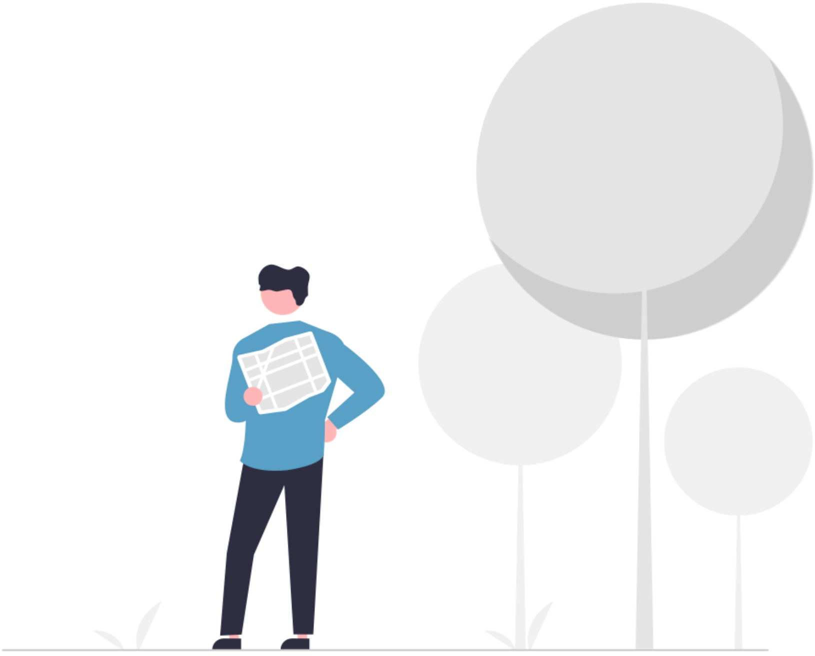
ARBOR DATA SCIENCE

# Inflation Roundup

**July 8, 2021**

- Total Returns and Seasonality
- The State of Market-Based Inflation Expectations
- Commodities and Yields Destined to Enter Trading Ranges
- The Beginning of the End for Supply Chain Bottlenecks?!
- Consumer Spending Expectations Being Tempered
- TRANSITORY! (I can NOT wait for this debate to be over)
- Rents Accelerating Higher



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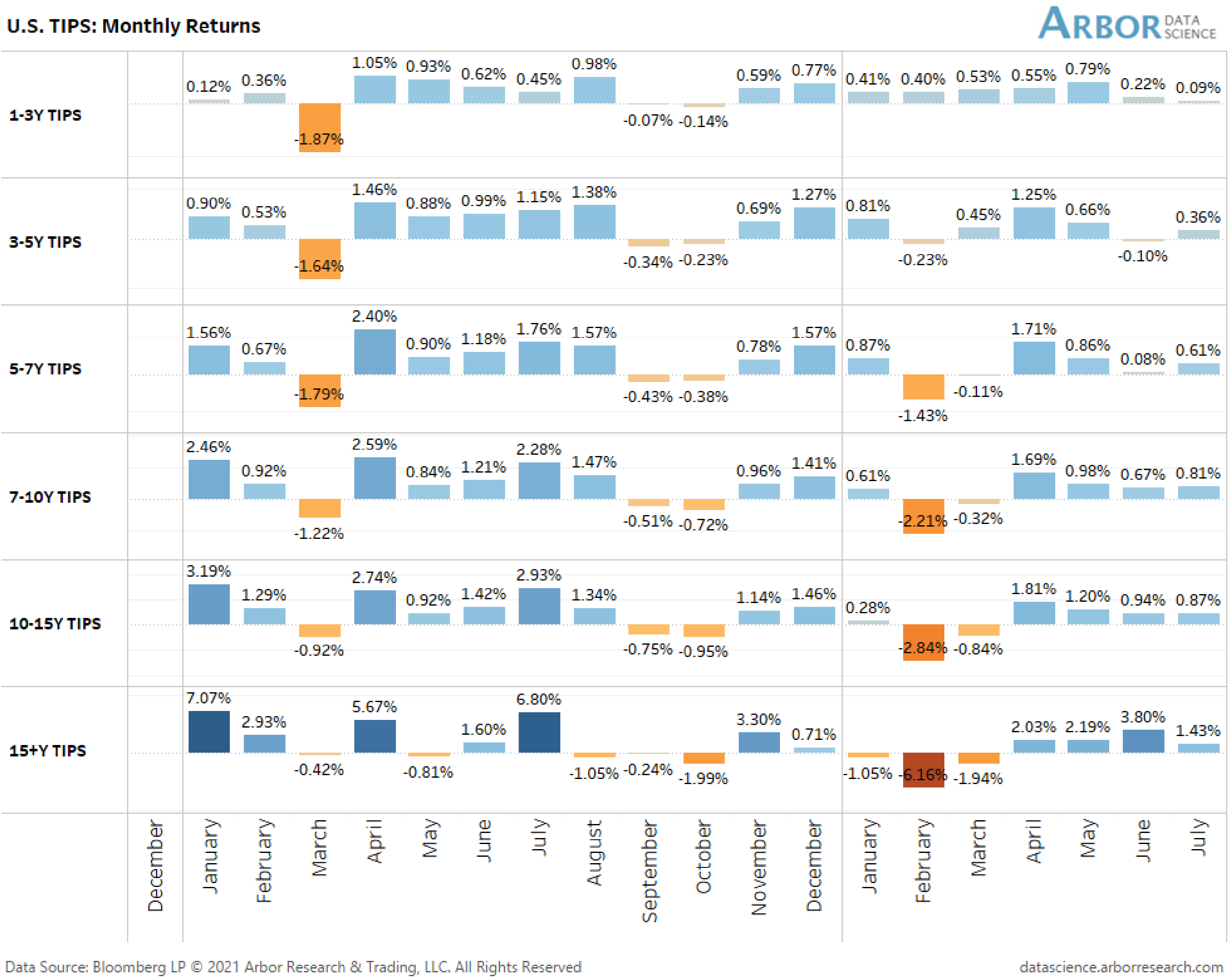
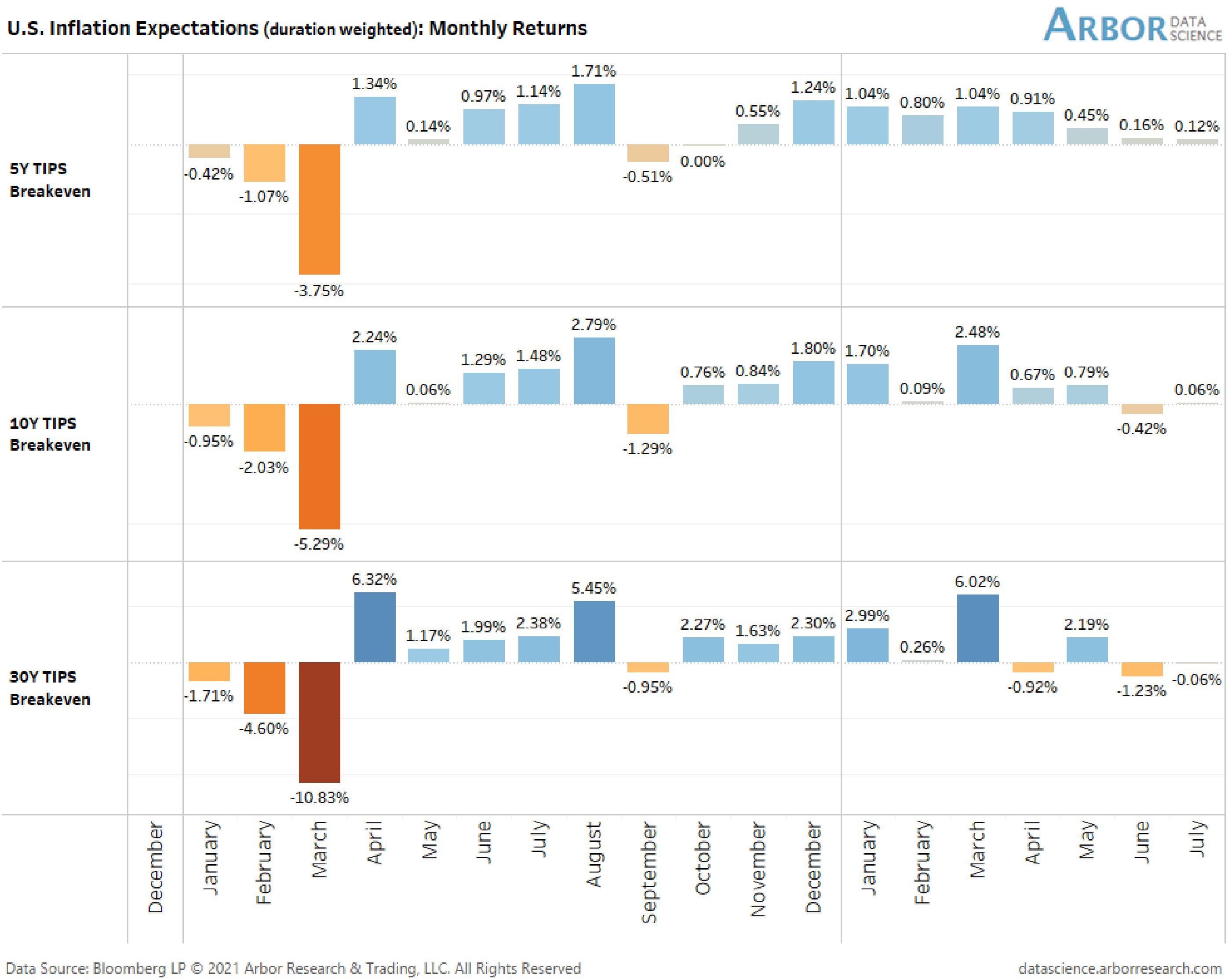
| | Conditions Fueling an Inflation Premium | Sep '20 | Oct '20 | Nov '20 | Dec '20 | Jan '21 | Feb '21 | Mar '21 | Apr '21 | May '21 | Jun '21 | Jul '21 | Notes |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Wider TIPS Breakevens | Commodities ex-energy and gold: 50+% produce + YOY return | Y | Y | Y | Y | Y | Y | Y | Y | Y | Y | Y | *85+% of commodities rallying YOY. But! Correlations are relaxing and dispersion rising. IOW, not all ships rising at the same time.* |
| | Global econ data releases: 50+% economies growing above one-year trend | Y | Y | Y | Y | Y | Y | Y | Y | Y | Y | Y | *80+% of economies growing above trend led by Asia Pacific and the US.* |
| | Investors pricing in 2+% YOY headline CPI next 10 years | N | N | Y | Y | 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 | Y | Y | 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 | Y | *Fed purchases rising above 25% of total outstanding.* |
| | Search activity forecasts rising OER YOY | N | N | N | N | N | N | Y | Y | Y | Y | Y | *Search activity synonymous w/ higher rents swung higher in Feb - Apr. Probabilities now 88% 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 | Y | N | N | N | N | Y | N | N | *45-day rolling correlation has fallen back to negative (-0.09), indicating little fear of rising inflation.* |
| | Short-end swaption volatility shows tightening fears | N | N | N | N | Y | Y | Y | Y | Y | Y | Y | *Swaption vol for 2-year rates into 2023 remains elevated with Eurodollars maintaining 80+% bps of tightening into Dec 2023.* |
| | TIPS breakevens reach fair value implied by risk assets | N | N | N | N | N | N | Y | Y | Y | Y | Y | *10-year TIPS breakevens remain close to fair value at 244 bps as implied by risk assets. Above here, inflation expectations are hot.* |
| | Investors pricing in 2.5% YOY headline CPI next 10 years | N | N | N | N | N | N | N | Y | N | N | N | *Inflation swap caps/floors pricing in headline CPI above 2.5% YOY for the next 10 years have slid below 50%.* |

# *TIPS TOTAL RETURNS:*

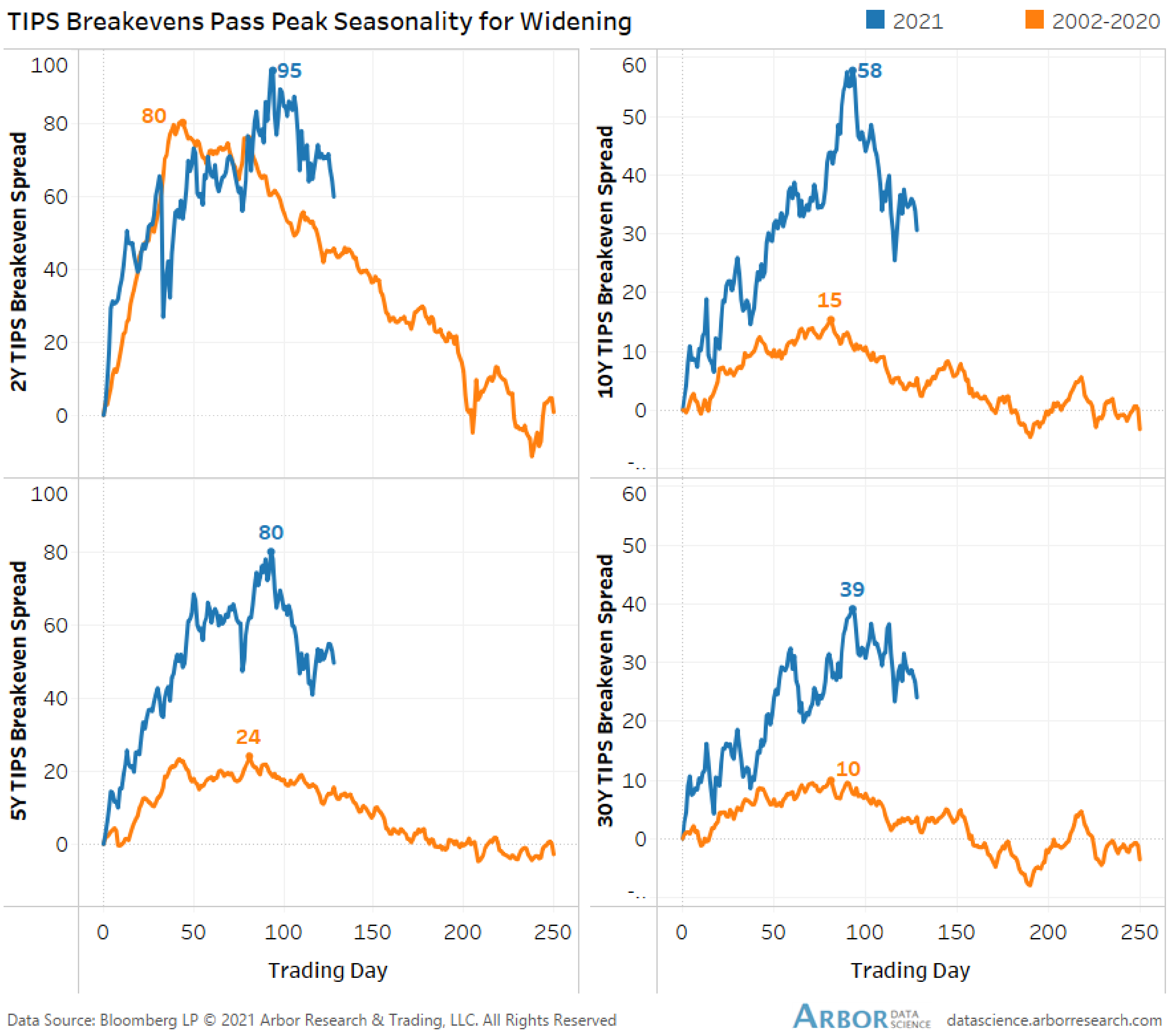


# *TIPS BREAKEVENS*
# *TOTAL RETURNS:*

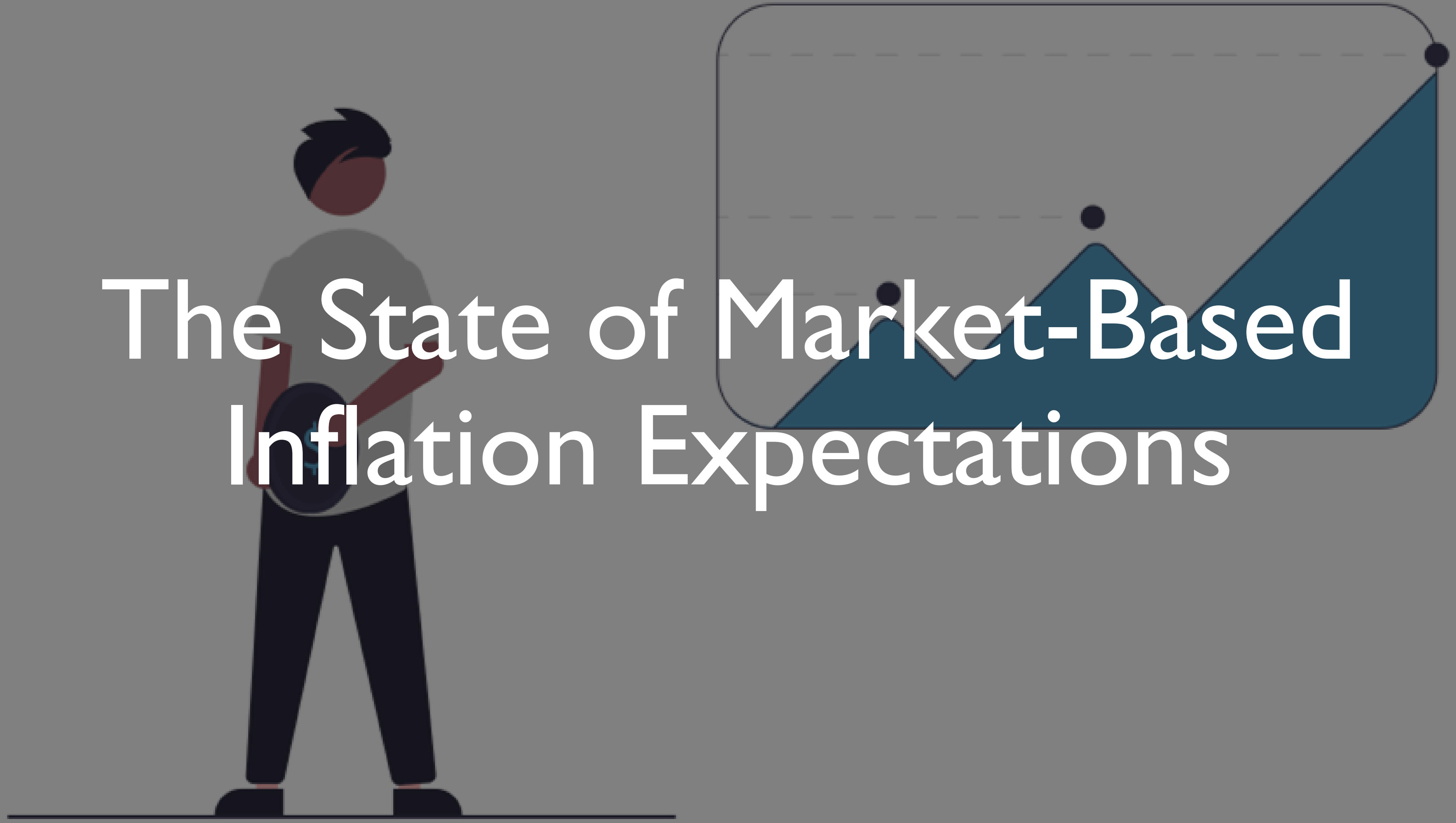


# ***TIPS BREAKEVENS*** *SEASONALITY:*

## *No Long Supporting Widening*



# The State of Market-Based Inflation Expectations



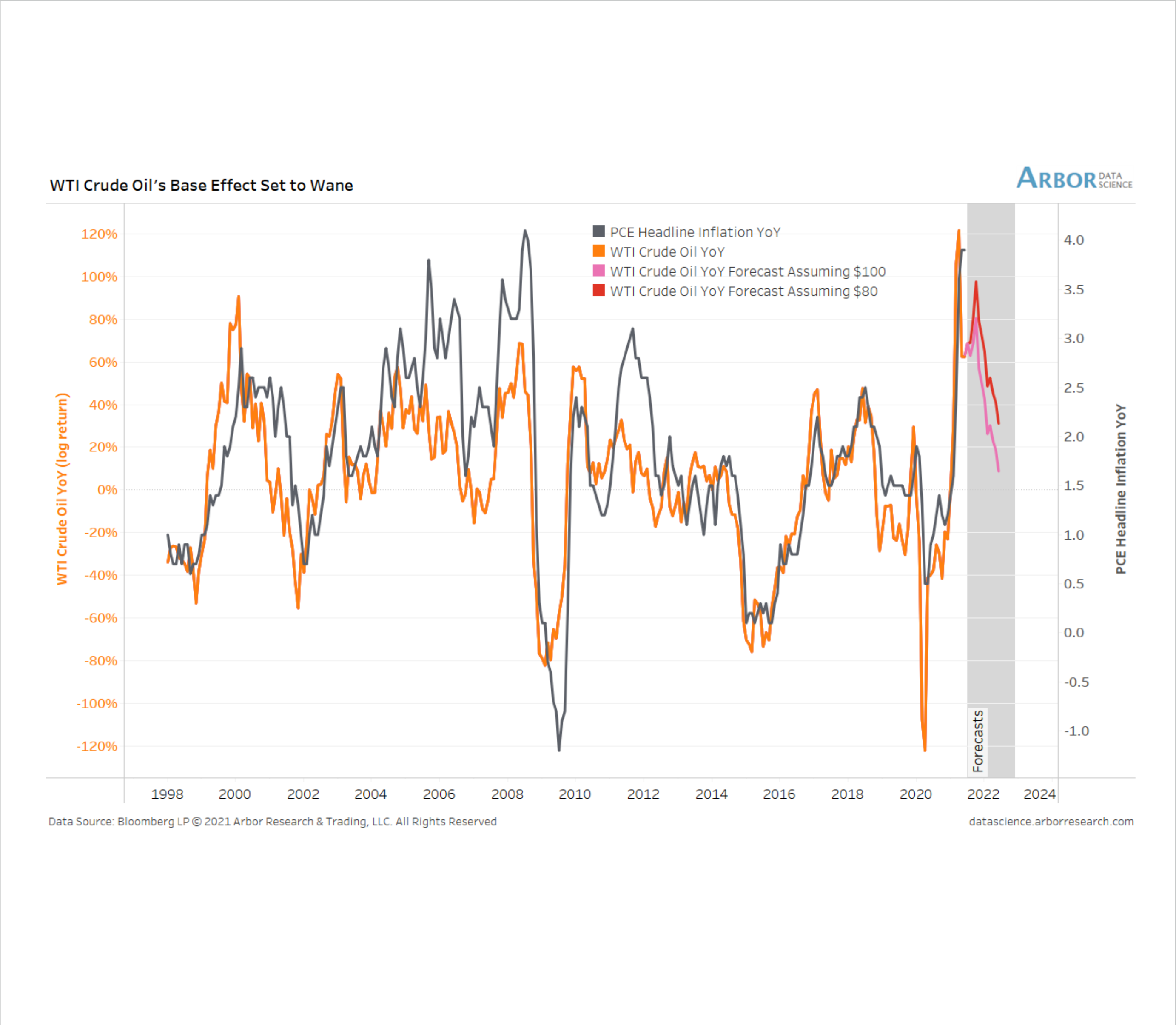
You Have Been Warned!

# Base Effects About to Wear Off

- The rapid rise in YoY gains by WTI crude oil thanks to base effects will begin to cease.

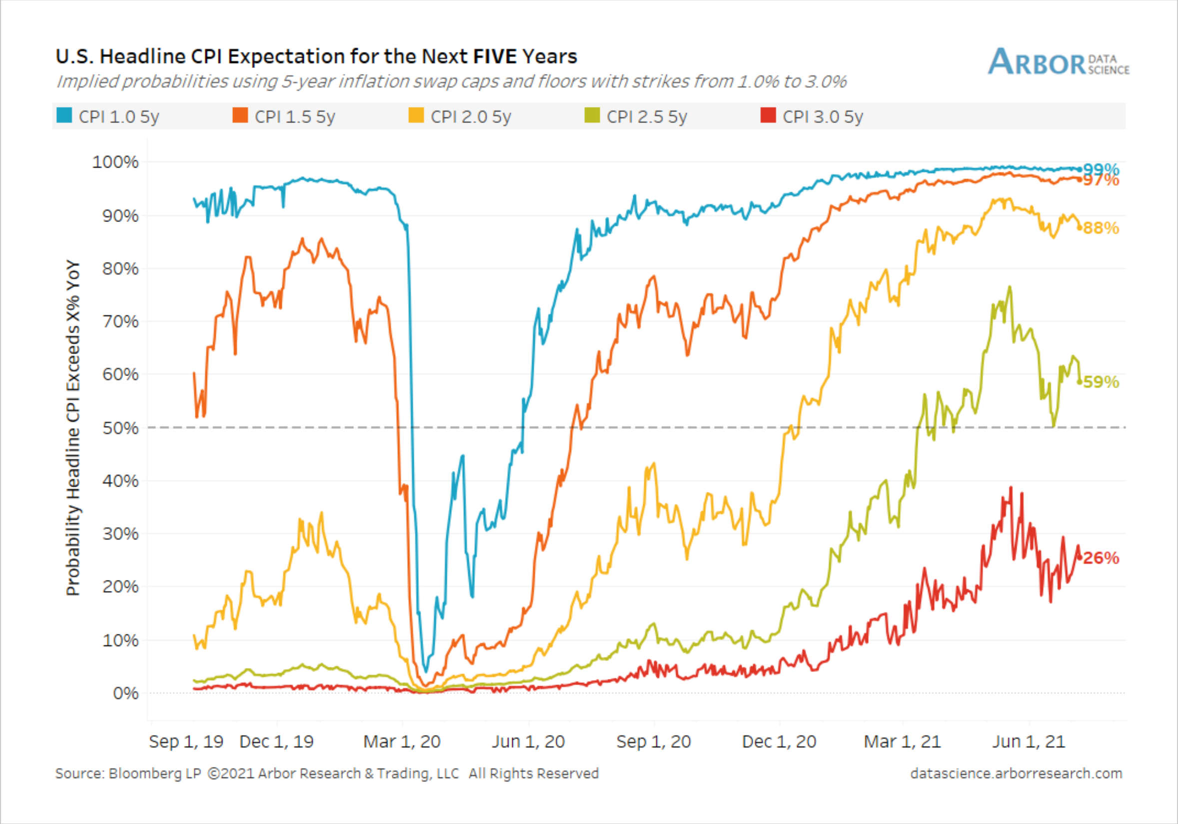
- The pink and red lines show the quick deceleration even while assuming prices rise to $80 and $100 per barrel, respectively.

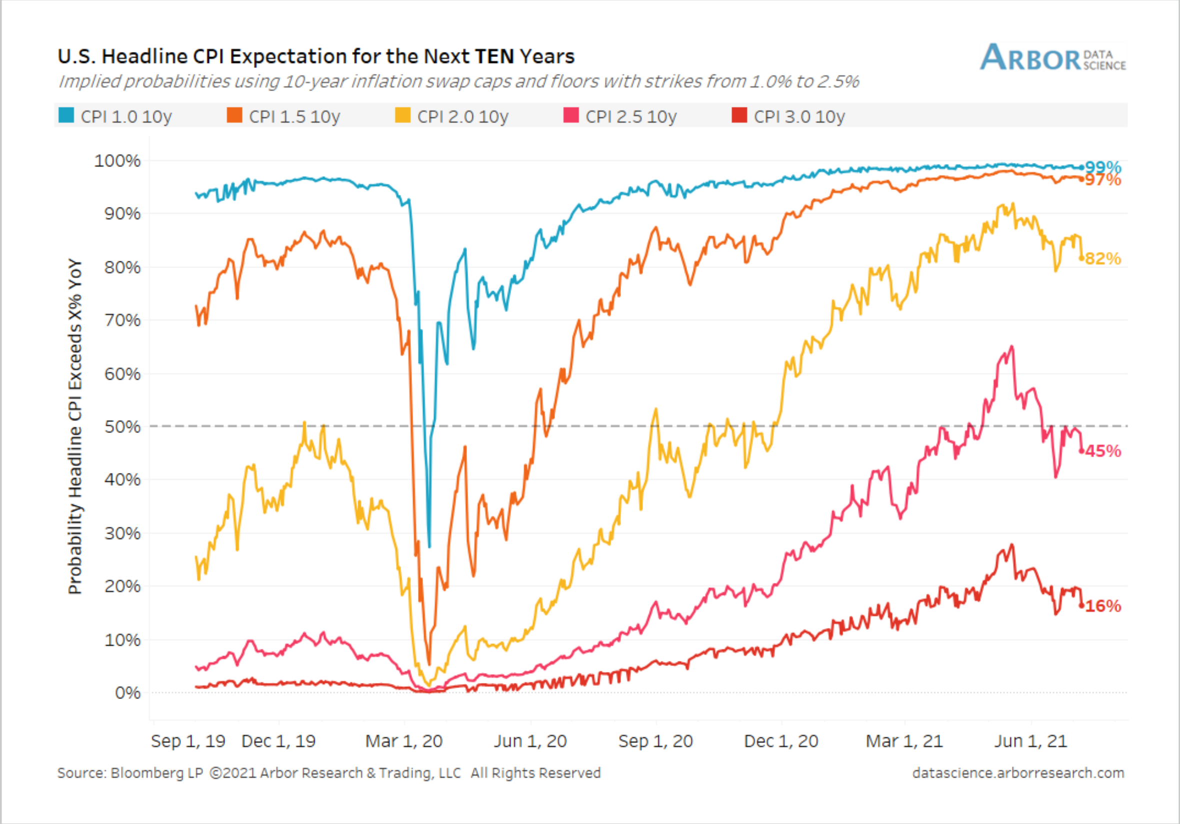
- **Therefore, for all the talk about rising rents and wages, transitory forces will provide quite the counterweight.**



# Expectations for a Right-Side Tail Dampen

- Inflation swap caps and floors show investors paring expectations headline CPI exceeds 2.5% YoY over the next 5+ years. The probability for the 10-year outlook has skid back below 50%.
- The 3.0% YOY strike is again becoming a very, very small concern.
- **Watch the 2.5% YoY strike very closely! Any drop back below 50% (across the curve) would confirm investors are cooling on the inflation outlook.**



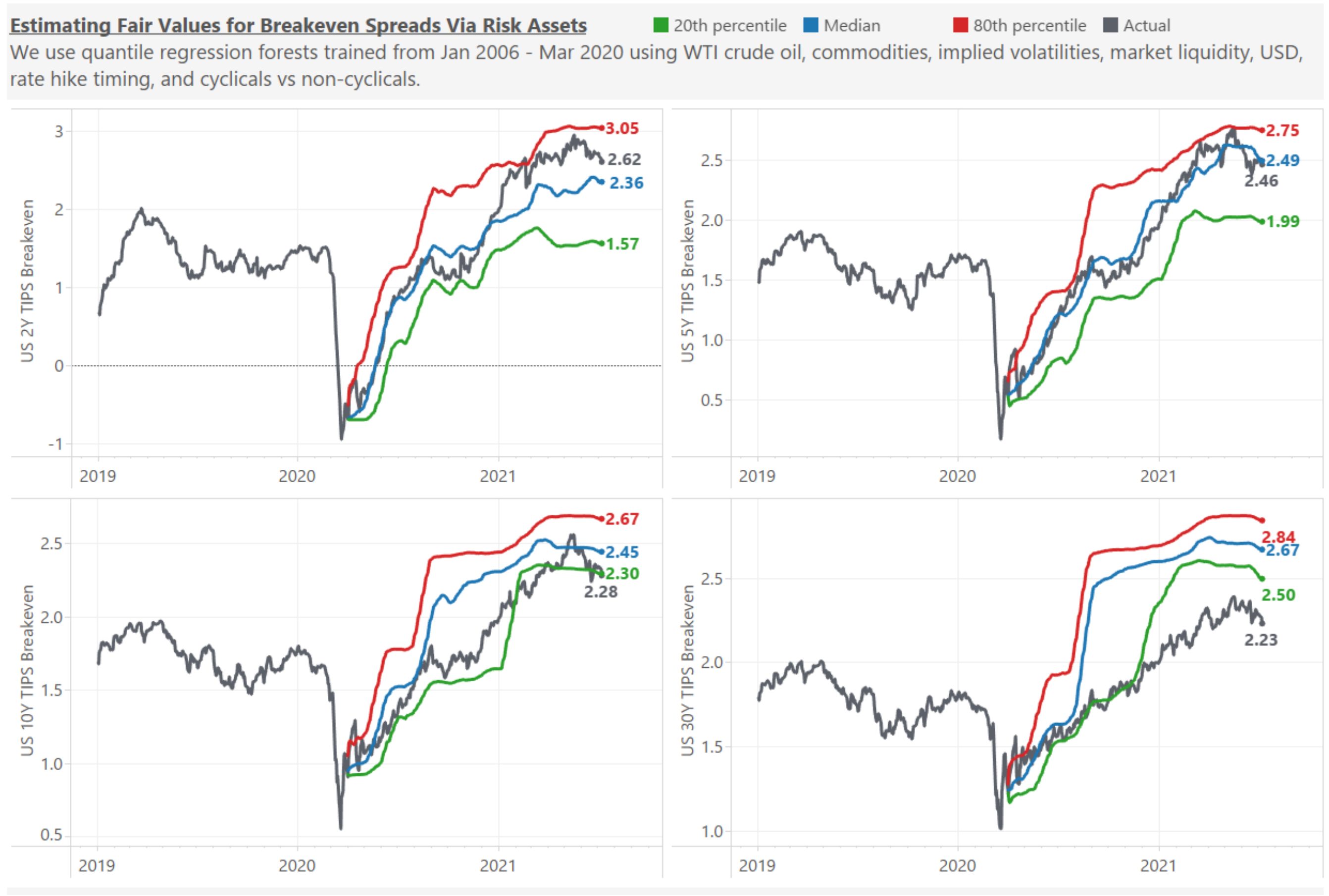



# Fair Values Generated by Risk Assets are Rolling Over

- Quantile regression forests (QRF) are used to estimate the median and 20th / 80th percentiles for each maturity.

- Inputs include WTI crude oil, industrial commodities, implied vol, liquidity, USD, rate hike timing, cyclicals vs non-cyclicals performance (*new addition*).

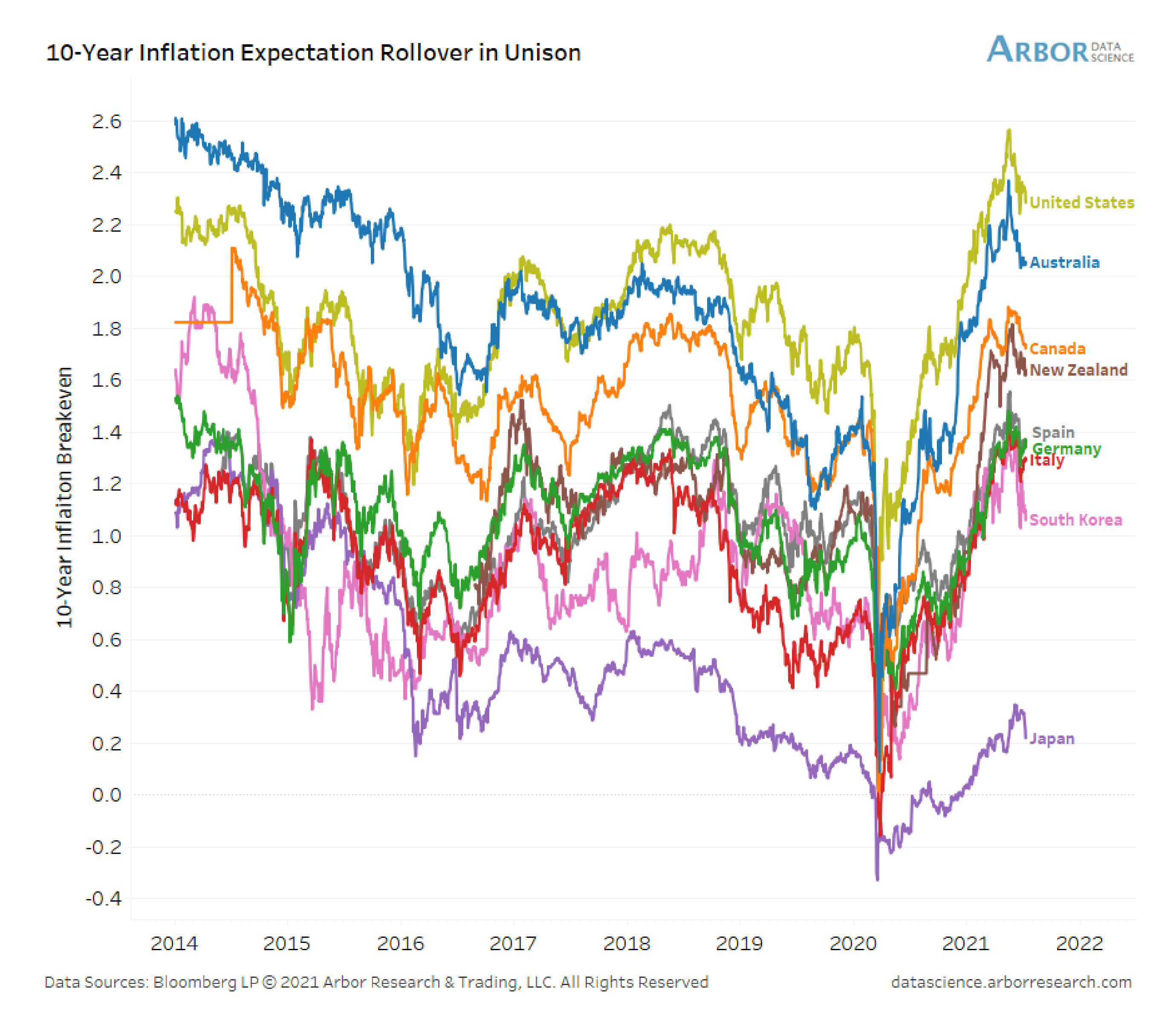
- US 10-year TIPS breakevens have stabilized near the 20th percentile estimate at 230 bps with the median wider at 245 bps.



# 10-Year Inflation Breakevens Rollover

- The chart shows 10-year inflation breakevens rolling over across the globe.

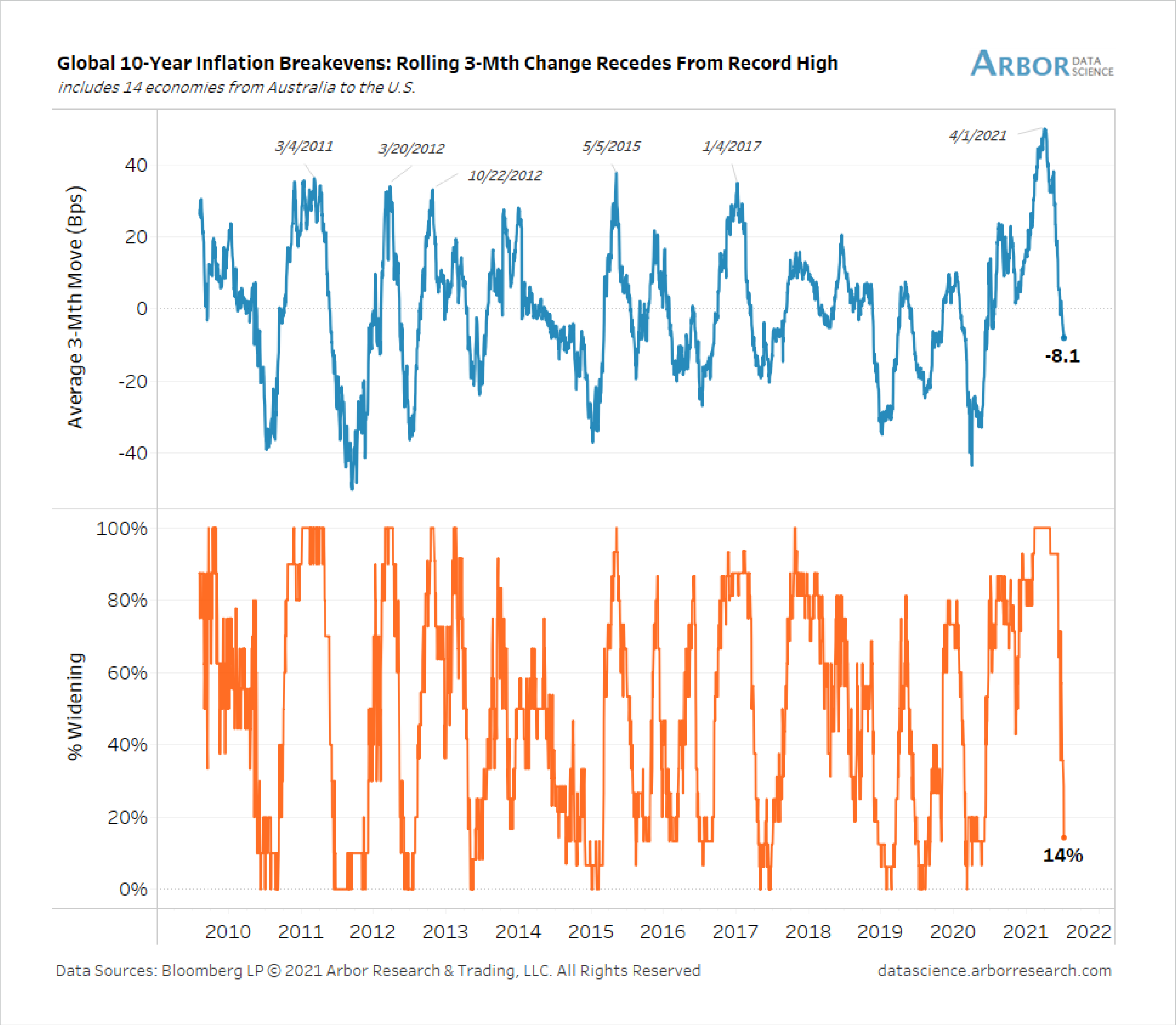
- Inflation expectations are falling back in line with levels seen in 2017/18.



# 10-Year Inflation Breakevens Lose Ground Across the Globe

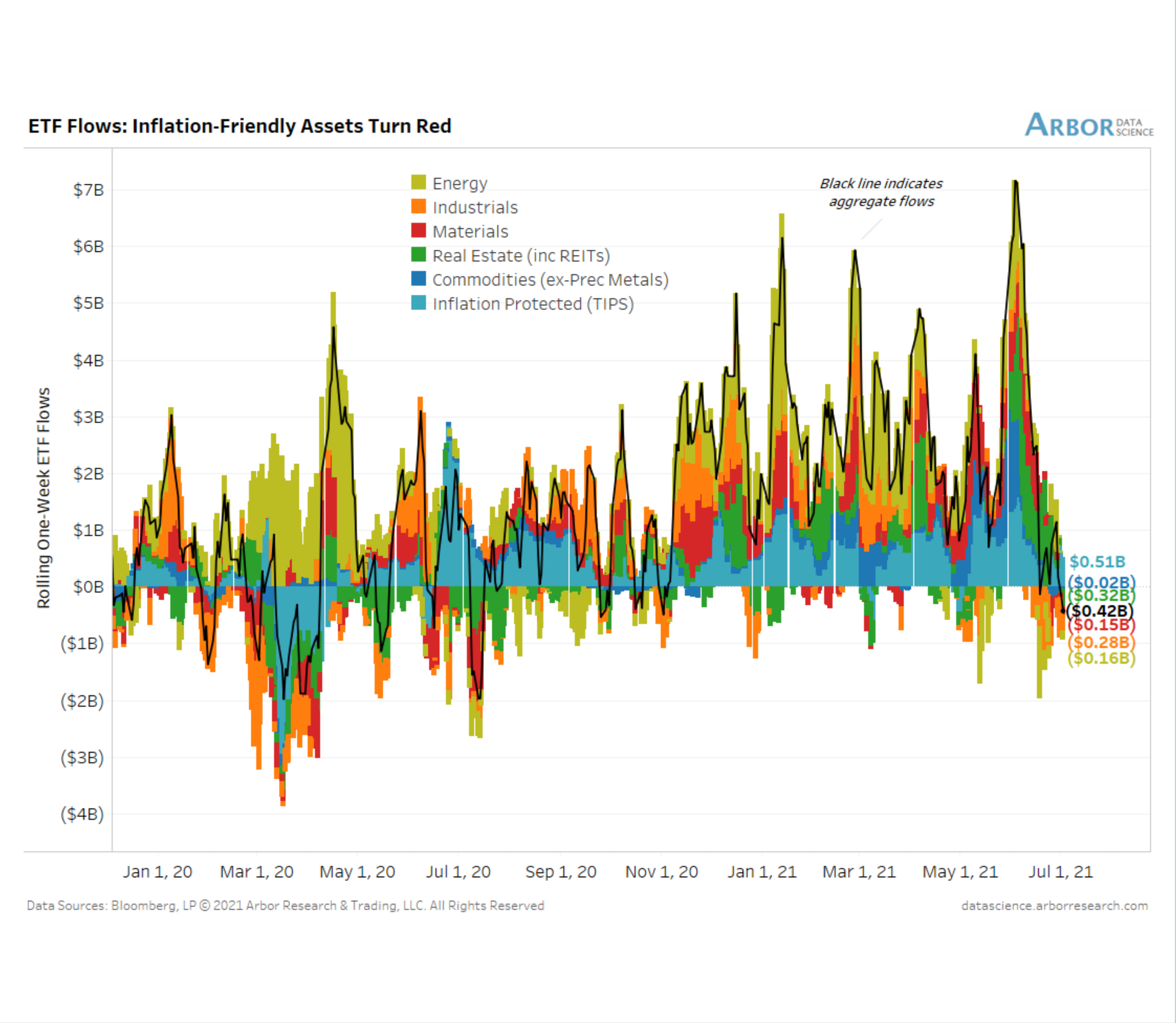
- The chart shows the rolling 3-month change in 10-year inflation breakevens for 14 economies, which has plummeted to -8.1 bps.

- This is the first shift back to a negative rolling 3-month change on average since July 2020. Breadth has dissipated to a lowly 14% widening.



# Inflation-Friendly Assets See Tempering Demand

- Flows into inflation-friendly assets from commodities to TIPS have suddenly lost momentum.
- Commodities, industrials, and materials have suffered outflows over recent weeks.
- TIPS demand has slide to a weekly pace of $0.51 billion.

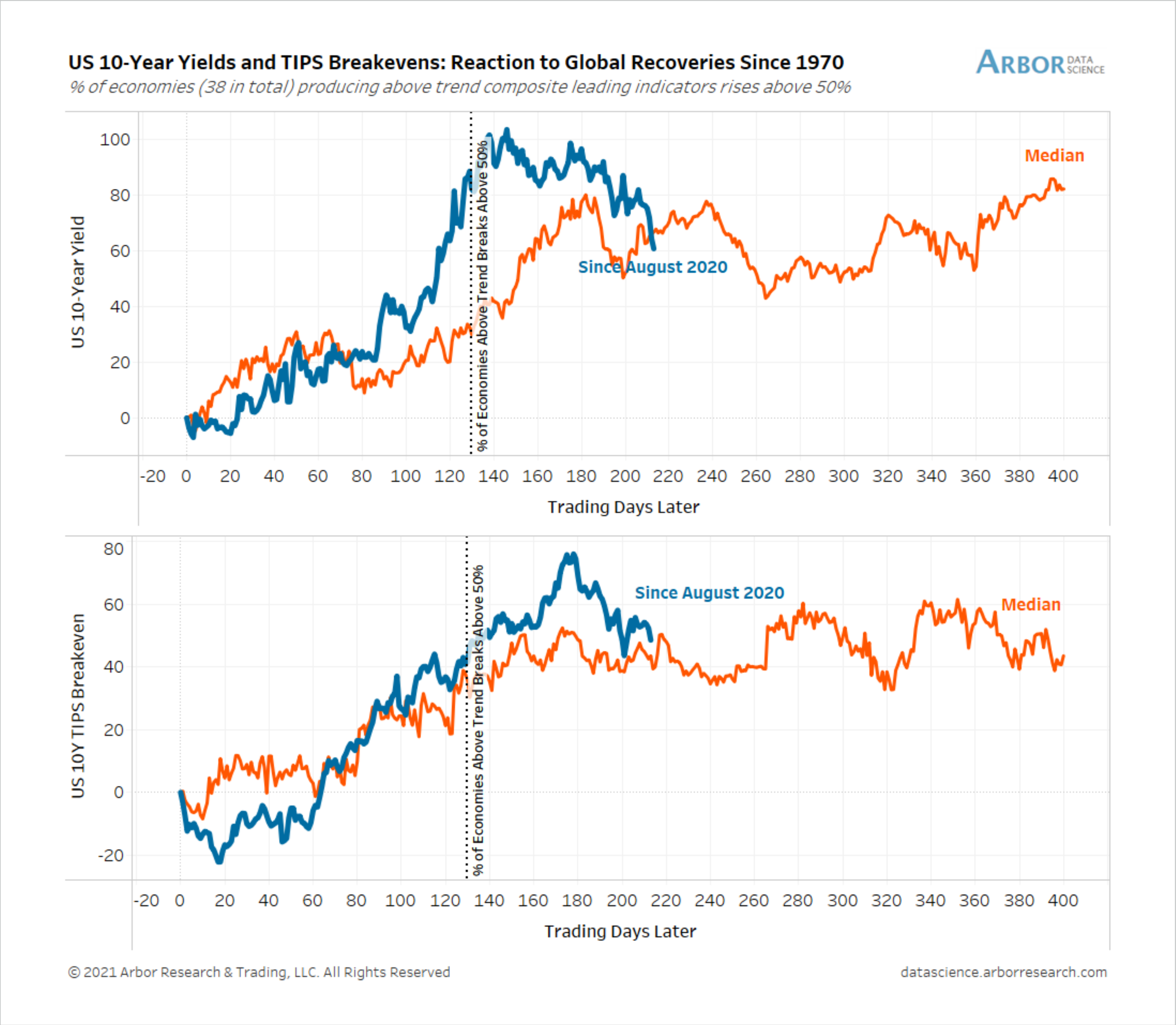


# Commodities and Yields Destined to Enter Trading Ranges

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

- The chart shows the average changes in US 10-year nominal yields and TIPS breakevens into and after global recoveries since 1960.

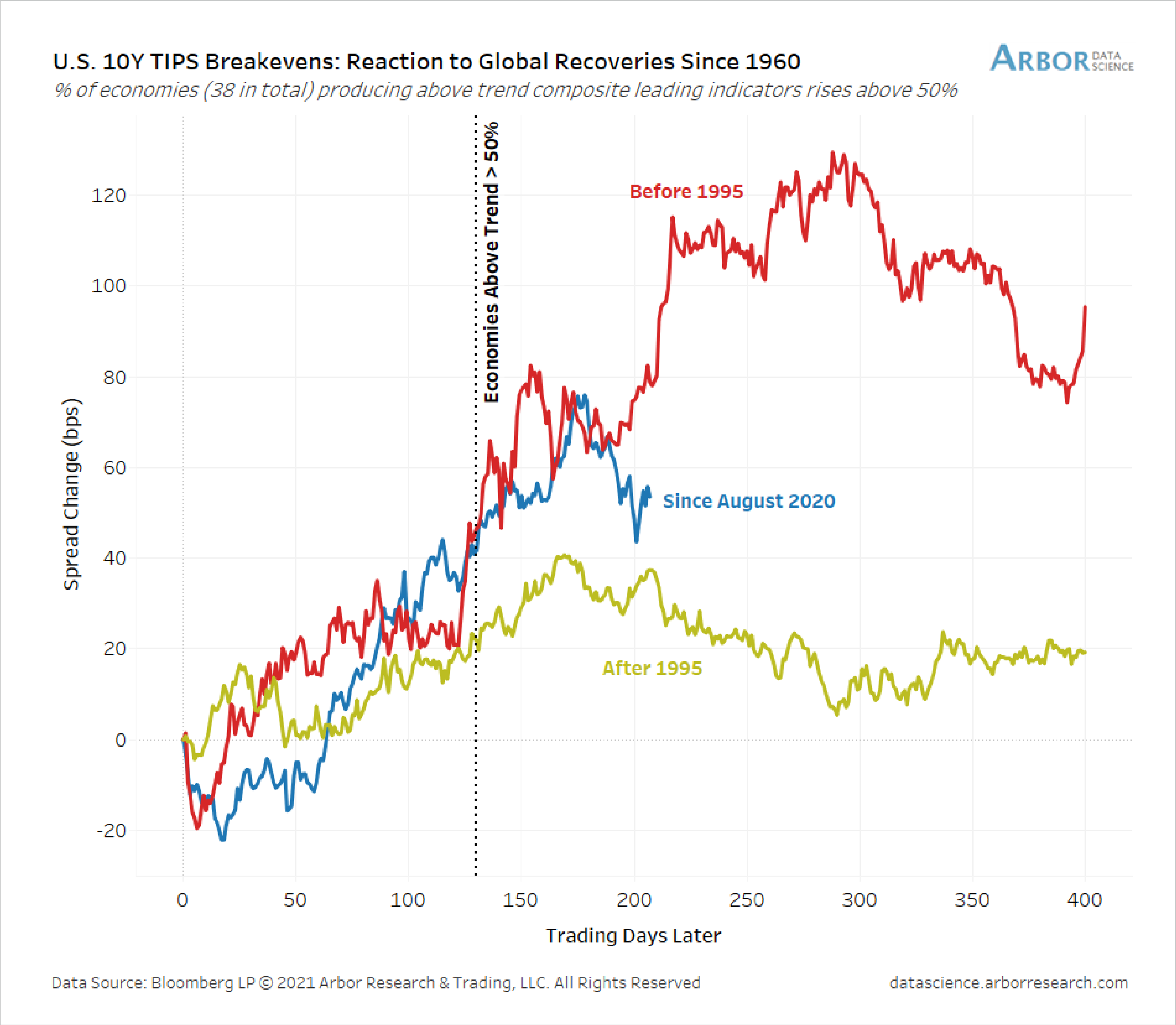
- This historical playbook suggests range-bound activity over the months to come.



# Which Path Will Investors Follow?!

- 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.

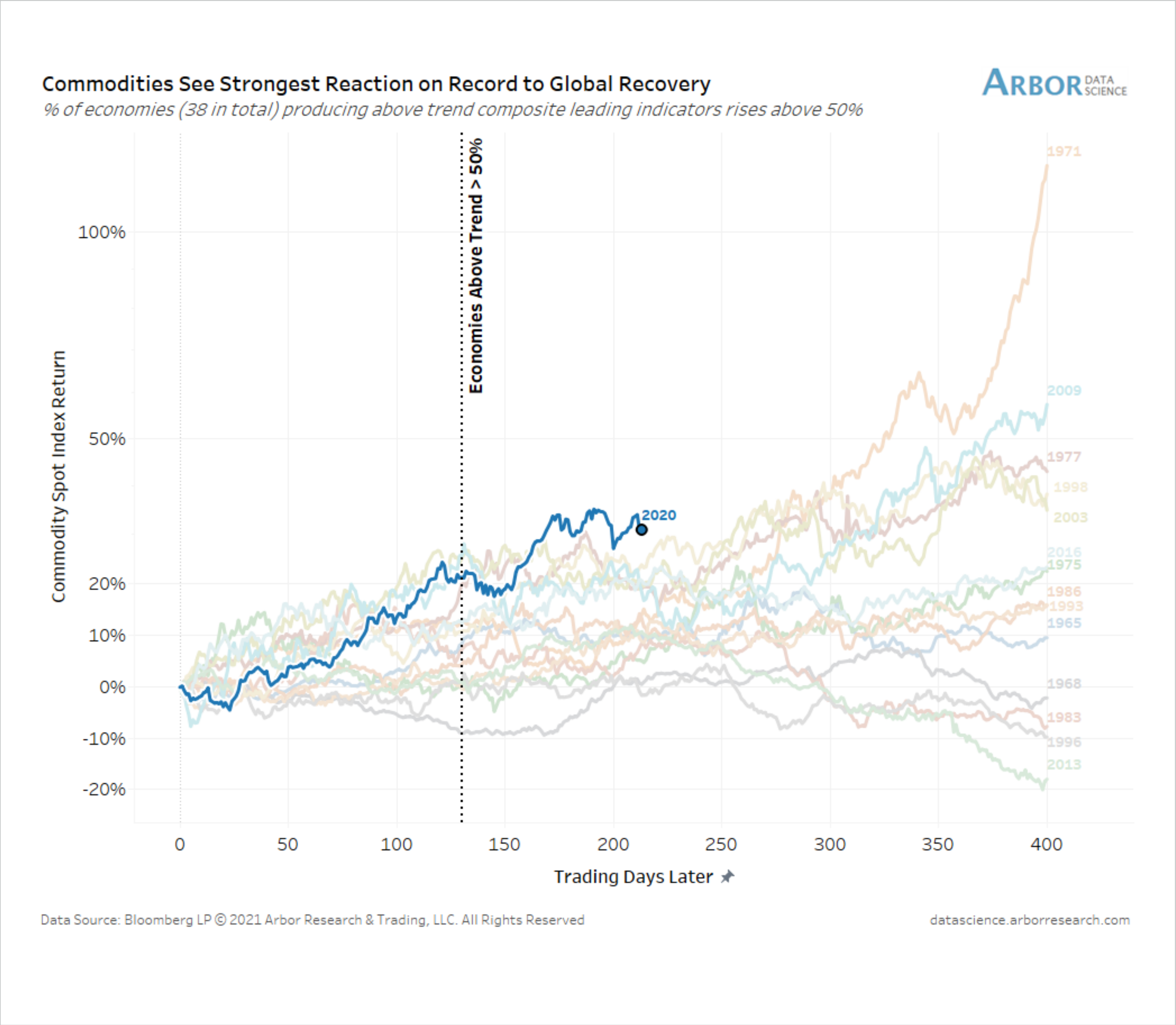
- **Inflation expectations before 1995 on average added another 50+ basis points**. On the flip side, inflation expectations after 1995 tended to stall and quickly lose momentum.



# Strongest Commodity Rebound on Record

- Spot commodity prices have climbed over 35% since August 2020, setting a new record pace.

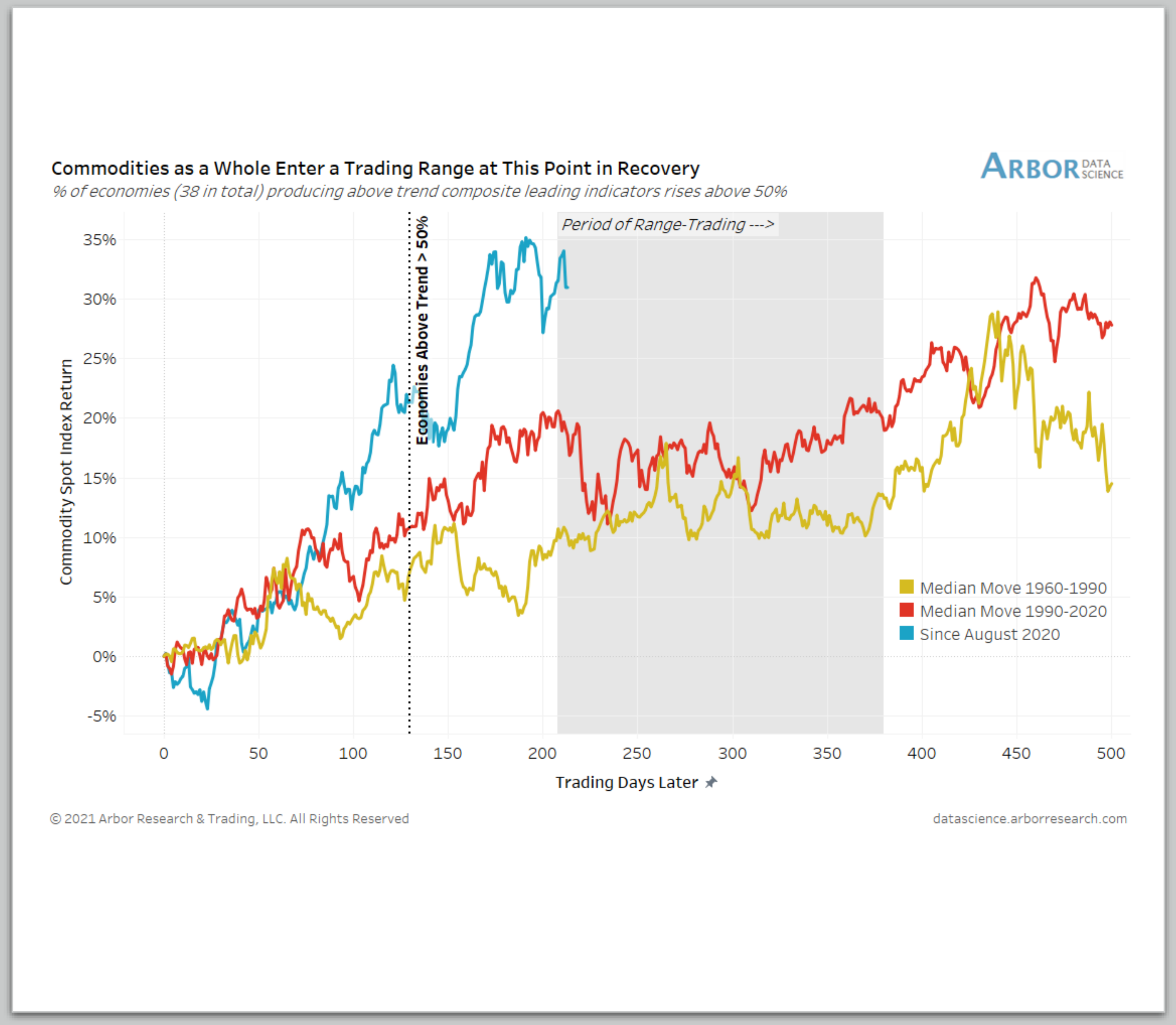
- Similar instances in 1971, 1977, 1998, 2003, and 2009 saw further gains after a period of range trading.



# Commodities to Enter the Chop

- The chart shows spot commodity prices' average returns for two periods: 1960-1990 and 1990-2020.

- Commodities habitually enter trading ranges over the ensuring six months before recommencing bull trends.

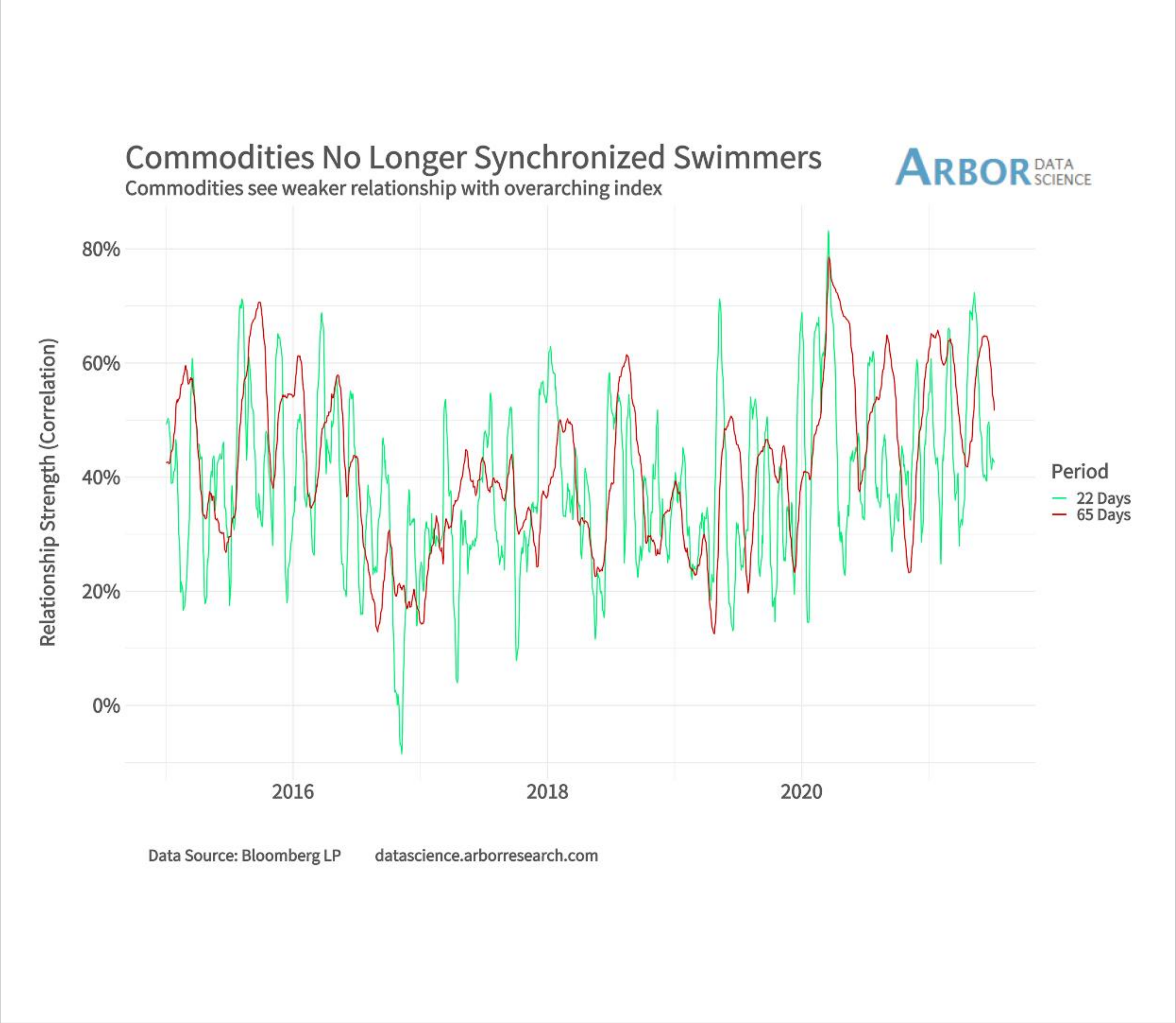


# Correlation Among Commodities Relaxing

- One of the most notable aspects of the commodity rally was the relationship between each commodity and the all-encompassing commodity price index (Bloomberg Commodity Spot Price Index).

- In 2020 we observed a sharp increase in the strength of this relationship, followed by a similar increase in early 2021 as prices rose in unison.

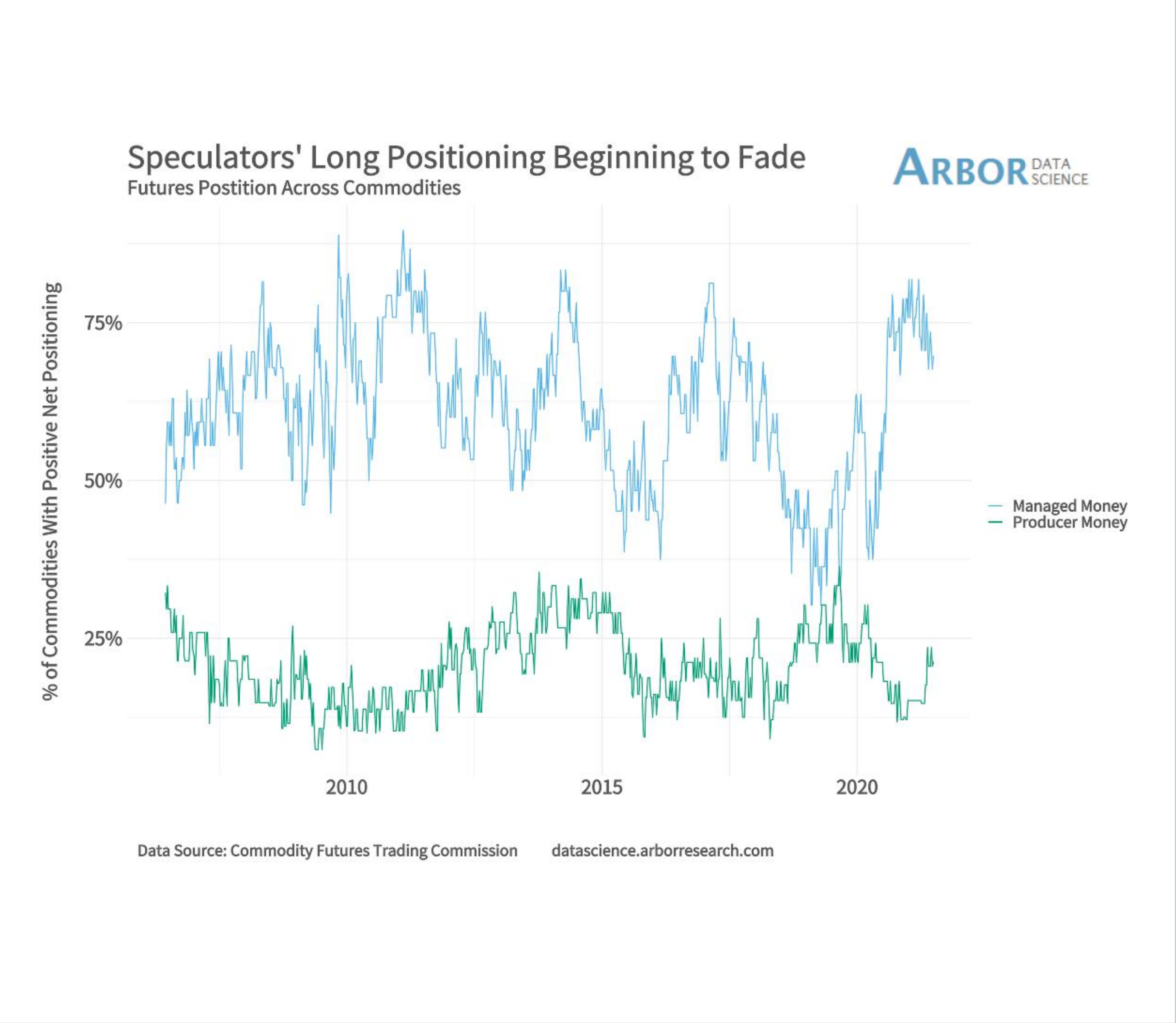
- Most recently, this relationship appears to be weakening as we see the three-month correlation trending downward from a recent peak. The weak relationship over the past 22 trading days makes sense as we have finally seen commodities such as lumber tumble downward while others like steel are still making moderate gains.



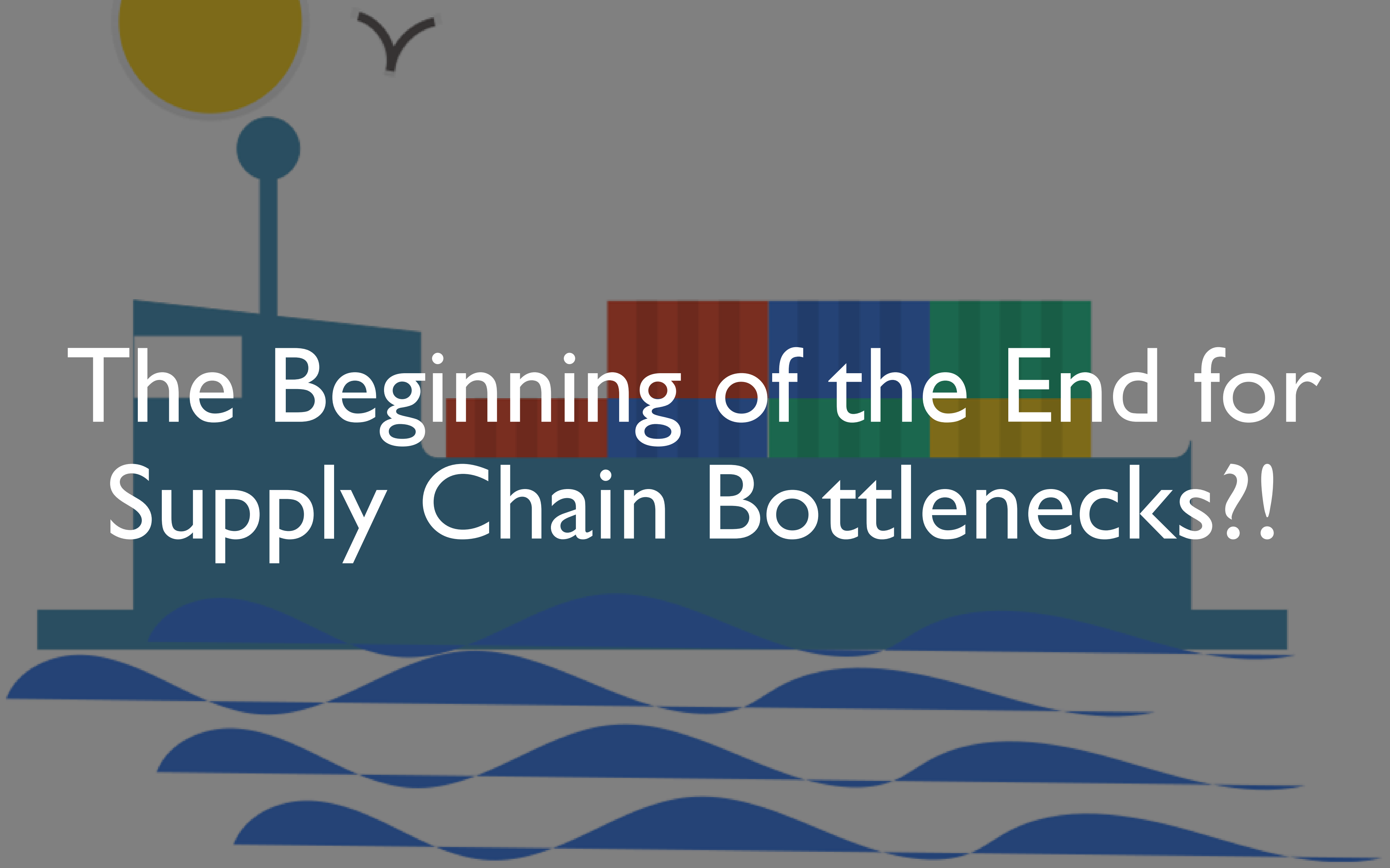
# Hefty Long Positioning Rolling Over

- Futures positioning among managed money traders paints a similar picture. As the commodity rally went underway the net positioning by managed money saw pronounced increases in their net positioning but has since begun to diminish from an extreme.

- All in all, investors betting on a concerted rally across any and all commodities may be in for disappointment over the next three to six months. Rising dispersion and relaxing correlation look destined to continue.



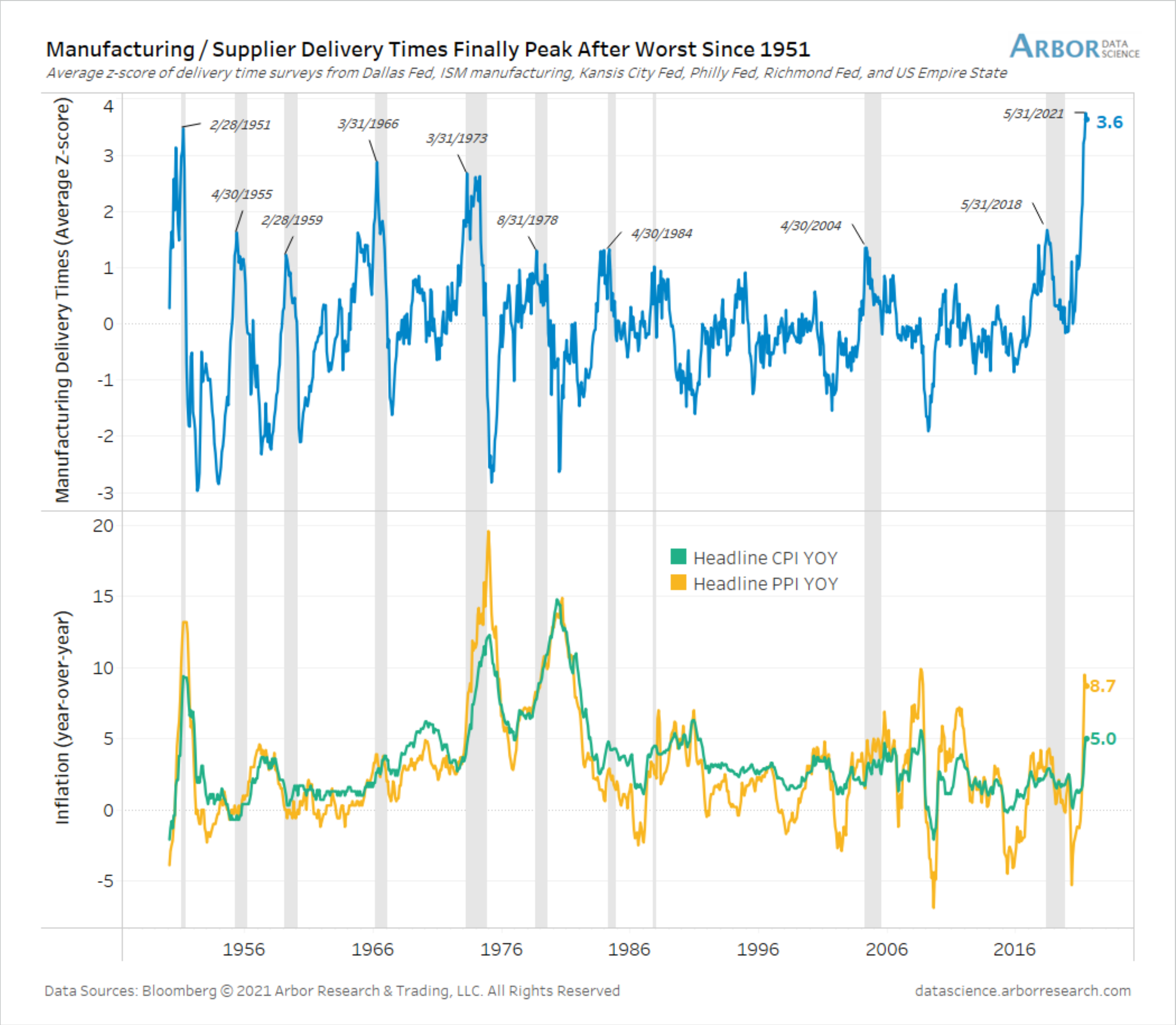
# The Beginning of the End for Supply Chain Bottlenecks?!



# Delivery Times Peak!

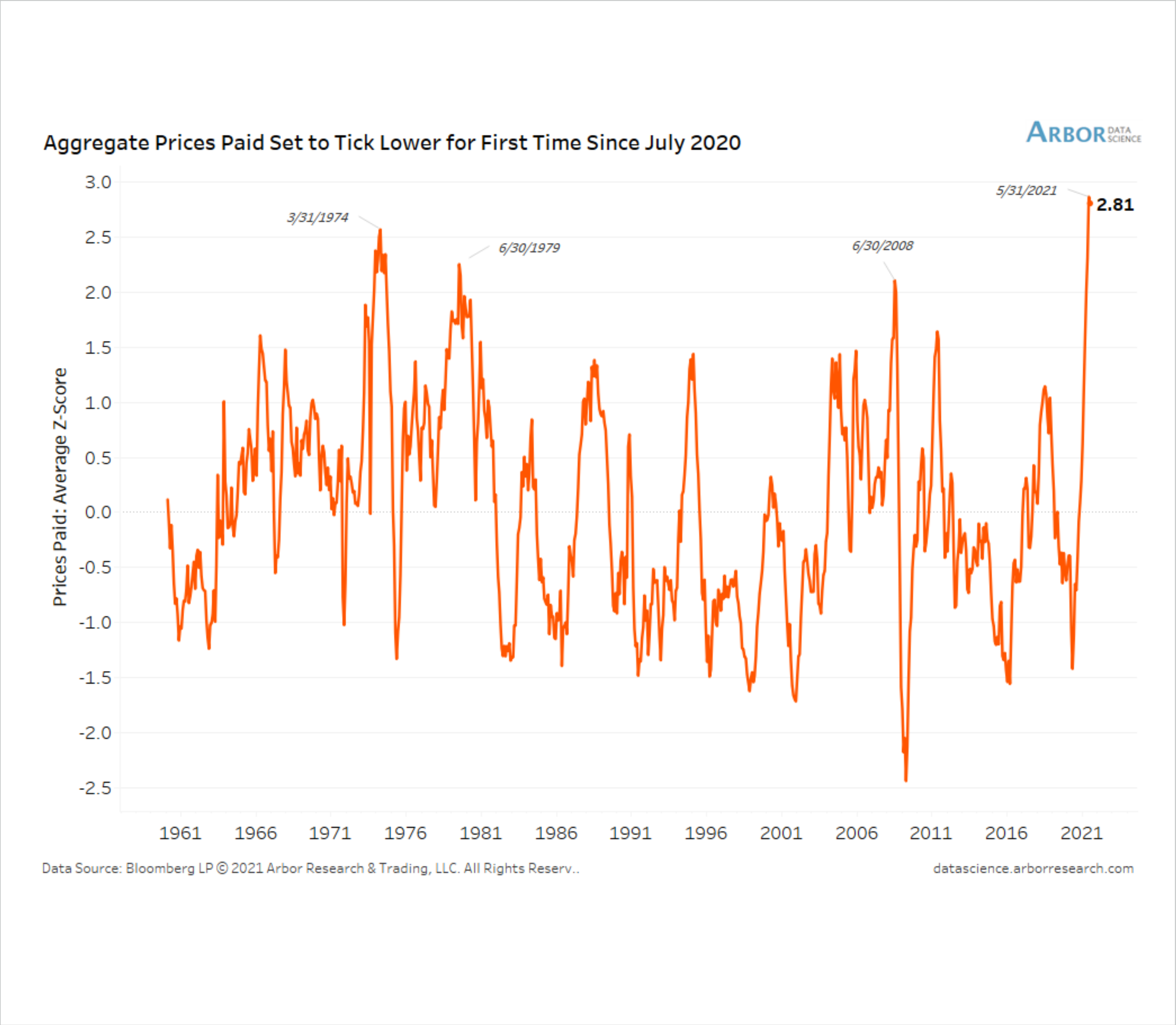
- Past bouts of extreme delivery times have returned to the mean (i.e. z-score = 0) within an average of 10 months.

- All in all, the supply chain has habitually been quite efficient at ramping back up production to meet demand. Under this timeline, the supply chain should be back in full working order by April 2022.



# Prices Paid Edge Lower

- Prices paid surveys have tended to peak shortly after delivery times finally subside.
- The next chart shows the average prices paid index (z-scores) reaching its highest on record since 1960.
- Like delivery times, prices paid will likely tick lower for the first time since July 2020!

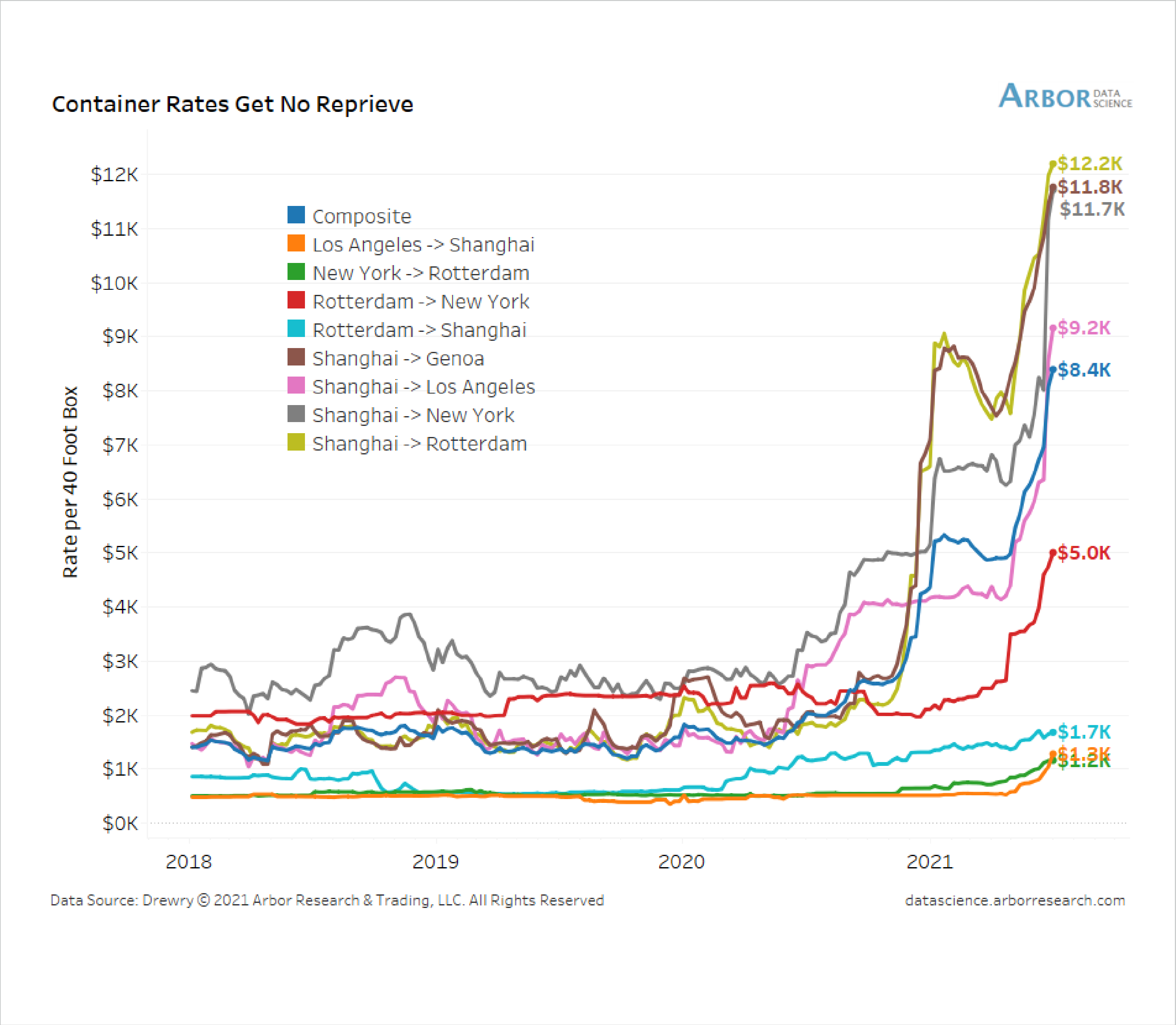


# But, Container Rates Sky-Rocket

- Getting goods from China to Europe and the US remains exceptionally expensive.

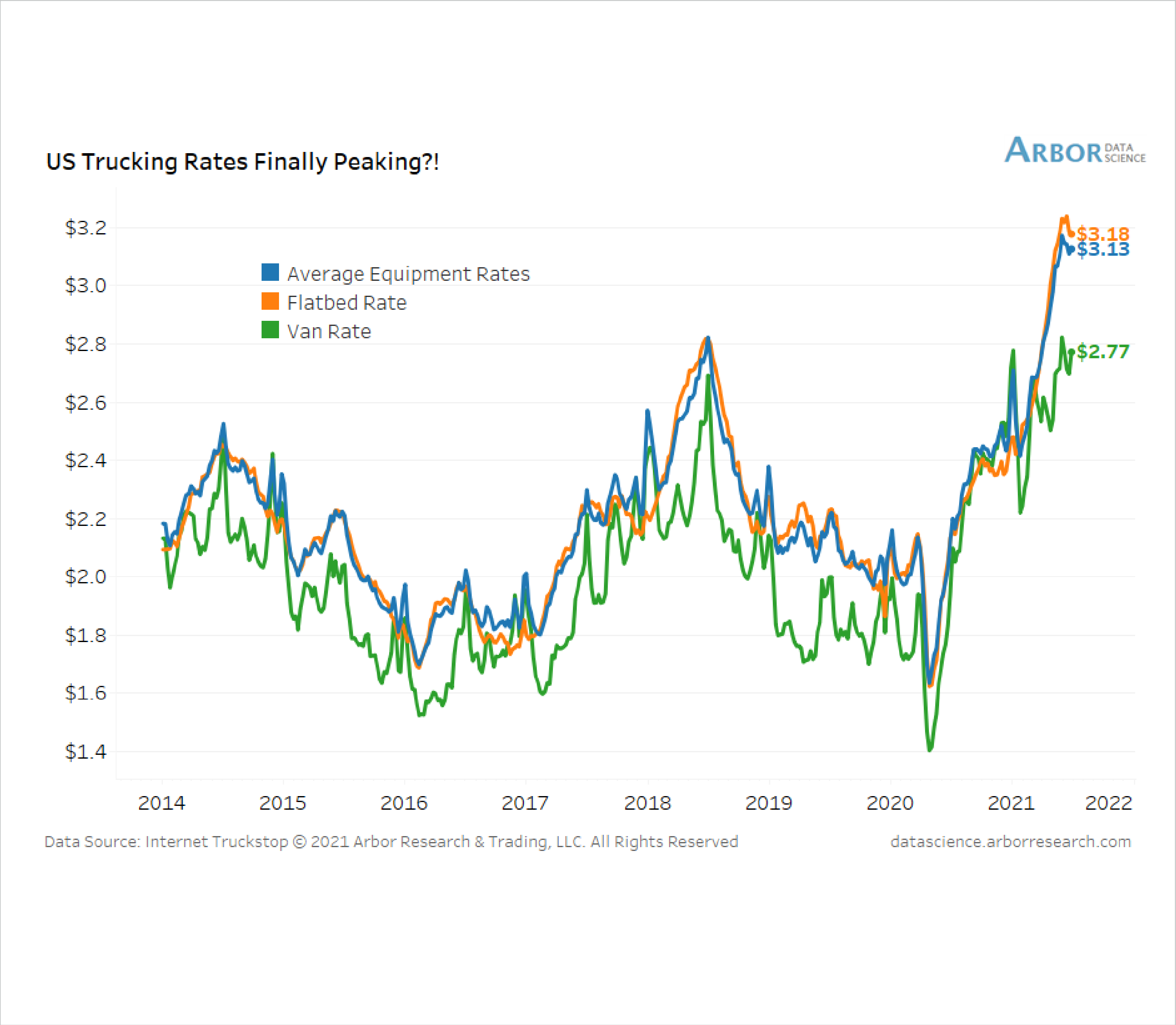
- The Yantian port in Shenzhen has come back on line, but its impact on global shipping remains.

- Container rates per 40-foot box are exceeding $11k for Shangai to Genoa or Rotterdam.



# Fortunately, Trucking Rates Finally Cool

- Flatbed and van rates within the US have begun to subside after a continued march higher since the pandemic got underway.
- Unfortunately, truck availability has yet to recover, but the costs for replenishing fleets and finding drivers will take time.
- Most of the recent improvements appear focused heavily on dampening load availability.

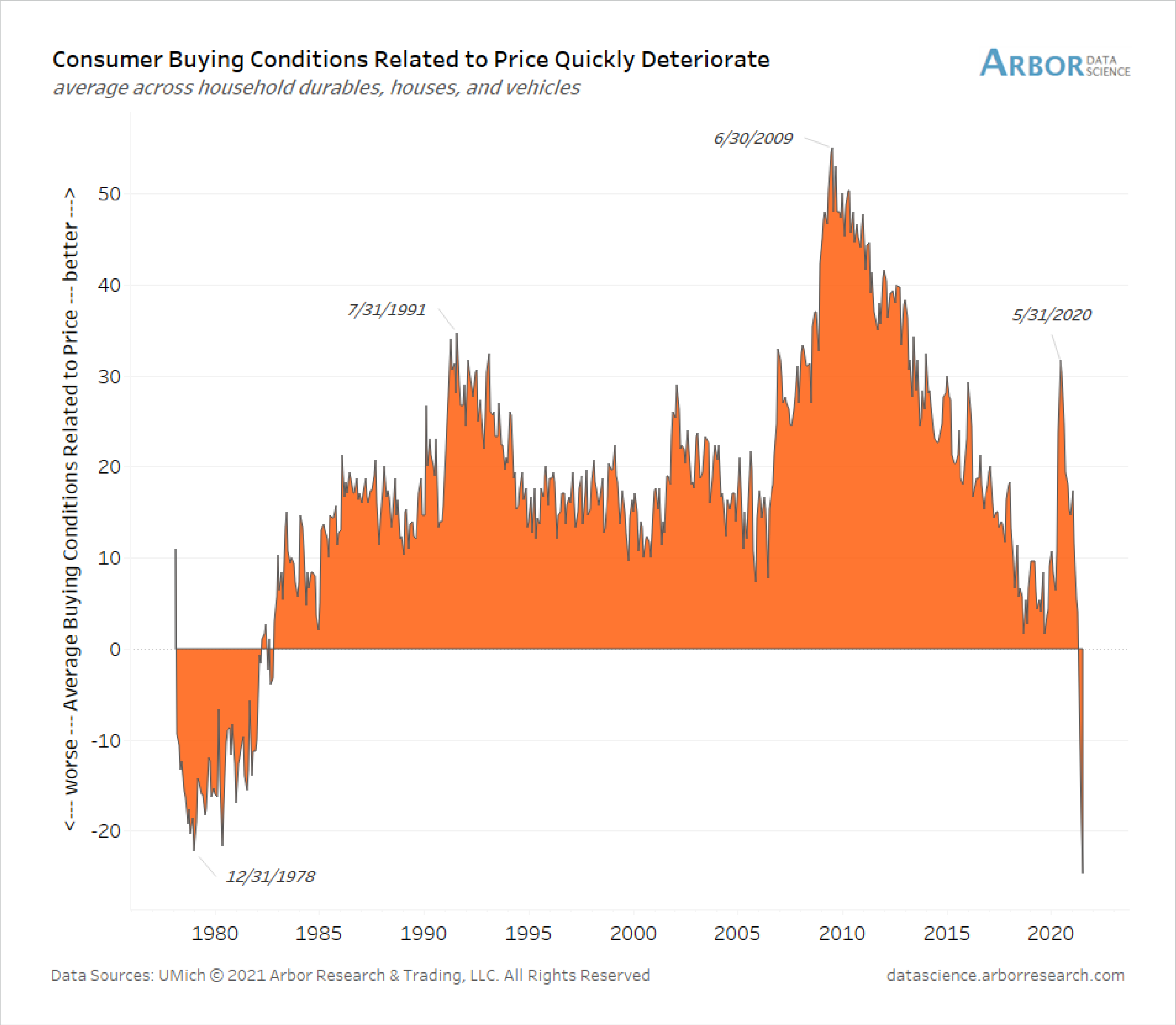


# Consumer Spending Expectations Being Tempered

# Consumers Fear High Prices

- Consumers have suddenly become VERY agitated by rising prices across houses, large household durables, and vehicles.

- The bottom fell out in April on UMich surveys for buying conditions related to price. Quite the dramatic turn of events!

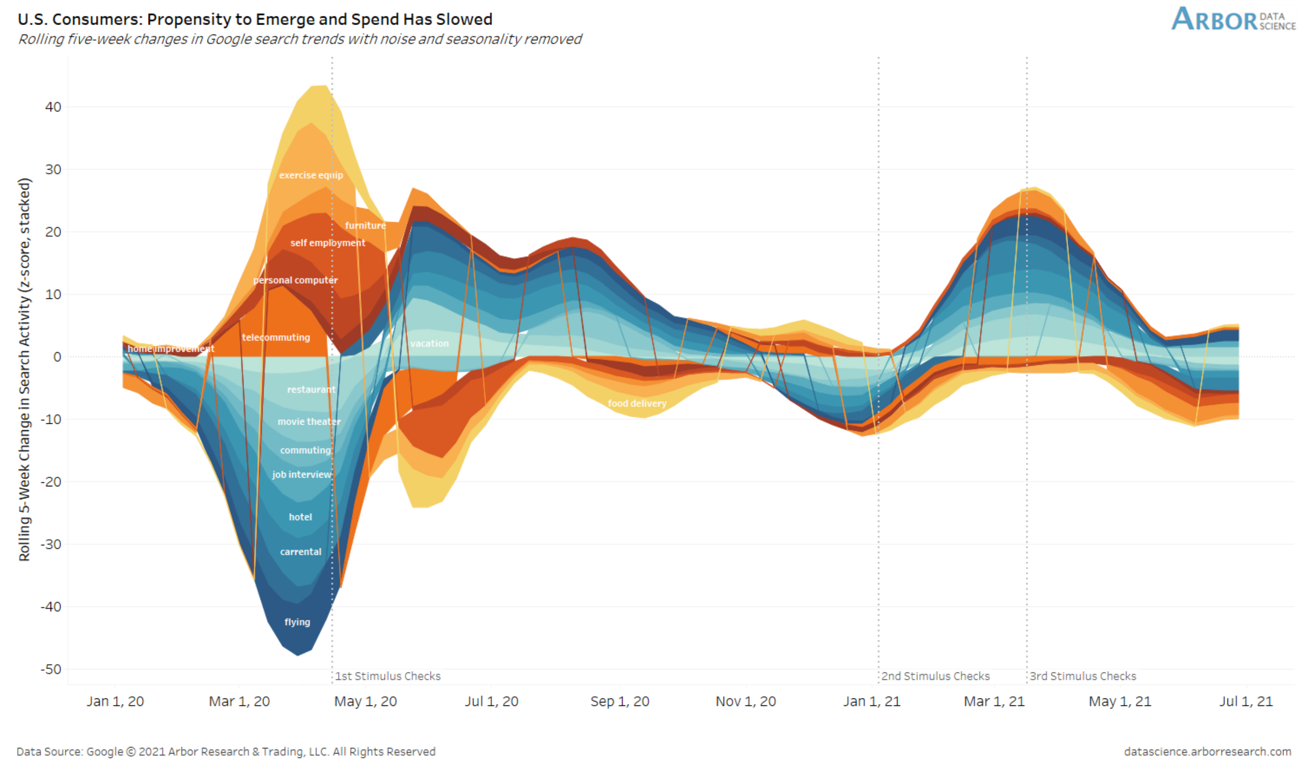


# Consumer’ Enthusiasm to Spend Modestly Wanes

- US consumer search activity for both staying-in and going-out topics have receded in recent weeks.

- A global average of these same search topics has tracked quite well for long-end sovereign yields, helping explain lower sovereign yields.

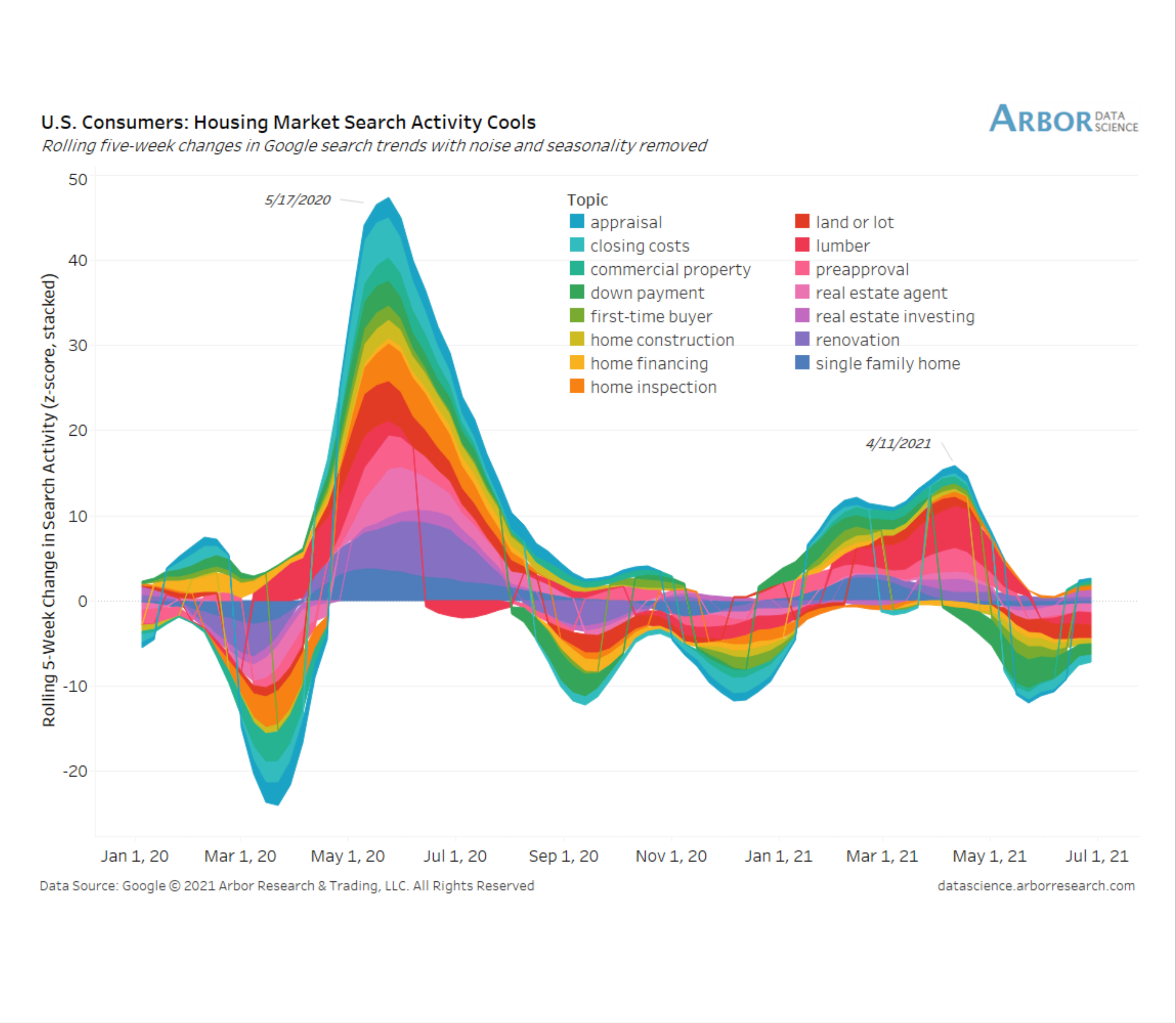
- We need to see search activity remain near average (z-score = 0) or better to keep the ‘good times rolling.’



# Housing Market Cools

- US consumer search activity for all aspects of the home search and buying process quickly fell from mid-May through early June.

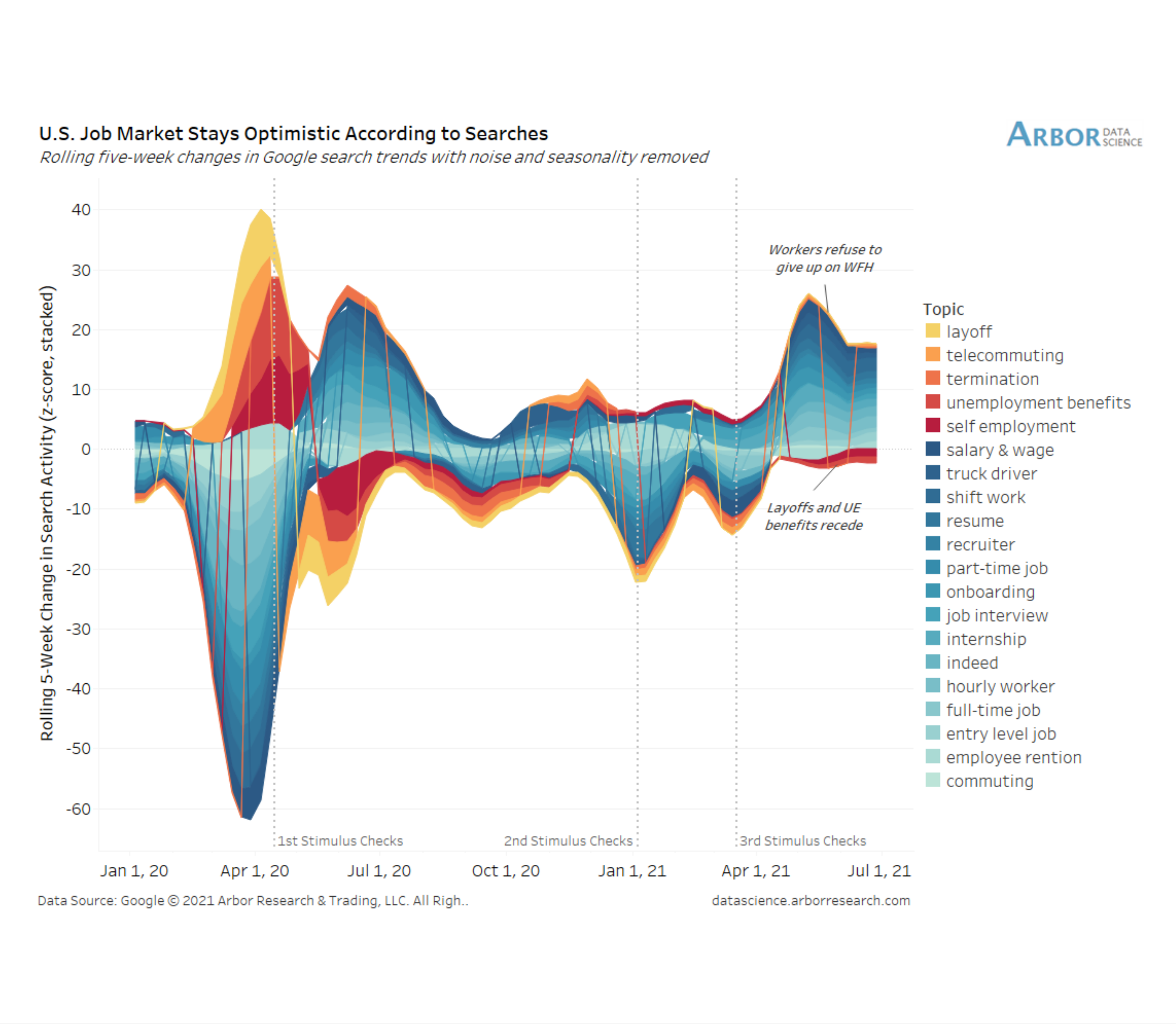
- Searches have troughed, suggesting housing demand remains.



# Job Market Remains Rosy

- Fortunately, searches by both job-seekers and recruiters remains strong into July. The broader economy is not in trouble unless these searches turn lower in unison.

- However work from home remains prominent given continued searches for telecommuting and NOT commuting.



# TRANSITORY?!

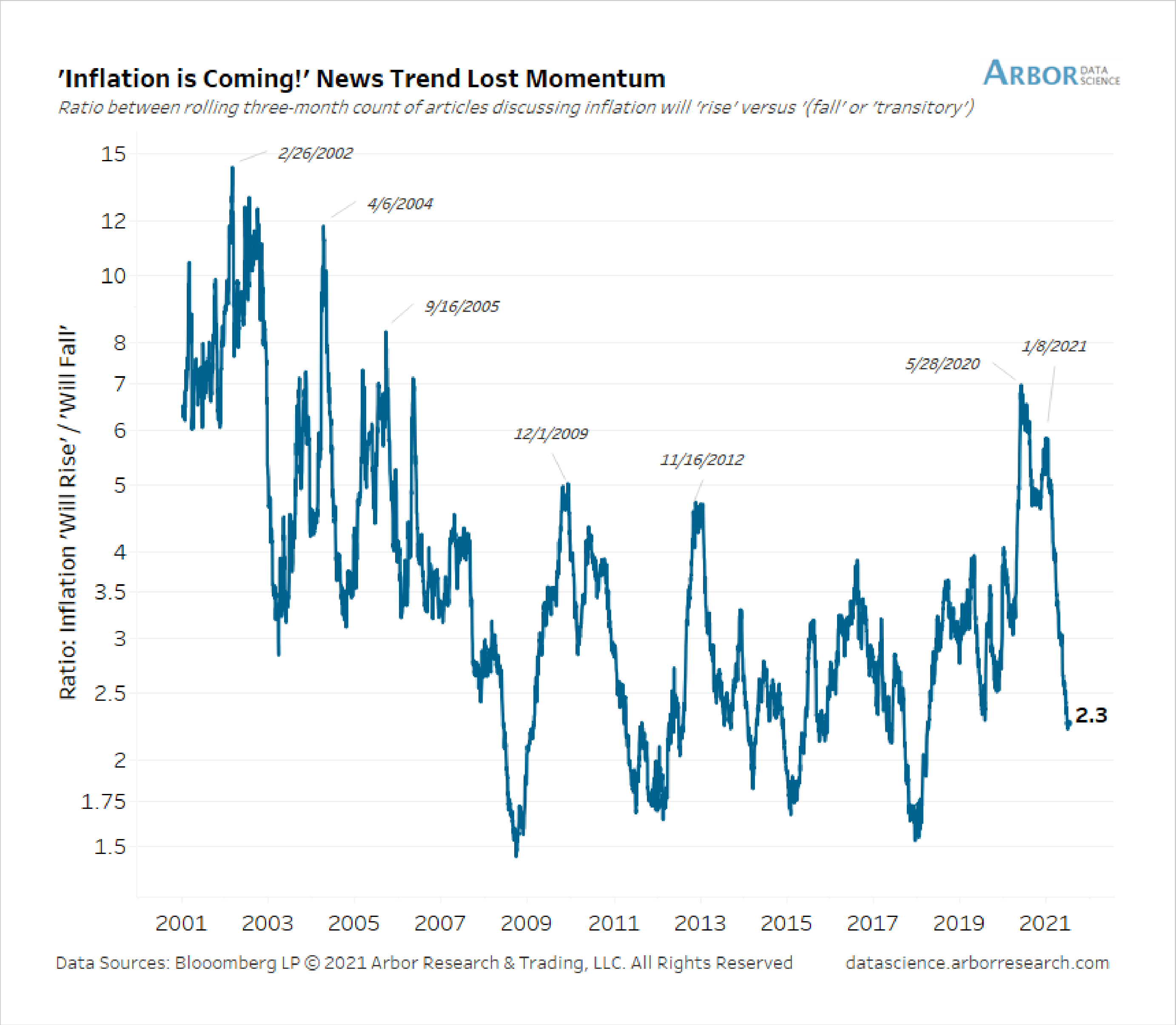
(I can NOT wait for this debate to be over)

# “Inflation is Coming!” Narrative Evaporates

- The chart shows the ratio between rolling 3-month counts of articles discussing inflation rising versus falling. We are now including ‘transitory’ in the falling category.

- Financial media and investors are increasingly on board with the Federal Reserve’s hopes for momentary bursts in consumer inflation.

- Calls for long-lasting inflation have greatly subsided since peaking May 2020.

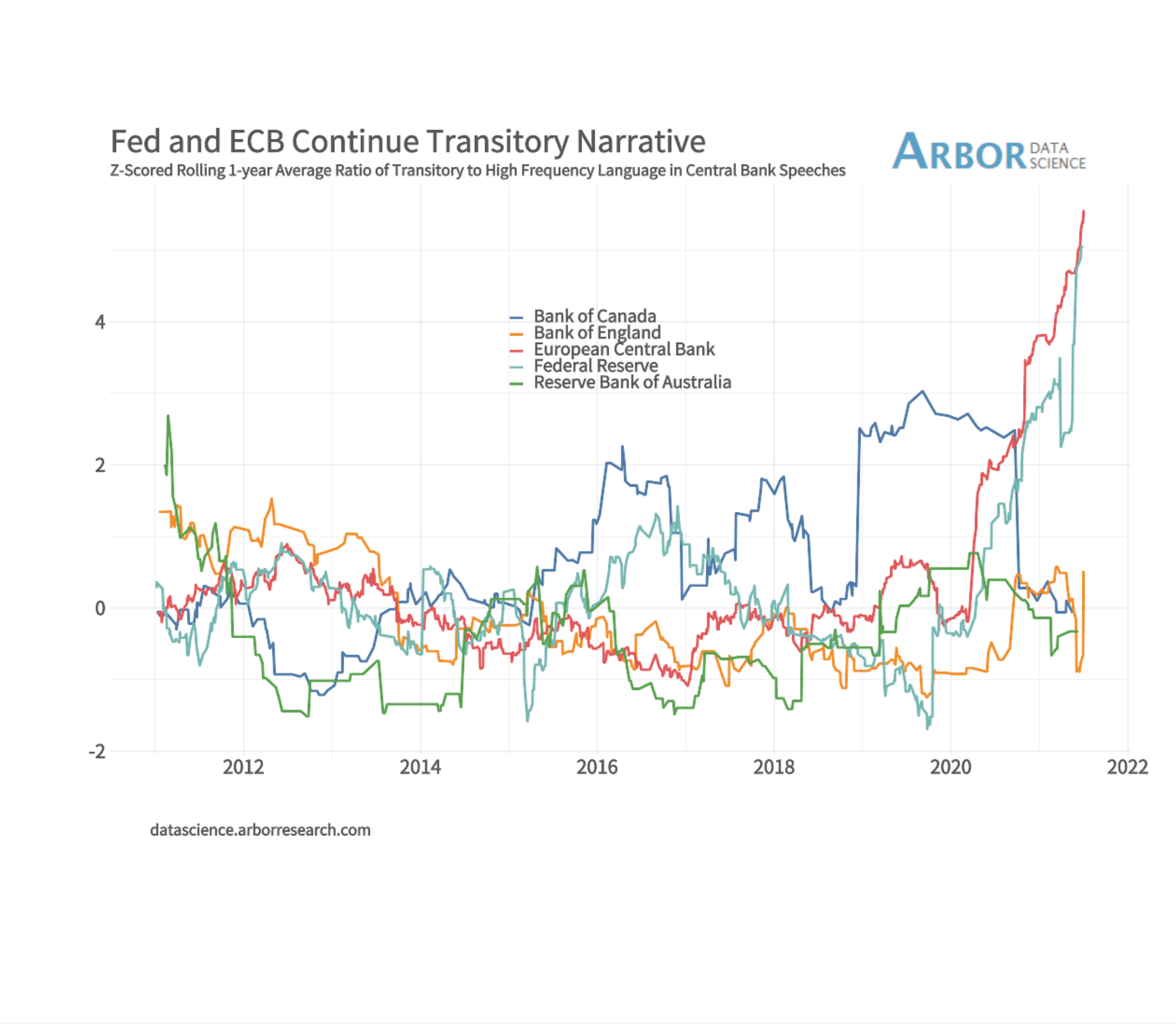


# Fed Remains Committed to the 'Transitory' Mantra

- It's a running gag among Fed-haters that Jerome Powell & Co. will dismiss any price increases as merely transitory.

- This certainly seems true of the Fed lately but whether these dismissals are incorrect is yet to be seen.

- The European Central Bank aligns with the Fed in calling recent price jumps transitory while the Canada and Australia are less convinced.



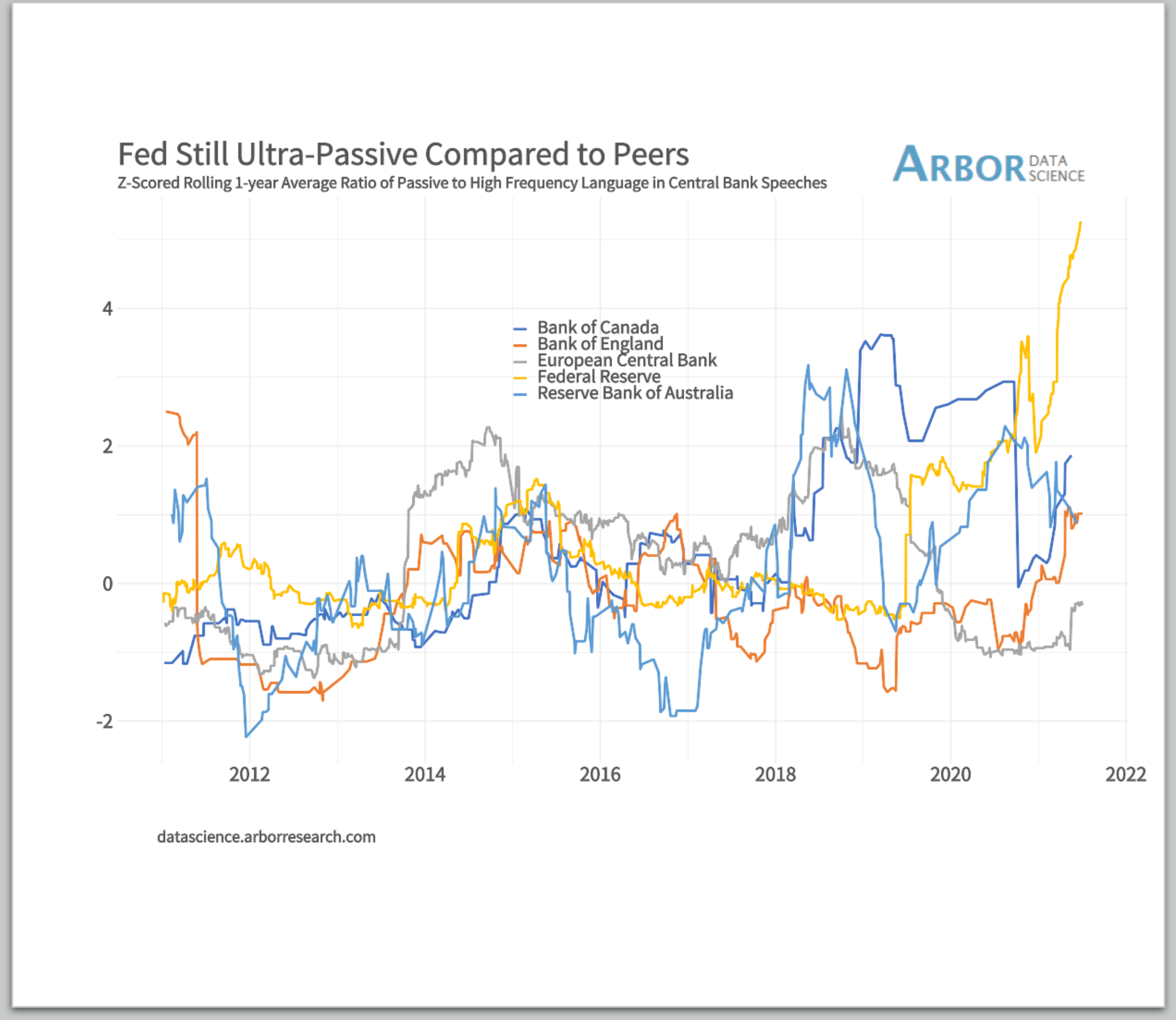
# Fed Has Yet to Lose Passive Perspective

- The Federal Reserve is uniquely Passive relative to history (more than 5 standard deviations above average!).

- What this essentially amounts to is that the Federal Reserve is not ready to commit to a time to taper or raise rates.

- A few other banks are also being cautious, but none rival the Fed.

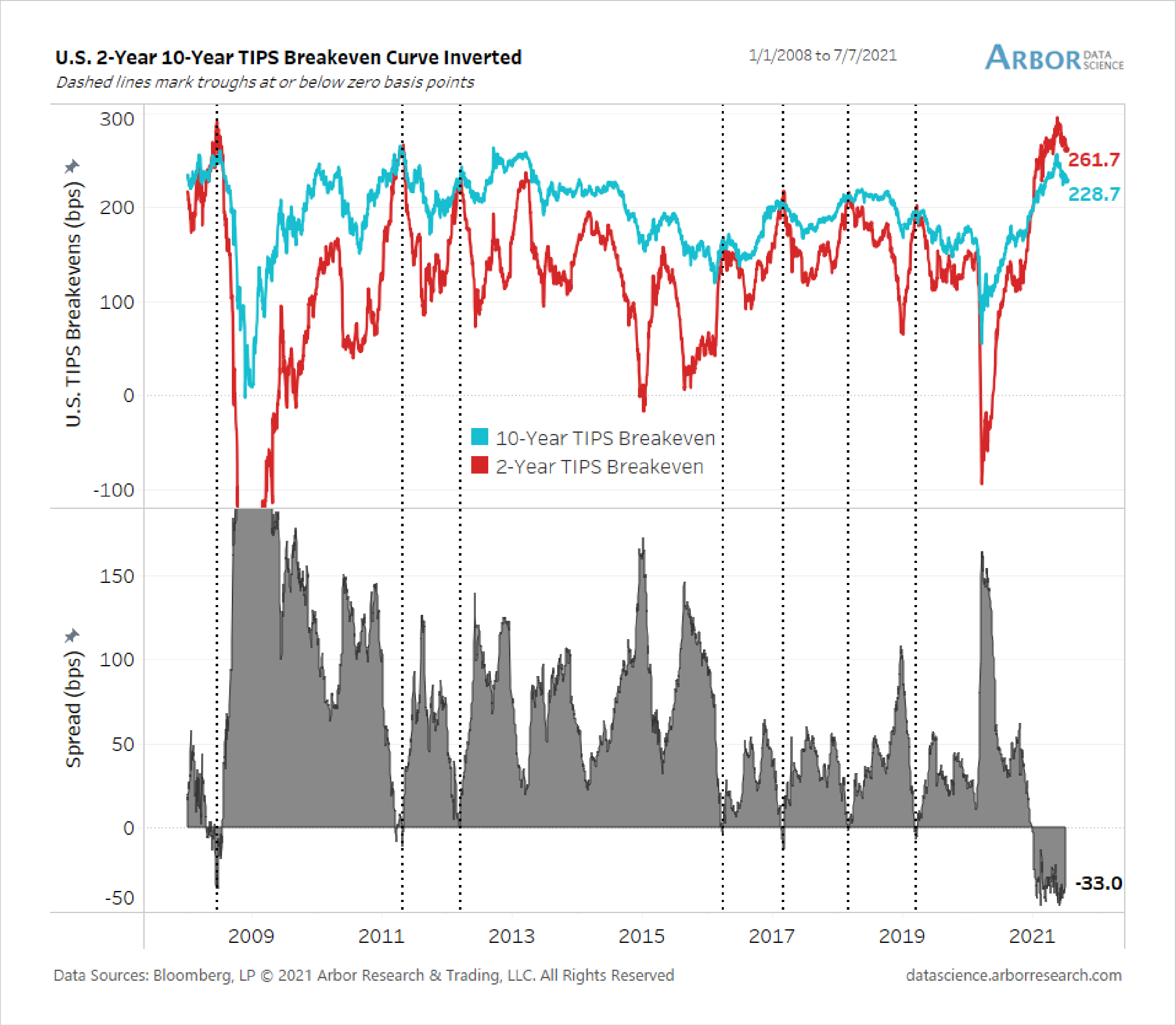
- We expect this trend will reverse if the Fed begins seeing a worthy foe in inflation as they begin discussing clear timeframes.



# The Fed's AIT Persists as Long as TIPS Breakeven Curve Stays Inverted

- The US 5y30y TIPS breakeven spread has made a turn back deeper into inversion at -33.1 bps.

- Allowing short-run inflation to run hot remains central to the AIT framework. **A shift back to a steepening TIPS breakeven curve would suggest investors believe AIT will be put to the test!**

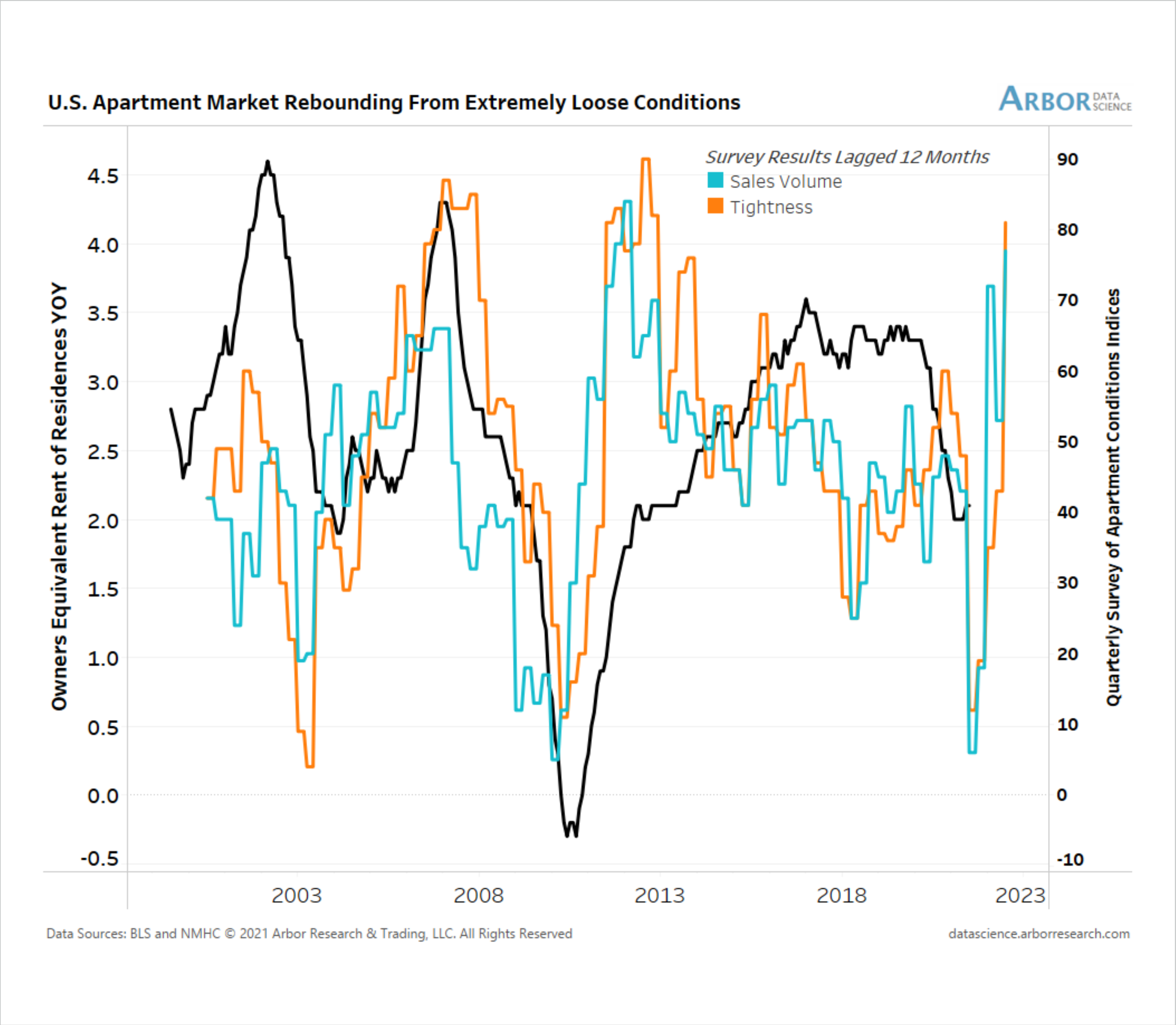


# Rents Accelerating Higher

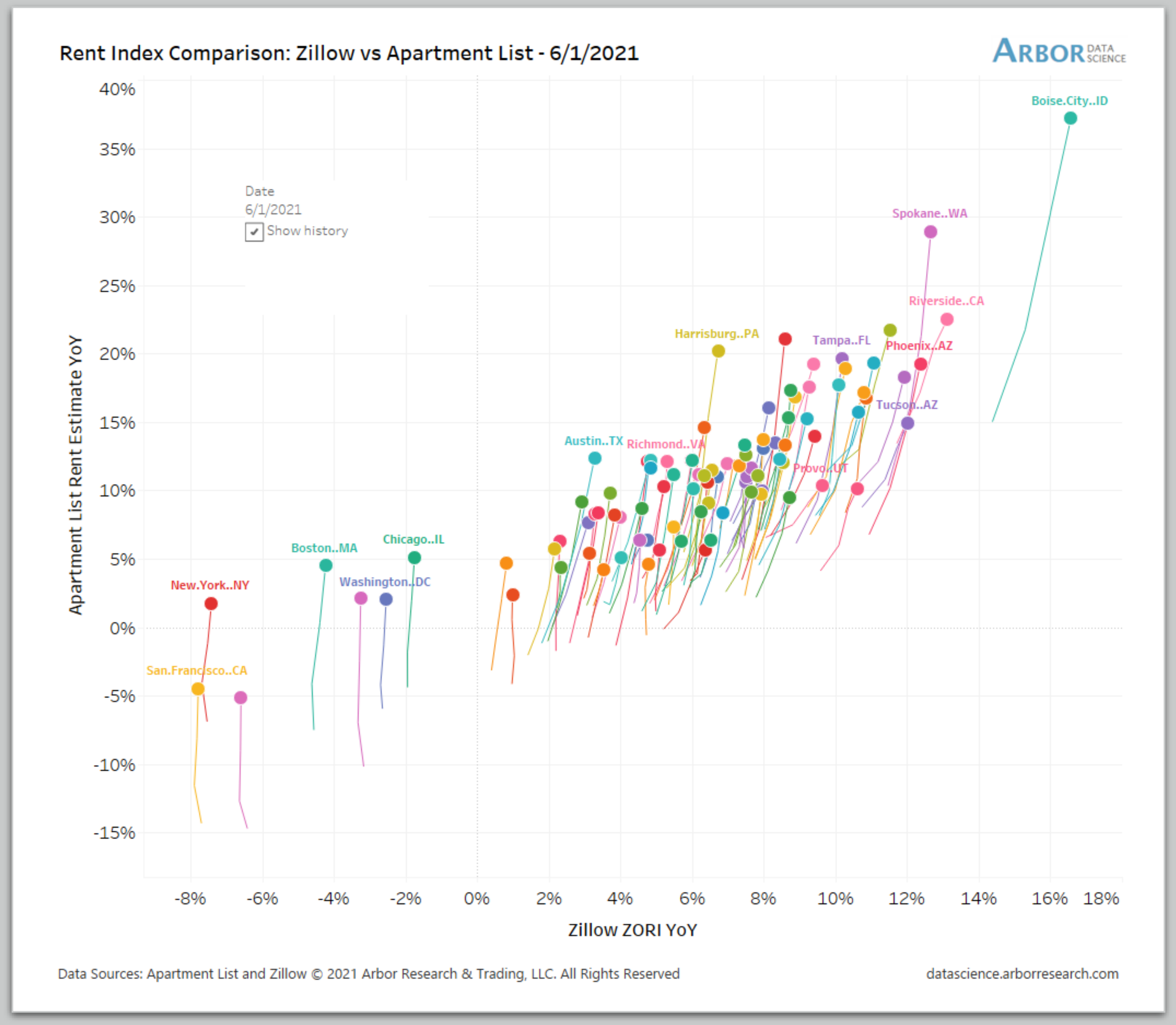
# Apartment Rentals Heat Up According to Surveys

- The National Multifamily Housing Council's (NMHC) survey reveals greatly accelerating paces of sales and tightness.

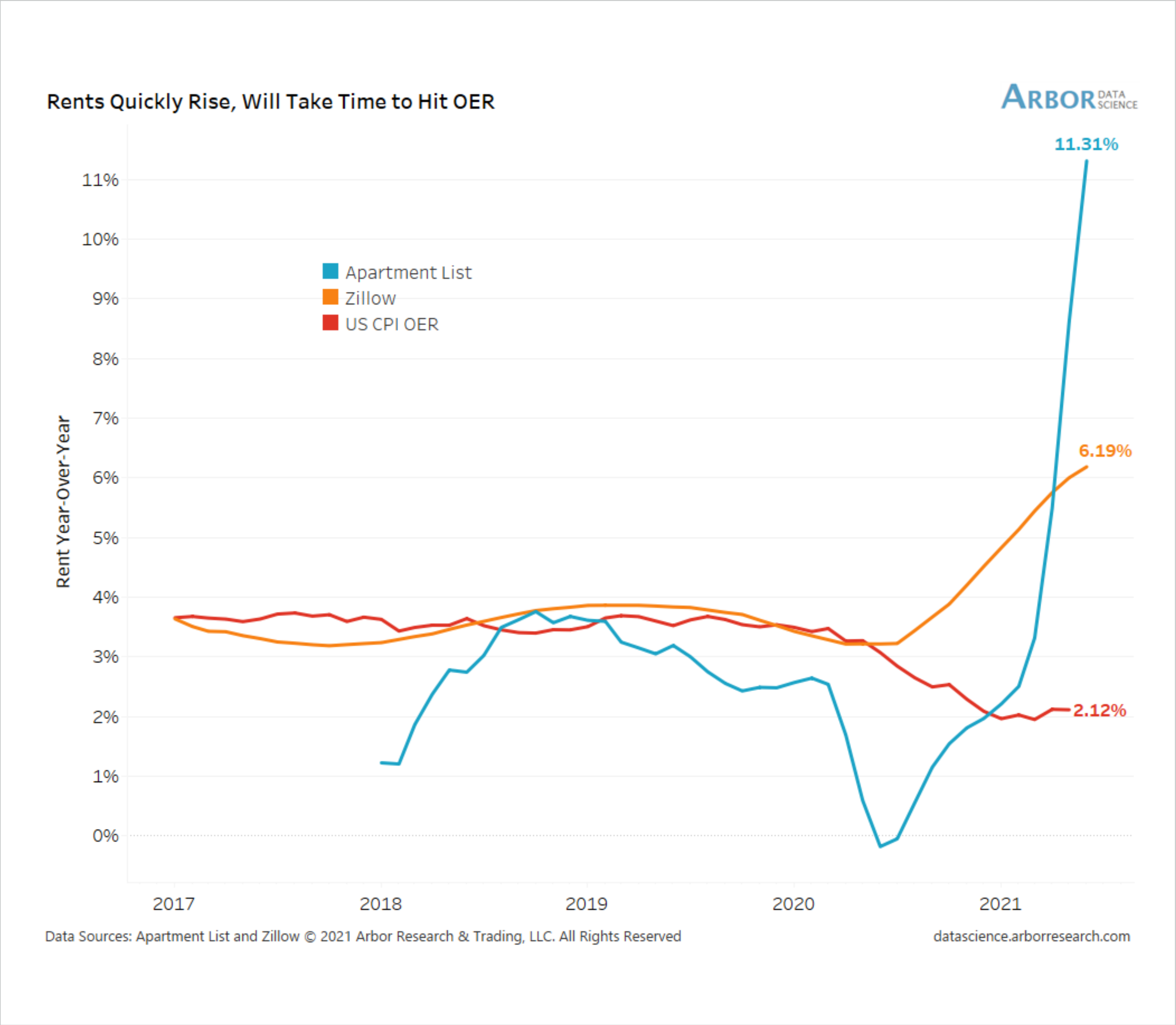
- Both surveys have habitually led the owners equivalent rent (OER) by roughly 12 months, suggesting 3+% YoY gains could be seen by early 2022.



# Rising Rents Nearly Ubiquitous Across Metros

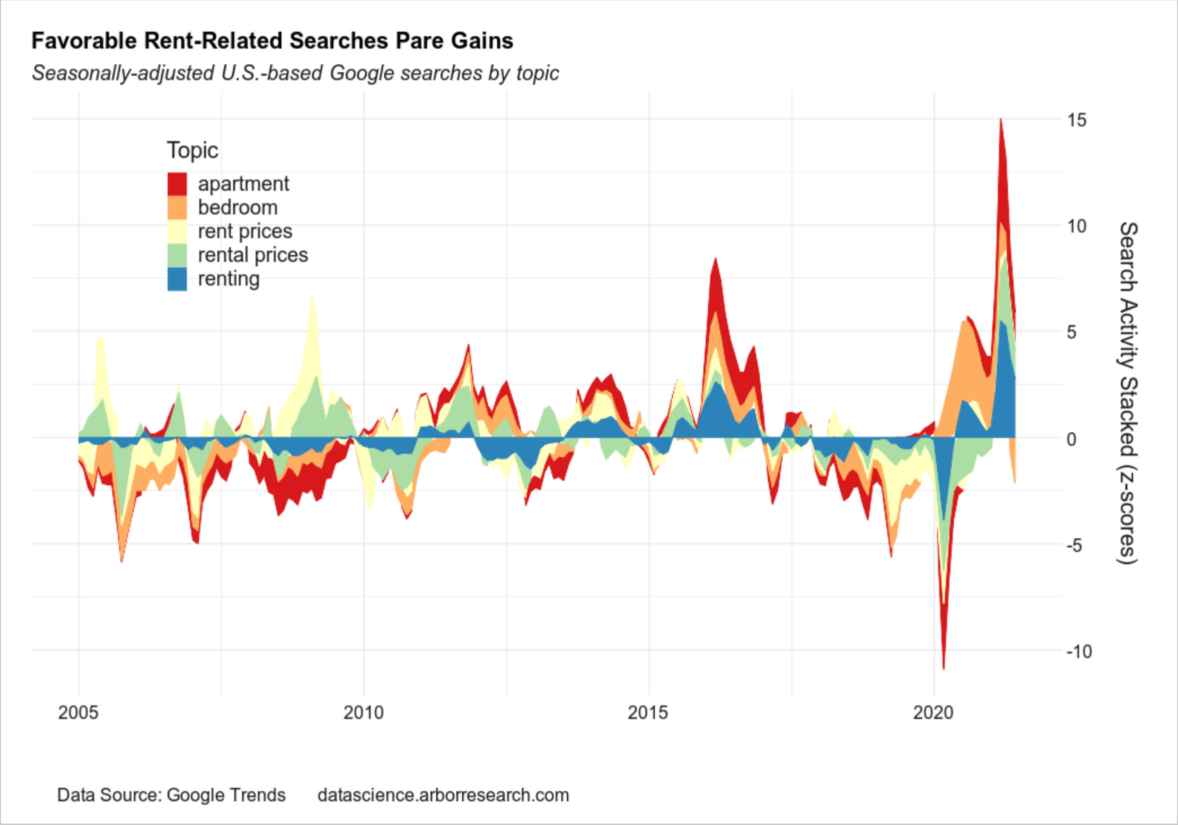


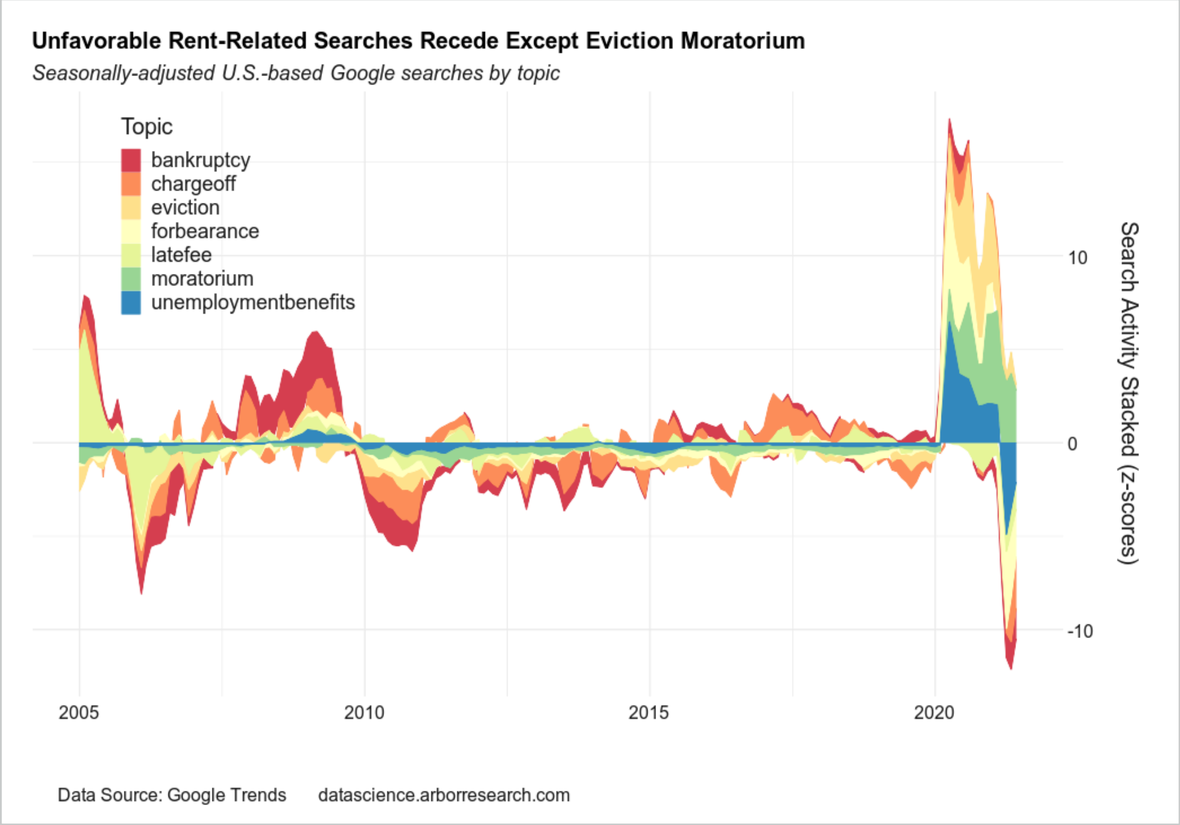
Apartment List Rents to the Moon, Will take Time to Show Up in OER

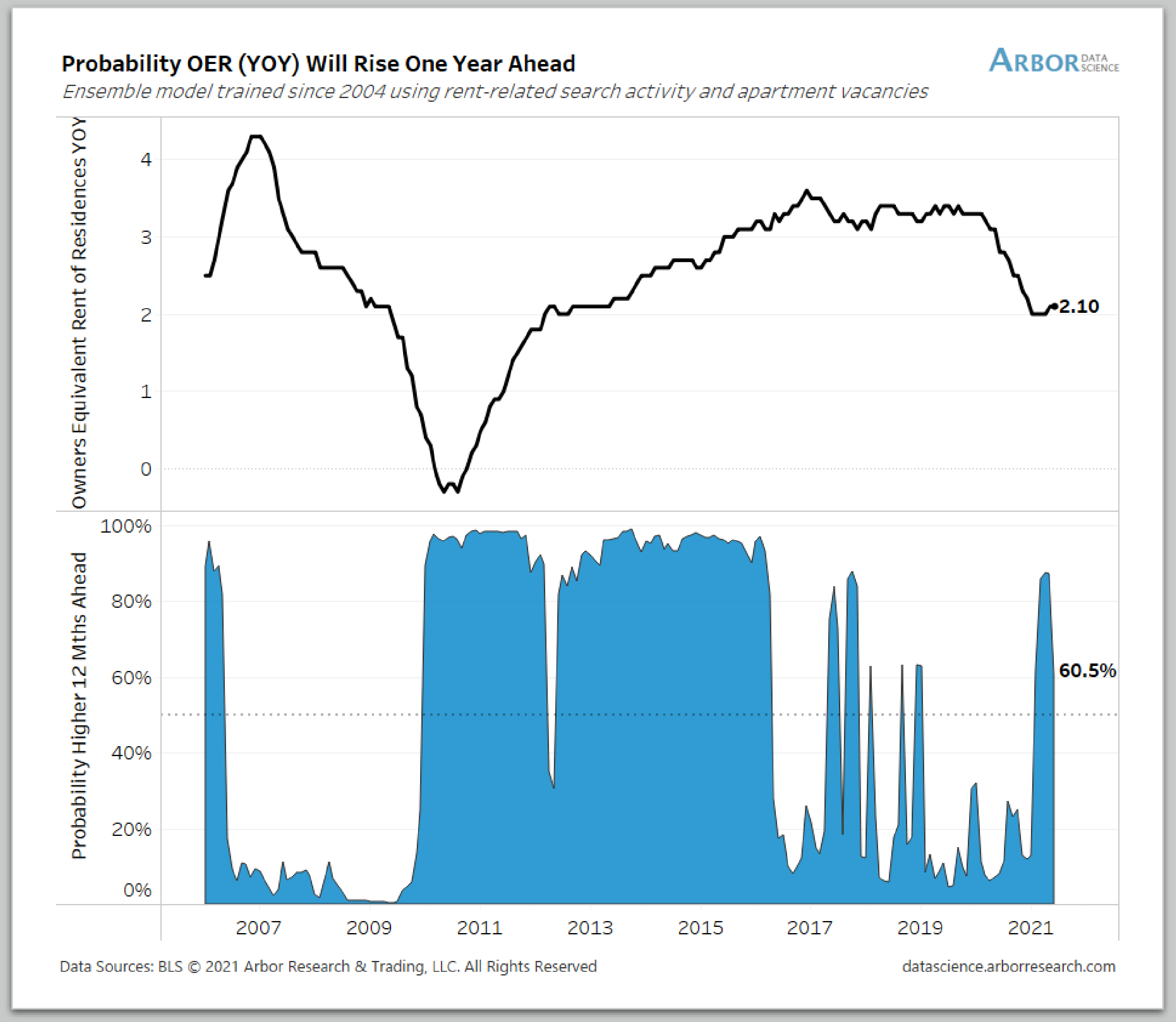


# Rent-Related Searches Slow, but Outlook Remains Optimistic

- Rent-favorable Google searchessubsided in June, but remain quite healthy.
- Continued growth in rent-related search activity bodes very well for rising rents into year-end.
- Searches for bankruptcy to unemployment benefits have consistently diminished throughout the year thanks to fiscal stimulus.
- All unfavorable topics except 'moratorium' are now well-below average. Eviction moratoriums should end by August, fueling convergence between asking and collected rents.



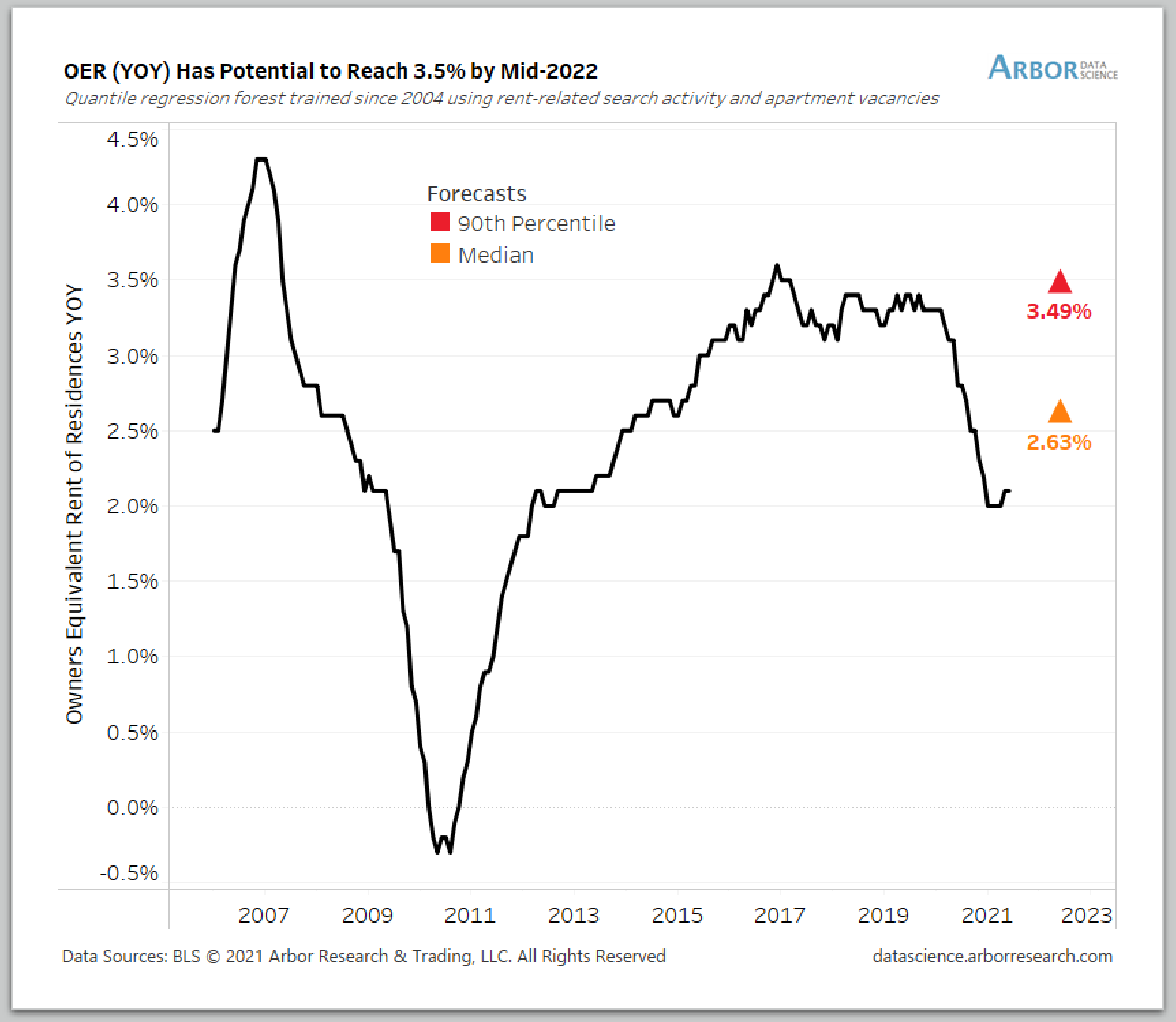



# High Probabilities OER Will Rise are Here

- The 35 rent-related search topics and surveys for apartment tightness are fed into an ensemble model to produce probabilities OER year-over-year will be higher 12 months ahead.

- **As of June 2021 rent-related search activity indicates an 60.5% probability OER's YoY growth rate will be higher next May 2022**.

- This model consistently producing probabilities above 50% is a game changer for the long-run inflation outlook!




# How High Can OER Go?

- Can the rapid acceleration in rents reported by Apartment List continue? Zillow and other sources paint a more muted rise.
- We use a quantile regression forest to project a median and 90th percentile estimate of OER YoY in June 2022. Currently, potential exists for upside toward 3.49% YoY.
- We will be routinely updating this model in the event a larger tail toward higher rents arises. Stay tuned!

# Contact Us

Give us a call for more information about our services and products

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