



## Inflation Roundup

May 6, 2021

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The Arbor logo consists of a stylized line graph showing an upward trend, followed by the word "Arbor" in a sans-serif font.



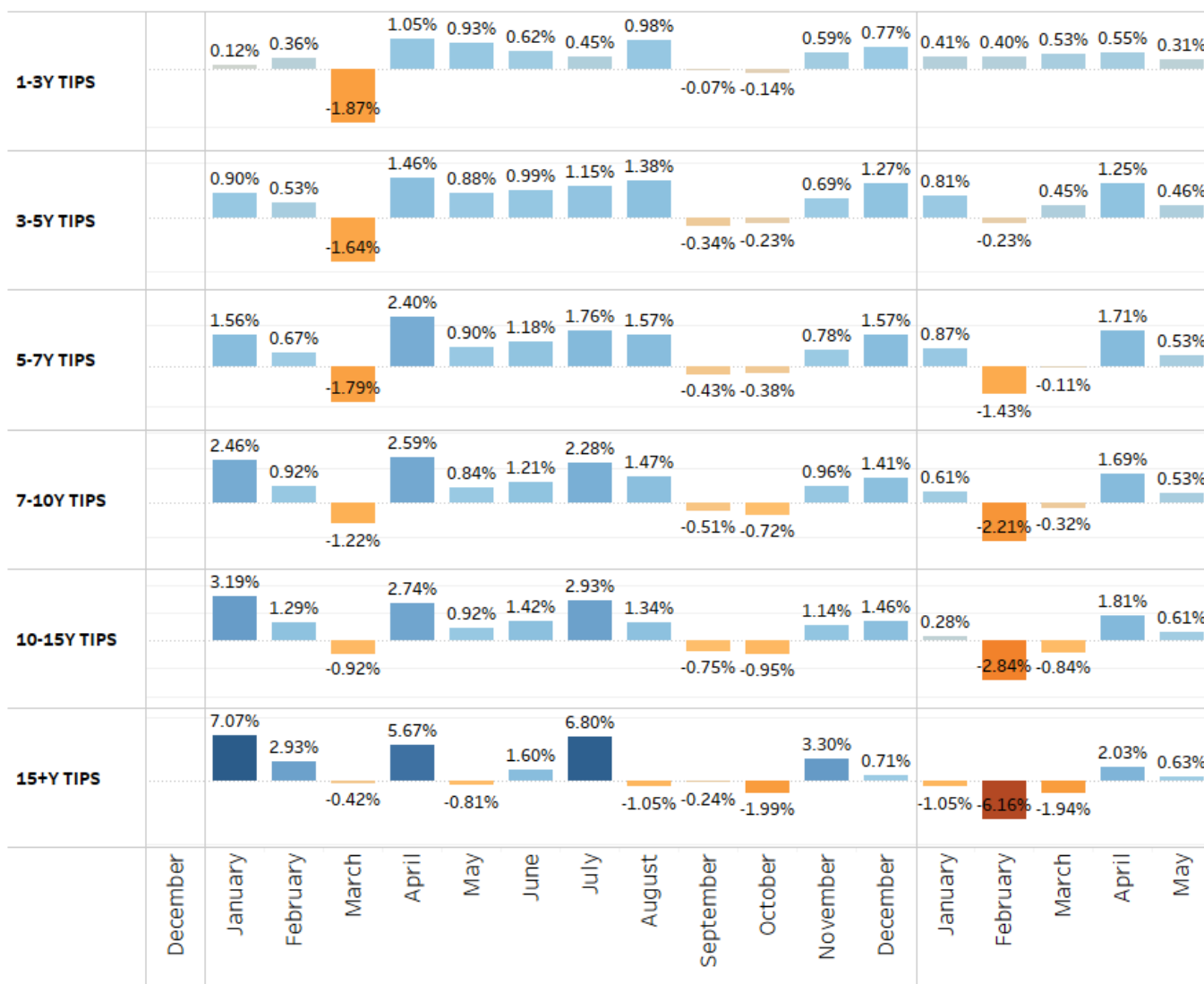
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	Conditions Fueling an Inflation Premium	Aug '20	Sep '20	Oct '20	Nov '20	Dec '20	Jan '21	Feb '21	Mar '21	Apr '21	May '21	Notes
Wider TIPS Breakevens	Commodities ex-energy and gold: 50+% produce + YOY return	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	89% of commodities rallying YOY. In addition, spot prices have risen the most on record during a global recovery.
	Global econ data releases: 50+% economies growing above one-year trend	N	Y	Y	Y	Y	Y	Y	Y	Y	Y	79% of economies growing above trend led by Asia Pacific and the US.
	Investors pricing in 2+% YOY headline CPI next 10 years	N	N	N	Y	Y	Y	Y	Y	Y	Y	Inflation swap caps/floor place a very firm floor in for TIPS breakevens at 200 bps
	TIPS breakeven curve inversion confirms committal to AIT	N	N	N	N	Y	Y	Y	Y	Y	Y	Curve inversion confirms Federal Reserve's FAIT is in action.
	Fed purchases diminishing liquidity premium	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Fed purchases (24% of total outstanding) have added nearly 80 bps to 10-year TIPS breakevens' YOY change.
	Search activity forecasts rising OER YOY	N	N	N	N	N	N	N	Y	Y	Y	Search activity synonymous w/ higher rents swung higher in Feb and Mar. Probabilities now 72% OER YOY will be higher 1y ahead into April 2022.
Impairs Risk Assets	VIX and US 10 year TIPS breakeven positively correlated	N	N	N	N	Y	N	N	N	N	N	Brief push positive in December 2020, but since retreated (45-day = -0.31). Risk assets not yet fearing inflation.
	Short-end swaption volatility shows tightening fears	N	N	N	N	N	Y	Y	Y	Y	Y	Swaption vol for 2-year rates into 2023 finally pushing above pre-pandemic levels. Eurodollar curve prices in 75+ bps of tightening through Dec 2023. Rate hike fears percolating.
	TIPS breakevens reach fair value implied by risk assets	N	N	N	N	N	N	N	Y	Y	Y	10-year TIPS breakevens have finally caught up to fair value at 240 bps as implied by risk assets. Above here, inflation expectations likely become hot, hot, hot.
	Investors pricing in 2.5% YOY headline CPI next 10 years	N	N	N	N	N	N	N	N	Y	Y	Inflation swap caps/floors are finally producing 50+% probabilities headline CPI will run hot above 2.5% YOY for the next 2-10 years. Investors are beginning to challenge the Fed's 'transitory' mantra.

# TIPS TOTAL RETURNS:

U.S. TIPS: Monthly Returns

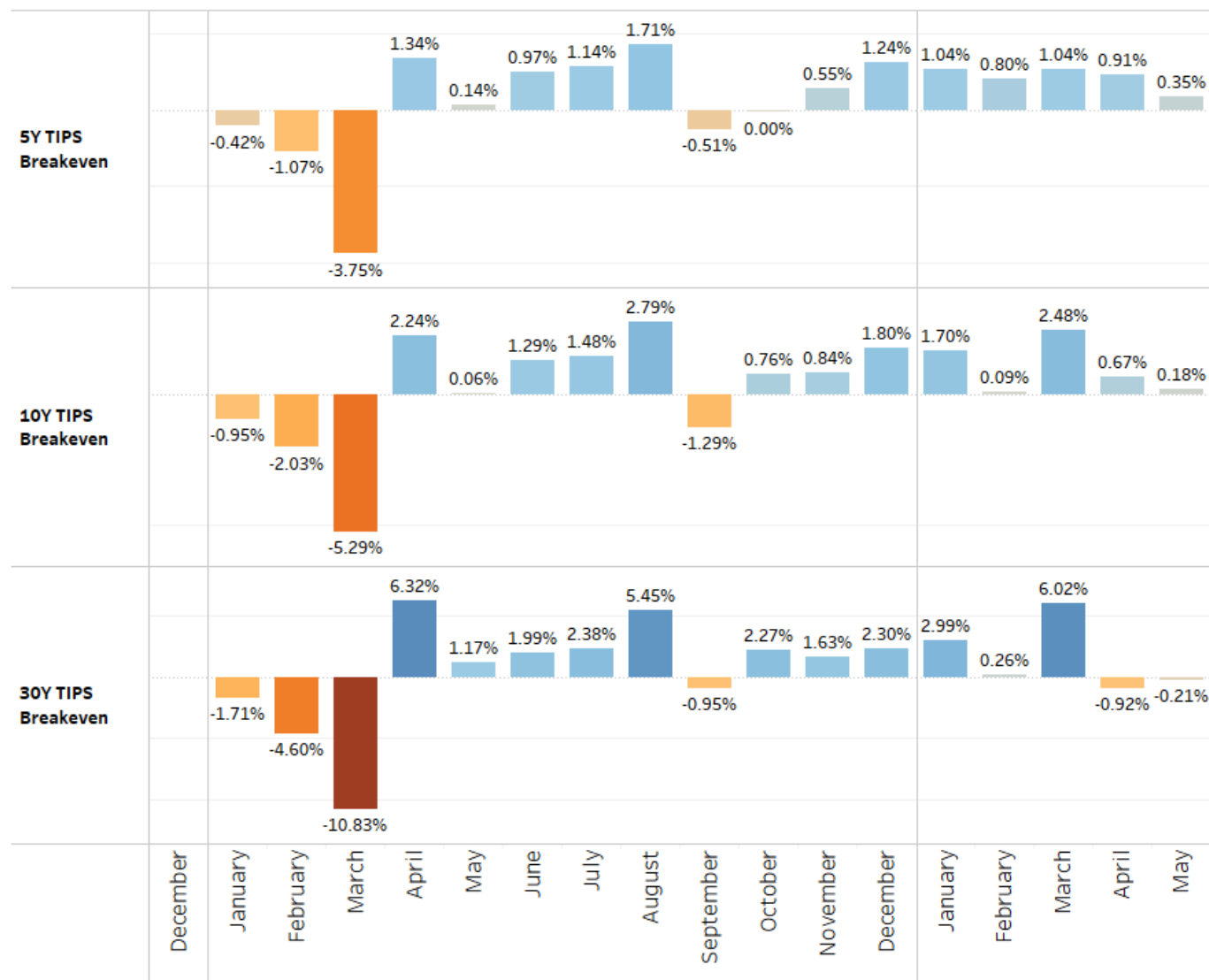


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# TIPS BREAKEVENS TOTAL RETURNS:

U.S. Inflation Expectations (duration weighted): Monthly Returns

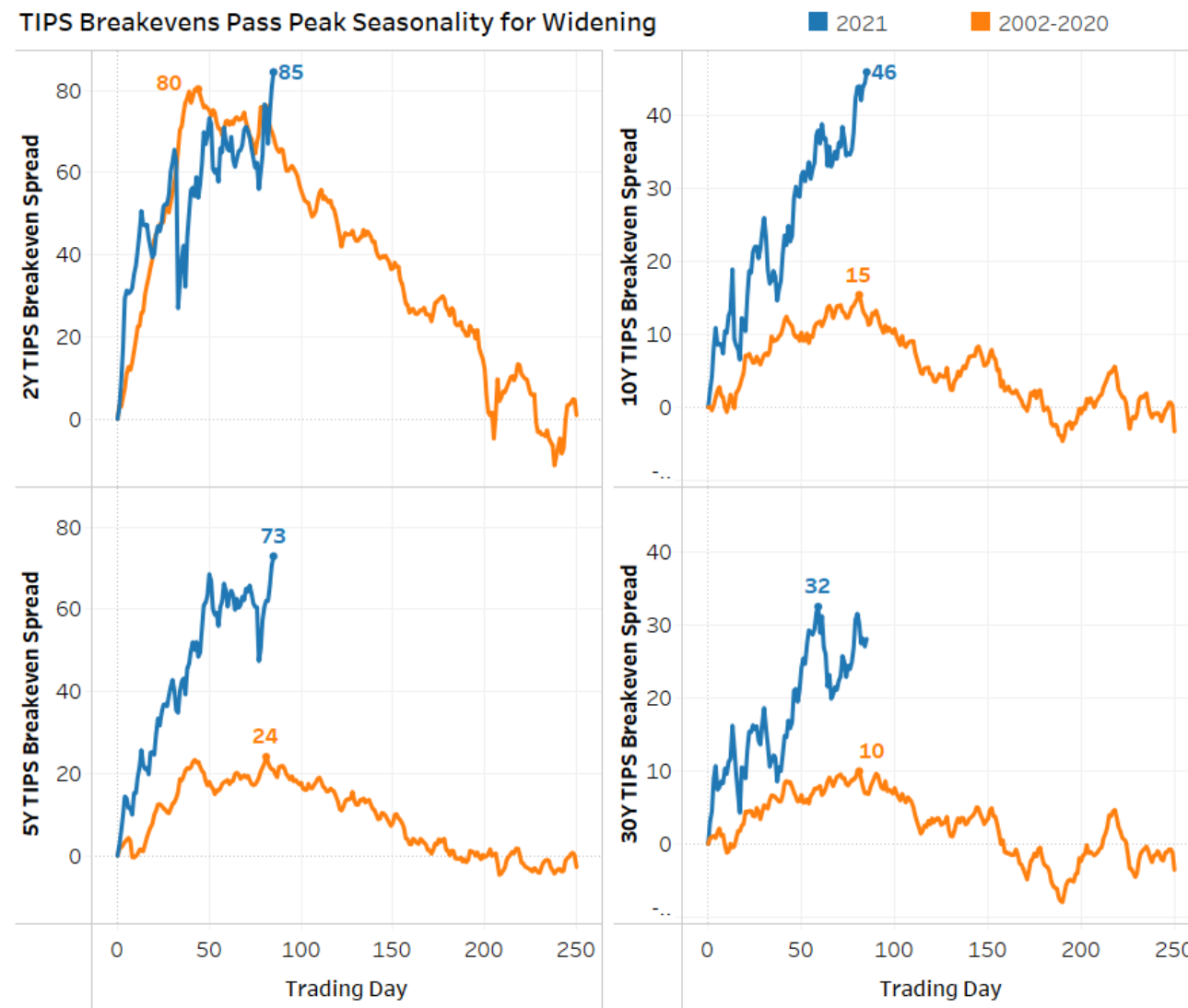


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# TIPS BREAKEVENS SEASONALITY: *Favorable Widening Seasonal Comes to an End*

TIPS Breakevens Pass Peak Seasonality for Widening



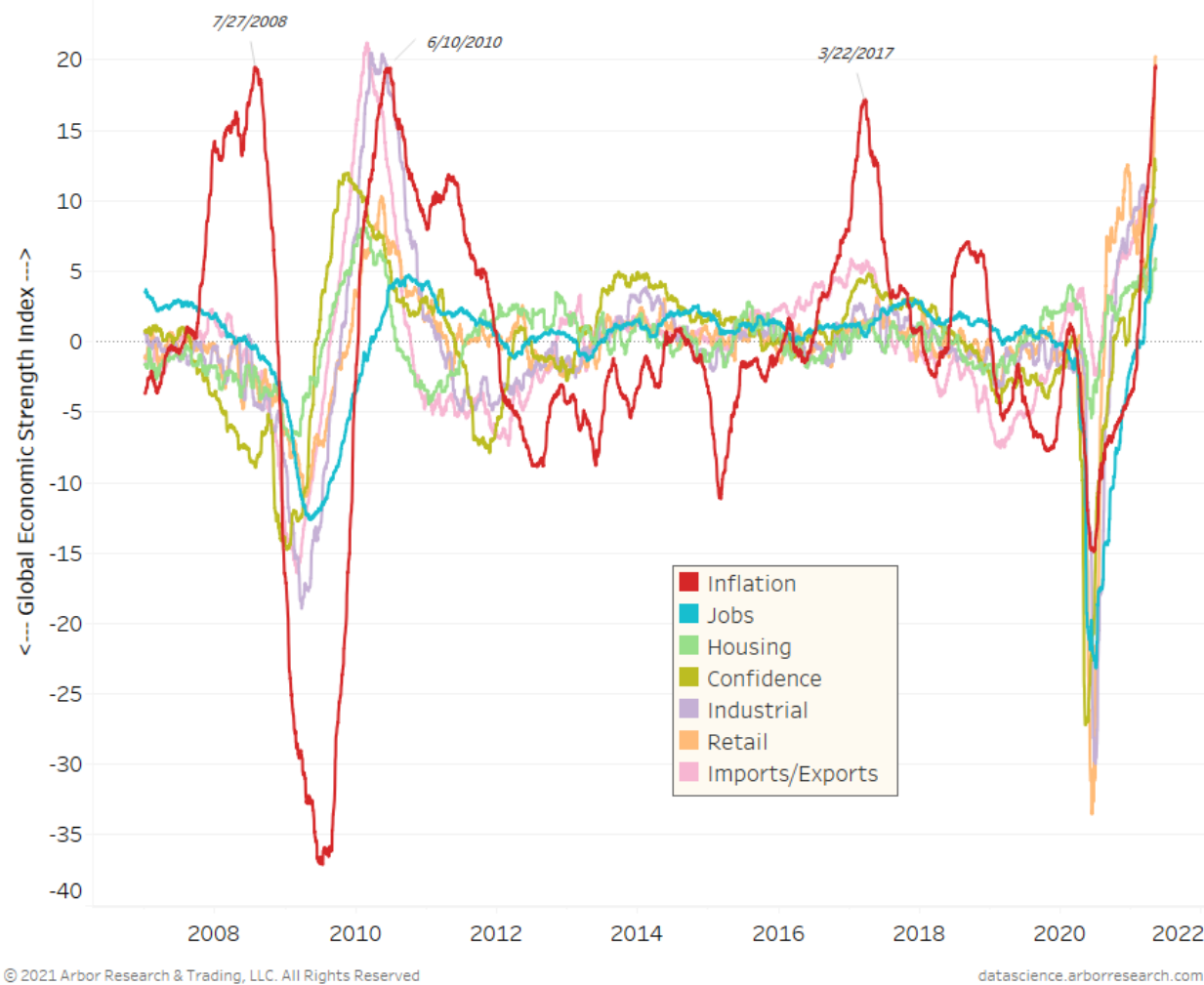
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## Global Inflation and Retail Spending Momentum Leading the Charge

Economic strength indices measure incoming data releases relative to one-year averages

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## Inflation Leading Economic Data Release Momentum

- Economic strength indices (ESIs) measure incoming data releases relative to one-year averages.
- CPI, PPI, and other inflation data have seen momentum outpace all others heading into the summer months.
- Momentum now on par with past cycles in 2008, 2010, and 2017.

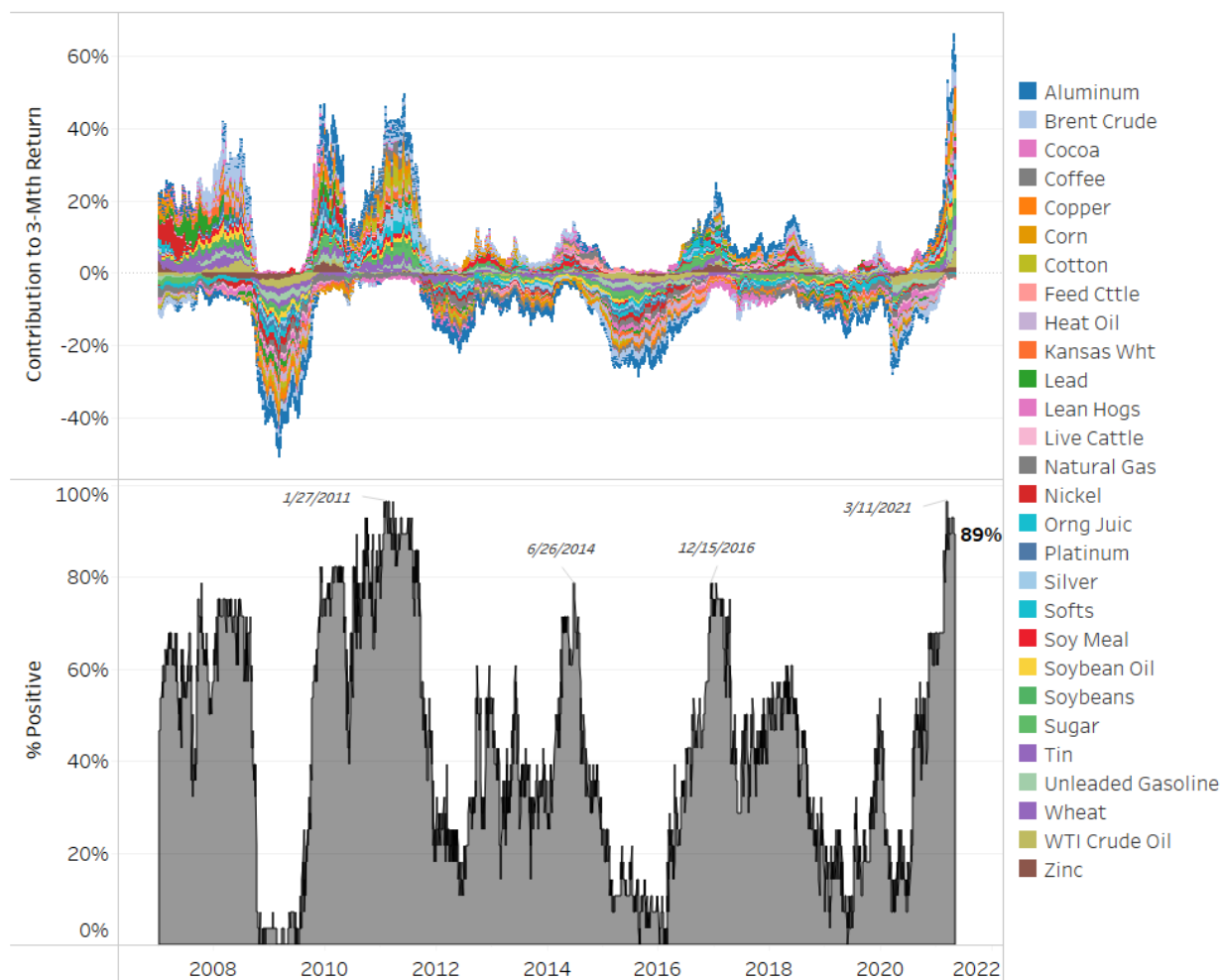
## Reasons for optimism

# Commodity Rally Hanging On

- 89% of the world's commodities are producing positive YOY gains, the highest since March 2011.
- Remember we saw a similar ubiquitous surge in commodity prices into early 2011. YOY gains are greater this time around thanks to sizable base effects.

Commodities From Agriculture to Metals Surge  
% of commodities producing positive rolling 1-year return

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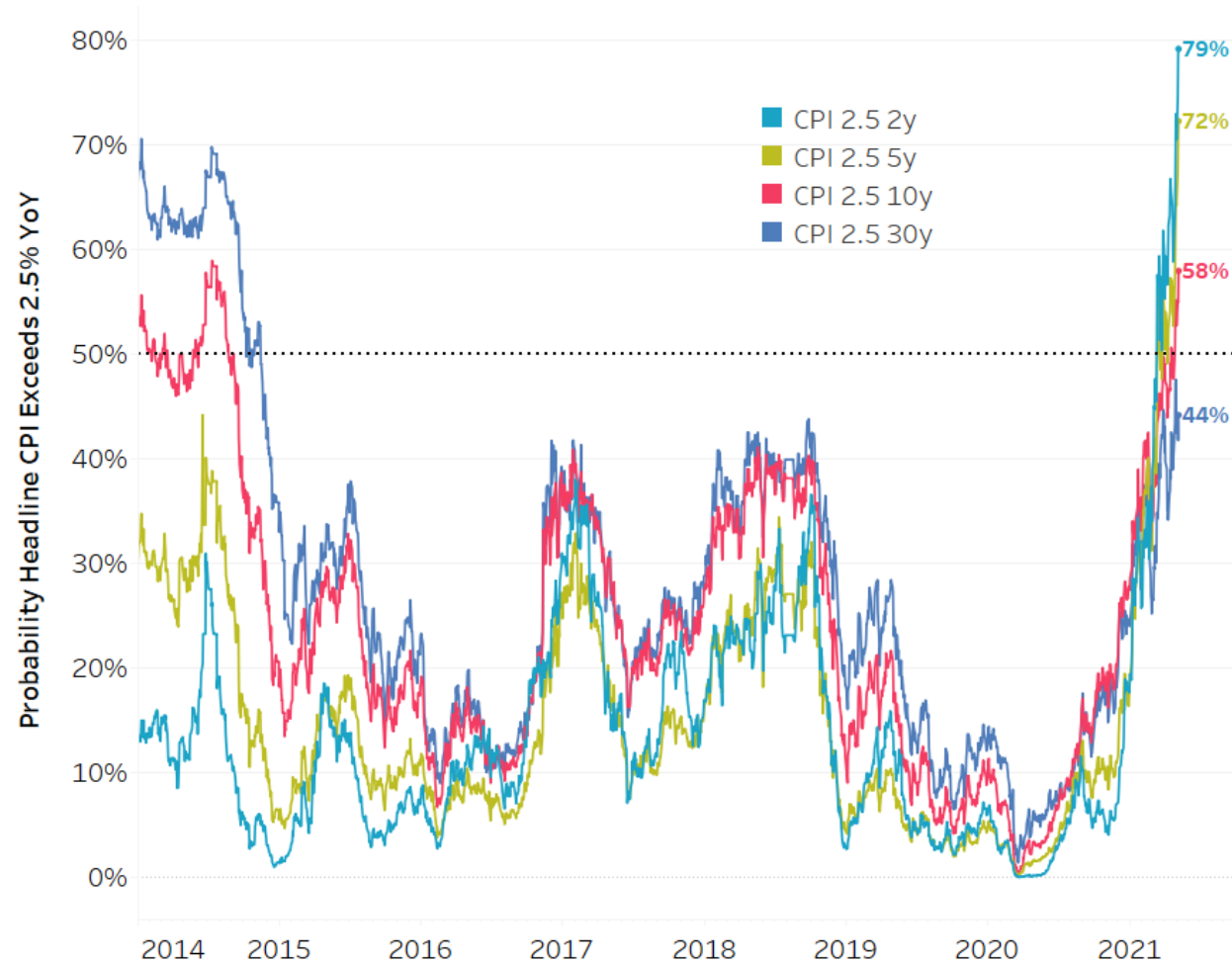
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## Expectations for 2.5+% Headline CPI

*Implied probabilities using inflation swap caps and floors with a strike CPI of 2.5% YoY*

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## Reasons for optimism

### Investors Pricing in Headline CPI > 2.5% YOY

- 2 through 10-year outlooks are producing 50+% probabilities CPI runs above 2.5% YOY.
- Seeing the entire curve price in 2.5+% YOY could trigger another leg of TIPS breakeven widening.
- **Investors are beginning to question the Federal Reserve's transitory mantra!**

## Reasons for caution

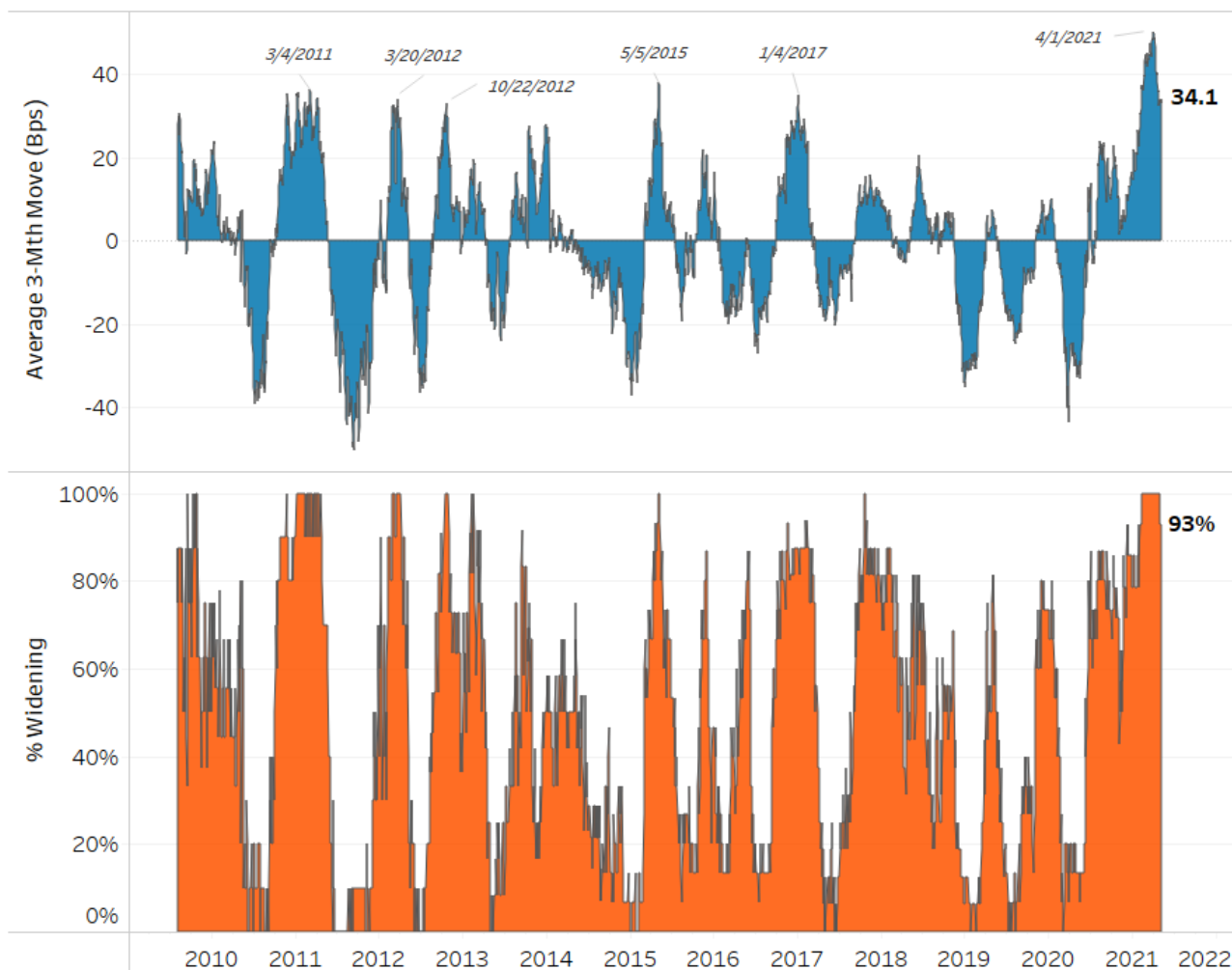
# 10-year Inflation Expectations Across the Globe Reach at Extreme

- The average three-month change across 10-year inflation expectations has begun to roll over after peaking April 1, 2021.
- 100% of 10-year inflation expectations across the globe have advanced over these past three months.
- History suggests investors should temper inflation expectations going forward, but maybe this time will be different?!

## Global 10-Year Inflation Breakevens: Rolling 3-Mth Change Recedes From Record High

*includes 14 economies from Australia to the U.S.*

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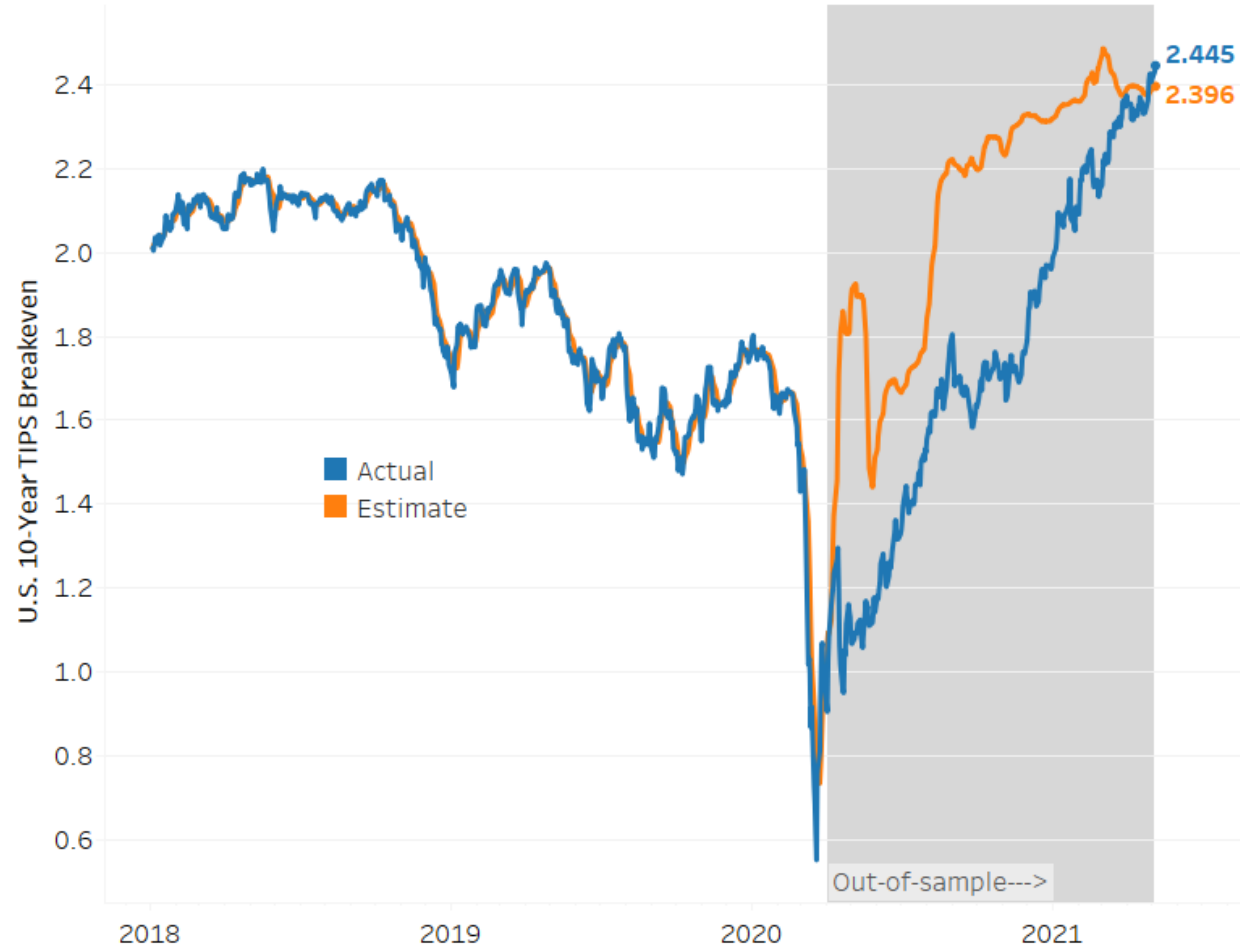
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## Where Do Risk Markets Say TIPS Breakevens Should Reside?

Model trained Jan 2001-Mar 2020 using WTI, copper, global vol and liquidity, materials, USD, and FOMC rate timing

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## Reasons for caution

### TIPS Breakevens Reach Levels Where Risk Assets Suggest They Should Reside

- Model (QRF) explaining U.S. 10-year TIPS breakevens places fair value at 239.6 bps.
- Model uses WTI crude oil, copper, global implied volatility, liquidity, materials, USD, and FOMC rate timing.
- **Widening above this fair value of sorts would suggest inflation expectations have become too hot.**

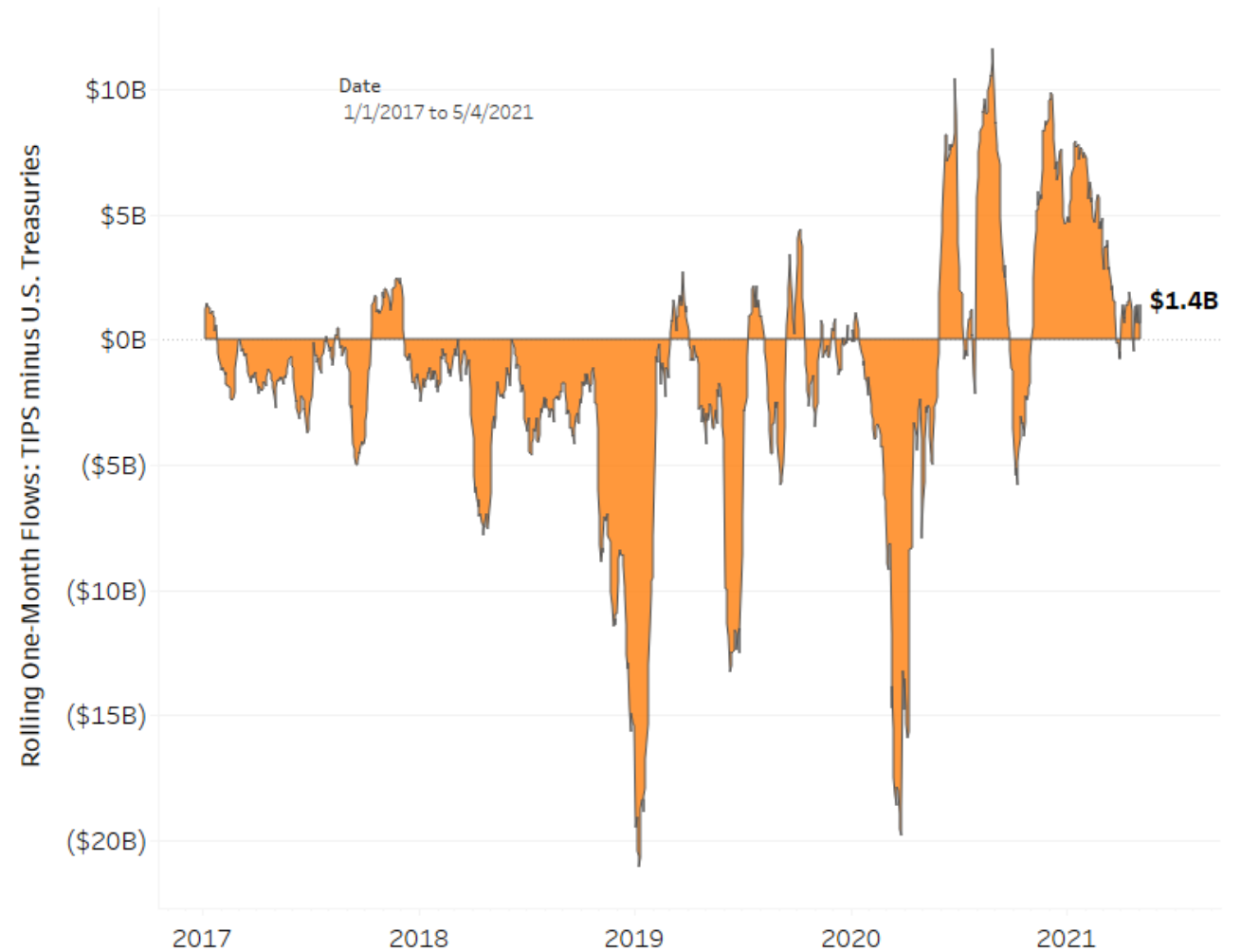
## Reasons for caution

# Investors Slow Flows Into Inflation Expectations

- Flows into TIPS relative to nominal USTs have quickly slowed in recent weeks. We become concerned only if these relative flows turn negative.
- Nonetheless, commodities, materials, industrials, and TIPS remain in demand.
- Inflation-friendly flows the most consistent since the election than any other theme.

## Investors No Longer Chasing TIPS Over Nominals

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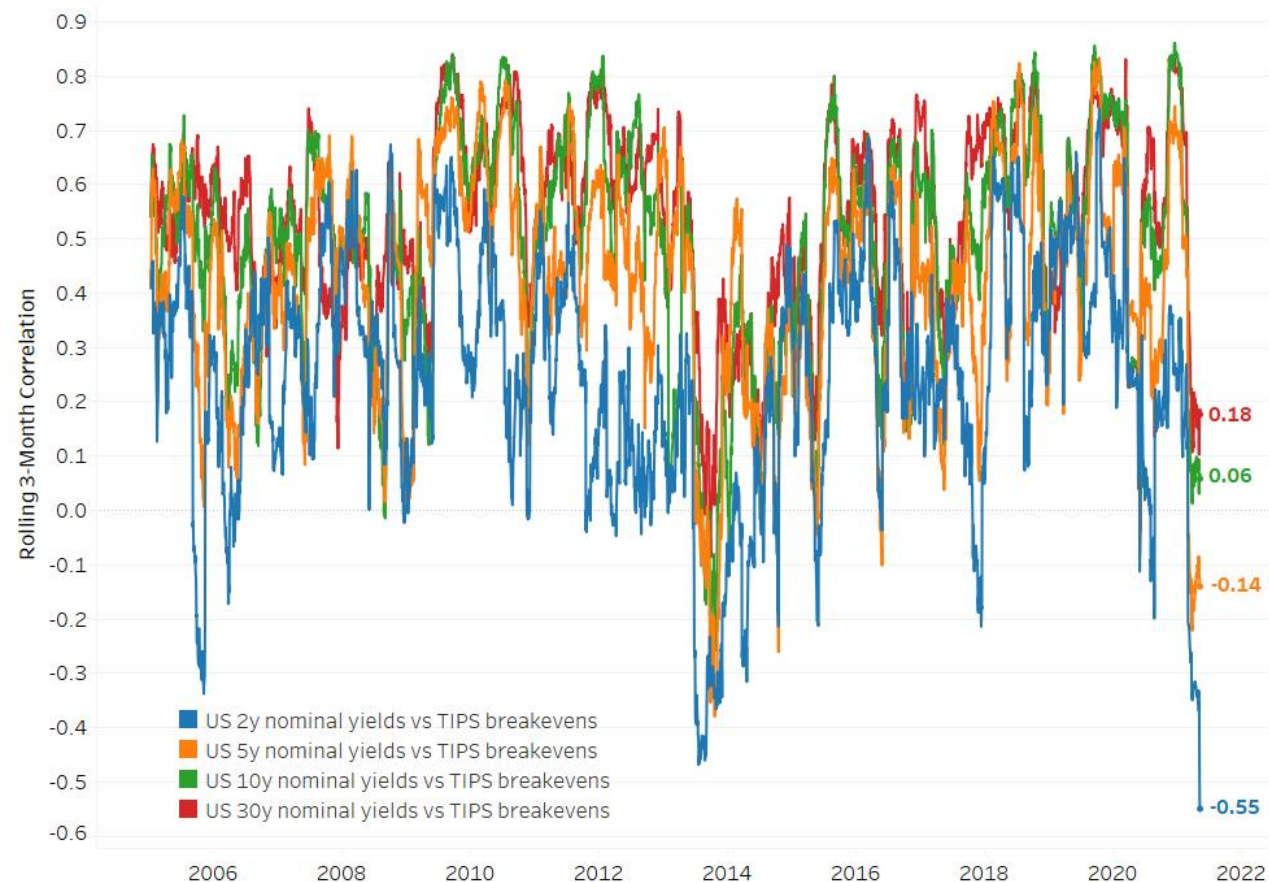
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## Correlation Between Nominal Yields and TIPS Breakevens Reaches Extremes

*Get ready for inflation expectations to take the baton from Federal Reserve policy expectations*

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## Inflation Taking the Baton From Fed Policy as Driver of Yields?

- US real yields (TIPS) have been the driver of higher nominal yields since February 2021. In other words, fears over Federal Reserve tightening via tapering and then rate hikes.
- BUT! The rolling three-month correlations between nominal yields and TIPS breakevens have reached extremes suggesting a rebound is on the horizon. Inflation will likely take the baton from Federal Reserve policy expectations. The US 10-year note yield versus S&P 500 correlation will not turn persistently negative unless inflation expectations become the true driver.
- Note we saw a similar scenario following the taper tantrum in 2013, but inflation never showed up!

## Reasons for optimism

Flexible CPI Soars

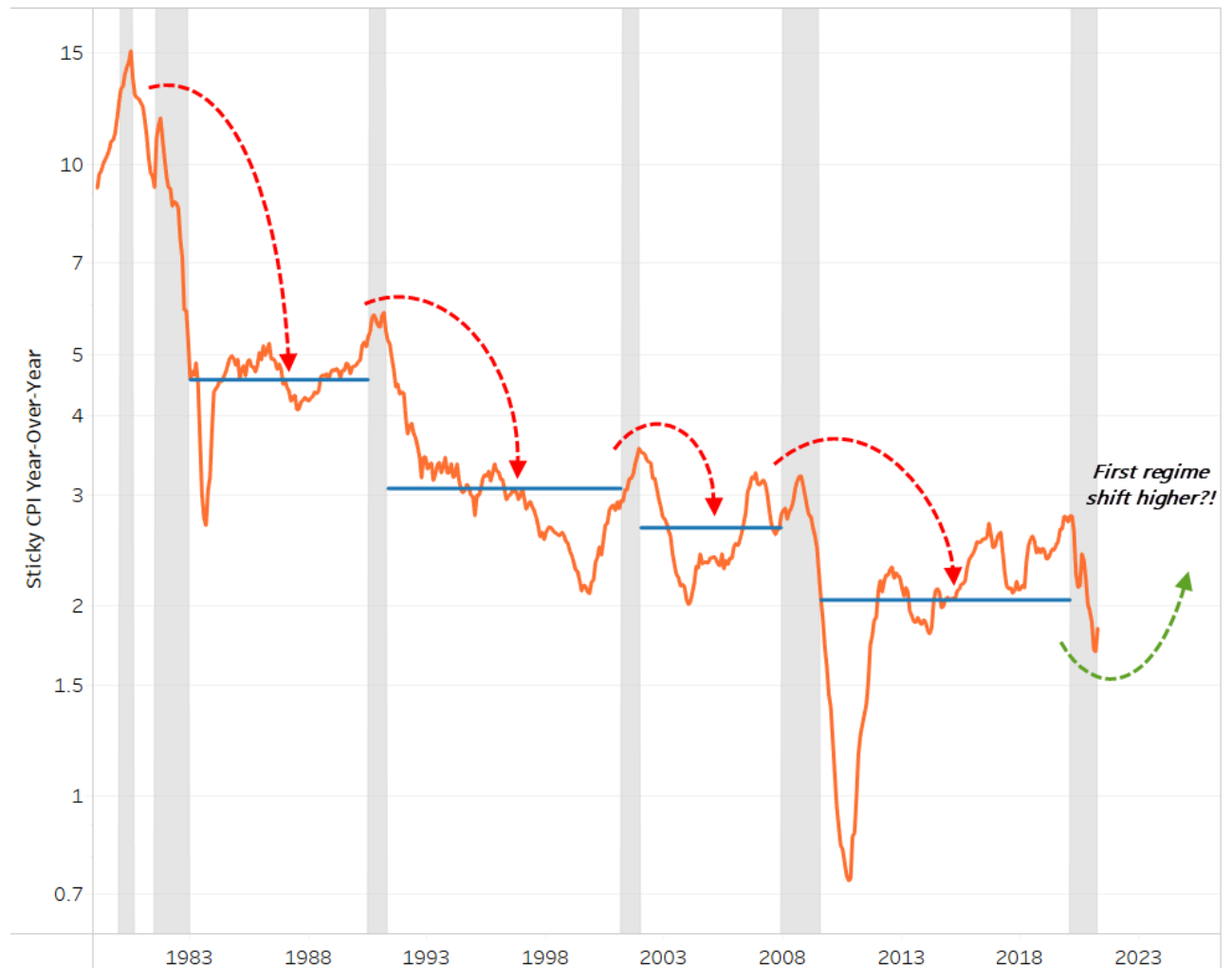
Will Sticky CPI Unstick?!

- Flexible CPI has shot to 14.7% on a 3-month annualized basis, the highest since May 2011.
- Sticky CPI has begun to cover to a pace of 2.3% on a 3-month annualized basis.
- **Remember sticky CPI has seen a regime shift lower after EVERY recession. Will this be the first to see a regime shift HIGHER?!**

### US Sticky CPI Regime Shifts Lower After EVERY Recession

*Is this phenomenon finally up?!*

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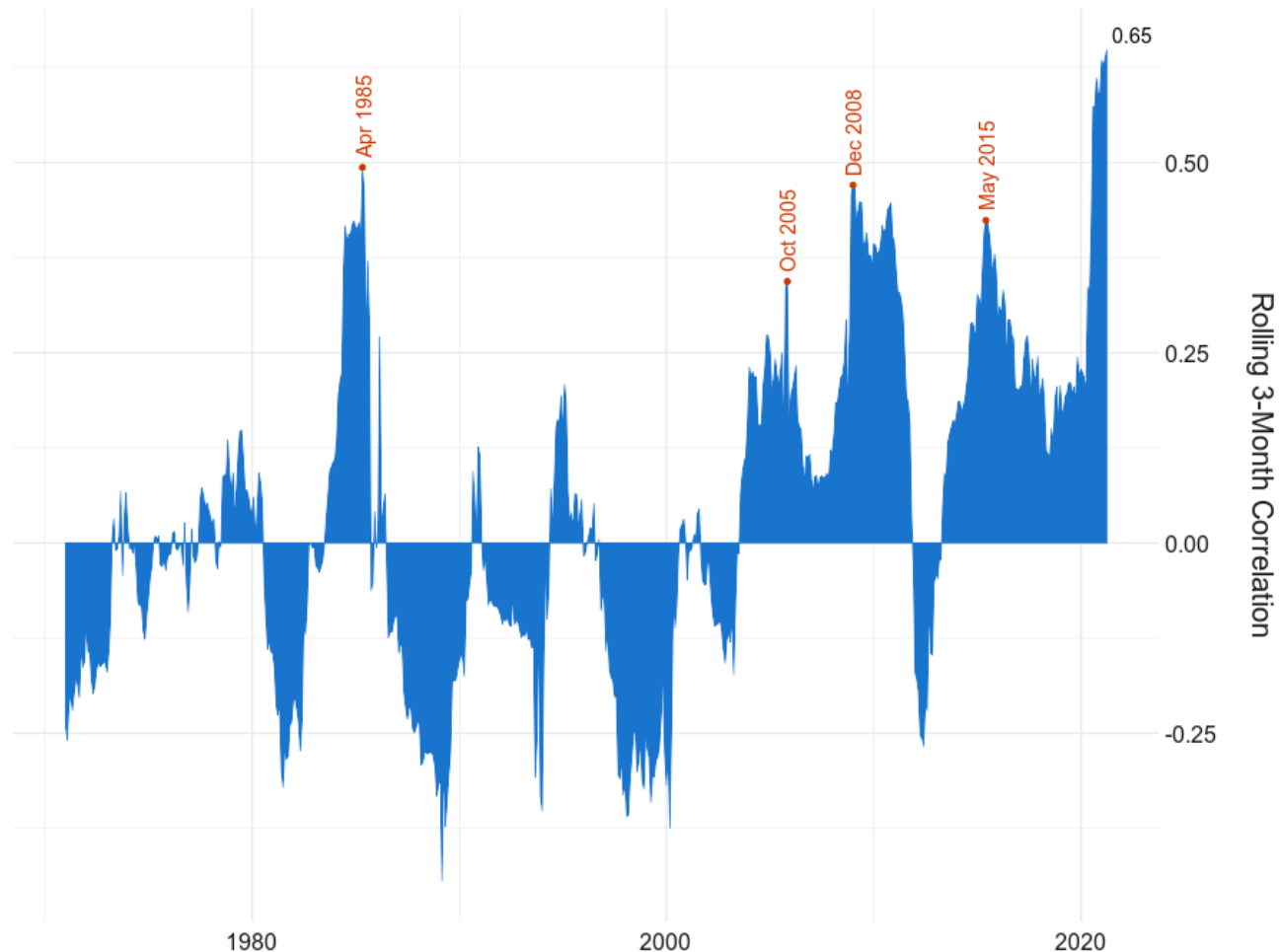
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## US Flexible and Sticky CPI Suddenly Align

Rolling 3-year correlation between monthly chgs in 3-month annualized flexible and sticky CPI

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### Reasons for optimism

## Flexible and Sticky CPI Components Suddenly Positively Correlated

- The rolling three-year correlation between changes in flexible and sticky CPI (three-month annualized) has jumped to the highest on record!
- In other words, noisy flexible prices have become quite attached to sticky prices (i.e. core).
- **Persistently high flexible prices has potential to drag higher sticky prices.**



## ‘Taper’ Has Yet To Enter the Fed’s Playbook

- The chart shows the frequency of words denoting taper on a rolling three-month basis across all major central banks.
- Since the aftermath of the “taper tantrum”, central banks officials’ utterances about tapering have been increasingly rare.
- Tapering discussions have increased slightly since the beginning of 2021, but not significant enough to worry over.

Central Banks Aren't Really Talking About Tapering  
Rolling 90-day Average Proportion of Tapering to High Frequency Terms

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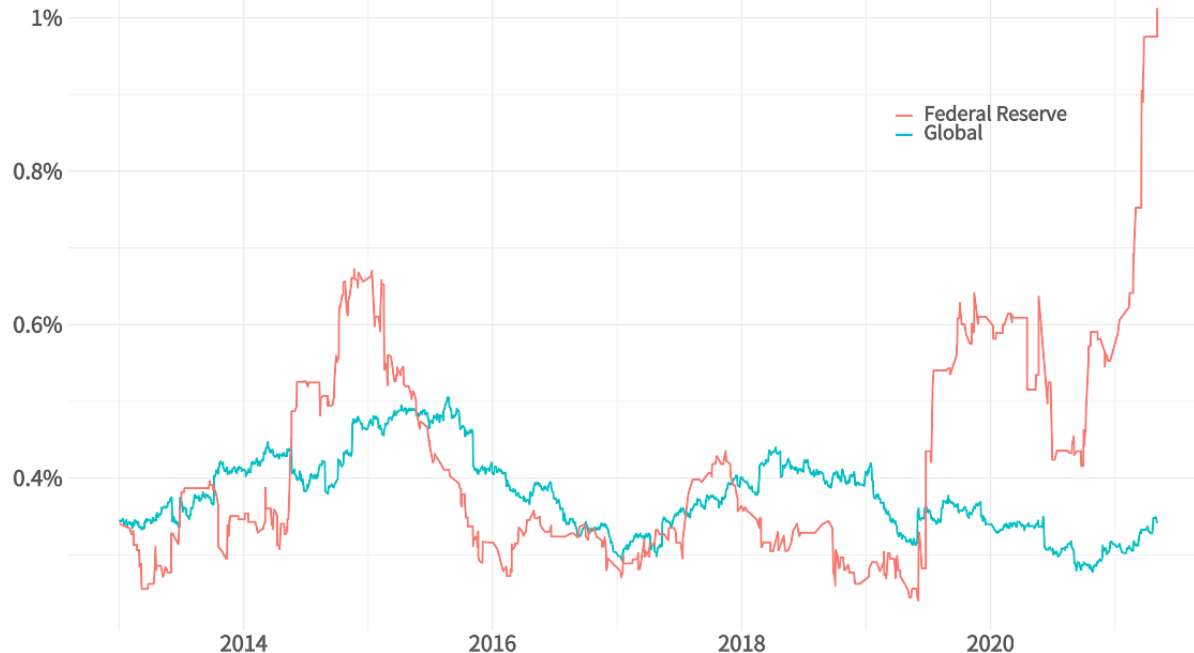




## Federal Reserve Still Signalling Patience

Rolling 1-year Average Proportion of Passive Words to High Frequency Terms

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## Awaiting a Reduction in Passive Language Key to Predicting the Taper

- We have noted the Federal Reserve stands out as extremely passive in its language relative to history.
- Officials have adopted a results-based approach requiring strings of economic progress before lifting their fingers.
- The chart shows the loudening lullabies officials have been signing to soothe investors' expectations. A reversal in passive banter could be a strong indication that central banks are going to take hold of the wheel and diminish the rate of U.S. Treasury purchases.

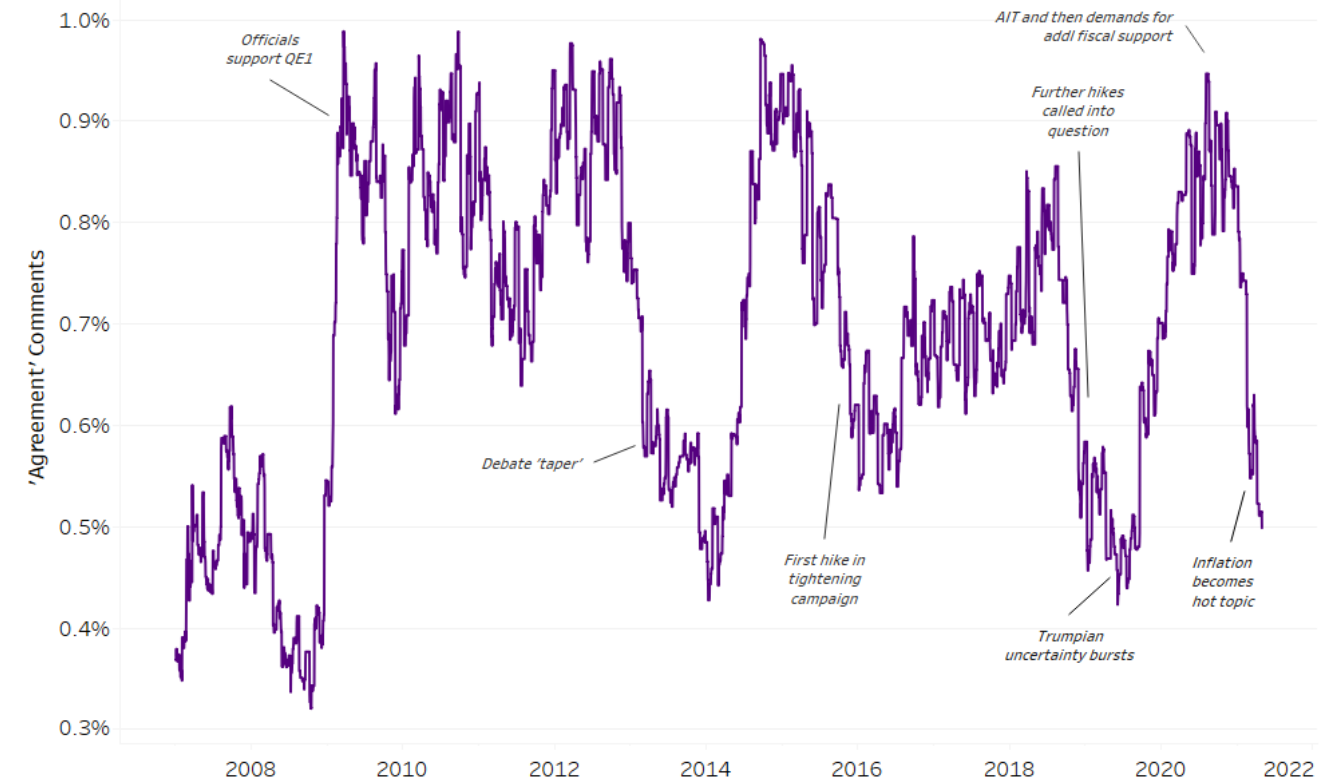
# Agreement Among Fed Officials Plummets

- A big issue worth closely monitoring is the degree of agreement among officials.
- The frequency of words of agreement has fallen toward levels seen in the wake of the taper tantrum, first hike in 2015, and Trumpian uncertainty.
- Less and less agreement suggests heavy debates among officials that will eventually bleed elsewhere.

## Fed Communications: Words of Agreement on the Decline

Rolling one-year usage in official communications as % of high frequency words

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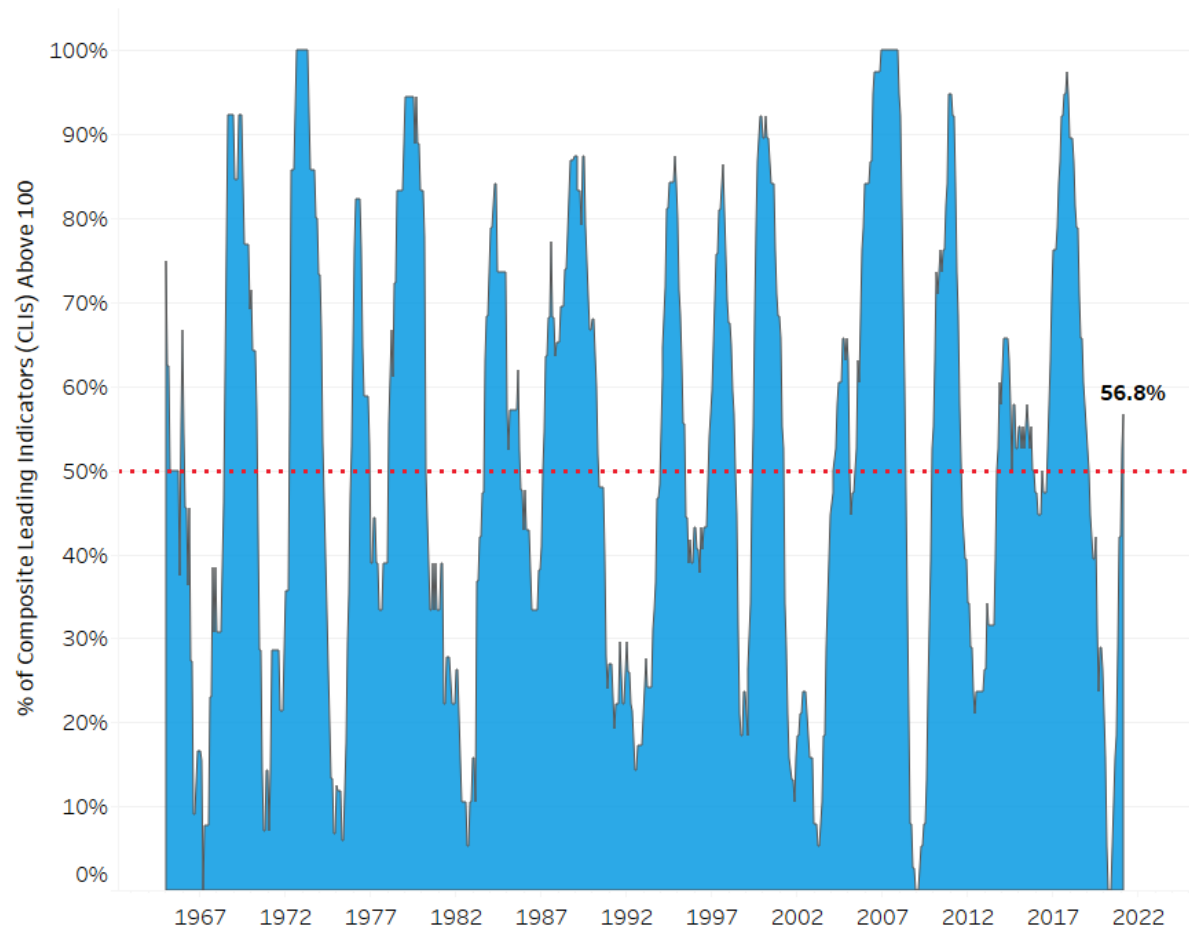
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### Identifying Past Global Recoveries Using OECD Composite Leading Indicators (CLIs)

Measuring 35 individual economies through March 2021

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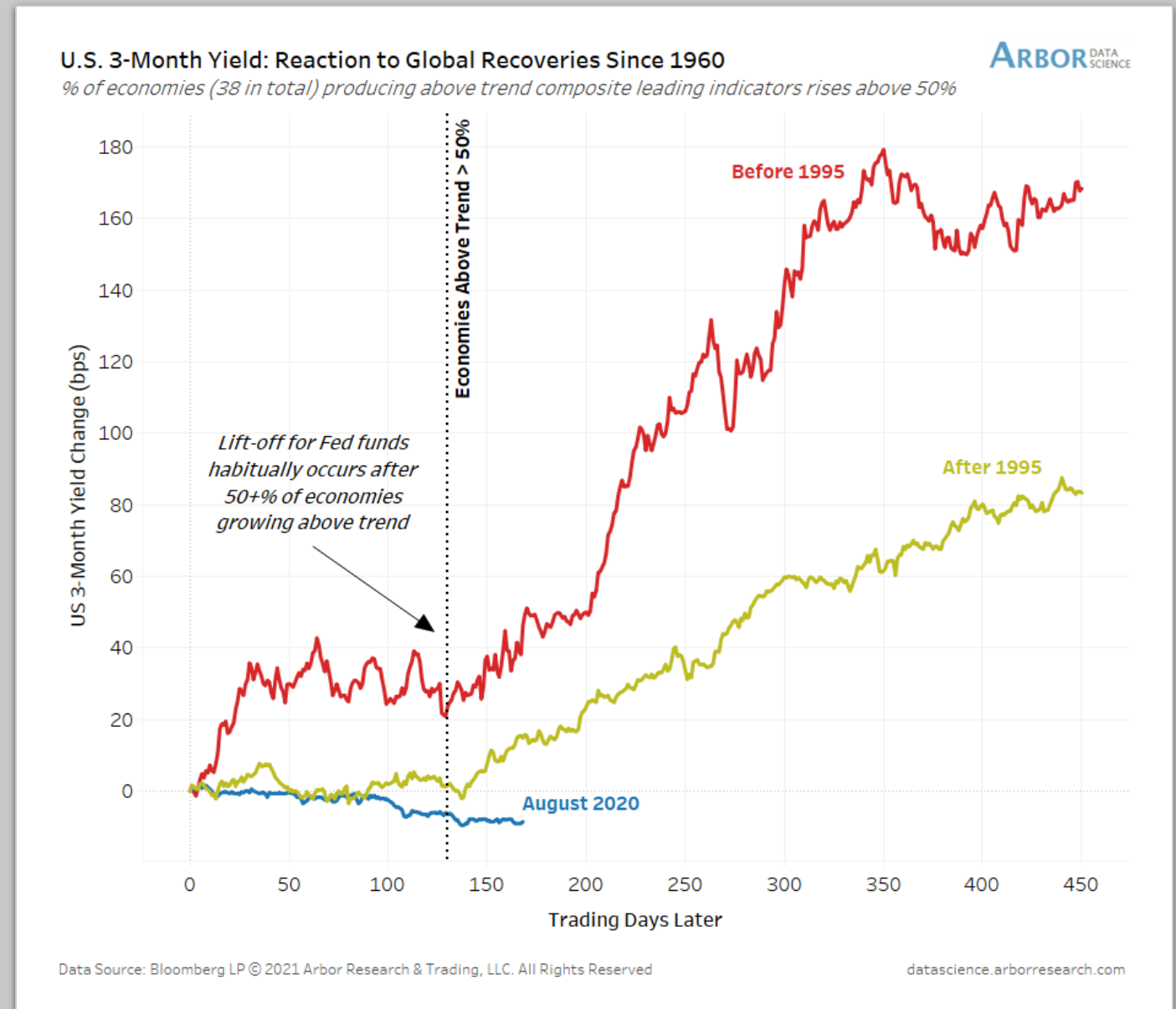
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## Leading Economic Indicators Confirm the Global Revival

- The global recovery has crossed a significant hurdle with 50+% of economies producing above trend leading economic indicators in February and March.
- We have routinely used the percentage of economies with OECD composite leading indicators (CLIs) above 100 to define global slowdowns and eventual recoveries.

## Federal Reserve is Truly Bucking Past Tendencies to Hike Rates

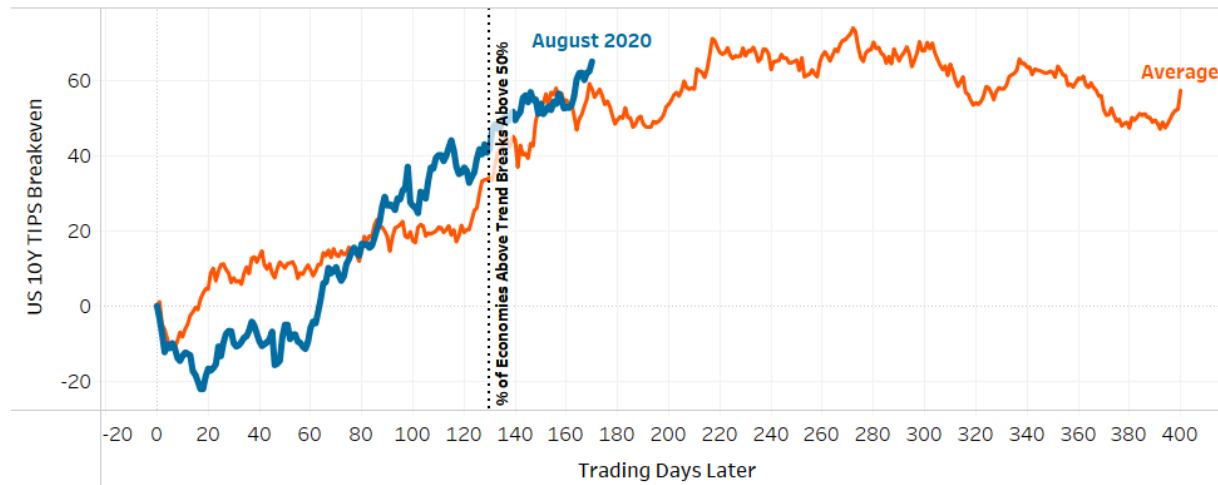
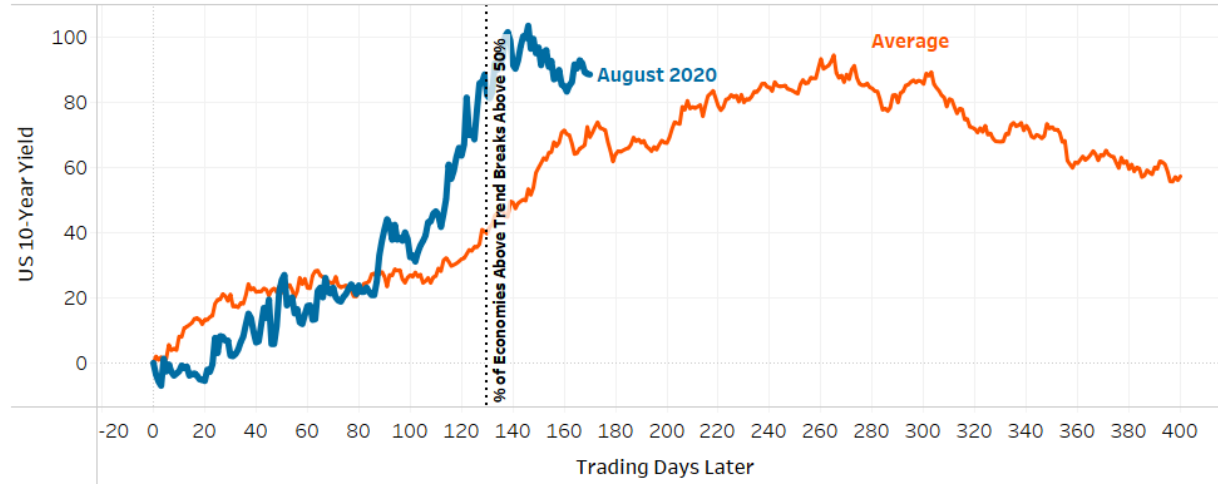
- The chart shows past changes in U.S. 3-month yield during global recoveries since 1960.
- Both pre and post-1995 averages began to rise at this point in the cycle, while the latest cycle remains flat.
- The Federal Reserve remains committed to tapering well-before hiking rates. The opportunity for inflation to run hot is here.



### US 10-Year Yields and TIPS Breakevens: Reaction to Global Recoveries Since 1970

% of economies (38 in total) producing above trend composite leading indicators rises above 50%

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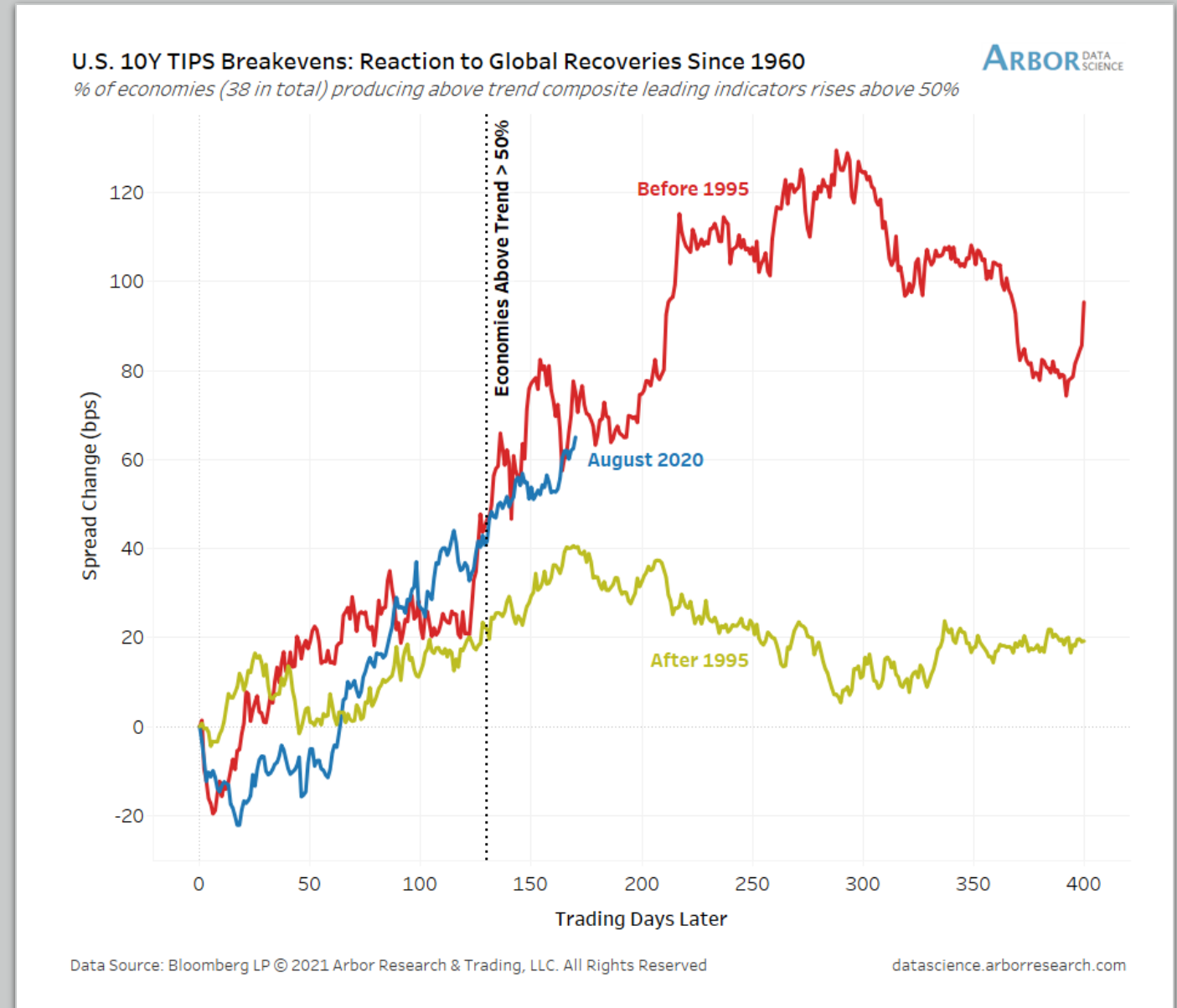
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## US 10-Year Nominal Yields and TIPS Breakevens Tracking Past Global Recoveries

- The chart shows past changes in US 10-year yields and TIPS breakevens during global recoveries since 1970.
- US 10-year yields have already moved the average ~95 bps from the six months before the global recovery is time stamped.
- TIPS breakevens' momentum tends to slow within the next 2-3 months of the global recovery, but...

# Investors Looking to Pre-1995 Relationship Between Global Growth and Inflation

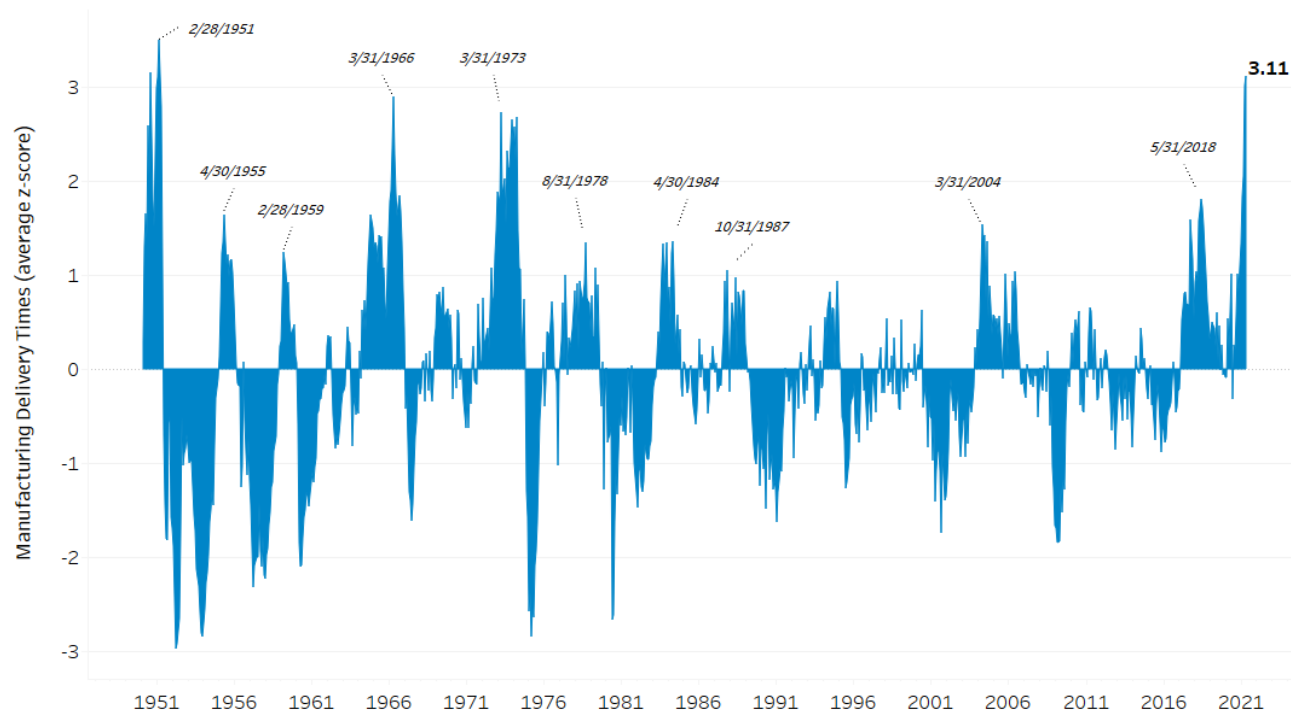
- Whether or not inflation persistently runs above expectations (i.e. 2% year-over-year) will be the clincher. The chart shows past changes in US 10-year TIPS breakevens during these global recoveries since 1960.
- Thus far US 10-year TIPS breakevens have been in line with average widening seen pre-1995 after more than 50% of economies began growing above trend.
- **Inflation expectations before 1995 on average added another 60+ basis points.** On the flip side, inflation expectations after 1995 tended to stall and quickly lose momentum. Are investors finally pricing in potential for a return to pre-1995 inflation dynamics?



### Manufacturing / Supplier Delivery Times Longest Since 1951

Average z-score of delivery time surveys from Dallas Fed, ISM manufacturing, Kansas City Fed, Philly Fed, and US Empire State

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### Reasons for optimism

## Delivery Times Sky-Rocket, Hinting at Supply Constraints Producing Inflation

- Chart shows average z-score for manufacturing / supply delivery times using the following surveys: *Dallas Fed, ISM Manufacturing, Kansas City Fed, Philly Fed, and US Empire State.*
- No recent comparison for supply-side constraints except pre-1975!

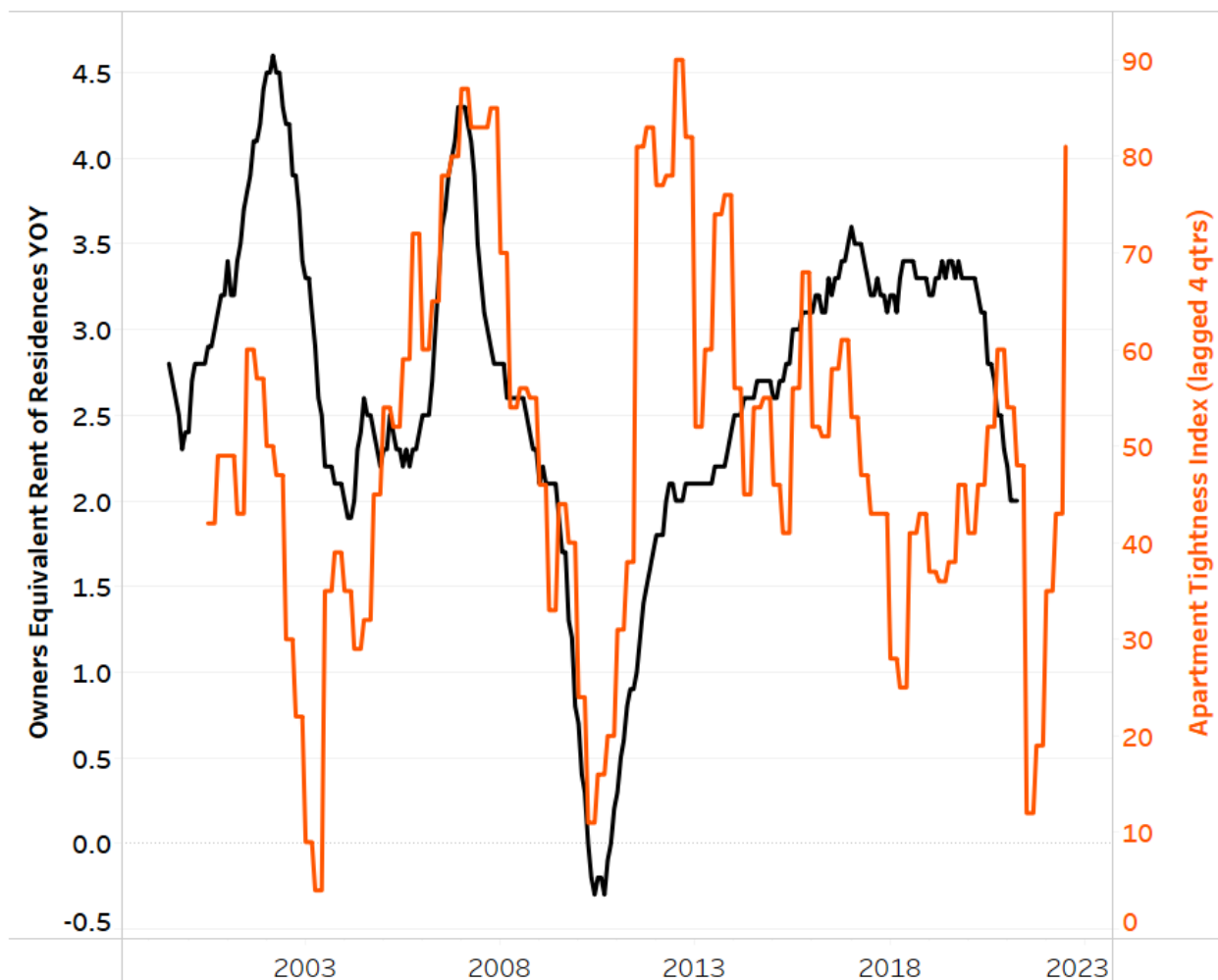
## Reasons for optimism

# Apartment Tightness Greatly Increases Heading Toward the Summer

- The NMHC's survey reflects tightening conditions for would-be renters.
- Historically, apartment tightness has led OER YOY by roughly one year.

U.S. Apartment Market Rebounding From Extremely Loose Conditions

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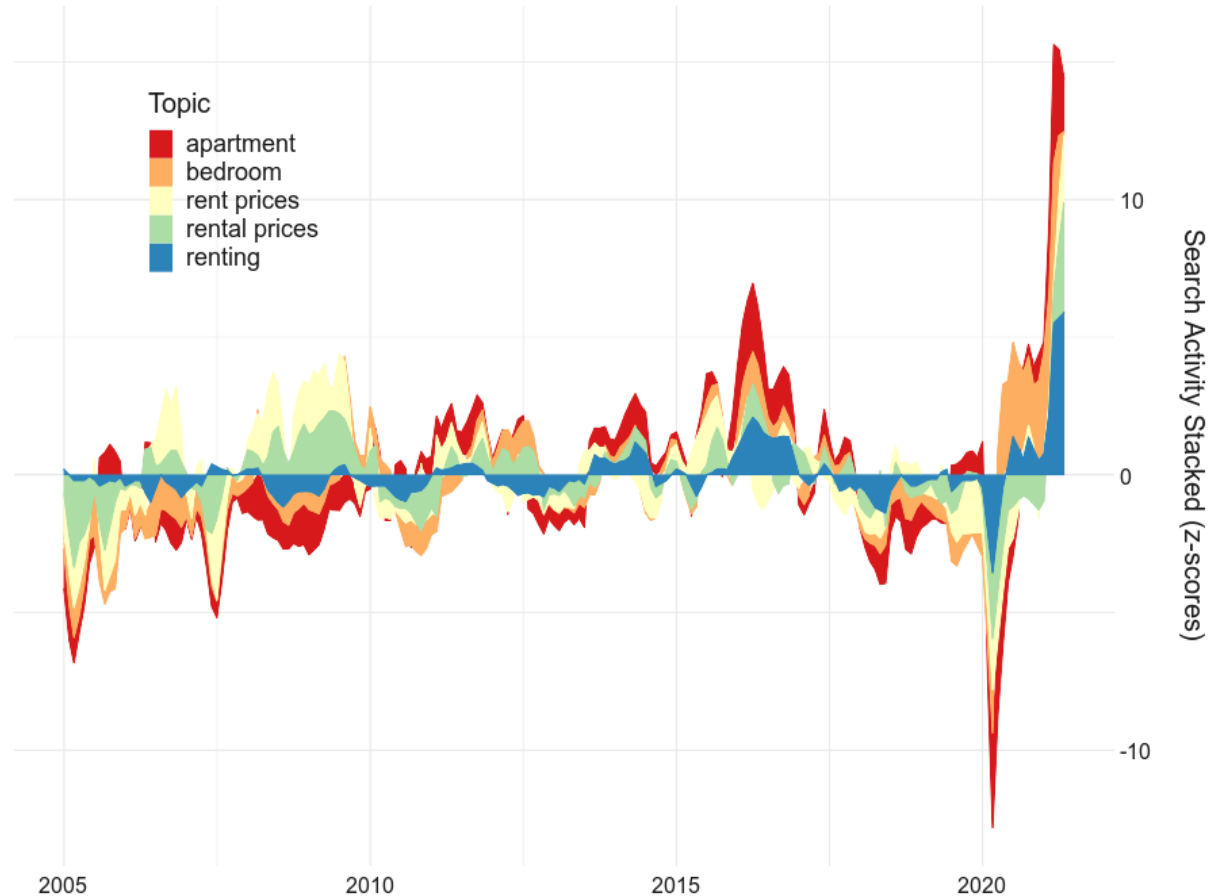
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## Favorable Rent-Related Searches Jump

Seasonally-adjusted U.S.-based Google searches by topic

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## Reasons for optimism

# Rent-Related Searches Rocket Higher

- Rent-favorable searches from one-bedroom apartments to vacation rentals have accelerated into March and April.
- A continued surge in rent-related search activity bodes very well for rising rents into year-end.

## Reasons for optimism

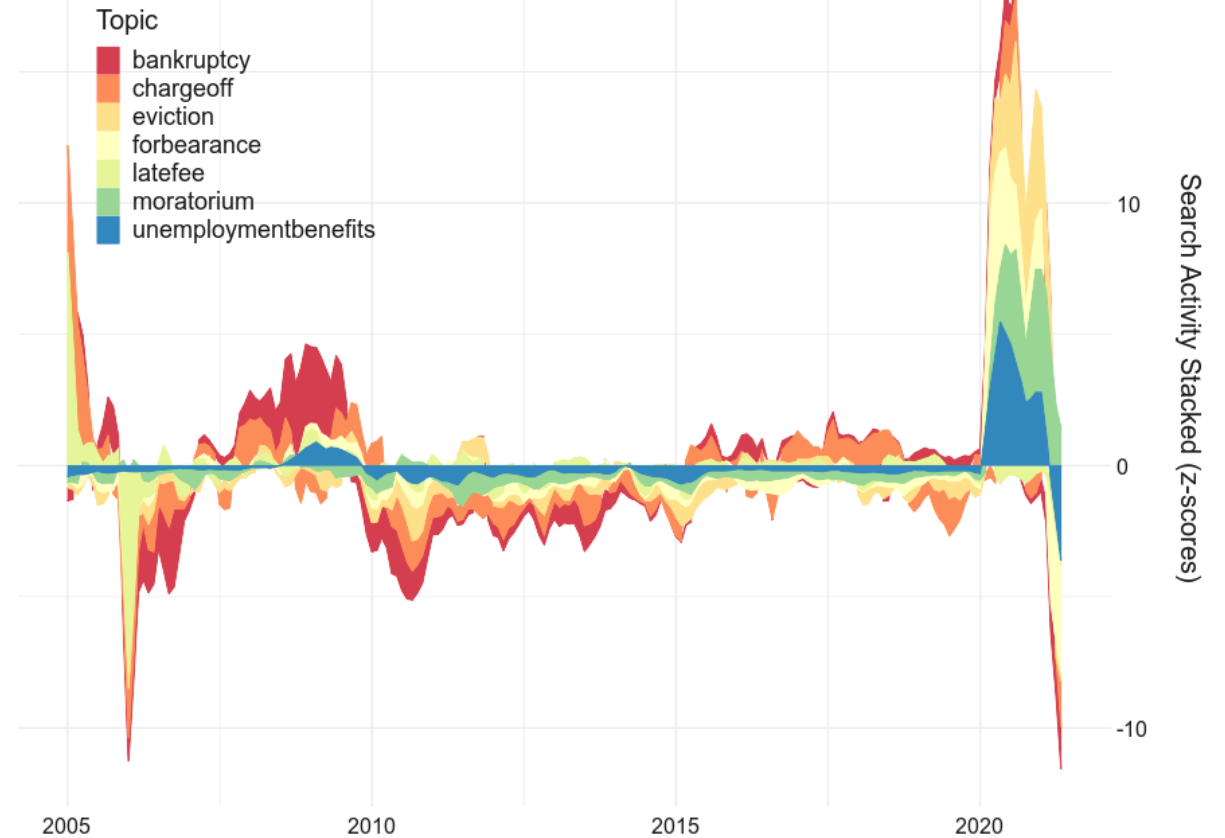
# Financial Stress Searches Greatly Recede

- Searches for bankruptcy to unemployment benefits have consistently diminished throughout the year thanks to fiscal stimulus.
- All topics except 'moratorium' are now well-below average. The national eviction moratorium was invalidated by a Federal judge, potentially quickening the gap between asking and collected rents in the months to come.

## Unfavorable Rent-Related Searches Plummet

Seasonally-adjusted U.S.-based Google searches by topic

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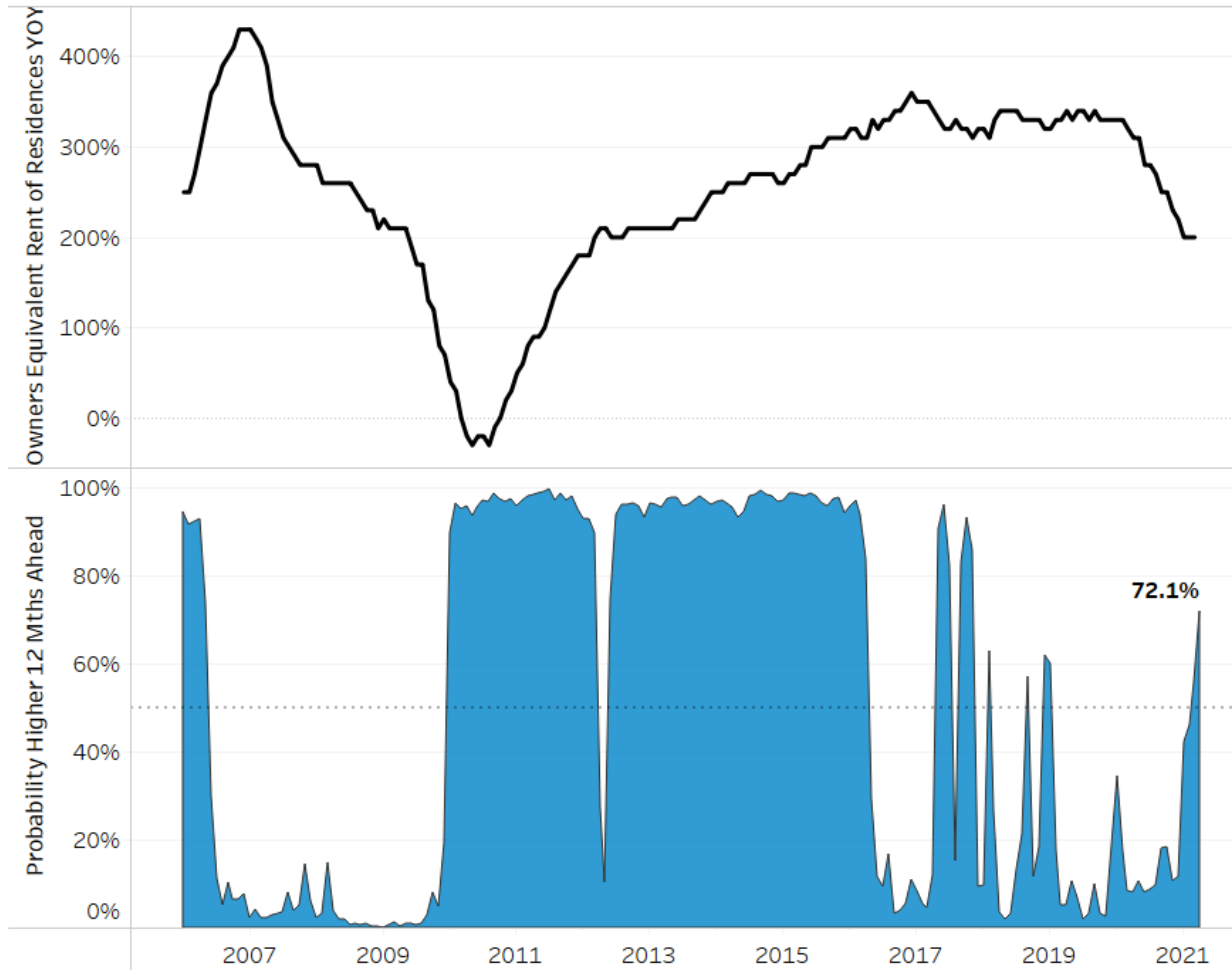


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### Probability OER (YOY) Will Rise One Year Ahead

Ensemble model trained since 2004 using rent-related search activity and apartment vacancies

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### Reasons for optimism

## High Probabilities OER Will Rise are Here

- The 35 rent-related search topics are fed into a model (random forest) to produce probabilities OER year-over-year will be higher 12 months ahead.
- **As of April 2021 rent-related search activity indicates a 72% probability OER's year-over-year growth rate will be higher next April 2022.**
- This model consistently producing probabilities above 50% is a game changer for the inflation outlook!

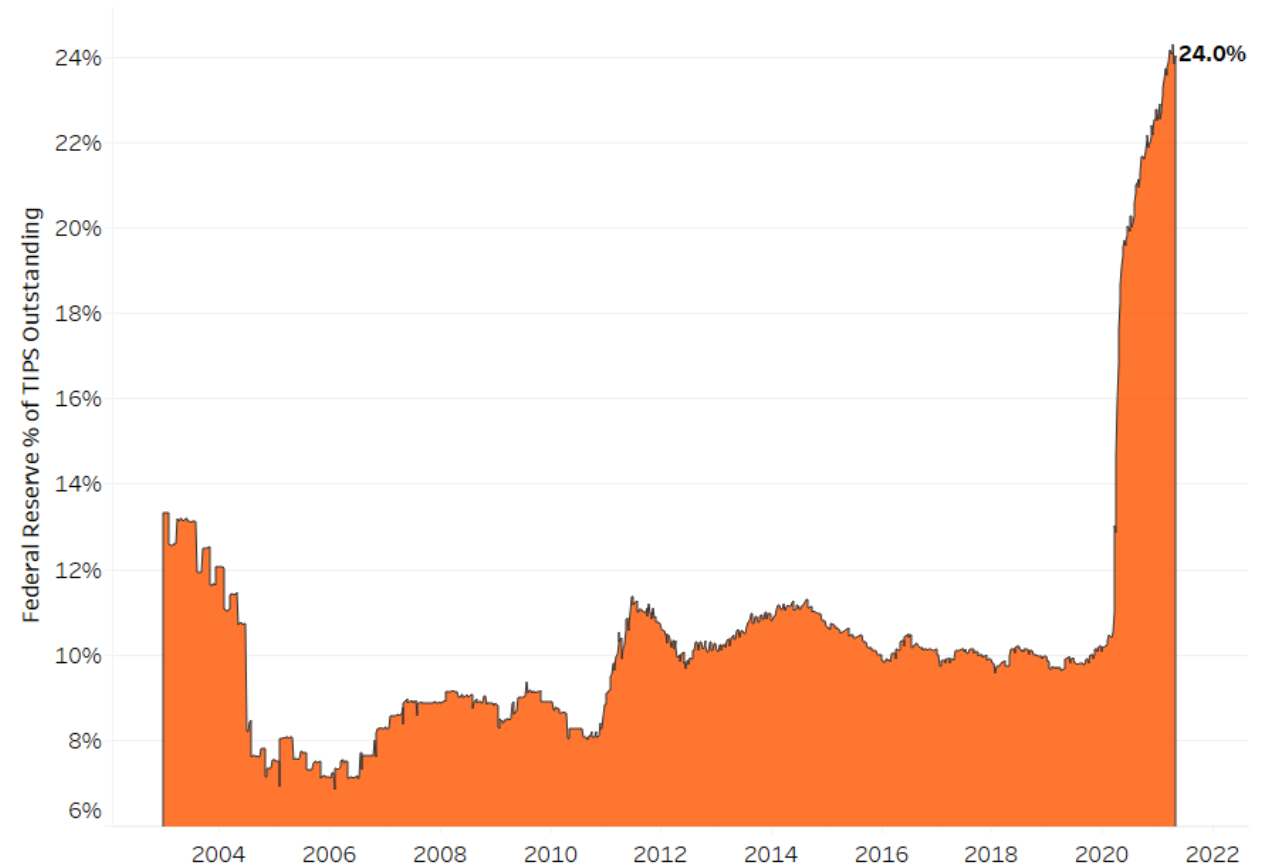
### Reasons for caution

## Fed a Dominant Force Within TIPS Market

- The Federal Reserve's holdings of TIPS jumped from ~10% before the pandemic to a whopping 24.0% of total outstanding through last week.
- The Federal Reserve has become a dominant force behind the drop in liquidity premiums as well as real yields.

Federal Reserve Quickly Gobbling Up TIPS

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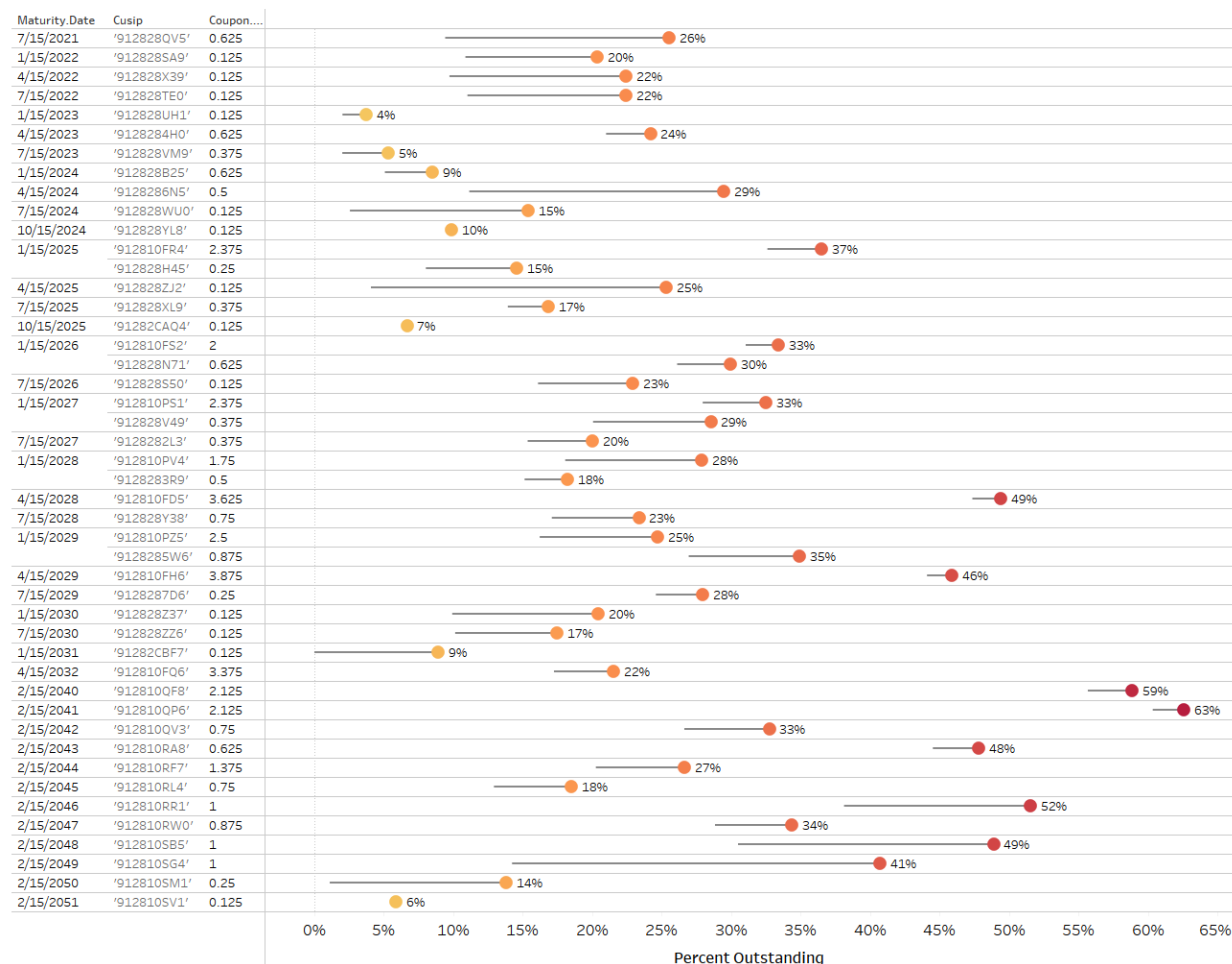
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# TIPS SOMA Holdings by Issue - 4/28/2021

Lines show past 12 month range

As Of Date  
4/28/2021  
☒ Show history

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## Fed's Ownership by Issue

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