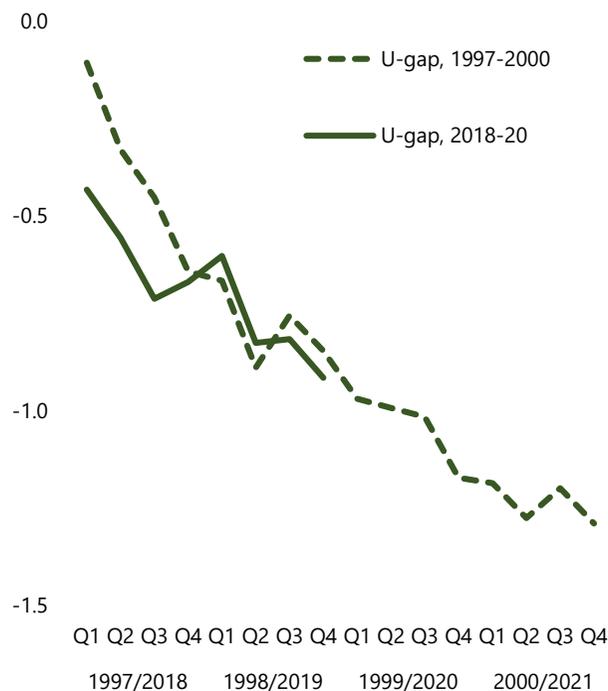
**Core inflation: 1998-99 vs 2019-20**

1998-99 analogue based on end-2000 PCE vintage; y/y %



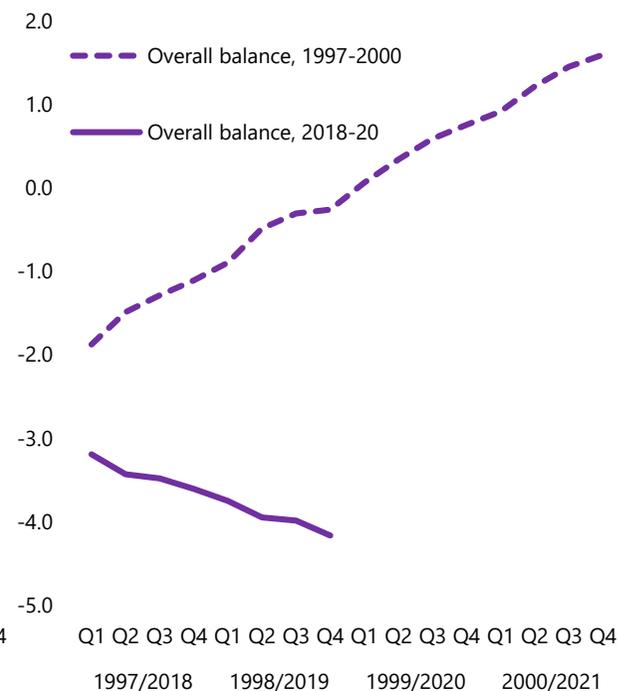
**Unemployment gap: 1998-99 vs 2019-20**

UR minus CBO NAIRU; %



**Fiscal policy, overall balance: 1998-99 vs 2019-20**

% GDP



Data Source: Haver



As in 1999, commodity prices are not pricing nearly as much future growth as equity prices—a sign of excessive exuberance in equity markets?

### US S&P vs commodity prices

Ratio of S&P to GSCI and BCOMIN (Industrial commodity prices)



Data Source: Haver



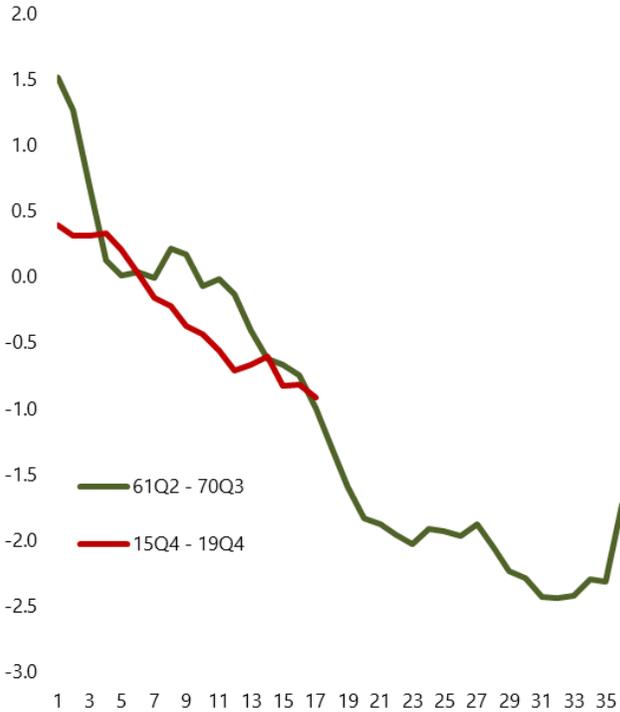
The second parallel we are watching is the 1960s. The current policy mix is as stimulative as the mid-60s. What if this stimulation finally delivers higher inflation? This is what we all wish for, right? Be careful what you wish for...

- Today's fiscal and monetary policy stimulation is reminiscent of the mid-1960s. (See slide 11.)
- In the mid-1960s, like today, the unemployment rate was low and the natural rate of unemployment was perceived to be even lower. Yet, like today, core PCE inflation had been low (below 2%) and stable for many years, leading to low and stable inflation expectations. However, inflation jumped to more than 3% between 1965 and 1966 after the U-gap fell to -1.0%
- Based on this evidence, Stock and Watson (2009) concluded that inflation does not respond significantly to labor market tightness until the unemployment rate falls 1 percentage point or more below the natural rate of unemployment. (The Phillips curve is non-linear). Currently, the U-Gap is -0.9%. Could we be close to an inflation tipping point?
- If inflation eventually rises, any Fed-required tightening would have to be more decisive than if the Phillips curve had been steeper.
- Such a tightening due to increased inflation may well prick current bubbly market conditions, as a new generation of traders will scramble to *Google* the meaning of "inflation risk premium," a concept now thought to be obsolete.

1960s analogue. Data aligned by degree of slack in labor markets at end 2019 (Chart 1):  
 in 2019Q4, U-Gap was -0.9%; in 1965Q2 the U-Gap was similar at -1.0%

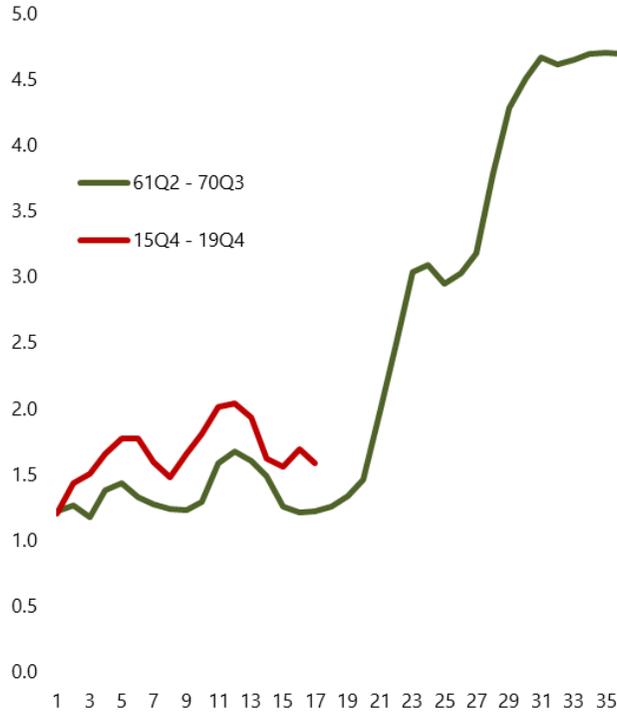
**Chart 1**  
**Unemployment gap (UR - CBO NAIRU)**

*In quarters; 2019Q4 = 1965Q2; y/y in %*



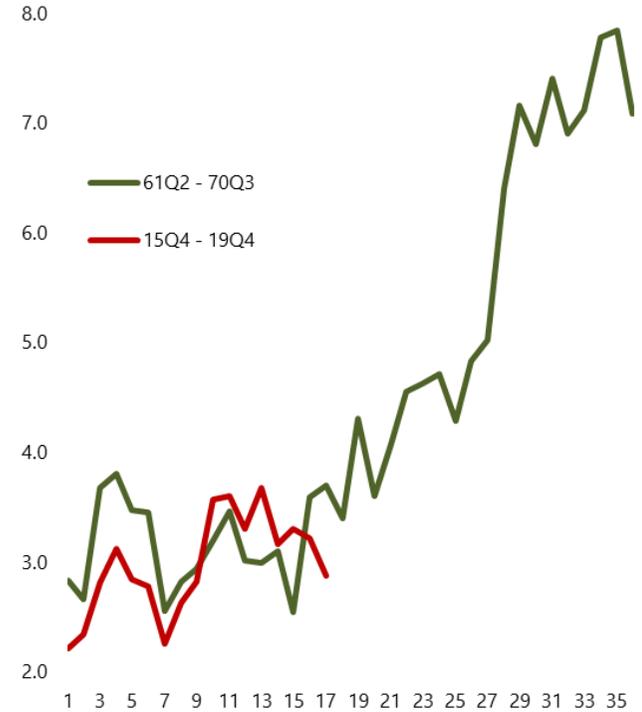
**Chart 2**  
**Core PCE inflation**

*In quarters; 2019Q4 = 1965Q2; y/y in %*



**Chart 3**  
**Average hourly earnings**

*In quarters; 2019Q4 = 1965Q2; y/y in %*



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# Investor Advisory Committee on Financial Markets

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February 13<sup>th</sup>, 2020

What impact, if any, have the Federal Reserve's repo operations and reserve management practices had on broader financial conditions?

Mary Erdoes

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## Executive Summary

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- The Fed's actions alleviated money market strains experienced in September 2019.
- Financial conditions eased around the same time as Chair Powell's October 8 announcement to act.
- Market participants added risk following the Chair's announcement although other factors motivated investors such as the resolution on US/China trade and Brexit.
- JPMorgan believes that balance sheet expansion via bill purchases impacts investors, though the magnitude is less than purchases of mortgage-based securities or Treasury notes.

## Recap: What Happened?

In mid-September, the broad General Collateral Rate (aka repo rate) spiked higher.

### Morning Notes from the Trading Desk\*

**9/13/19:** "GC has opened at 2.30% which is firmer than had been expected and 2.0 bps above yesterday's opening level. GC finished yesterday at 2.07% so the likely path for the day is to lower rates."

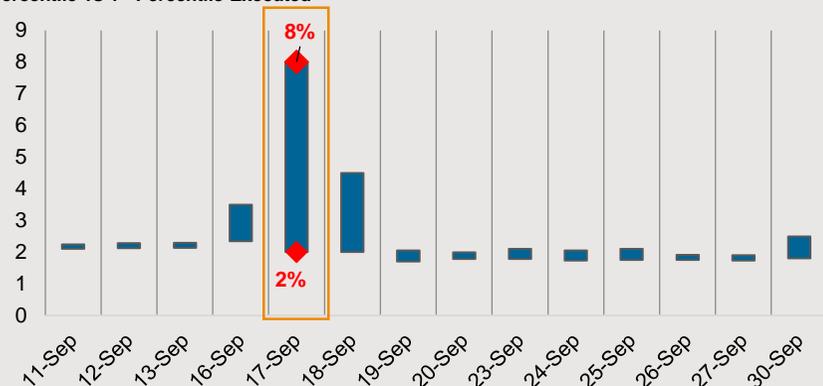
**9/16/19:** "GC opens 2.16% bid at 2.13% which is 9.0 bps firmer than yesterday's opening level and 41.0 bps above the closing level of 1.65%." **Corporate tax payments cause the Treasury General Account to rise at the Fed, taking liquidity out of the system. Repo rates jump higher into the close touching as high as 8% on light volume.**

**9/17/19:** "GC has exploded higher to 9.00% as perfect storm of high funding continues for a 2nd day. GC started today at 3.85% and has spiked the as high as 9.00% in morning trading." NY Fed announces it will offer \$75B of overnight repo funding at 2.1% at around 10AM. Repo rates begin to stabilize but move higher toward 4.25% into the close on low volume

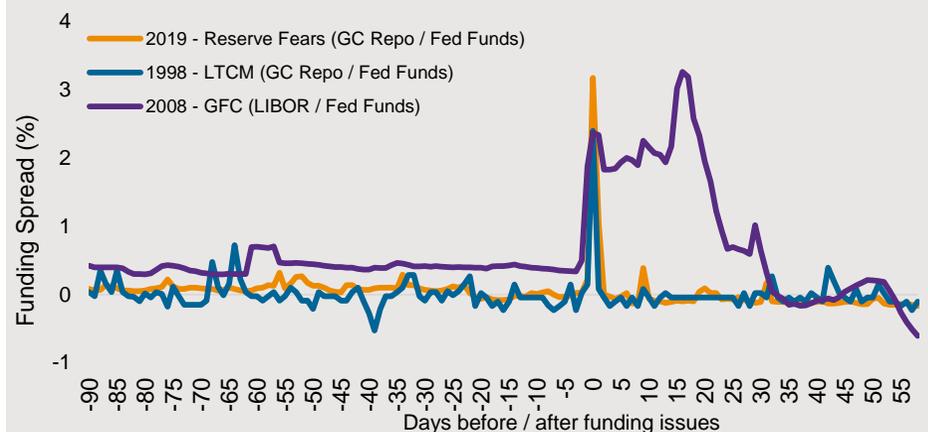
**9/18/19:** Stresses remain as GC opens rich at 2.8%. NY Fed commits to continued support of the market. Funding rates continue to decline throughout most of the day. Close above 3% is still elevated but NY Fed has lowered GC repo rate consistent with a decrease of the Fed Funds Rate at the FOMC meeting

**09/20/19:** NY Fed announce term repo operations aimed at addressing quarter-end strains. GC repo rates continue to normalize and dispersion between intra-day borrowing narrows

Broad General Collateral Rate, %  
99<sup>th</sup> Percentile vs 1<sup>st</sup> Percentile Executed



Market participants feared the dislocation might signal a hidden problem.



The Federal Reserve's response was quick & effective.

**Sept 17:** NY Fed offers \$75bn in O/N repo

**Sept 18:** Federal Reserve cuts the funds rate, makes O/N repo available as necessary

**Sept 20:** NY Fed offers 3 tranches of \$35B in 14-day Repo ahead of quarter end

**Oct 4:** O/N repo available through November & term repo ranging from 6-days to 15-days and up to \$35B

**Oct 8:** Chair Powell announces Bill purchases

**Oct 11:** \$60B per month in Bill purchases, target higher reserve level and repo purchases to continue into 2020

Source: TradeWeb Daily Repo Commentary, Federal Reserve, Bloomberg, JPMAM

## The Federal Reserve's actions have been successful in alleviating money market strains

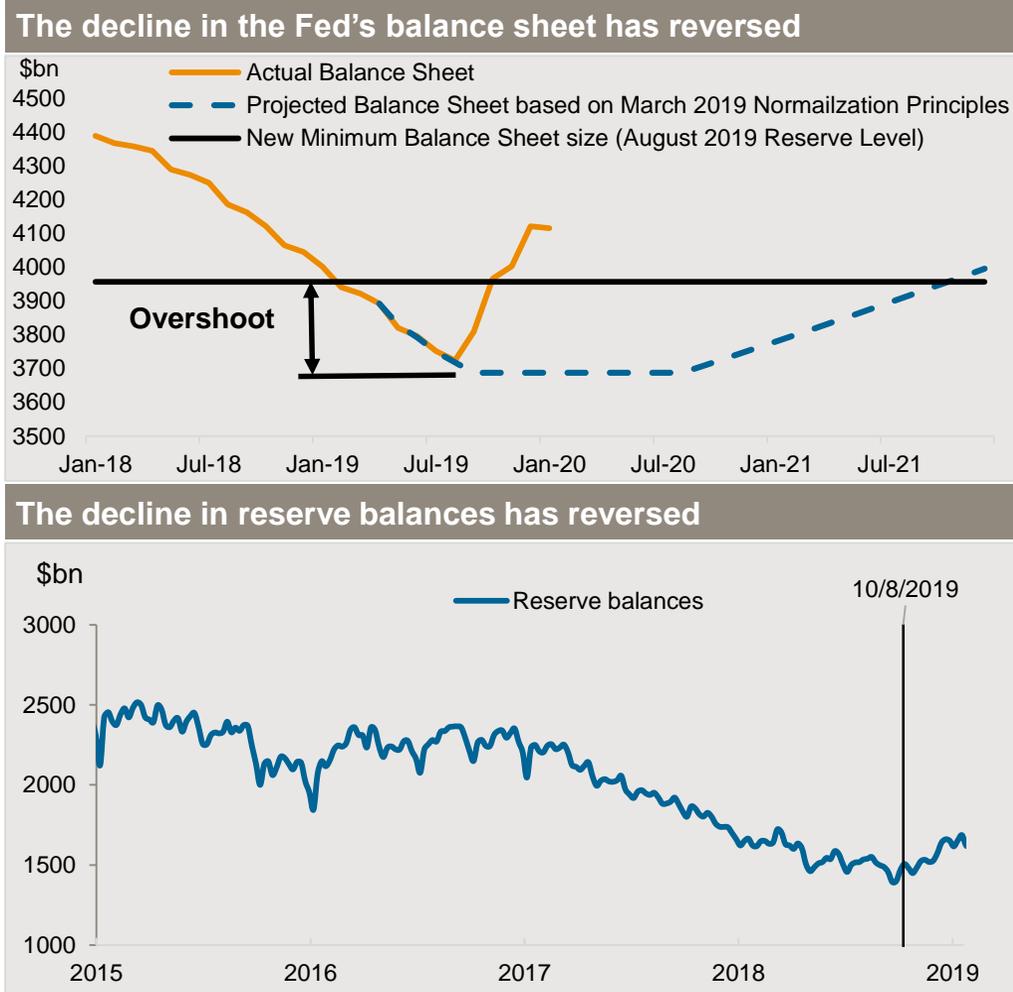
**The Fed's repo operations and reserve management purchases were designed to alleviate stresses in short-term funding markets.**

These stresses were caused by:

- Bank reserve scarcity, after the Fed's balance sheet reduction had drained \$900bn of reserves (lower chart).
- The increase in the US Treasury's cash holdings on September 16<sup>th</sup> (corporate tax payments).
- Inefficient distribution of reserves due to regulatory constraints
- Intraday liquidity buffers held by banks to avoid the stigma of intraday borrowing.

The Fed's actions since September have been successful. Money market rates have returned to normal levels, including over year end.

Other indicators of USD funding conditions have loosened, in some cases considerably, including term money market spreads (Libor-OIS) and cross-currency basis swaps.



Source: Federal Reserve, Bloomberg, JPMAM Calculations

## Financial conditions have loosened since the Fed signaled balance sheet expansion

Risk assets have performed strongly since Chair Powell signaled renewed securities purchases on October 8<sup>th</sup>, with that date appearing to be an inflection point after several months of broadly flat returns.

Consistent with this improvement of risk sentiment, inflation breakevens have increased and the yield curve has steepened slightly, indicating less concern about imminent recession.

There have been several important supportive factors for risk assets since October, chiefly the reduction in trade tensions between the US and China, and the related improvement leading indicators of trade and manufacturing.

### Financial conditions have eased

	07-Oct	11-Feb	Change
<b>S&amp;P 500</b>	2,939	3,357.8	14.3%
<b>US Dollar Index</b>	99.0	98.7	-0.2%
<b>Gold (\$/oz)</b>	1,498	1,565.6	4.5%
<b>VIX (%)</b>	17.9	15.2	-2.7
<b>High Yield OAS (%)</b>	4.09	3.52	-57
<b>EM Sovereign OAS (%)</b>	3.21	2.97	-24
<b>IG Corporate OAS (%)</b>	1.19	0.97	-22
<b>10 Year Treasuries (%)</b>	1.56	1.60	4
<b>10 Year Inflation Breakeven (%)</b>	1.51	1.65	14
<b>Fed Balance Sheet (\$Bn)</b>	3,582	3,805	6.2%

Source: Federal Reserve, Bloomberg, JPMAM

### Financial conditions index



Source: Goldman Sachs. Includes short and long-term yields, corporate spreads, S&P and USD.

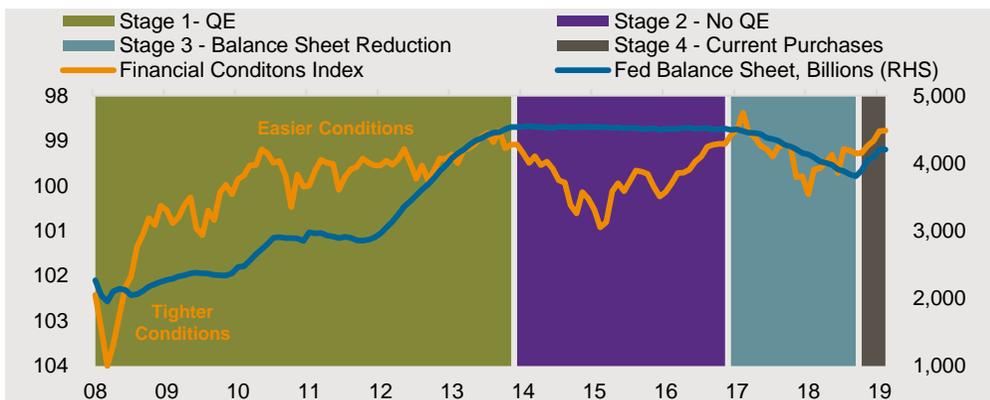
## Inflection points in the Fed balance sheet have often coincided with inflection points in financial conditions

The strong performance of risk assets since October is consistent with the historical pattern of risk assets performing more strongly during periods of central bank balance sheet expansion (left chart).

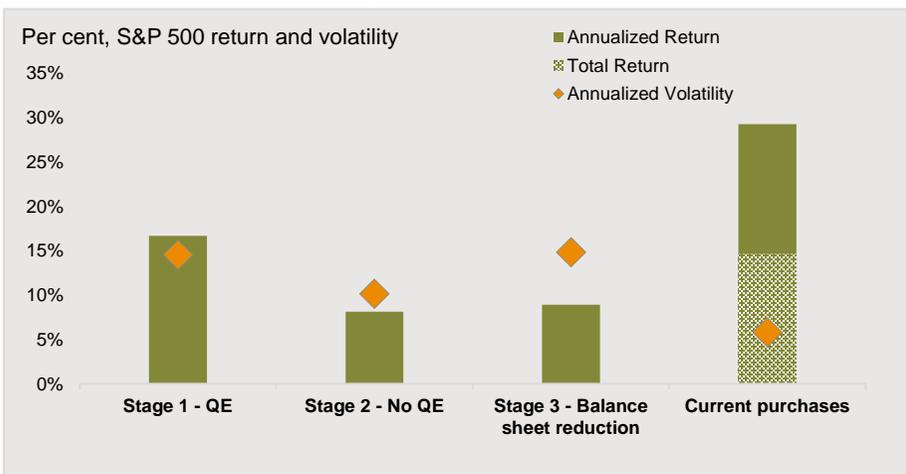
**Over the past decade, inflection points in the Fed balance sheet have often coincided with inflection points in financial conditions (right charts).**

There are two main channels through which central bank purchases affect asset prices: a portfolio rebalancing channel, and a confidence and signaling channel.

### Financial conditions vs Fed balance sheet

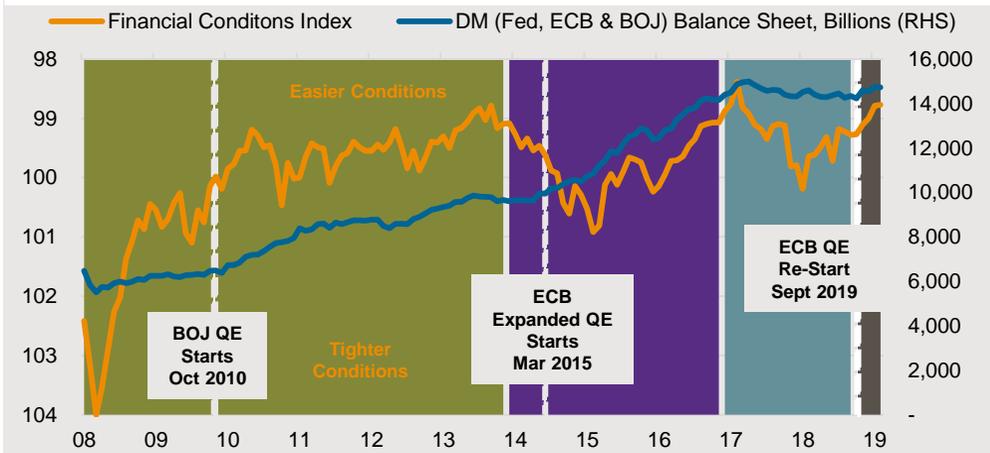


### S&P 500 stronger during balance sheet expansion



Source: Federal Reserve, Bloomberg, JPMAM

### Financial conditions vs DM (Fed, ECB & BOJ) balance sheet



Source: Goldman Sachs, JPMAM

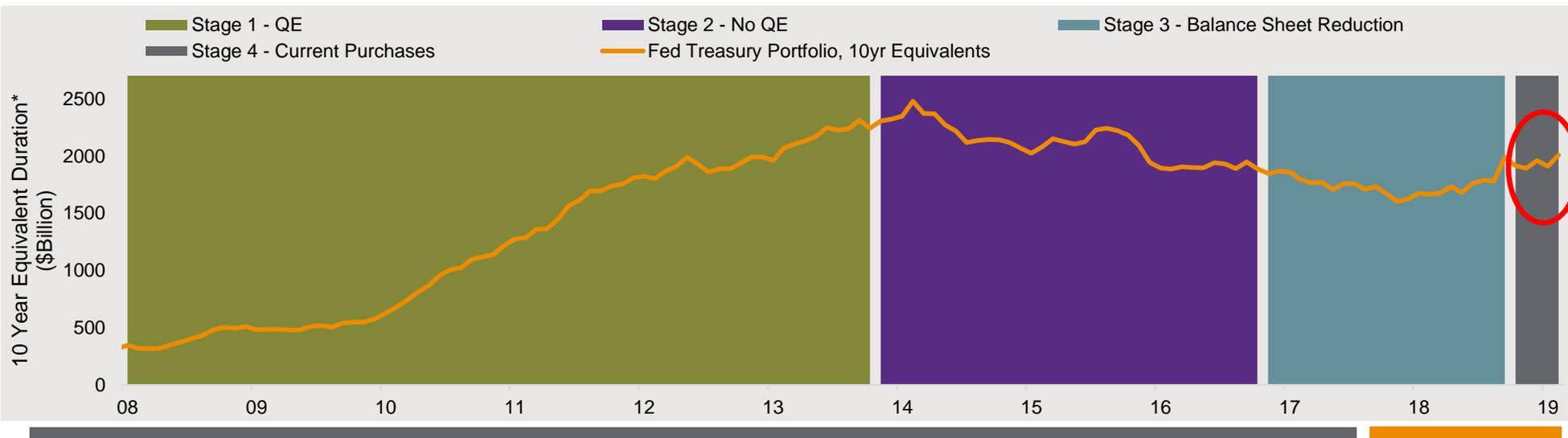
## Portfolio rebalancing

A key transmission channel of portfolio rebalancing comes through lowering real yields and credit spreads. That in turn boosts equity prices by lowering the discount rate, and by making it more attractive for companies to borrow to fund share buybacks.

The impact of asset purchases should be larger when the central bank is buying riskier assets that are far removed from cash and so creating a greater need for private investors to rebalance their portfolios. In that light, the Fed's purchases of longer-maturity Treasuries and mortgage-backed securities had a significant market impact.

**Previous QE episodes absorbed a significant amount of interest rate duration from the market. The recent Treasury Bill purchases (circled) have increased the size of the Fed's portfolio, but with little duration impact.**

### Little duration impact from current purchase programme



Source: Bloomberg, JPMAM

\*Fed Treasury Portfolio in 10yr Equivalents is impacted by interest rate movements, convexity and the composition of re-investments

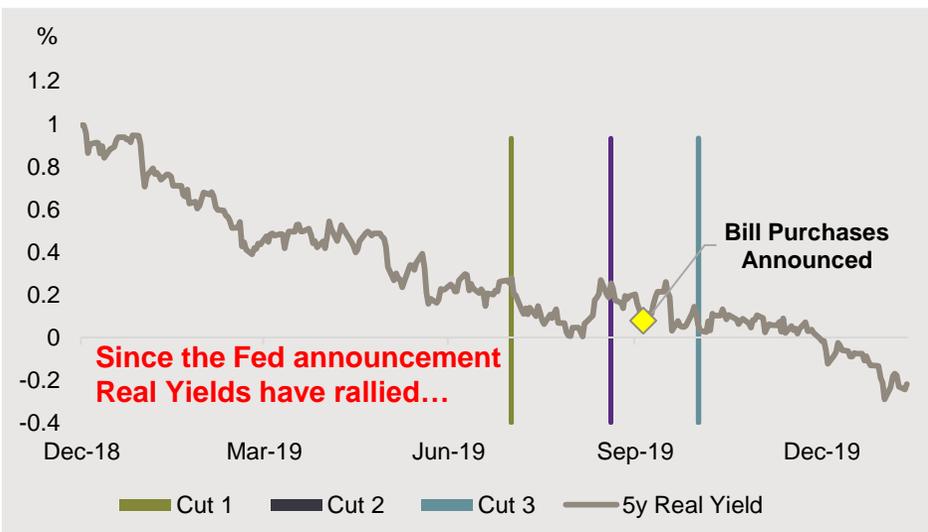
## Confidence and signaling

Traditionally central bank asset purchases have been a signal that short-term interest rates will remain low for a long time. In this episode, the Fed was clear that no monetary policy signal was intended from these Treasury Bill purchases. However, we believe there are other positive signalling channels from these purchases.

First, the Fed's prompt and effective response to an episode of market stress increased market confidence, including the confidence to buy riskier assets. Volatility in interest rate and other markets has fallen since October, although this also reflects the reduction in trade tensions.

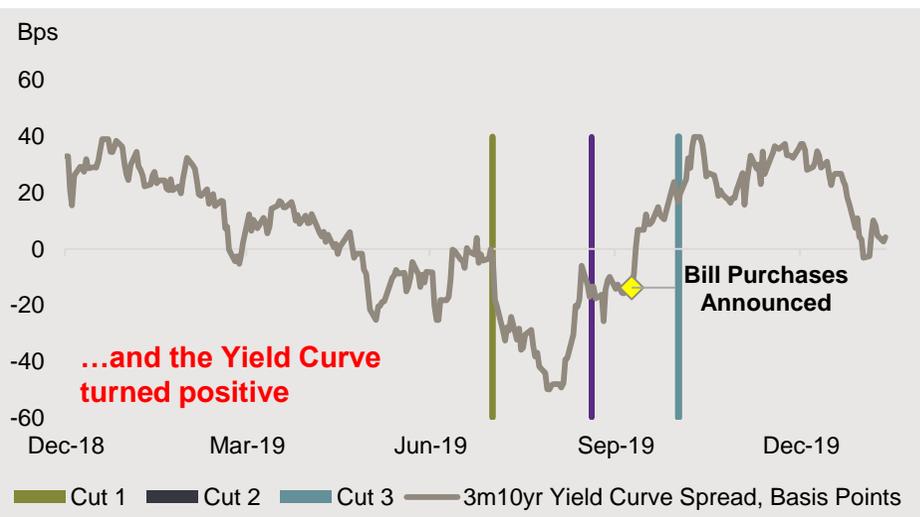
Second, market participants are highly conscious of the historically stronger performance of riskier assets during periods of balance sheet expansion. The fact that this relationship has been borne out during this latest episode, even with purchases of Treasury bills instead of long-term Treasuries, will only deepen confidence in this relationship.

### 5yr Real Yields



Source: Bloomberg, JPMAM

### Yield Curve (3 Month T-Bills to 10 Year)



Source: Bloomberg, JPMAM

## Key Takeaways

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- Chair Powell's intention was to make a technical adjustment and this was not to be confused with QE  
*Michael Feroli, in a recent research note aptly described the intention of this adjustment:*  
*"It would be a better analogy to see what the Fed is doing as removing each \$10 bill of Monopoly money and replacing it with two \$5 bills [Monopoly money]"*
- Investors viewed the Fed's action as a backstop for financial stability. As investors' confidence improved, their risk exposures increased, as demonstrated by market data.
- Concern: as FOMC tapers and eventually ends Bill purchases, market reaction could be poor.

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