



Maverick



Darius Dale Macro Voices Interview
Thursday, January 5, 2023

Prepared 1/3/23

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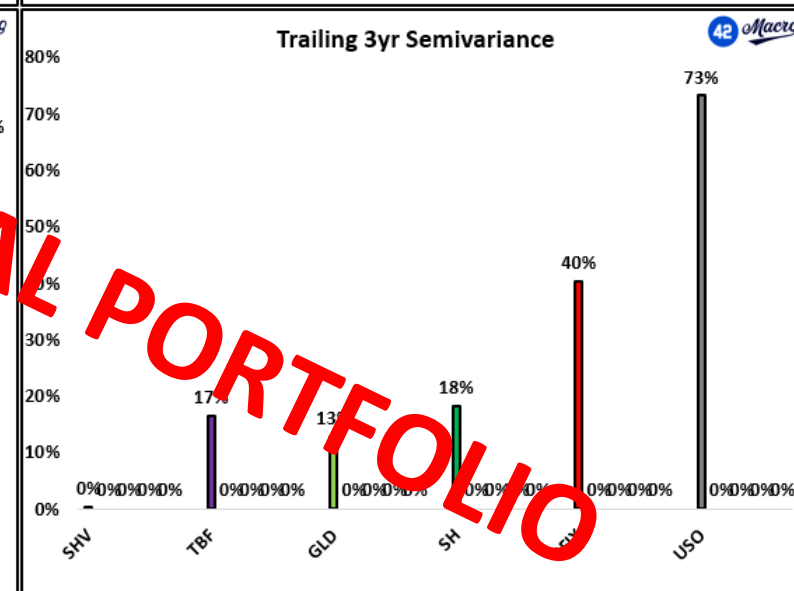
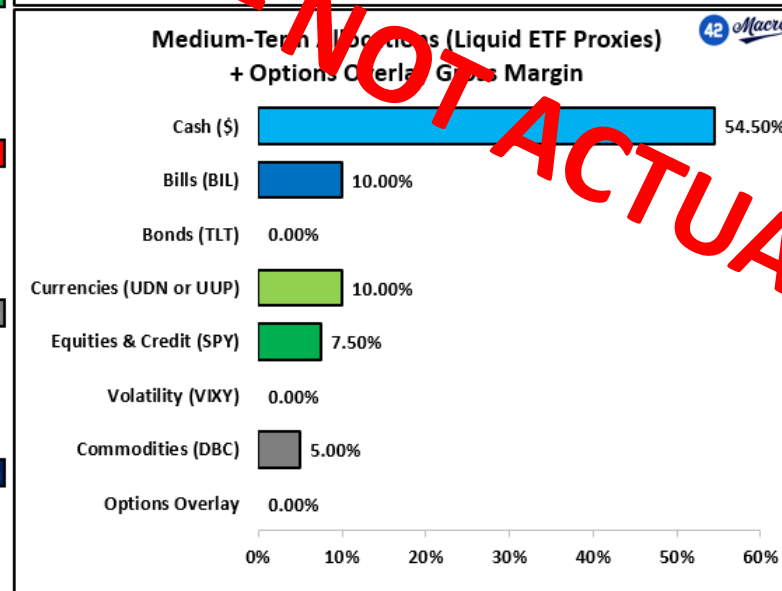
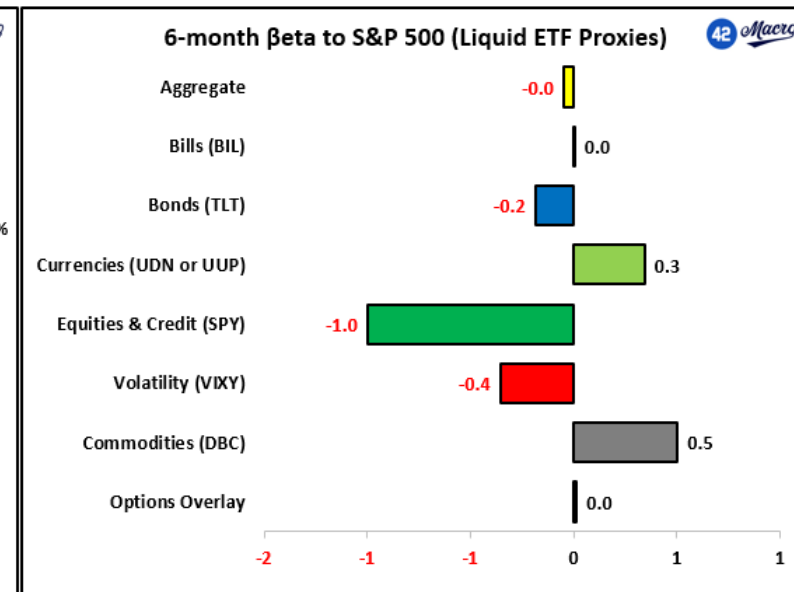
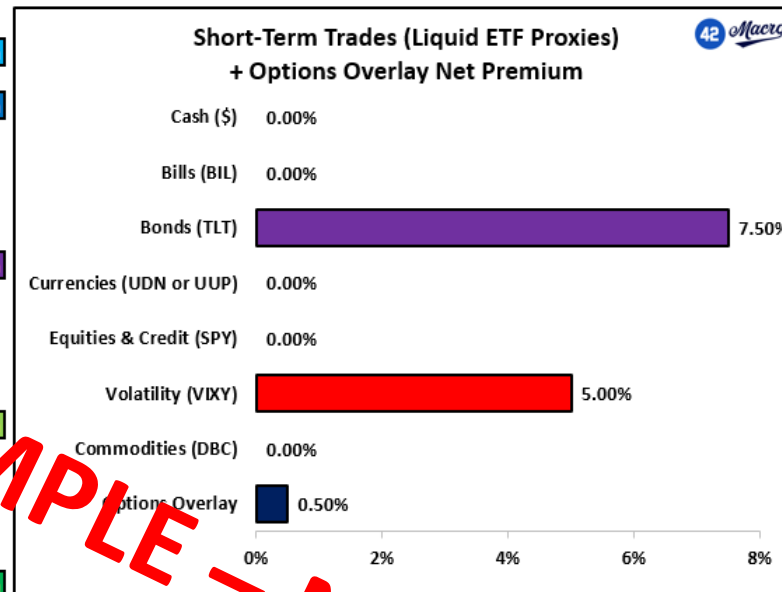
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Key Takeaways: Tuesday, January 3, 2023

- **SHORT TERM (< 3wks):** We remain short seasonality heading into Q1. “Flows” had a nice run being in control of asset markets since early-October, but “Macro” is likely back in the driver’s seat thanks to an extension of **Phase 1** – i.e., the **Liquidity Cycle** downturn.
- **MEDIUM TERM (3-12mos):** The Fed’s new “substantially more evidence” standard implies the **Phase 1 Liquidity Cycle** downturn is likely to be extended well into 2023. **#respectthexaxis**
 - **MODAL OUTCOME (High Probability):** The Fed has upgraded the tight labor market in its reaction function in lieu of inflation. This is a meaningful shift because of the resiliency of the US economy and will likely cause the Fed to tighten into well into 2023. From a **@42macro Net Liquidity** perspective, that likely keeps risk takers from putting a substantial portion of the excess liquidity in the Reverse Repo Facility to work for several months. S&P 500 fair value ≈ 3600.
 - **LEFT TAIL RISK (Middling Probability):** Our analysis suggests the US economy is at least three quarters away from an **#actualrecession**. Thus, an **#actualrecession** that develops much sooner than our expectation is a material downside risk for risk assets given that it has yet to be adequately priced in. Asset markets would have to price in the **Phase 2 Credit Cycle** downturn from the pending lows of the **Phase 1 Liquidity Cycle** downturn, as opposed to from whatever highs could be achieved in the interim if **Phase 1** and **Phase 2** are spaced apart. S&P 500 fair value ≤ 3000.
 - **RIGHT TAIL RISK (Low Probability):** An abrupt end to Zero COVID in China – the world’s second largest economy – may cause a substantial positive shock to global growth. That outcome is dollar bearish, at the margins, and may catalyze a **GOLDILOCKS** pain trade given current POSITIONING and trending cross-asset correlations. S&P 500 fair value ≈ 4100.
- **RISK MANAGEMENT:**
 - **SELLS:** n/a
 - **BUYS:** n/a
 - **OVERBOUGHT:** n/a
 - **OVERSOLD:** n/a
- **EDUCATIONAL RESOURCES:**
 - <https://42macro.com/walkthrough>
 - <https://42macro.com/the-playbook/>
 - <https://bit.ly/3Dcrl21>

42 Macro Portfolio Construction: 1/5/23

Cash	Short-Term Trades	Medium-Term Allocations	Δ Since Prior Update	6mo βeta
\$		54.5%		0.0
Bills	Short-Term Trades	Medium-Term Allocations	Δ Since Prior Update	6mo βeta
SHV		10.0%		0.0
Bonds	Short-Term Trades	Medium-Term Allocations	Δ Since Prior Update	6mo βeta
TBF	7.50%			-0.2
Currencies	Short-Term Trades	Medium-Term Allocations	Δ Since Prior Update	6mo βeta
GLD		10.00%		0.3
Equities & Credit	Short-Term Trades	Medium-Term Allocations	Δ Since Prior Update	6mo βeta
SH		7.50%		-1.0
Volatility	Short-Term Trades	Medium-Term Allocations	Δ Since Prior Update	6mo βeta
PFIX	5.00%			-0.4
Physical & Digital Commodities	Short-Term Trades	Medium-Term Allocations	Δ Since Prior Update	6mo βeta
USO		5.00%		0.5
Options Overlay	Premium	Margin	Δ Since Prior Update	6mo βeta
FXI US 02/17/23 C35	0.50%	0.00%		0.0



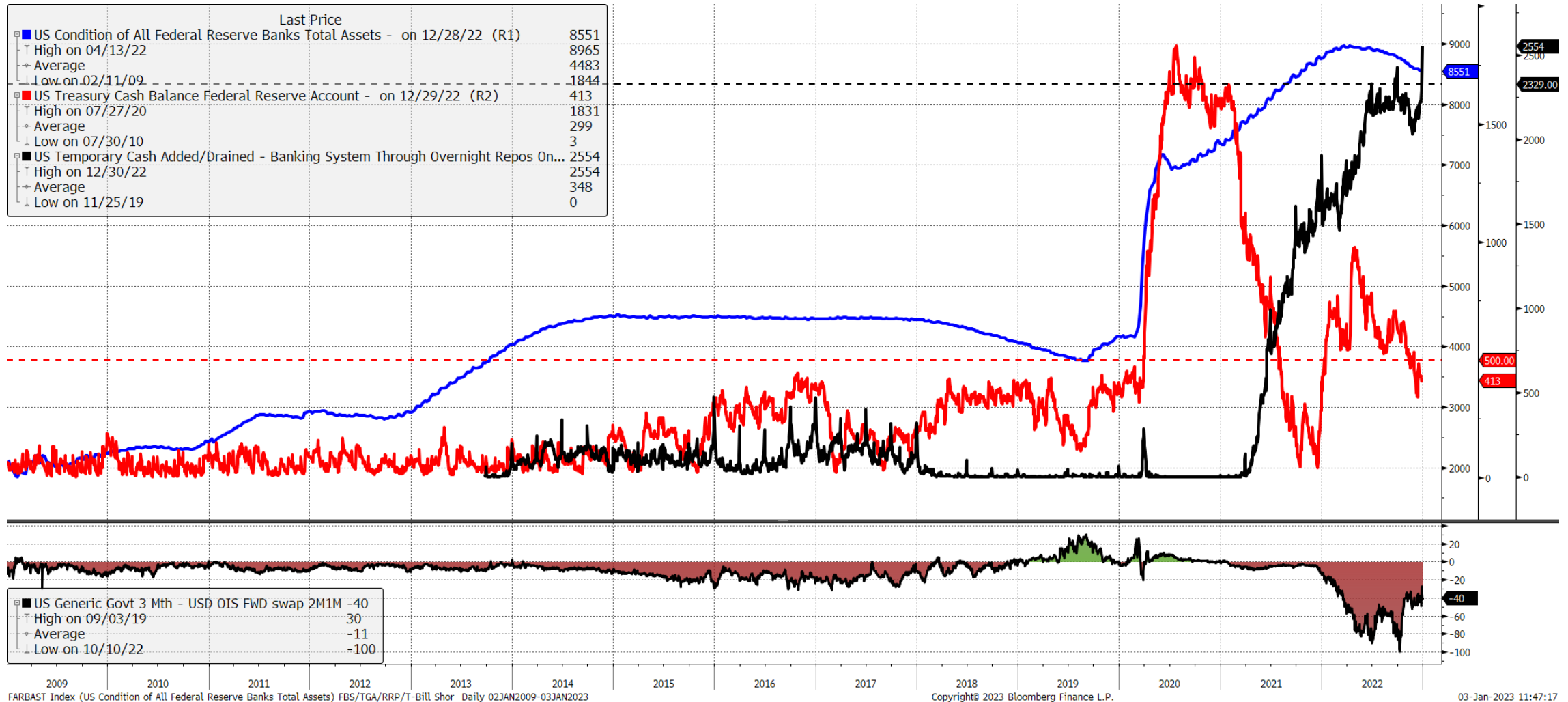
Modal Outcome



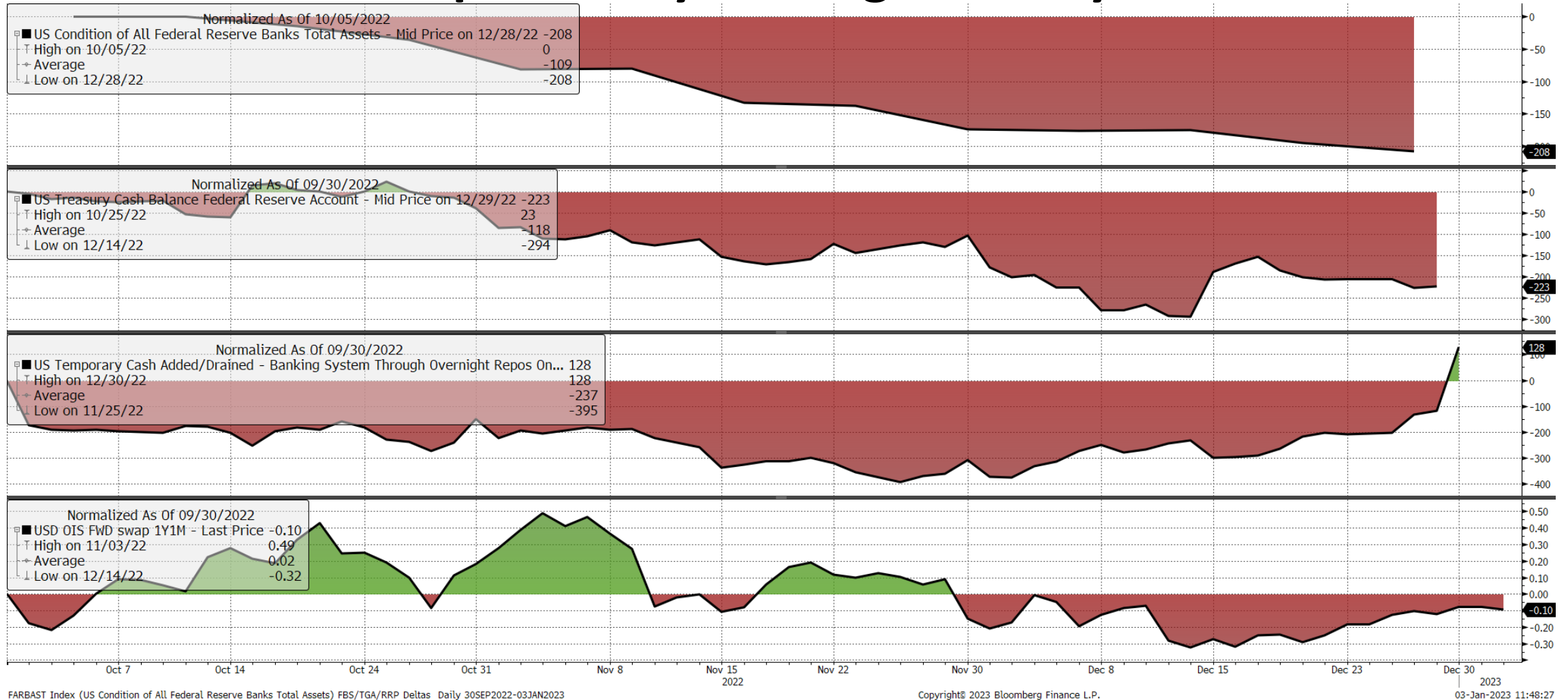
The Hawkish Fed Pivot + Incremental Adverse Inflation And Wage Developments Worsened The Outlook For @42macro Net Liquidity



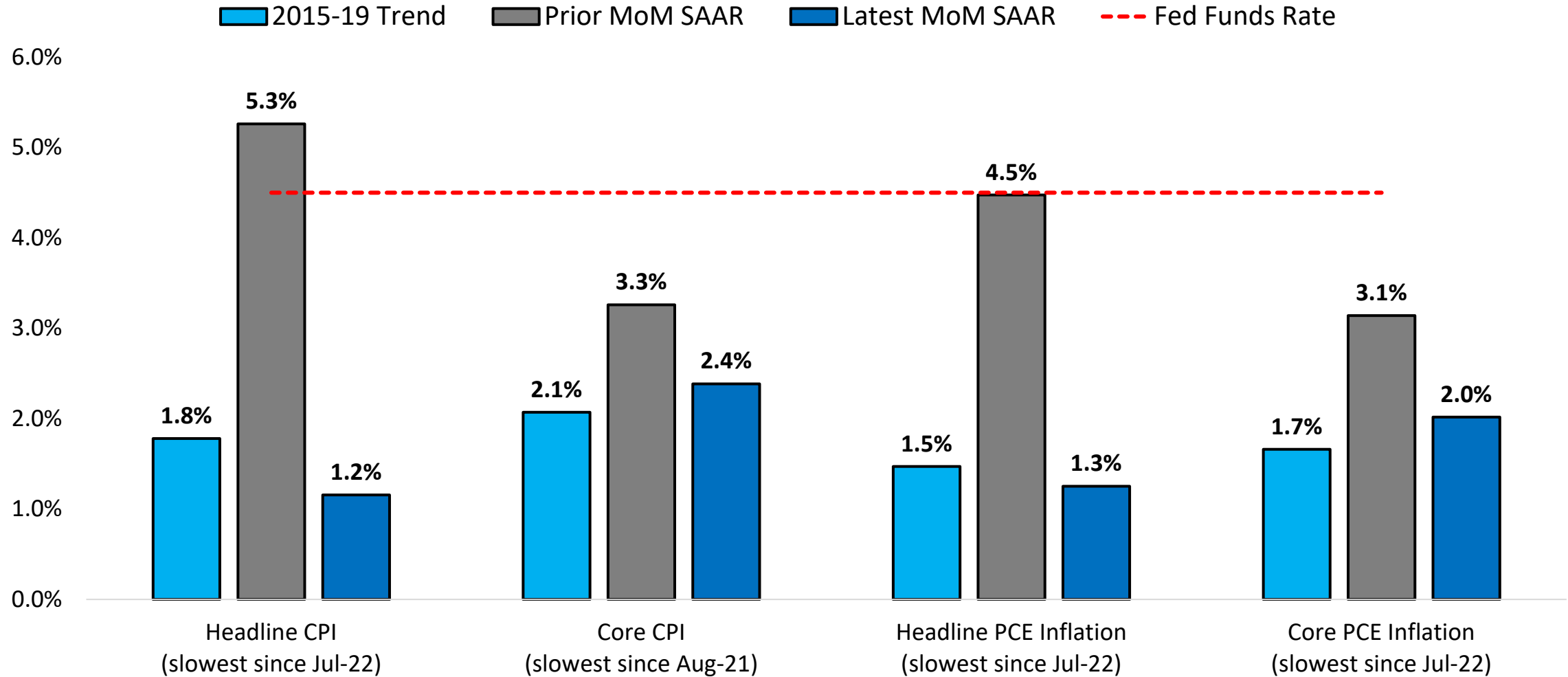
We Are Targeting \$500bn For The TGA And \$2.3tn For The RRP By The End Of 1Q23



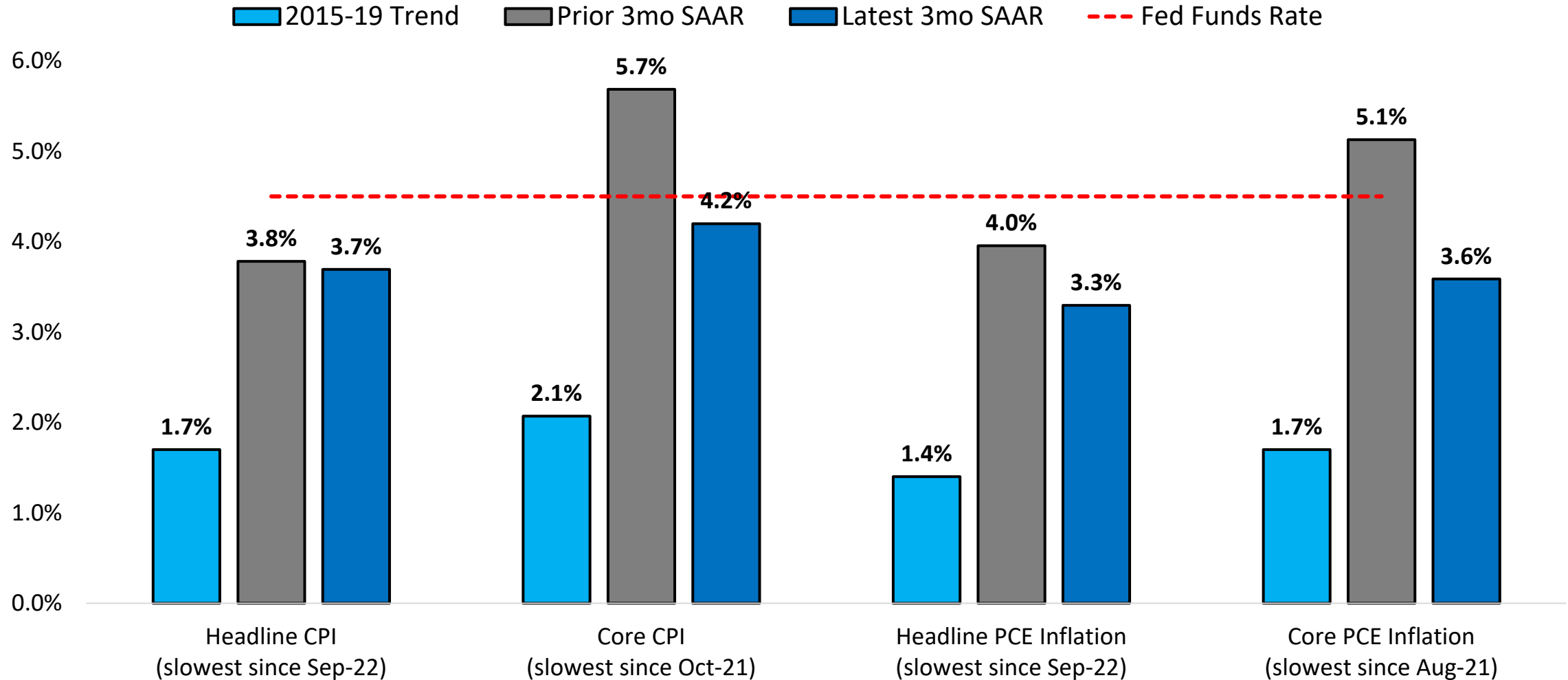
Since The Start Of Q4 And Through Mid-December, TGA Drain And RRP Drain Had Independently And Significantly Nullified QT



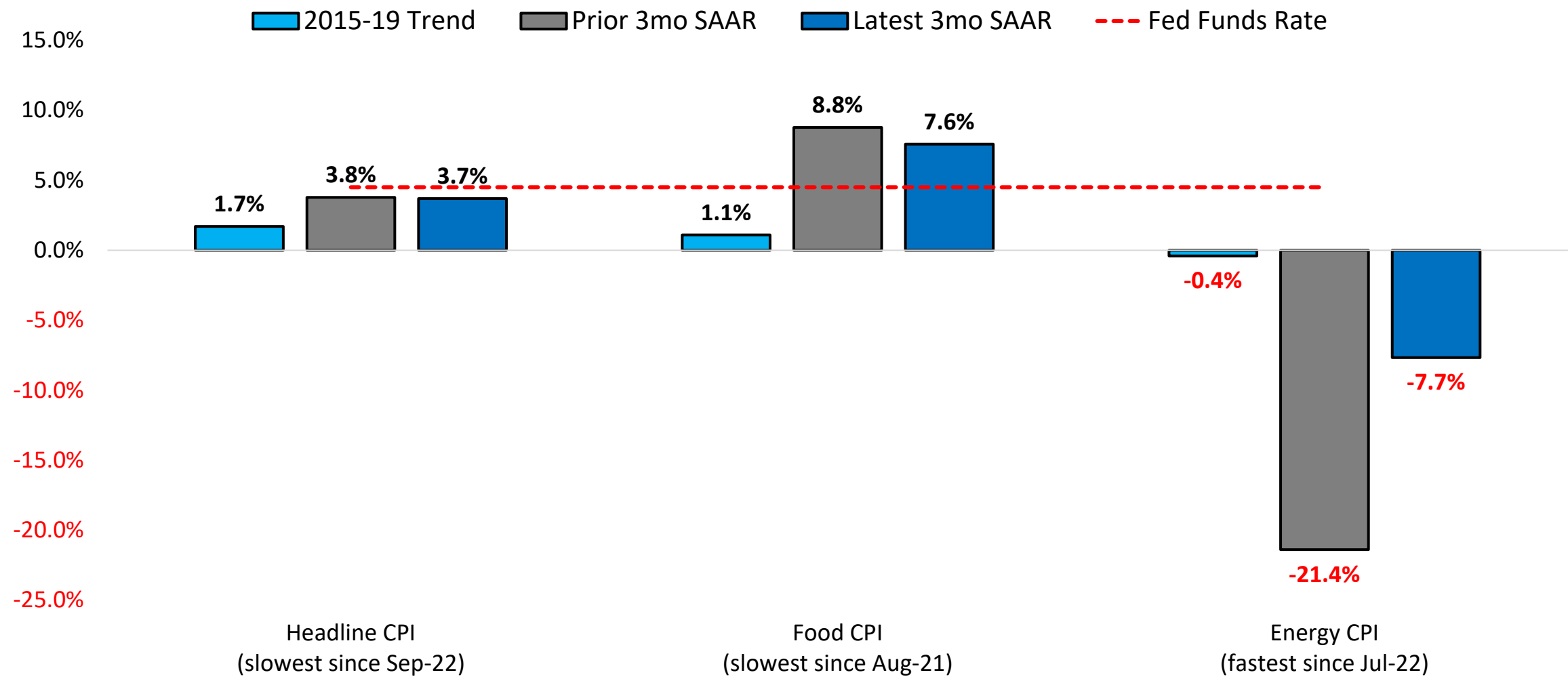
Mission Accomplished On Core Inflation?



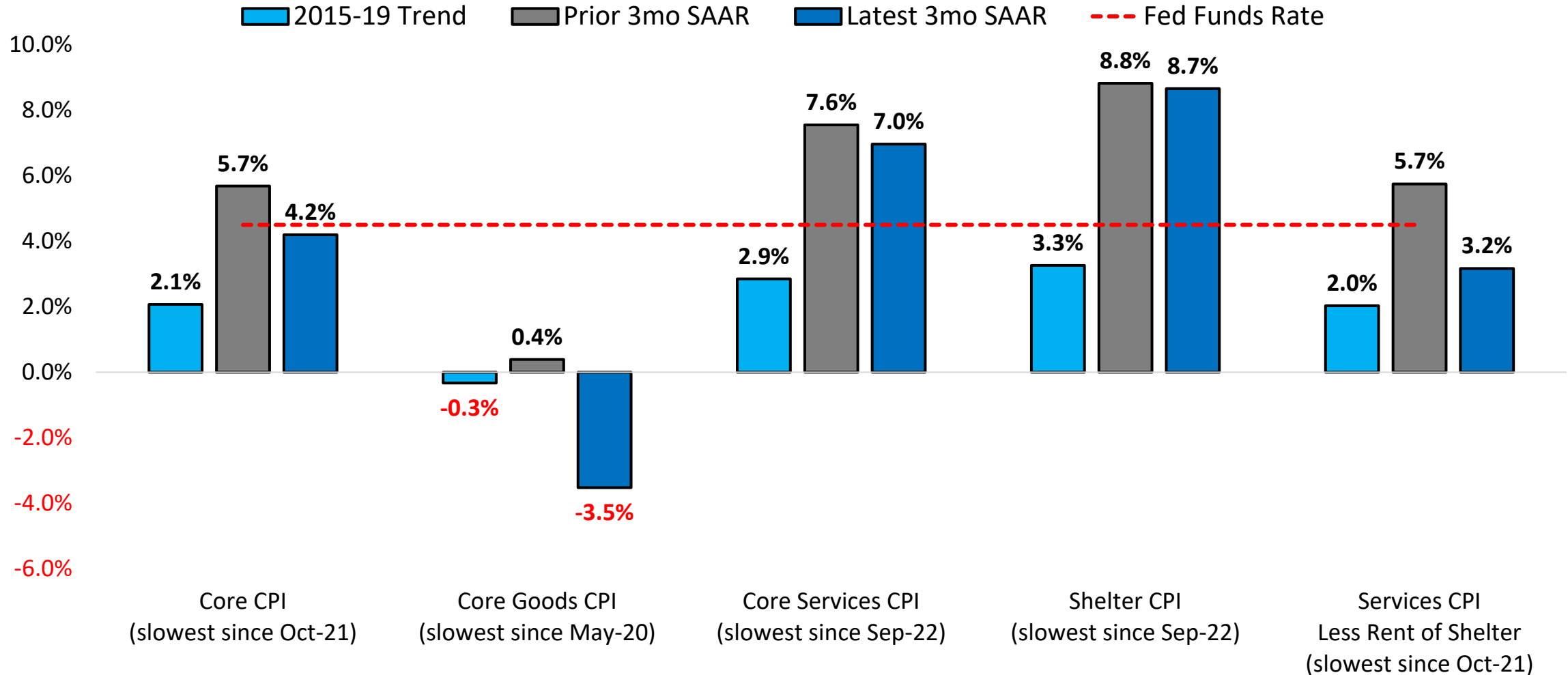
Perhaps Not Yet, But Almost Certainly By The March FOMC



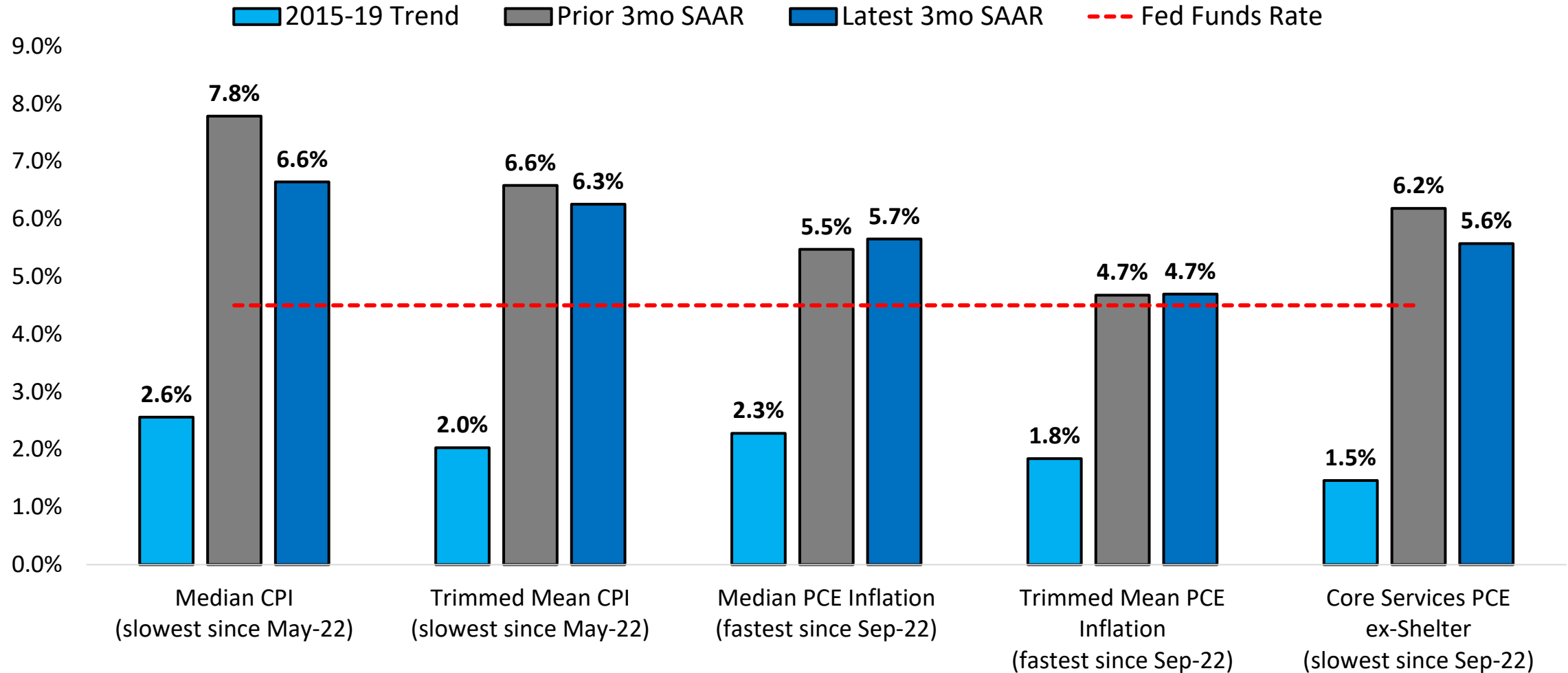
Headline CPI: The 7.1% YoY Figure Is Noise; It's The 3mo SAAR Of 3.7% That Matters To Asset Markets



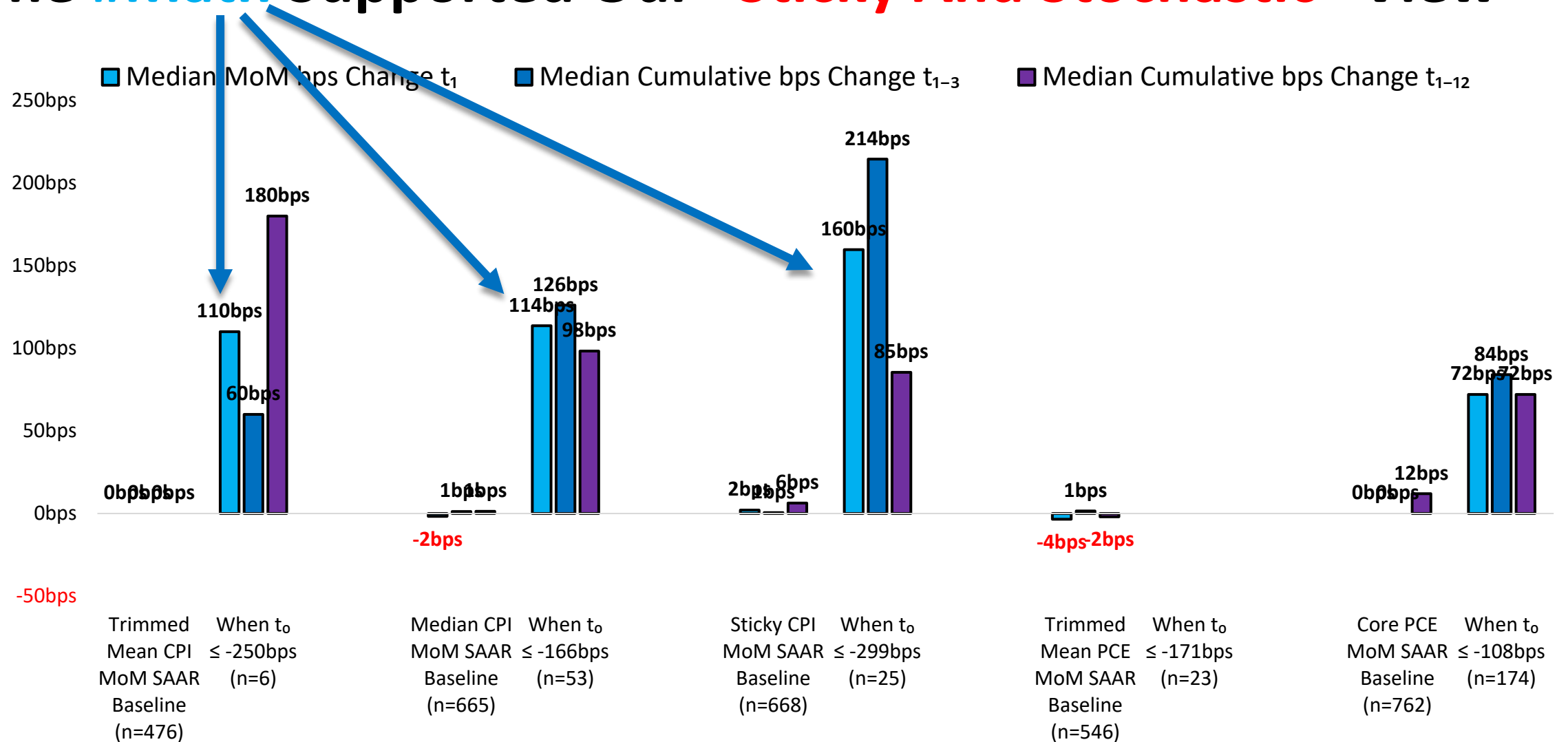
Core CPI: Powell's Utter Disregard Of The "Clear And Convincing Evidence" Of Services ex-Shelter Disinflation Is Noteworthy



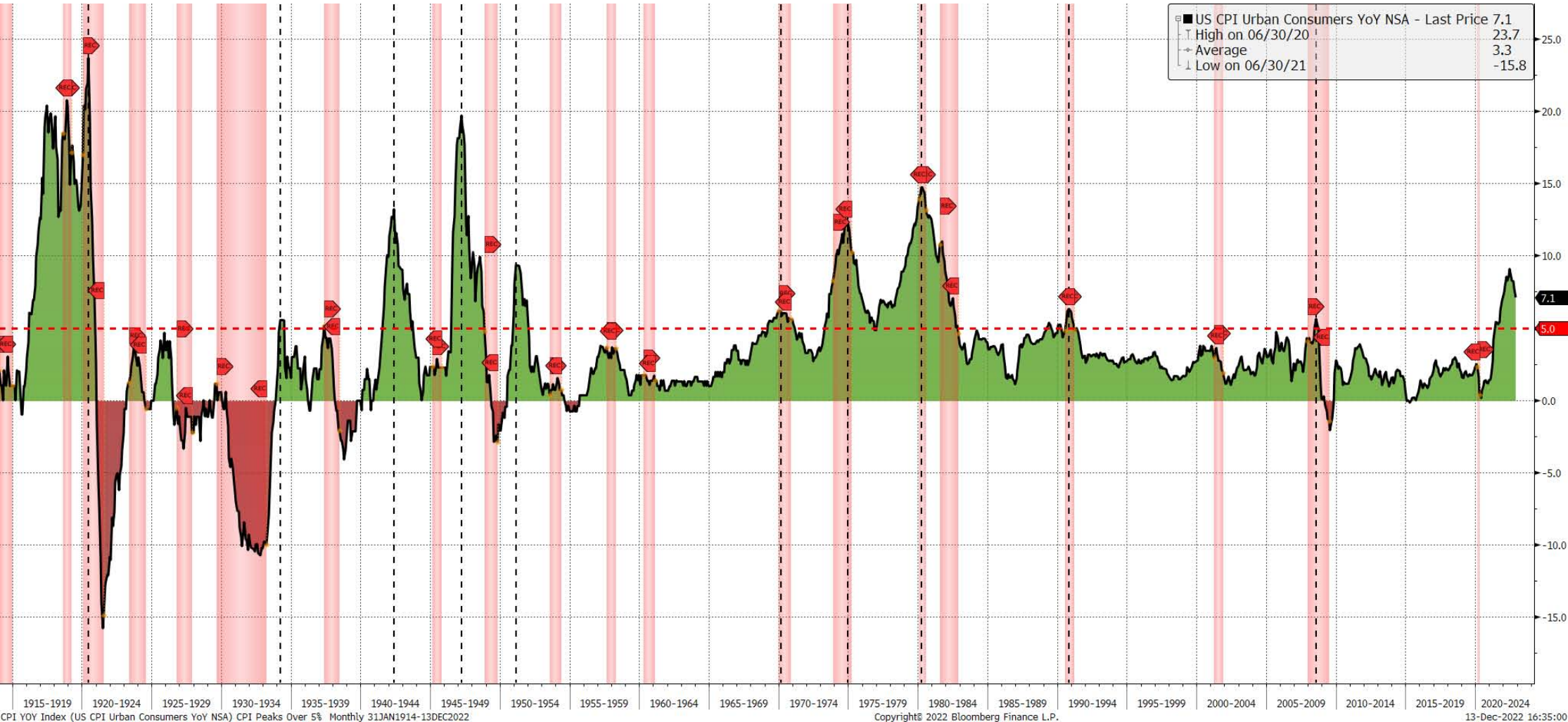
Underlying Inflation: “Substantially More Evidence” ≠ “Clear And Convincing Evidence”



The #Math Supported Our “Sticky And Stochastic” View



With Few Historical Episodes To Study (And Even Less Data), There Is No Academic Consensus On What Causes High Inflation Or How To Address It

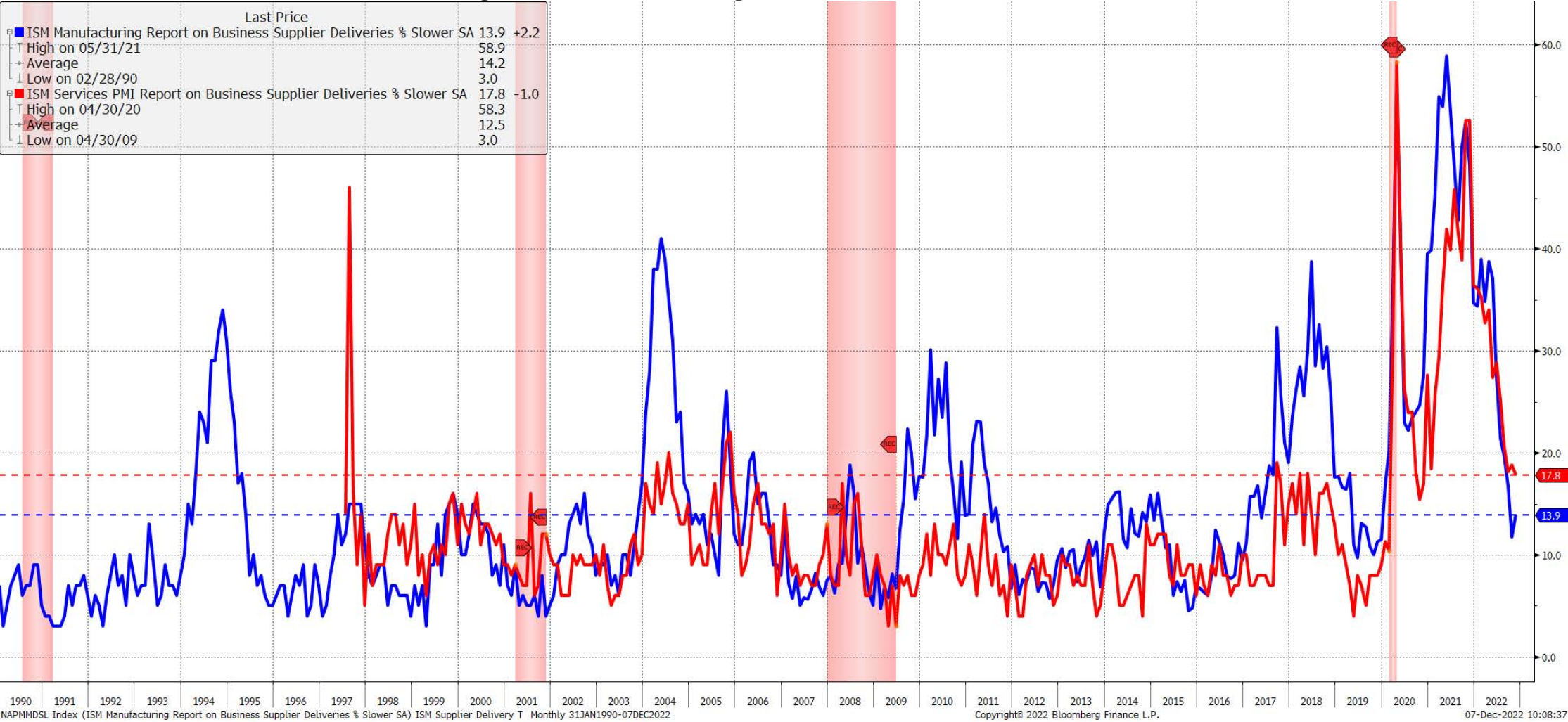


Merely Disinflating From Elevated Rates Of Inflation Is Not The Bull Case Many Investors Assume It To Be

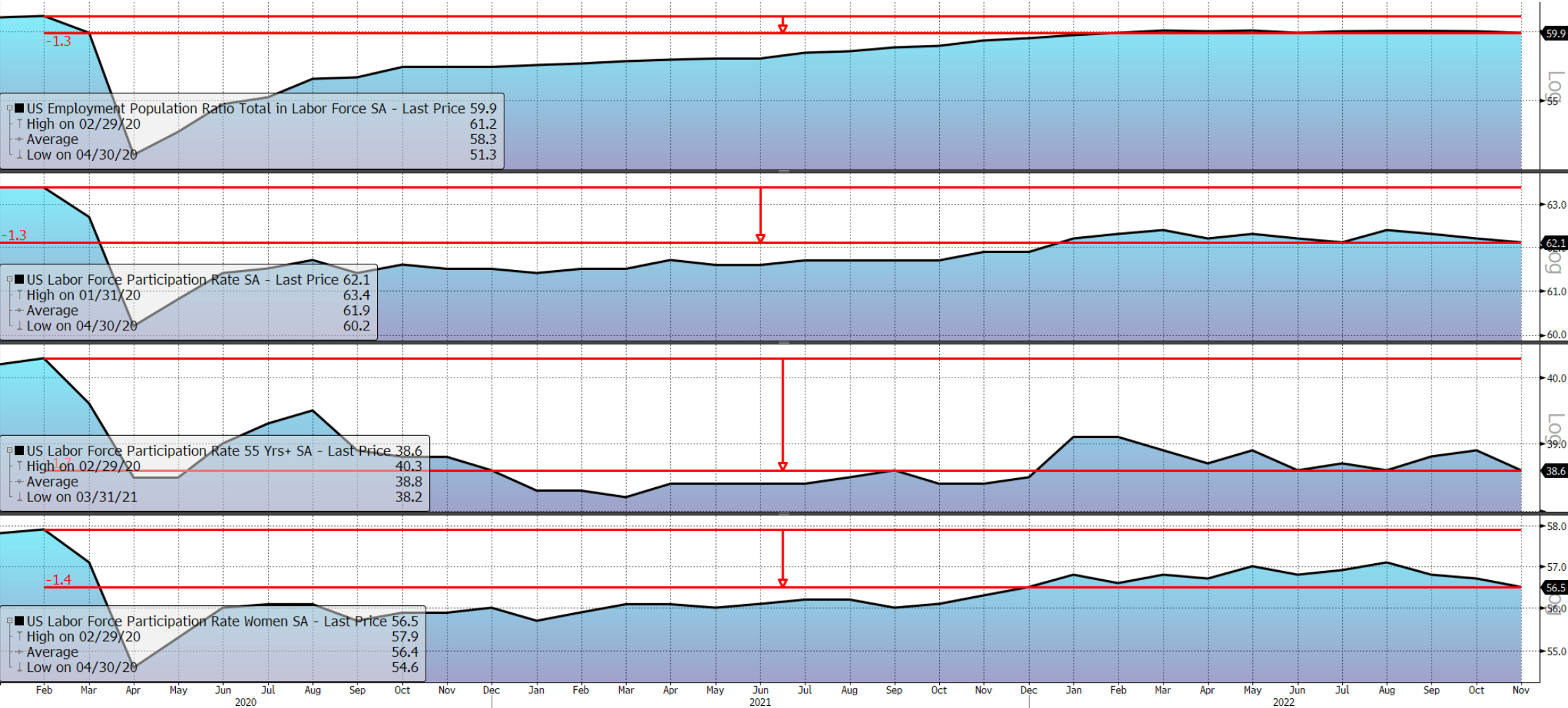
Date of Peak Headline CPI YoY	Peak Rate of Headline CPI YoY	S&P 500 3mos Forward	S&P 500 6mos Forward	S&P 500 12mos Forward	Fed Funds Rate 3mos Forward	Fed Funds Rate 6mos Forward	Fed Funds Rate 12mos Forward	10yr Nominal Treasury Yield 3mos Forward	10yr Nominal Treasury Yield 6mos Forward	10yr Nominal Treasury Yield 12mos Forward	Bloomberg Commodity Index 3mos Forward	Bloomberg Commodity Index 6mos Forward	Bloomberg Commodity Index 12mos Forward	US Dollar Index 3mos Forward	US Dollar Index 6mos Forward	US Dollar Index 12mos Forward
6/30/1920	23.7%	-9%	-21%	-25%												
3/31/1934	5.6%	-8%	-15%	-20%												
5/31/1942	13.2%	6%	14%	48%												
3/31/1947	19.7%	0%	-0%	-1%												
2/28/1951	9.4%	-1%	7%	7%												
12/31/1969	6.2%	-3%	-21%	0%	-150bps	-150bps	-325bps	-80bps	-20bps	-138bps	3%	10%	16%	-0%	-1%	-1%
12/31/1974	12.3%	22%	39%	32%	-250bps	-150bps	-312bps	61bps	56bps	36bps	-12%	-16%	-15%	-3%	-1%	6%
3/31/1980	14.8%	12%	23%	33%	-1050bps	-800bps	-400bps	-255bps	-78bps	49bps	10%	18%	-4%	-9%	-8%	3%
10/31/1990	6.3%	13%	23%	29%	-100bps	-200bps	-275bps	-61bps	-60bps	-116bps	-14%	-12%	-12%	-2%	10%	8%
7/31/2008	5.6%	-24%	-35%	-22%	-100bps	-175bps	-175bps	1bps	-111bps	-47bps	-36%	-46%	-38%	17%	17%	7%
MIN		-24%	-35%	-25%	-1050bps	-800bps	-400bps	-255bps	-111bps	-138bps	-36%	-46%	-38%	-9%	-8%	-1%
1st QUARTILE		-6%	-19%	-15%	-250bps	-200bps	-325bps	-80bps	-78bps	-116bps	-14%	-16%	-15%	-3%	-1%	3%
MEDIAN		-1%	3%	3%	-150bps	-175bps	-312bps	-61bps	-60bps	-47bps	-12%	-12%	-12%	-2%	-1%	6%
3rd QUARTILE		10%	21%	31%	-100bps	-150bps	-275bps	1bps	-20bps	36bps	3%	10%	-4%	-0%	10%	7%
MAX		22%	39%	48%	-100bps	-150bps	-175bps	61bps	56bps	49bps	10%	18%	16%	17%	17%	8%
PERCENT POSITIVE		50%	50%	60%	0%	0%	0%	40%	20%	40%	40%	40%	20%	20%	40%	80%
PERCENT NEGATIVE		50%	50%	40%	100%	100%	100%	60%	80%	60%	60%	60%	80%	80%	60%	20%
MEDIAN CPI Peak < 10% (n=5)		-3%	-15%	0%	-100bps	-175bps	-275bps	-61bps	-60bps	-116bps	-14%	-12%	-12%	-0%	10%	7%
MEDIAN CPI Peak > 10% (n=5)		6%	14%	32%	-650bps	-475bps	-356bps	-97bps	-11bps	43bps	-1%	1%	-10%	-6%	-5%	5%
MEDIAN CPI Peak Not In Recession (n=4)		-1%	3%	3%												
MEDIAN CPI Peak In Recession (n=6)		5%	1%	15%	-150bps	-175bps	-312bps	-61bps	-60bps	-47bps	-12%	-12%	-12%	-2%	-1%	6%
MEAN OF BOLDED SCENARIOS		-1%	-3%	2%	-125bps	-175bps	-294bps	-61bps	-60bps	-81bps	-13%	-12%	-12%	-1%	5%	7%

Data Source: Bloomberg. All summary statistics featured in the bottom clusters of rows are MEDIAN values unless denoted otherwise. 1920s case study features the DOW instead of the S&P 500. Intellectual Property of 42 Macro LLC.

Supply Chain Disruptions Have Eased For The Goods Sector, While Services Sector Disruptions May Prove Persistent

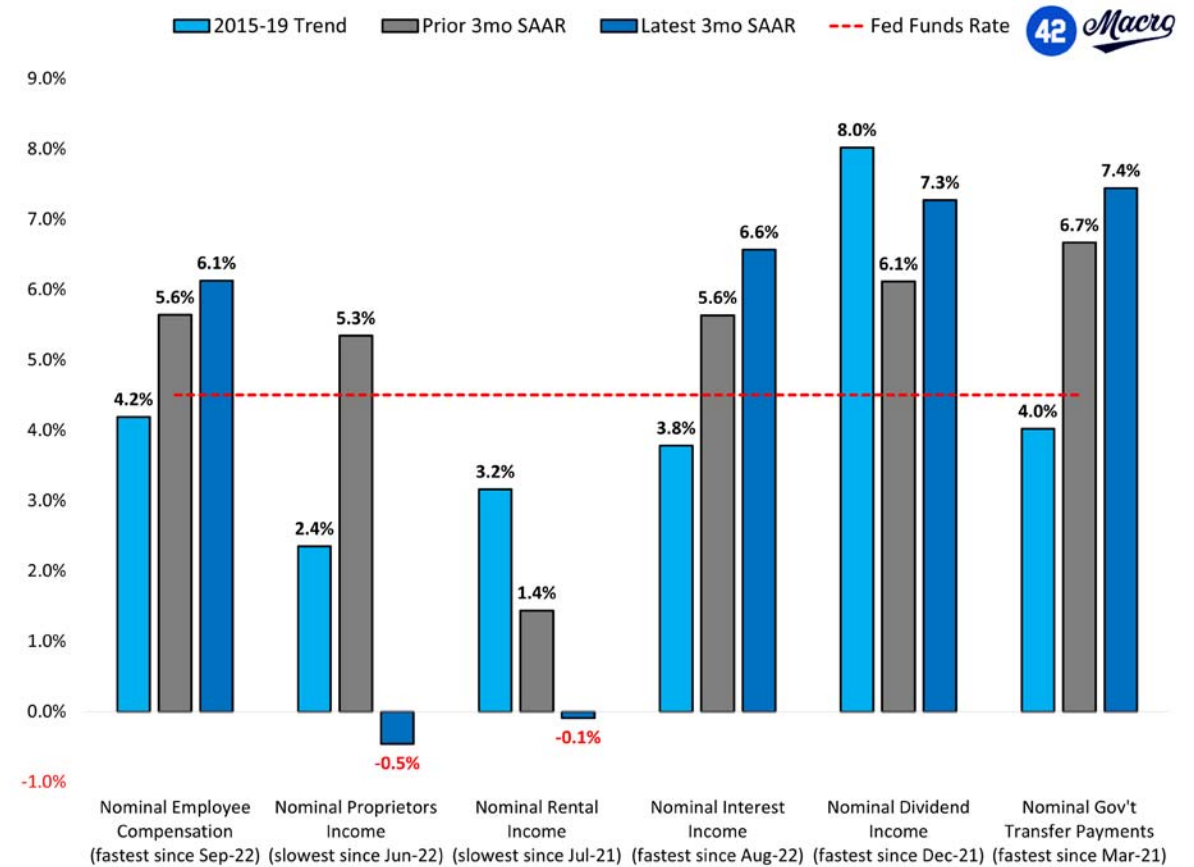
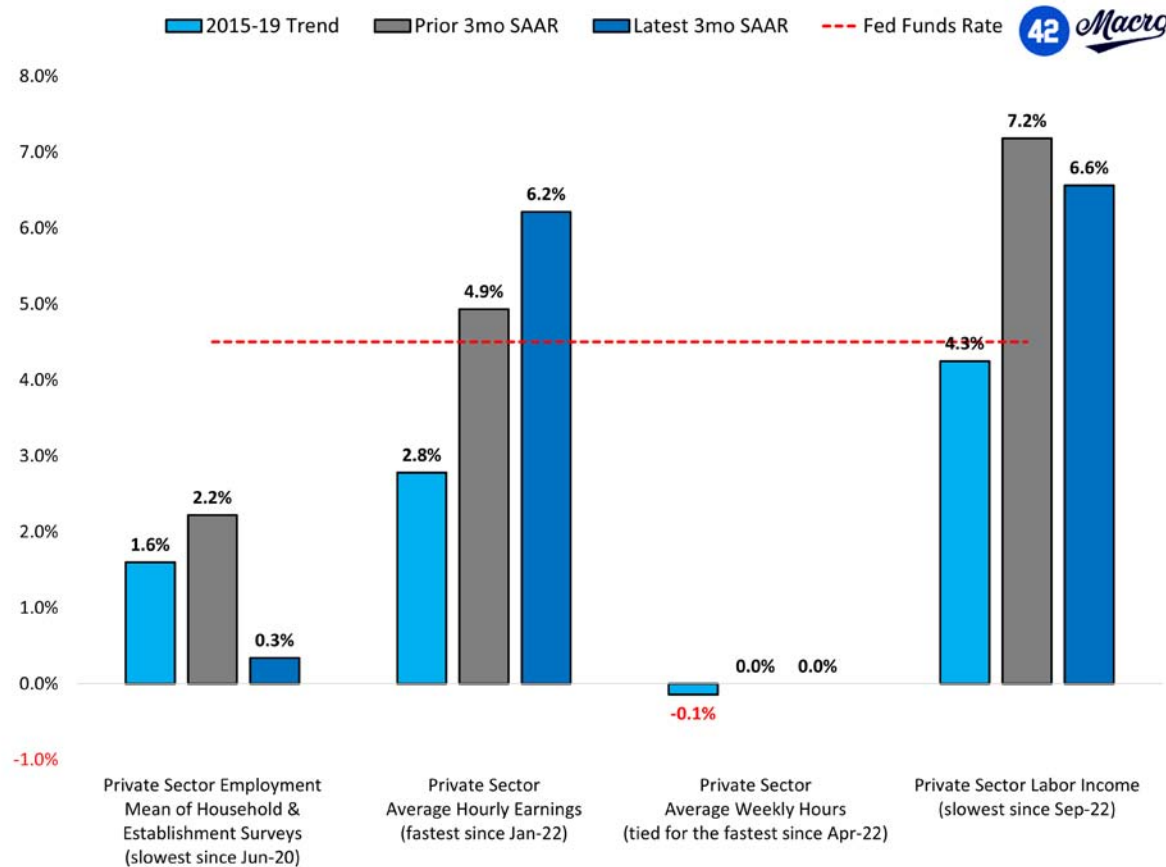


The Post-COVID Reduction In Labor Supply Appears Permanent

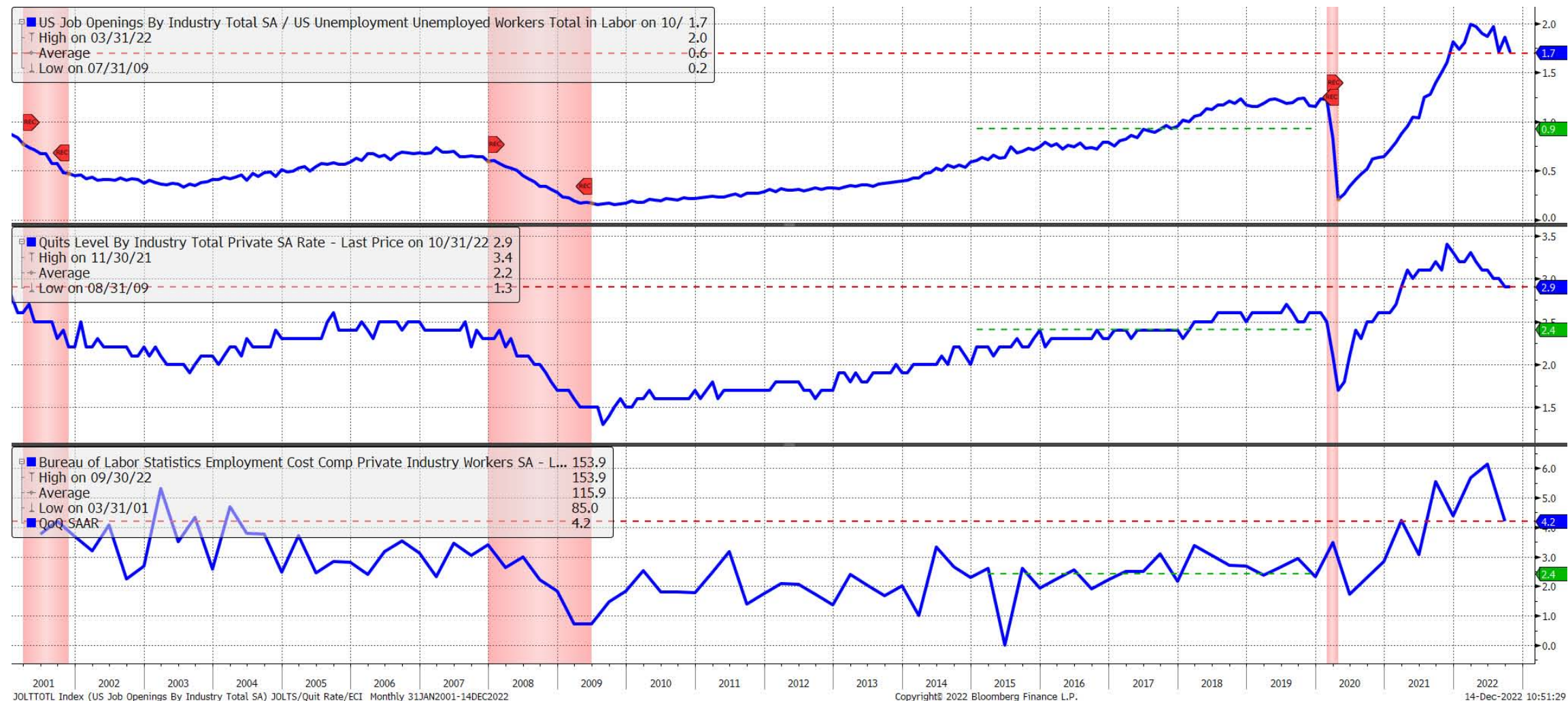


USERTOT Index (US Employment Population Ratio Total in Labor Force SA) Labor Supply Monthly 31JAN2020-02DEC2022 Copyright© 2022 Bloomberg Finance L.P. 02-Dec-2022 10:25:59

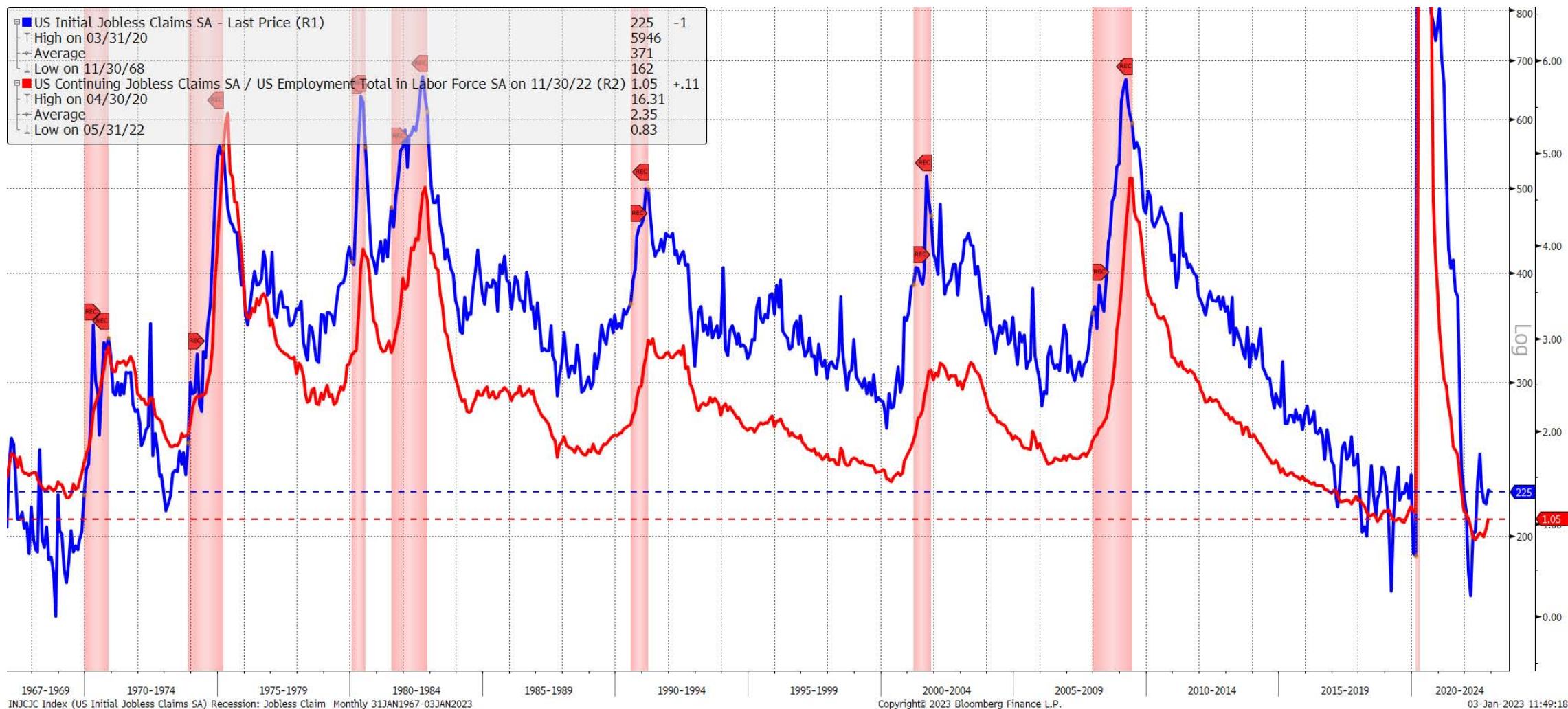
Meanwhile, Demand For Labor Is Proving Resilient



As Such, The Labor Market Remains Tight



“Remember Me? I Used To Be Everyone’s Favorite Leading Indicator For The US Labor Market, But No One Talks About Me Anymore Because Its Neither Sexy Nor Convenient.” – Jobless Claims

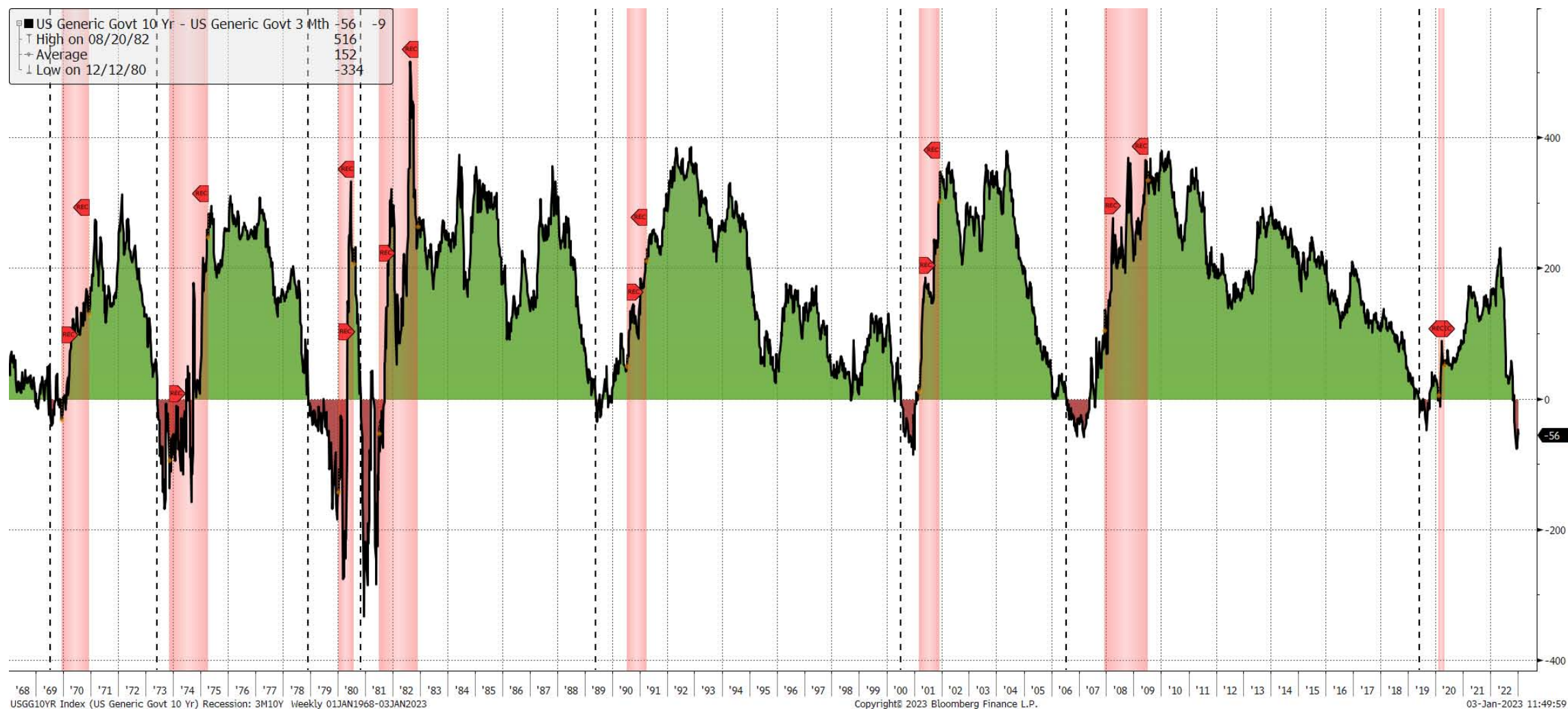


The #Math On Jobless Claims Cycles Suggests An #actualrecession Is Not Imminent

Monthly Trough In Continuing Claims as a % of the Labor Force	Real GDP 0-6mos Forward	Real GDP 6-12mos Forward	Real GDP 12-18mos Forward	Industrial Production 0-6mos Forward	Industrial Production 6-12mos Forward	Industrial Production 12-18mos Forward	Nonfarm Payrolls 0-6mos Forward	Nonfarm Payrolls 6-12mos Forward	Nonfarm Payrolls 12-18mos Forward	Unemployment Rate 0-6mos Forward	Unemployment Rate 6-12mos Forward	Unemployment Rate 12-18mos Forward	Core PCE YoY 0-6mos Forward	Core PCE YoY 6-12mos Forward	Core PCE YoY 12-18mos Forward
4/30/1969	1.0%	-0.6%	1.1%	1.4%	-3.5%	-3.0%	1.5%	0.3%	-1.2%	30bps	90bps	90bps	1bps	-2bps	3bps
3/31/1973	0.6%	0.1%	-0.7%	1.7%	0.0%	-0.6%	1.3%	1.3%	0.4%	-10bps	30bps	80bps	134bps	202bps	288bps
5/30/1979	0.9%	0.6%	-2.2%	0.6%	-4.2%	2.9%	1.3%	-0.2%	0.4%	10bps	160bps	0bps	57bps	121bps	94bps
7/31/1981	0.1%	-1.1%	-0.3%	-5.5%	-0.9%	-1.3%	-1.1%	-1.2%	-0.6%	140bps	120bps	60bps	-135bps	-85bps	-69bps
10/31/1987	2.2%	1.9%	2.4%	2.4%	0.7%	0.8%	1.5%	1.5%	1.4%	-60bps	0bps	-20bps	53bps	38bps	-1bps
5/31/2000	1.9%	0.3%	0.2%	-0.3%	-2.7%	-2.7%	0.3%	-0.1%	-1.0%	-10bps	40bps	120bps	18bps	4bps	-13bps
4/30/2006	0.4%	1.1%	1.2%	0.4%	2.4%	0.1%	0.5%	0.7%	0.2%	-30bps	10bps	20bps	14bps	-29bps	-3bps
9/30/2019	-0.7%	-1.3%	2.5%	-4.6%	-1.8%	2.9%	-0.2%	-6.2%	2.0%	90bps	350bps	-190bps	-8bps	-15bps	59bps
MIN	-0.7%	-1.3%	-2.2%	-5.5%	-4.2%	-3.0%	-1.1%	-6.2%	-1.2%	-60bps	0bps	-190bps	-135bps	-85bps	-69bps
1st QUARTILE	0.3%	-0.8%	-0.4%	-1.4%	-2.9%	-1.6%	0.2%	-0.4%	-0.7%	-15bps	25bps	-5bps	-1bps	-18bps	-5bps
MEDIAN	0.7%	0.2%	0.6%	0.5%	-1.4%	-0.2%	0.9%	0.1%	0.3%	0bps	65bps	40bps	16bps	1bps	1bps
3rd QUARTILE	1.2%	0.7%	1.5%	1.4%	0.2%	1.3%	1.3%	0.9%	0.7%	45bps	130bps	83bps	54bps	58bps	67bps
MAX	2.2%	1.9%	2.5%	2.4%	2.4%	2.9%	1.5%	1.5%	2.0%	140bps	350bps	120bps	134bps	202bps	288bps
PERCENT POSITIVE	88%	63%	63%	63%	38%	50%	75%	50%	63%	50%	88%	63%	75%	50%	50%
PERCENT NEGATIVE	13%	38%	38%	38%	63%	50%	25%	50%	38%	50%	0%	25%	25%	50%	50%
FED STILL HIKING w/in 3mo (n=3)	0.6%	0.1%	-0.7%	0.6%	-0.9%	-0.6%	1.3%	-0.2%	0.4%	10bps	120bps	60bps	57bps	121bps	94bps
FED PAUSE w/in 3mo (n=3)	1.0%	0.3%	1.1%	0.4%	-2.7%	-2.7%	0.5%	0.3%	-1.0%	-10bps	40bps	90bps	14bps	-2bps	-3bps
FED PIVOT w/in 3mo (n=2)	0.8%	0.3%	2.4%	-1.1%	-0.6%	1.8%	0.7%	-2.4%	1.7%	15bps	175bps	-105bps	23bps	11bps	29bps
MEAN OF BOLDED SCENARIOS	0.6%	0.1%	-0.0%	0.5%	-1.1%	-0.4%	1.1%	-0.0%	0.3%	5bps	93bps	50bps	36bps	61bps	47bps

Data Source: Bloomberg. All summary statistics featured in the bottom clusters of rows are MEDIAN values unless denoted otherwise. Intellectual Property of 42 Macro LLC.

The 3M10Y Yield Curve Only Recently Inverted

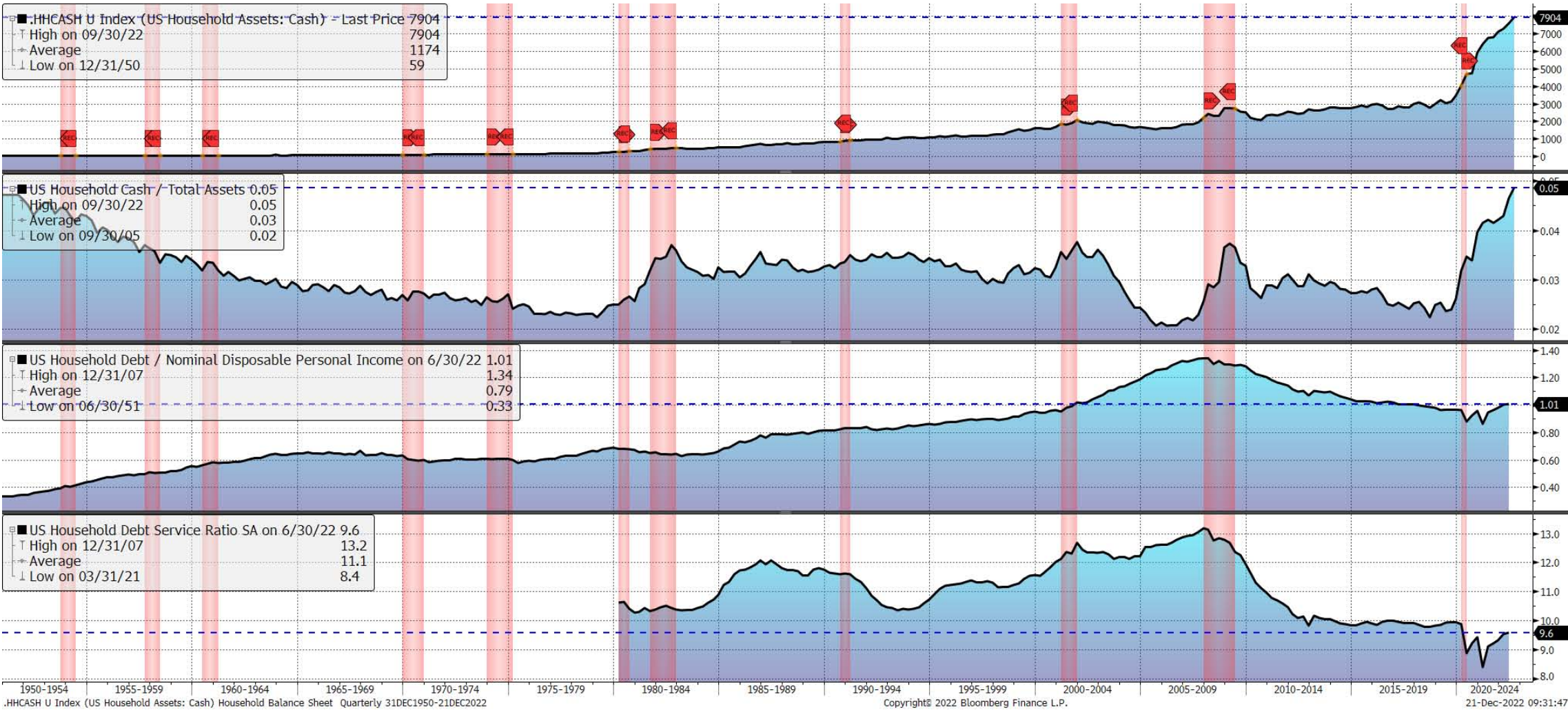


The #Math On 3M10Y Yield Curve Inversions Suggests An #actualrecession Is Not Imminent

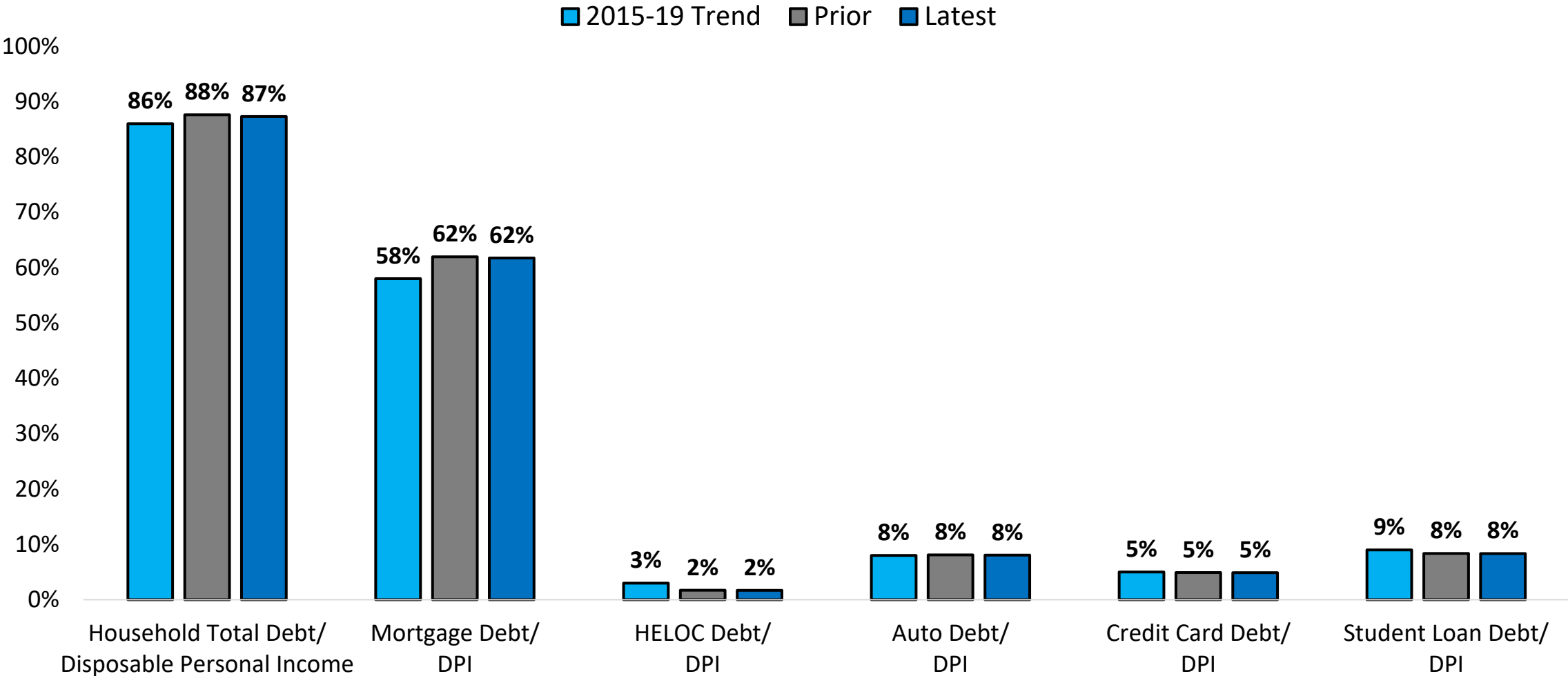
Date of 3M10Y Yield Curve Inversion	Real GDP 0-6mos Forward	Real GDP 6-12mos Forward	Real GDP 12-18mos Forward	Industrial Production 0-6mos Forward	Industrial Production 6-12mos Forward	Industrial Production 12-18mos Forward	Nonfarm Payrolls 0-6mos Forward	Nonfarm Payrolls 6-12mos Forward	Nonfarm Payrolls 12-18mos Forward	Unemployment Rate 0-6mos Forward	Unemployment Rate 6-12mos Forward	Unemployment Rate 12-18mos Forward	Core PCE YoY 0-6mos Forward	Core PCE YoY 6-12mos Forward	Core PCE YoY 12-18mos Forward
12/17/1968	2.3%	0.2%	-0.0%	2.6%	-0.5%	-2.7%	2.4%	0.9%	-0.3%	10bps	0bps	140bps	-4bps	13bps	-13bps
6/1/1973	1.5%	-0.6%	-1.3%	2.1%	-0.6%	-7.9%	1.8%	0.7%	-1.2%	0bps	50bps	180bps	166bps	261bps	232bps
11/1/1978	1.5%	0.9%	0.6%	1.2%	-0.3%	-4.2%	2.1%	0.9%	-0.2%	-20bps	30bps	160bps	36bps	27bps	121bps
10/27/1980	3.9%	0.4%	-2.6%	2.6%	0.3%	-3.8%	1.2%	0.1%	-1.3%	-30bps	70bps	140bps	-30bps	-102bps	-149bps
5/22/1989	1.5%	1.3%	0.4%	-0.7%	1.5%	-1.3%	0.9%	1.0%	-0.6%	20bps	0bps	80bps	-70bps	22bps	24bps
7/7/2000	0.7%	0.3%	-0.1%	-1.3%	-2.9%	-0.9%	0.5%	-0.4%	-1.0%	20bps	40bps	110bps	26bps	12bps	-70bps
7/17/2006	1.0%	0.9%	1.2%	0.6%	1.8%	0.6%	0.8%	0.4%	0.3%	0bps	10bps	30bps	-10bps	-46bps	15bps
5/15/2019	1.6%	-0.7%	-1.3%	-0.3%	-15.4%	12.5%	0.6%	-12.2%	7.1%	0bps	960bps	-650bps	-20bps	-59bps	42bps
MIN	0.7%	-0.7%	-2.6%	-1.3%	-15.4%	-7.9%	0.5%	-12.2%	-1.3%	-30bps	0bps	-650bps	-70bps	-102bps	-149bps
1st QUARTILE	1.4%	-0.0%	-1.3%	-0.4%	-1.2%	-3.9%	0.8%	-0.0%	-1.1%	-5bps	8bps	68bps	-23bps	-49bps	-27bps
MEDIAN	1.5%	0.4%	-0.1%	0.9%	-0.4%	-2.0%	1.0%	0.6%	-0.4%	0bps	35bps	125bps	-7bps	12bps	20bps
3rd QUARTILE	1.7%	0.9%	0.5%	2.3%	0.6%	-0.5%	1.9%	0.9%	-0.1%	13bps	55bps	145bps	29bps	23bps	62bps
MAX	3.9%	1.3%	1.2%	2.6%	1.8%	12.5%	2.4%	1.0%	7.1%	20bps	960bps	180bps	166bps	261bps	232bps
PERCENT POSITIVE	100%	75%	38%	63%	38%	25%	100%	75%	25%	38%	75%	88%	38%	63%	63%
PERCENT NEGATIVE	0%	25%	63%	38%	63%	75%	0%	25%	75%	25%	0%	13%	63%	38%	38%
FED STILL HIKING w/in 3mo (n=3)	1.5%	0.4%	-1.3%	2.1%	-0.3%	-4.2%	1.8%	0.7%	-1.2%	-20bps	50bps	160bps	36bps	27bps	121bps
FED PAUSE w/in 3mo (n=3)	1.0%	0.3%	-0.0%	0.6%	-0.5%	-0.9%	0.8%	0.4%	-0.3%	10bps	10bps	110bps	-4bps	12bps	-13bps
FED PIVOT w/in 3mo (n=2)	1.5%	0.3%	-0.4%	-0.5%	-7.0%	5.6%	0.8%	-5.6%	3.3%	10bps	480bps	-285bps	-45bps	-19bps	33bps
MEAN OF BOLDED SCENARIOS	1.5%	0.4%	-0.7%	1.5%	-0.3%	-3.1%	1.4%	0.7%	-0.8%	-10bps	43bps	143bps	15bps	19bps	70bps

Data Source: Bloomberg. All summary statistics featured in the bottom clusters of rows are MEDIAN values unless denoted otherwise. Intellectual Property of 42 Macro LLC.

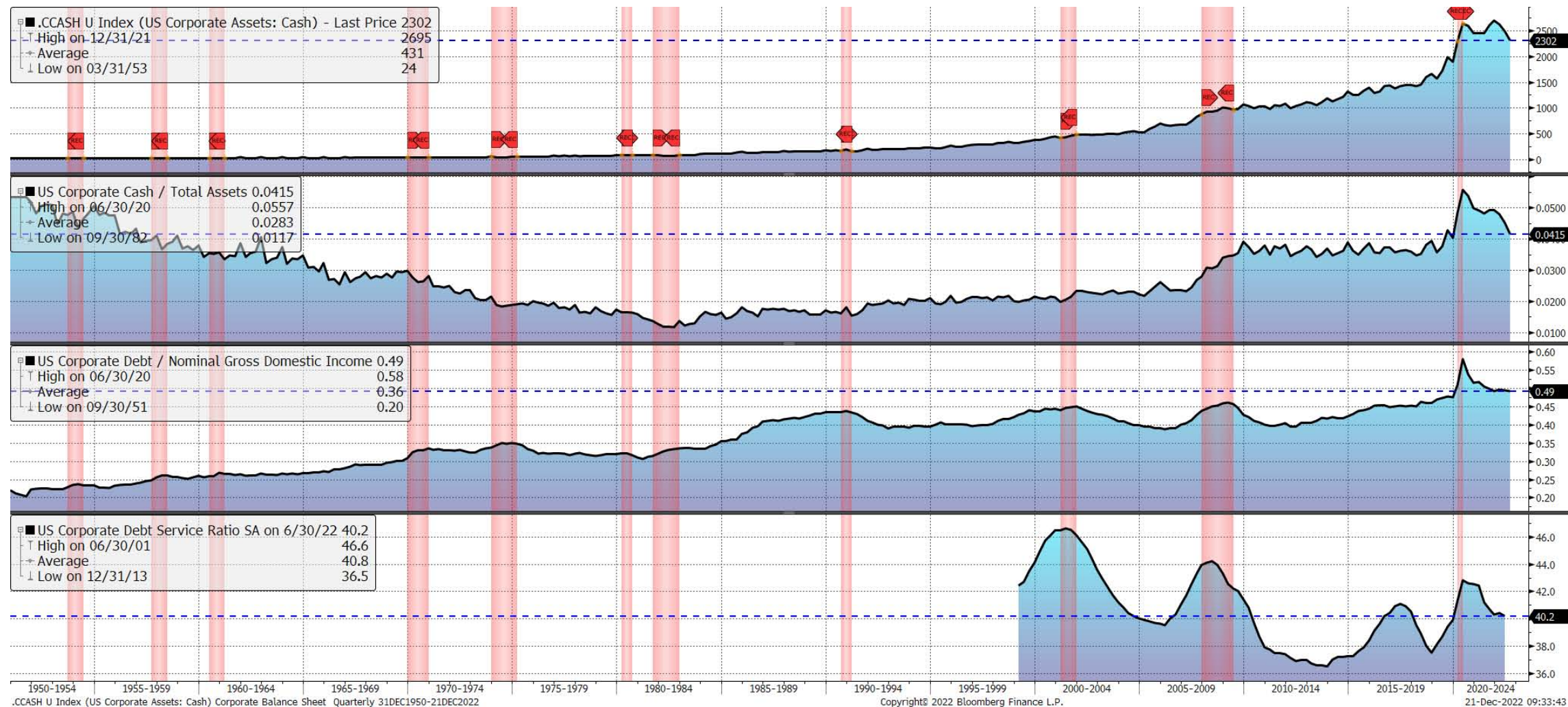
The Household Sector Balance Sheet Is In Excellent Shape



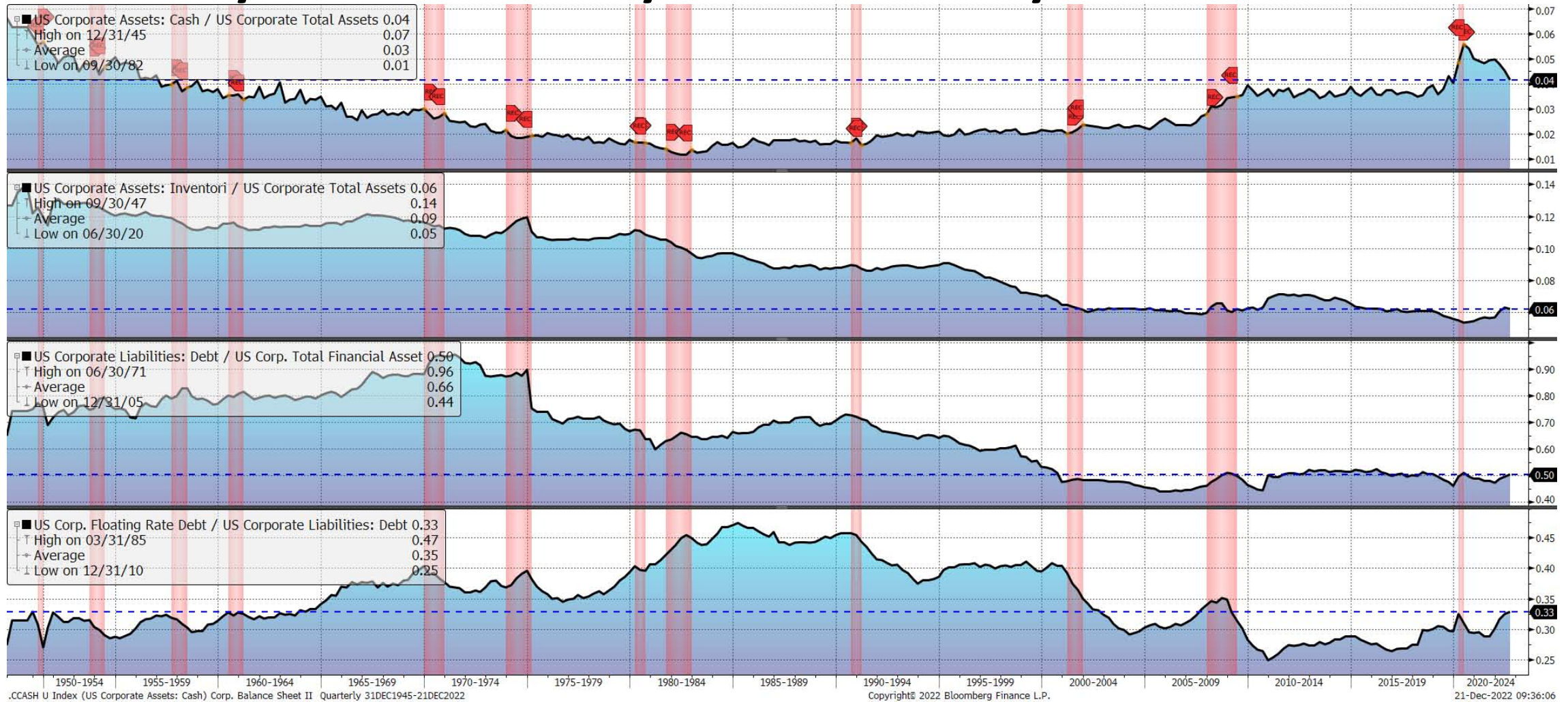
“Credit Card Debt” Is Not The Near-Term Issue It Is Consistently And Mistakenly Made Out To Be



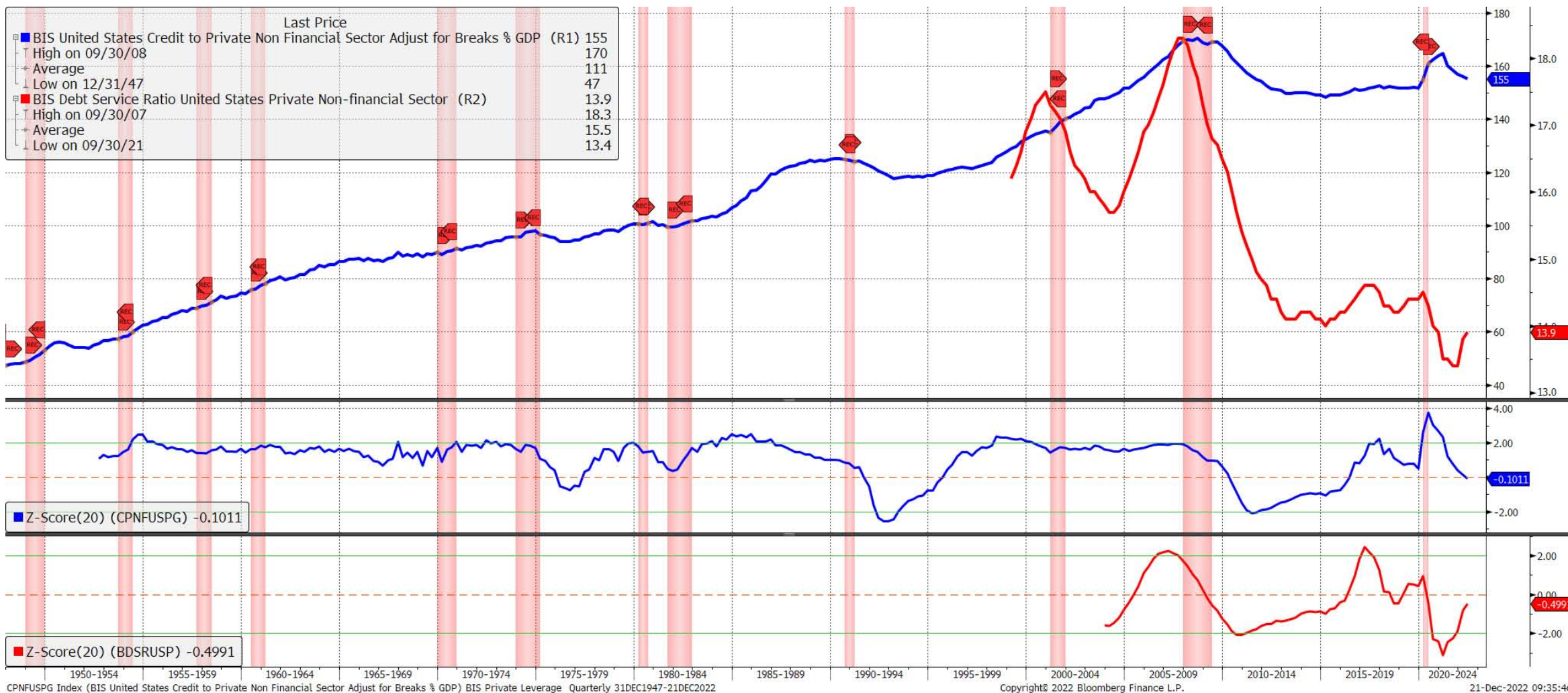
The Corporate Sector Balance Sheet Is In Great Shape



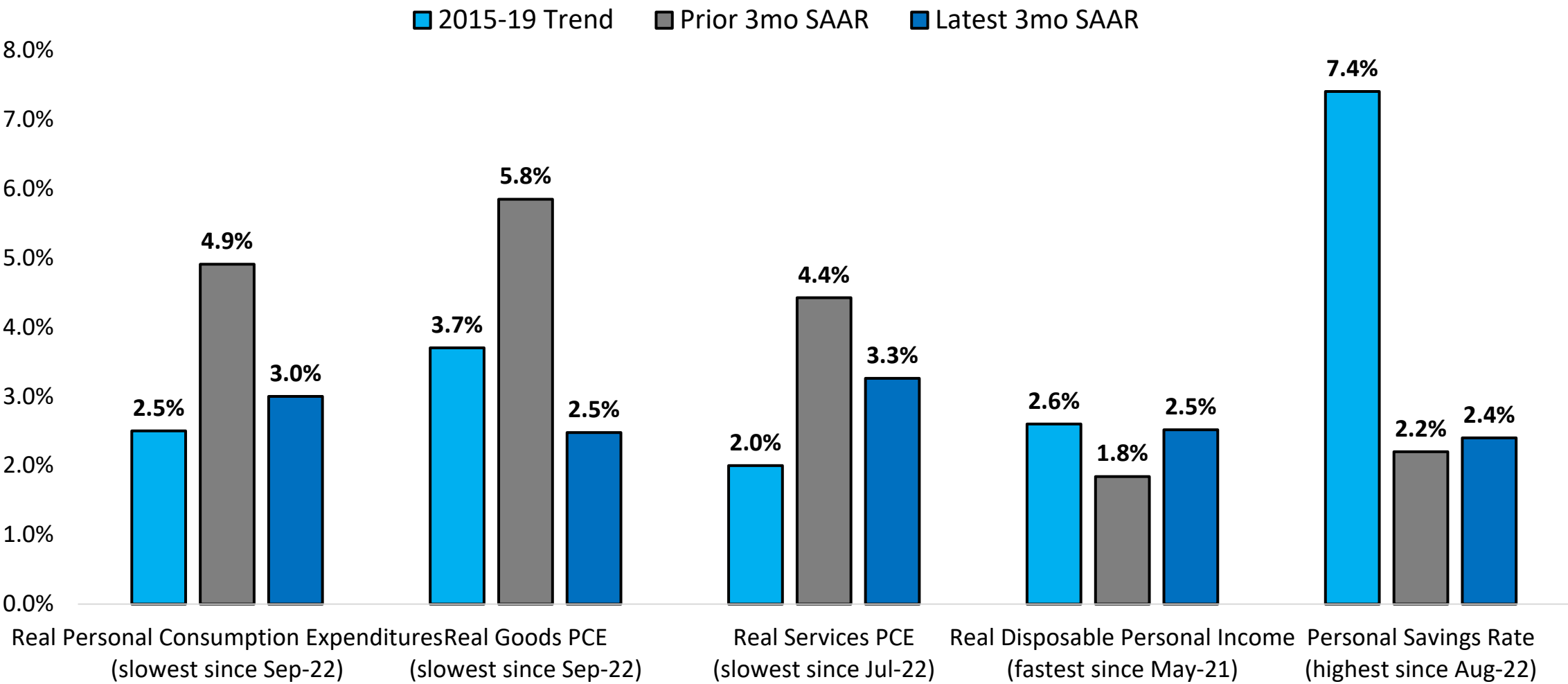
“Higher Interest Rates” And “Inventories” Are Not The Near-Term Issues They Are Consistently And Mistakenly Made Out To Be



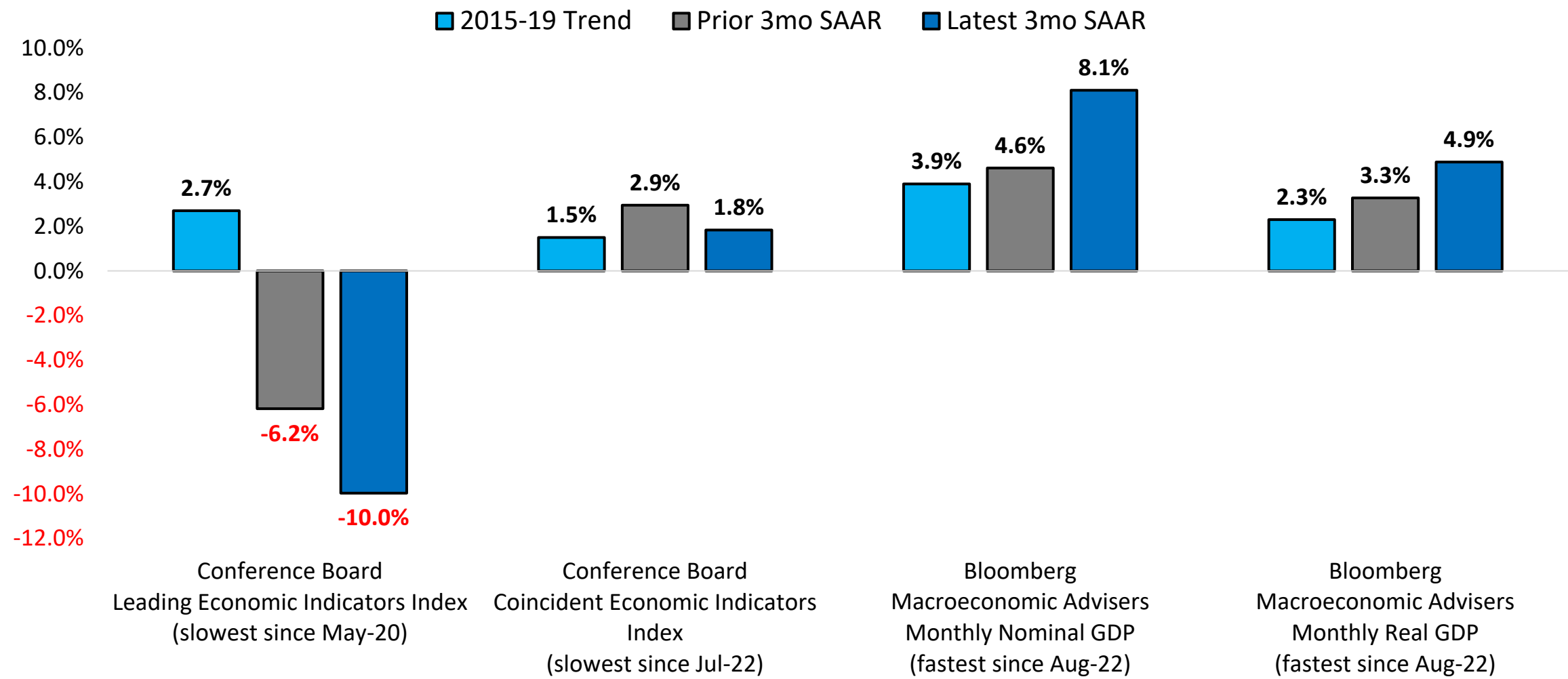
The Private Sector In Aggregate Fails To Meet The “Vulnerability + Trigger” Criteria The BIS Has Shown To Be A Prerequisite For Economic Downturns



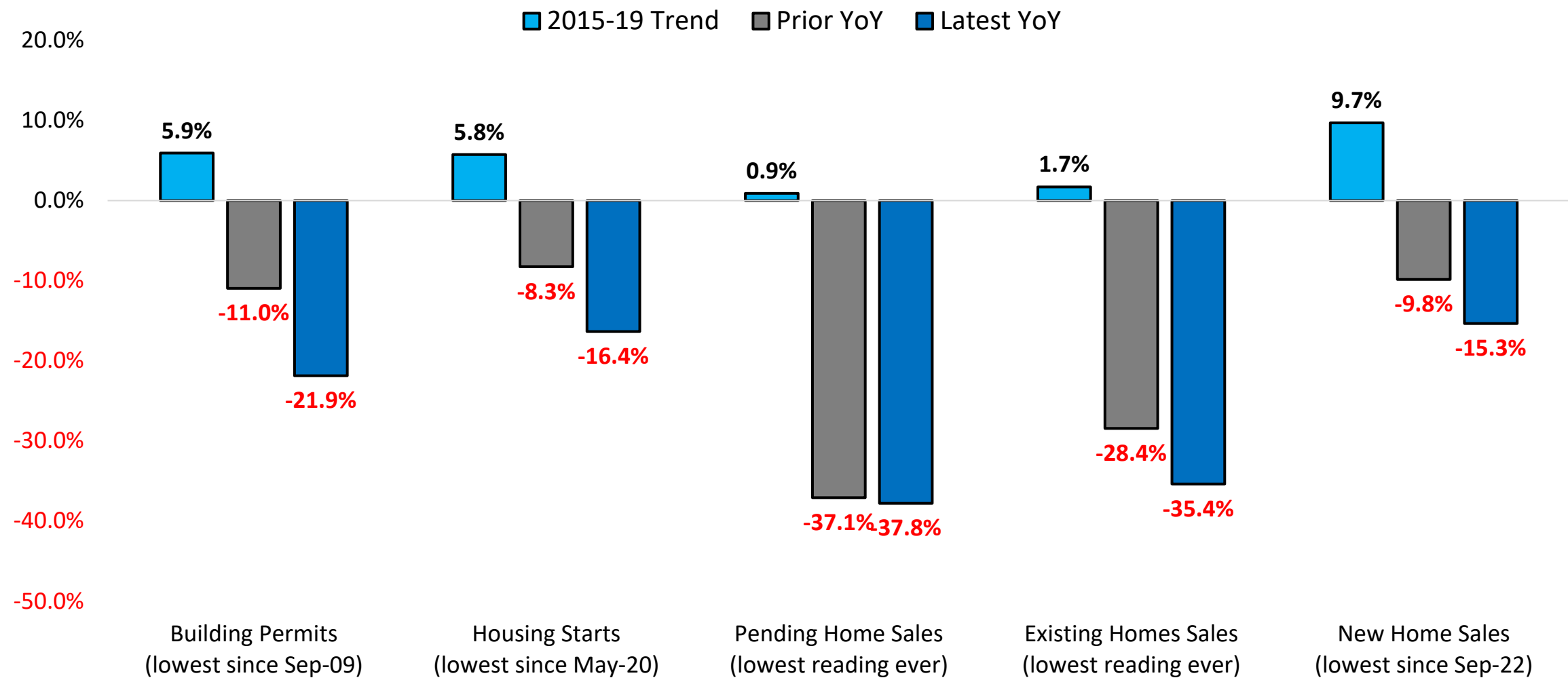
Strong Household Balance Sheets Are Contributing To Resilient Consumer Spending



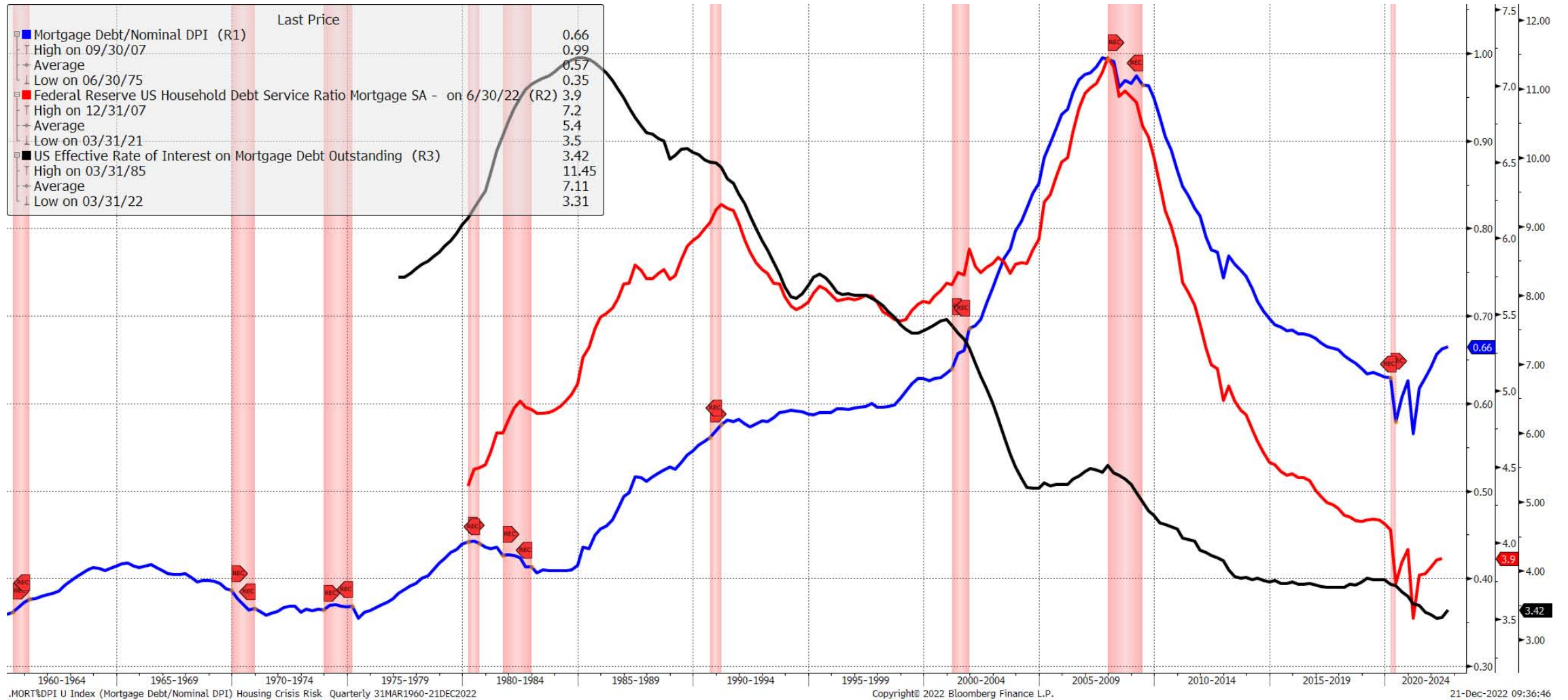
Strong Corporate Balance Sheets Are Contributing To Resilient Economic Growth



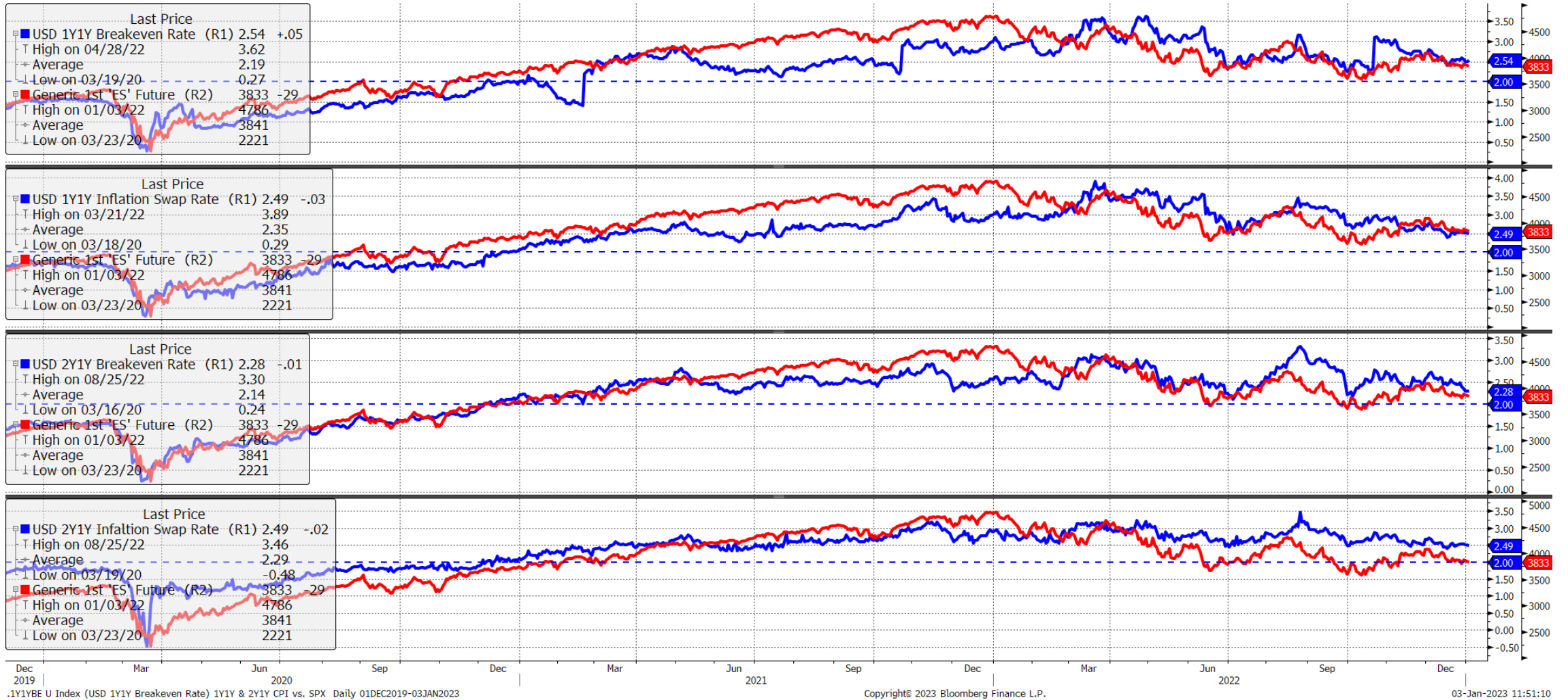
Yes, Housing Is A Disaster



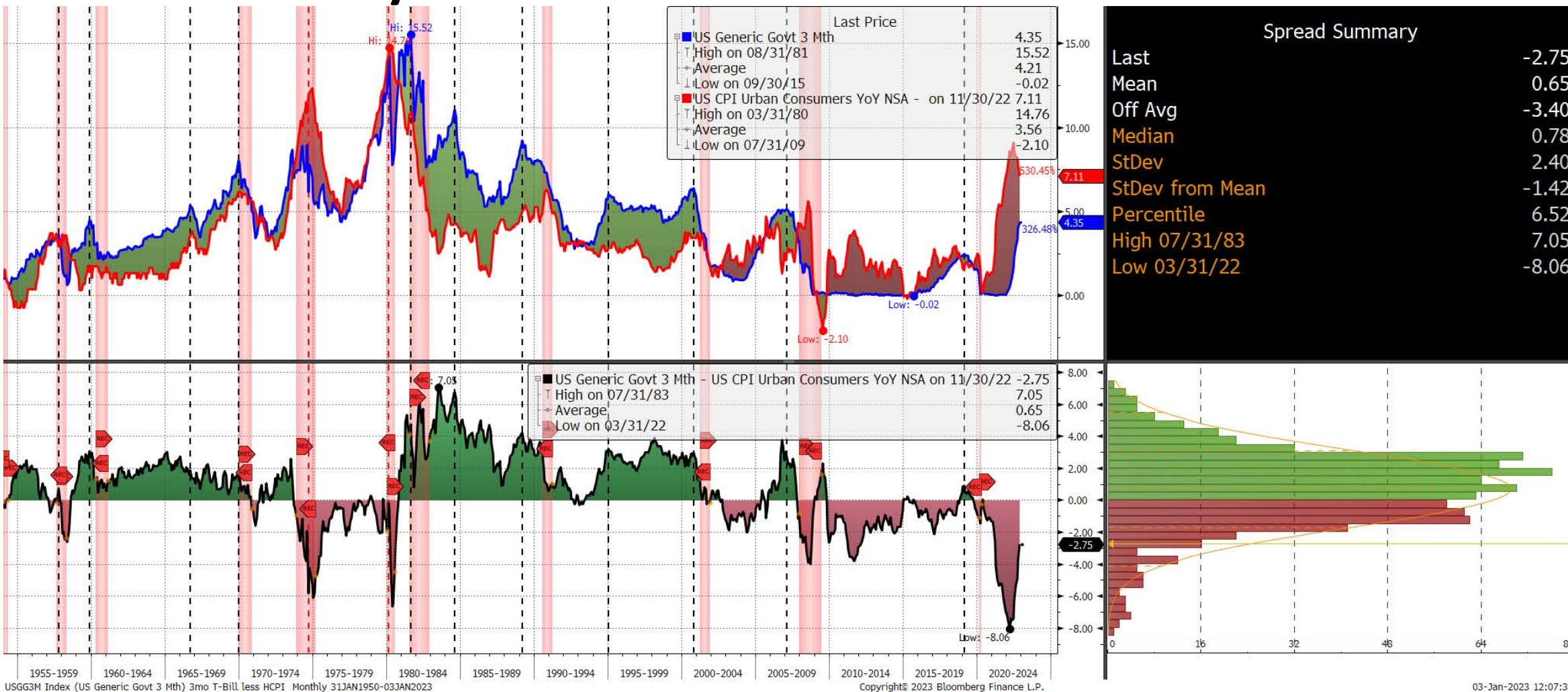
... But Housing Is Not The Risk Many Investors Fear It Is



With No [#actualrecession](#) Imminent, “Substantially More Evidence” Of A Return To 2% Inflation Remains Elusive



Jay Powell Is Nearly 70 Years Old; His Legacy Likely Matters To Him More Than Many Investors Realize



Spread Summary

Metric	Value
Last	-5.87
Mean	-1.45
Off Avg	-4.42
Median	-1.52
StDev	3.31
StDev from Mean	-1.34
Percentile	5.33
High 03/31/80	11.20
Low 06/30/21	-15.73

Chart Data:

- Blue Line:** Federal Funds Target Rate - Upper Bound
- Red Line:** US Gross Domestic Income SAAR YoY Percent - on 9/30/22
- Green Area:** Spread (US GDP SAAR YoY Percent - Fed Funds Target Rate - Upper Bound)

Key Data Points:

- High on 03/31/80:** 20.00
- Low on 12/31/08:** 0.25
- High on 06/30/21:** 15.98
- Low on 06/30/20:** -6.99
- Last Price:** 4.50
- Average:** 4.89
- US GDP SAAR YoY Percent on 9/30/22:** 9.12
- US GDP SAAR YoY Percent High:** 15.98
- US GDP SAAR YoY Percent Low:** -6.99

Chart Legend:

- Black Line:** Federal Funds Target Rate - Upper Bound - US Gross Domestic Income SAAR YoY Percent on 9/30/22
- High on 03/31/80:** 11.20
- Average:** -1.45
- Low on 06/30/21:** -15.73

Chart Title: FDR Index (Federal Funds Target Rate - Upper Bound) Fed Funds Rate less NGDI Monthly 31JAN1970-03JAN2023

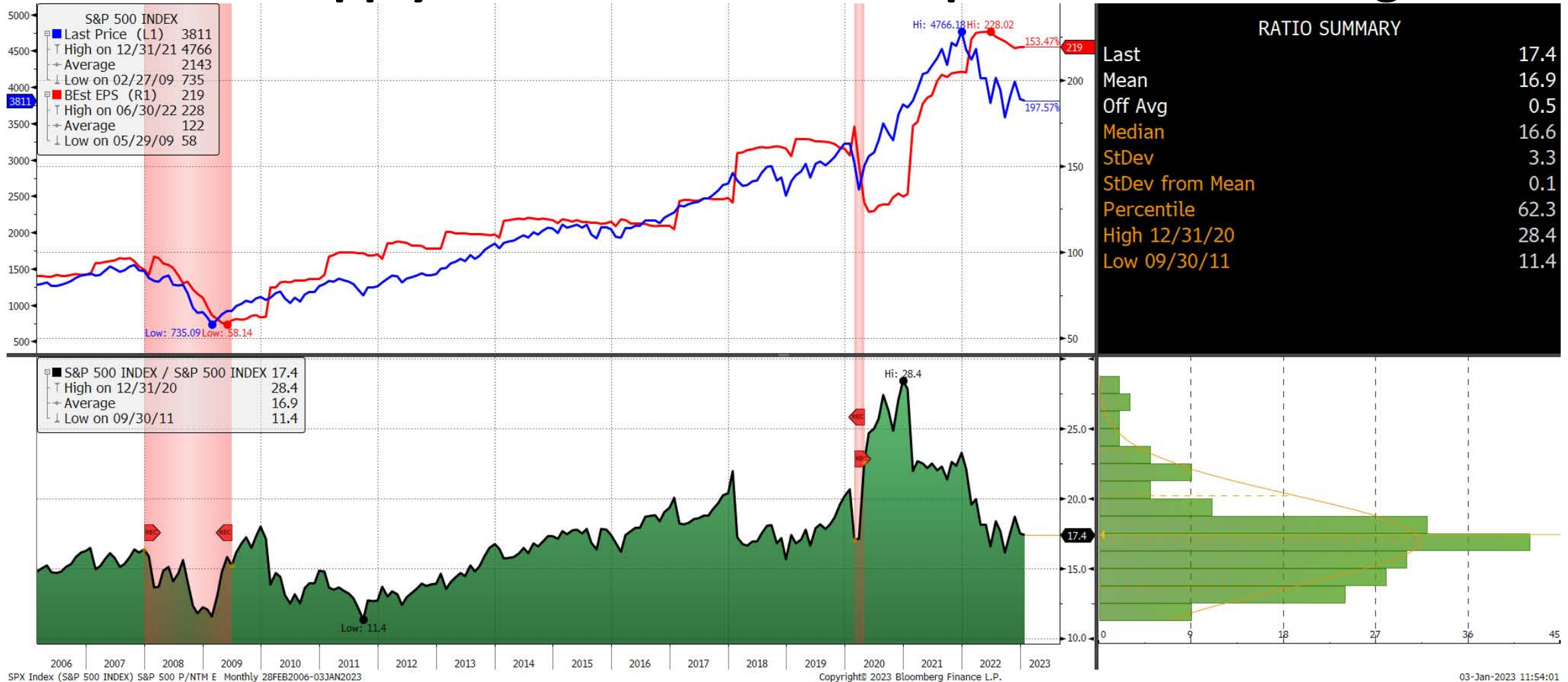
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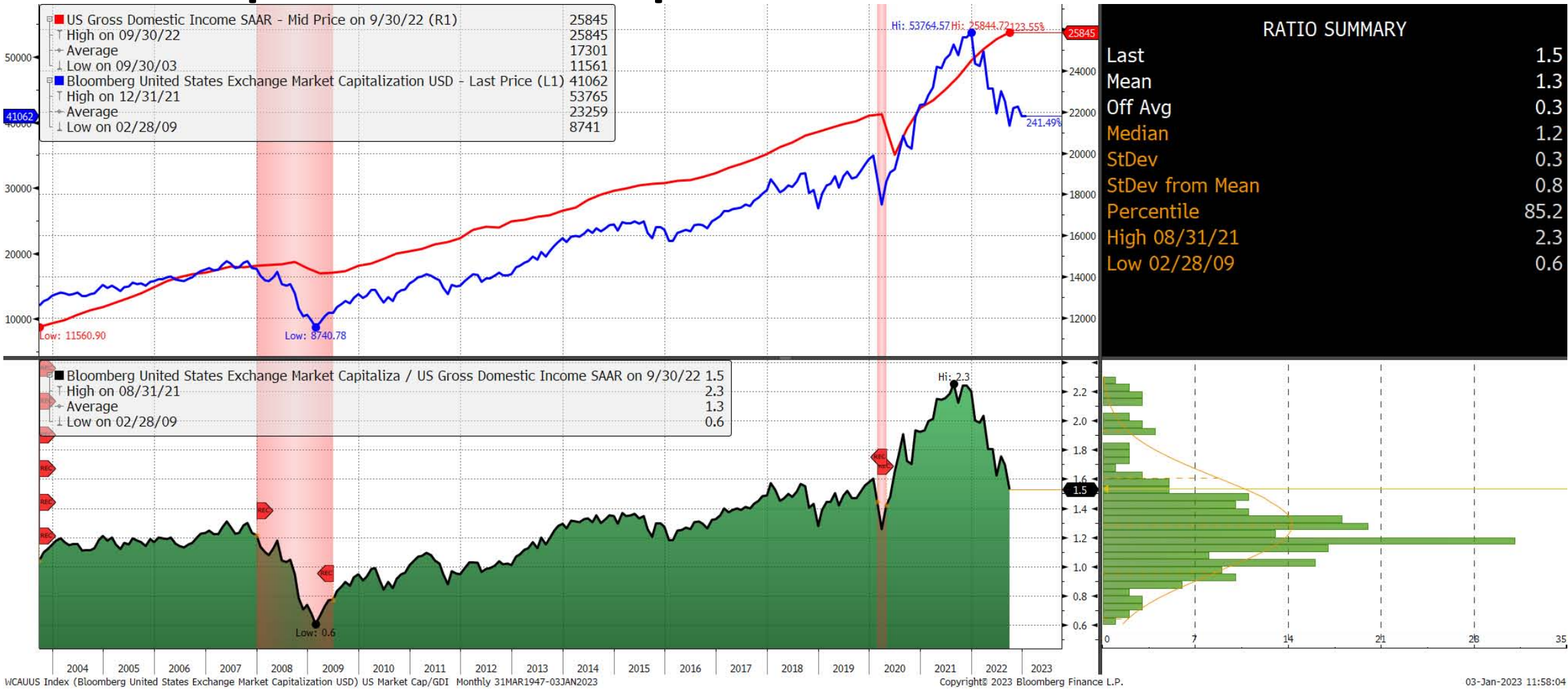
Why Would The Fed Hike Rates To 5.00-5.25% In Early-2023 Just To Pivot Back To 4.50-4.75% Yearend?

MEETING PROBABILITIES									
MEETING DATE	350-375	375-400	400-425	425-450	450-475	475-500	500-525	525-550	550-575
2/1/2023	0.0%	0.0%	0.0%	0.0%	69.2%	30.8%	0.0%	0.0%	0.0%
3/22/2023	0.0%	0.0%	0.0%	0.0%	14.0%	61.4%	24.5%	0.0%	0.0%
5/3/2023	0.0%	0.0%	0.0%	0.0%	7.7%	40.1%	41.1%	11.0%	0.0%
6/14/2023	0.0%	0.0%	0.0%	0.0%	7.3%	38.4%	41.1%	12.6%	0.6%
7/26/2023	0.0%	0.0%	0.0%	1.6%	14.2%	39.0%	34.7%	10.0%	0.5%
9/20/2023	0.0%	0.0%	0.5%	5.8%	22.4%	37.6%	26.6%	6.8%	0.3%
11/1/2023	0.0%	0.2%	2.7%	12.6%	28.6%	33.1%	18.5%	4.2%	0.2%
12/13/2023	0.1%	1.9%	9.3%	23.3%	31.6%	23.3%	8.9%	1.5%	0.1%

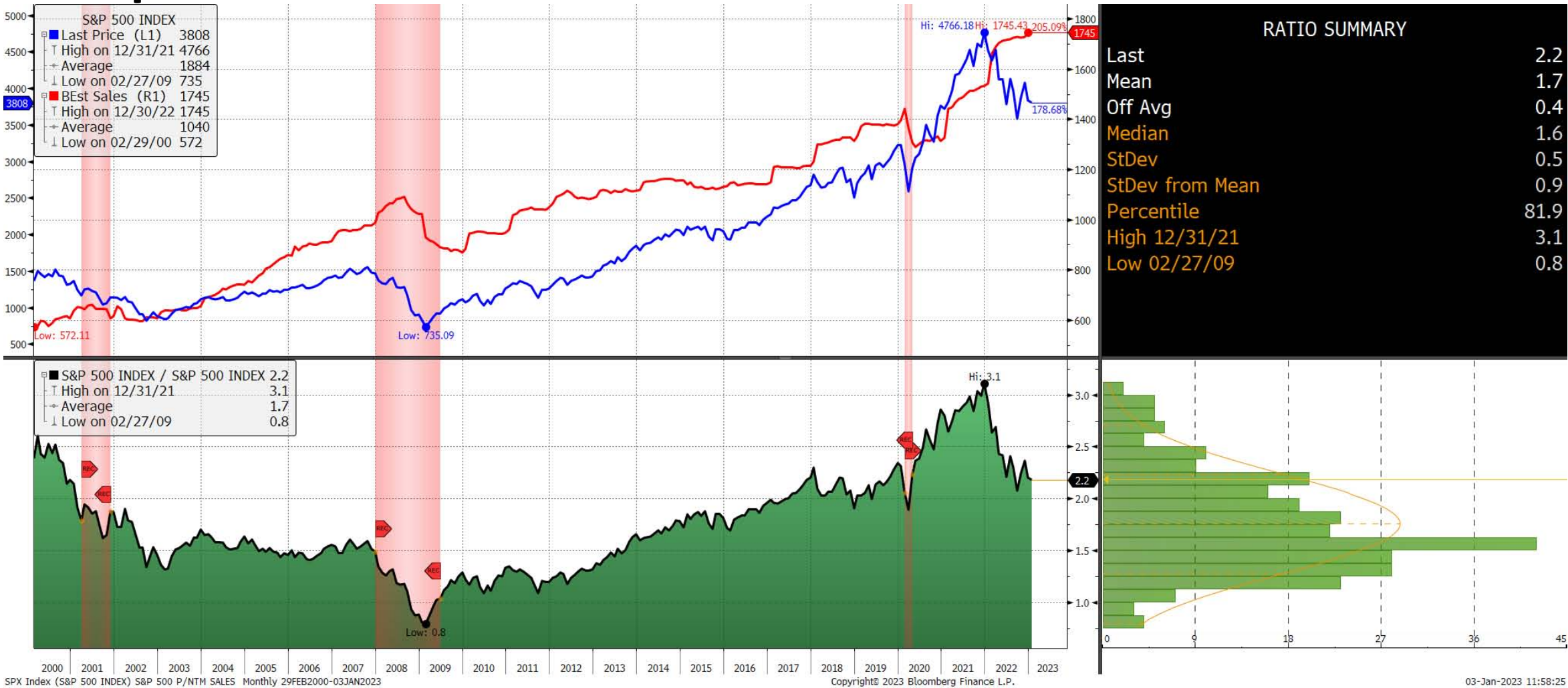
... Not Sure, But This We Do Know: The S&P 500 Has Downside To ~3600 If We Apply A Median Price Multiple To NTM Earnings



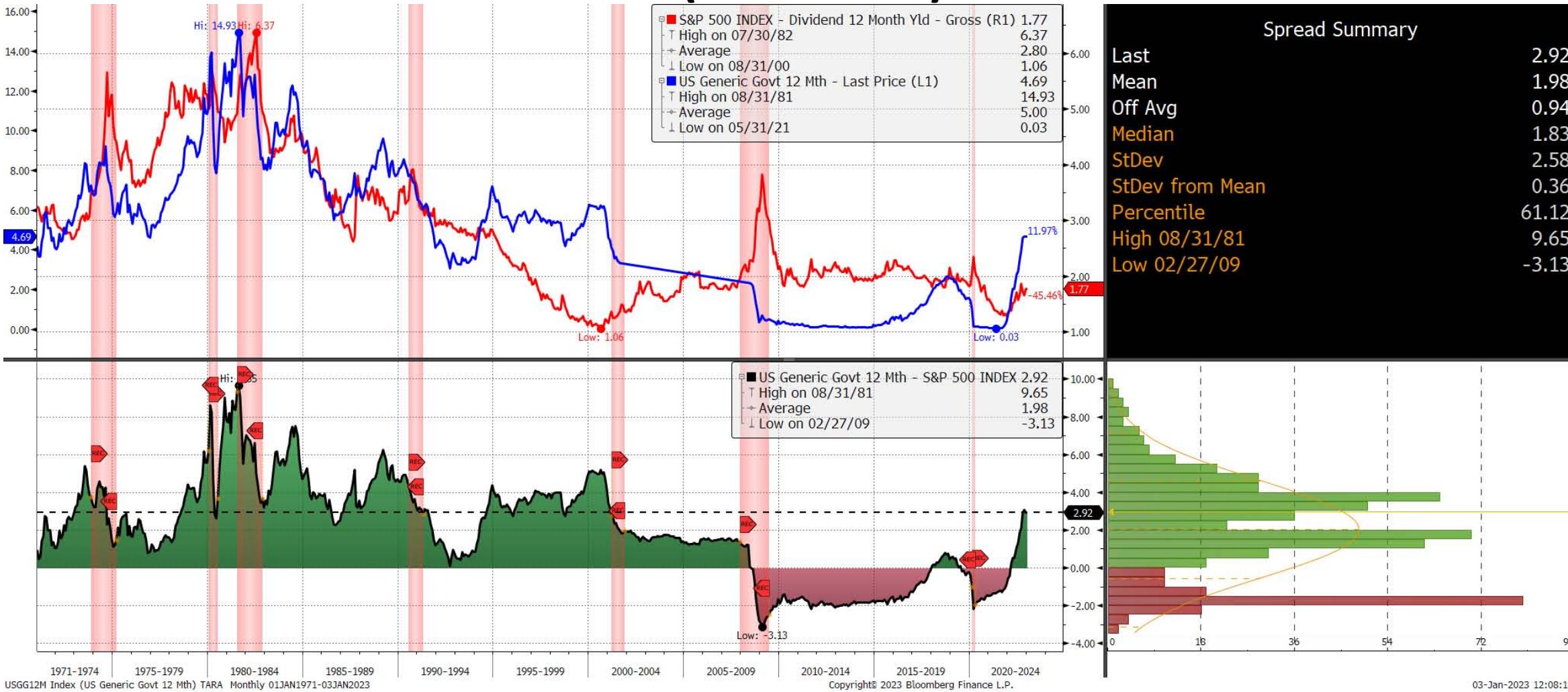
The S&P 500 Has Downside To ~2900 If We Apply A Median Stock Market Capitalization Multiple To Gross Domestic Income



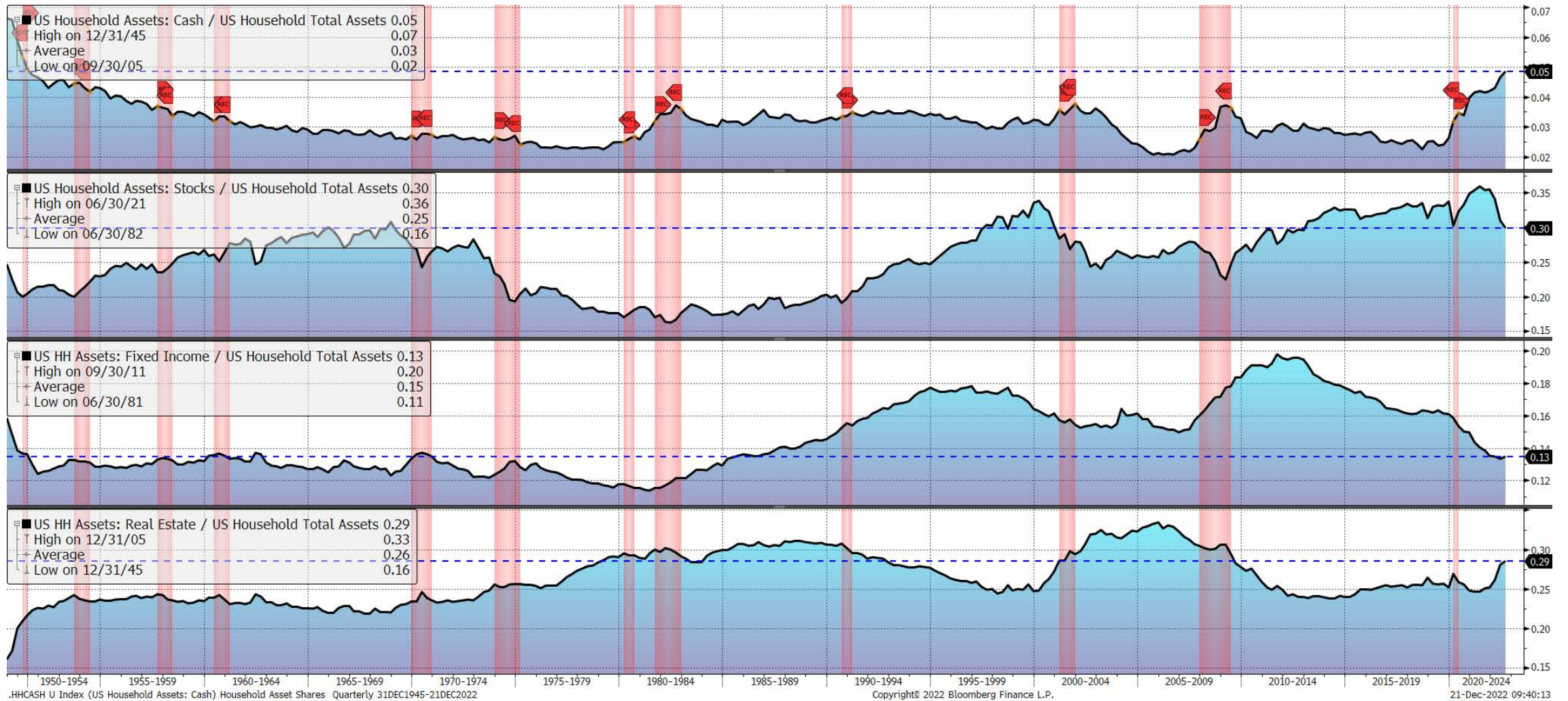
The S&P 500 Has Downside To ~2800 If We Apply A Median Price Multiple To NTM Sales



Are Median Multiples Even Appropriate Now That We've Dumped TINA In Favor Of Our "New" (Read: Old) Girlfriend TARA?



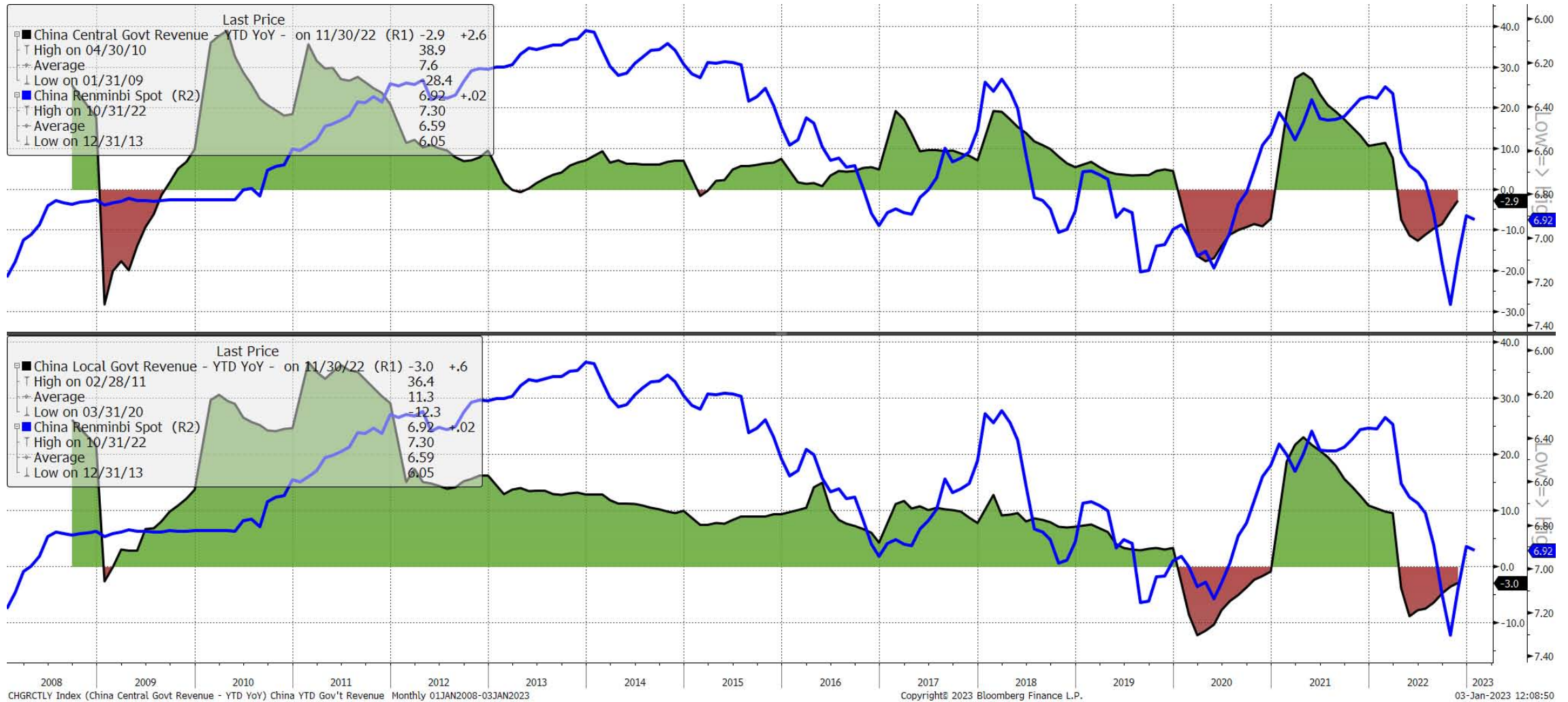
Perhaps Not, But The Rise Of Passive Investing Suggests We May Have To Wait Until 2H23 To Accumulate Enough Job Loss To Usher In **Phase 2** Of The Bear Market



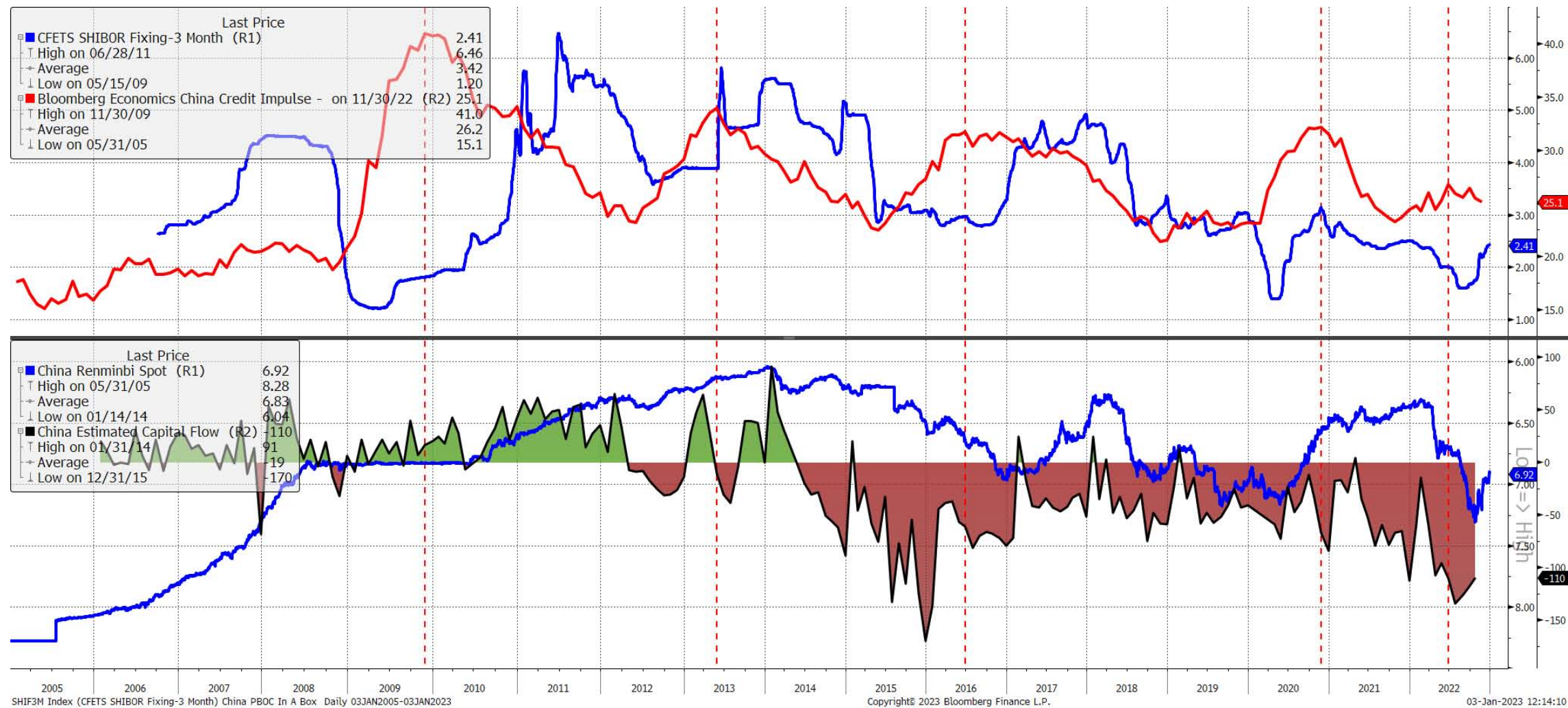
Right Tail Risk



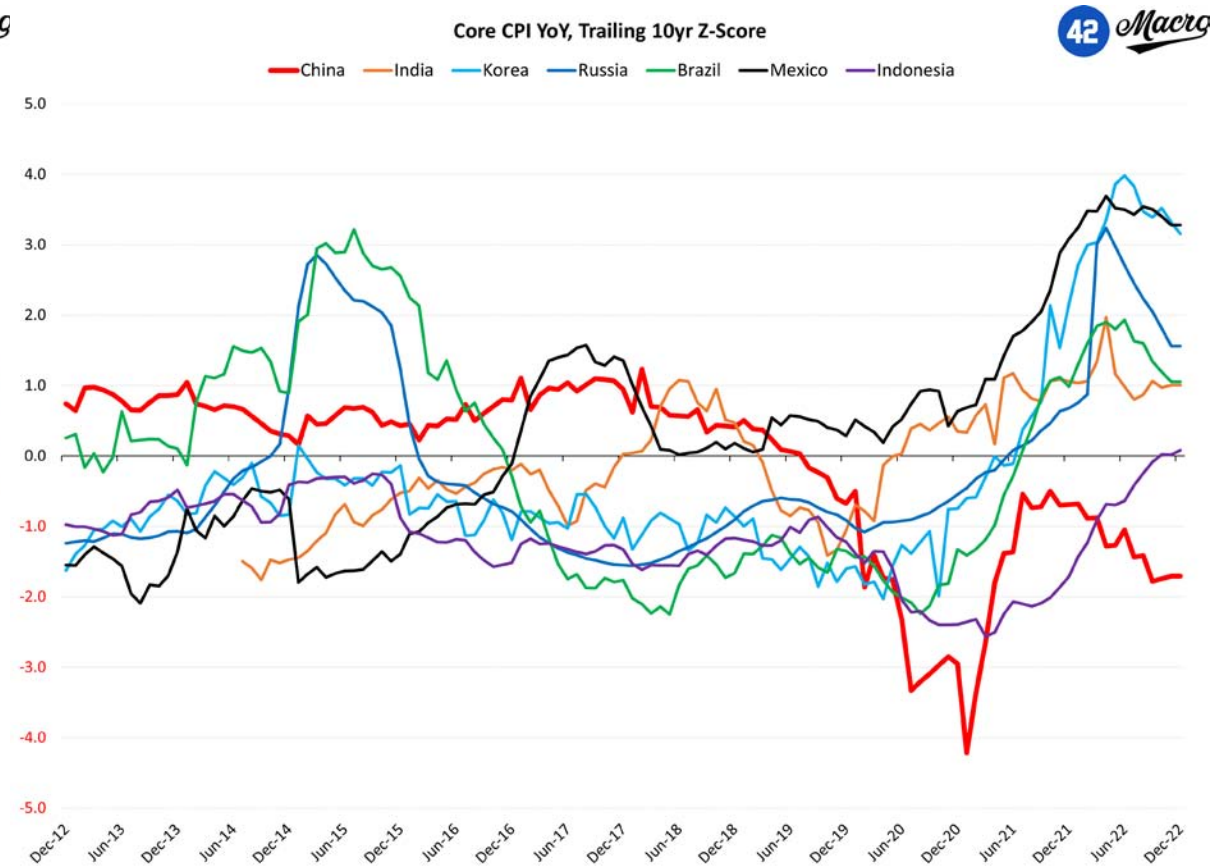
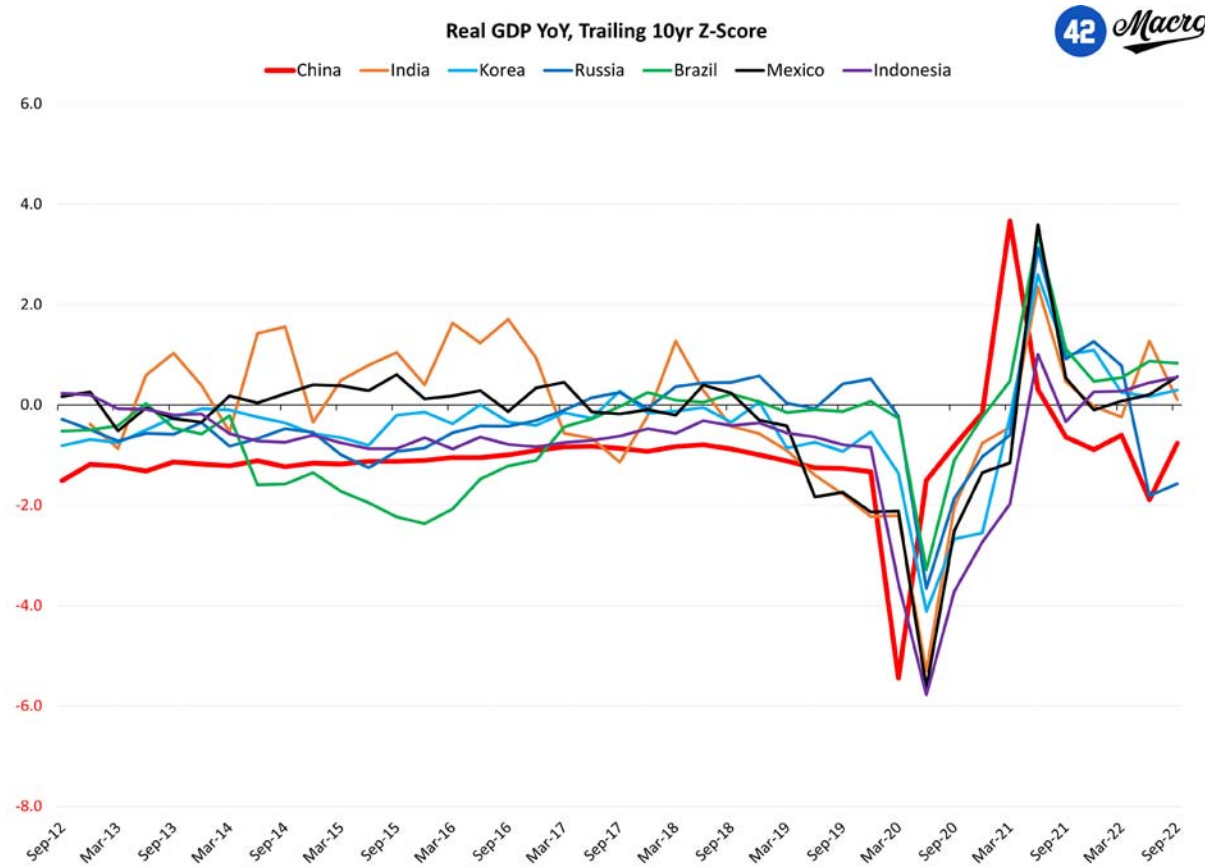
Beijing Finally Gave Up The Ghost w/r/t Zero COVID



A Fed Pivot Would Allow The PBOC To Step On The Gas Pedal



In The Absence Of Significant Stimulus, China's Economy Will Reopen Into A Classic Liquidity Trap



Fed Pivots During Bear Markets Are Almost Always Bullish For Risk Assets

Start Date	End Date	Duration (months)	S&P 500			Date of Fed Pivot	Style of Fed Pivot (Pause, Pivot, or Panic)	Months From the Bear Market Trough to an Inflection in the Liquidity Cycle	Months From the Inflection in the Liquidity Cycle to the Peak of the Inflation Cycle	Month of Peak Headline CPI	Months From the Bear Market Trough to the Peak of the Inflation Cycle	Month of Trough Industrial Production YoY/ISM Manufacturing PMI	Months From the Bear Market Trough to the Bottom of the Growth Cycle
			S&P 500 Max Drawdown	S&P 500 Max Drawdown	S&P 500 Max Recovery								
9/16/1929	6/1/1932	32	-86%	-40%	112%	4/1/1932	Pivot	(2)	(32)	Jul-29	(34)	Jul-32	2
3/10/1937	4/28/1942	62	-60%	-17%	18%	7/1/1942	Pause	2	(1)	May-42	1	Jun-42	2
5/29/1946	5/19/1947	12	-28%	-12%	17%	n/a	n/a	n/a	n/a	Mar-47	(2)	Mar-48	10
6/15/1948	6/13/1949	12	-21%	-10%	16%	n/a	n/a	n/a	n/a	Jul-48	(10)	Oct-49	5
8/2/1956	10/22/1957	15	-22%	-19%	7%	11/15/1957	Pivot	1	(8)	Mar-57	(7)	Jan-58	3
12/12/1961	6/26/1962	6	-28%	-25%	14%	7/19/1962	Pivot	1	(18)	Jan-61	(17)	Aug-62	2
2/9/1966	10/7/1966	8	-22%	-13%	18%	9/22/1966	Pivot	(0)	1	Oct-66	1	Apr-67	7
11/29/1968	5/26/1970	18	-36%	-23%	18%	1/30/1970	Pivot	(4)	(1)	Dec-69	(5)	Nov-70	6
1/11/1973	10/3/1974	21	-48%	-25%	24%	7/1/1974	Pivot	(3)	6	Dec-74	3	Jan-75	4
11/28/1980	8/12/1982	20	-27%	-9%	40%	6/1/1981	Pivot	(14)	(14)	Mar-80	(28)	May-82	(2)
8/25/1987	12/4/1987	3	-34%	-32%	21%	10/19/1987	Pivot	(2)	0	Oct-87	(1)	Mar-88	4
7/16/1990	10/11/1990	3	-20%	-17%	16%	10/29/1990	Panic	1	0	Oct-90	1	Jan-91	4
3/24/2000	10/9/2002	31	-49%	-19%	21%	1/3/2001	Pivot	(21)	(9)	Mar-00	(30)	Oct-01	(11)
10/9/2007	3/9/2009	17	-57%	-28%	40%	9/18/2007	Pivot	(18)	10	Jul-08	(7)	Dec-08	(2)
4/29/2011	10/3/2011	5	-19%	-15%	21%	9/21/2011	Pivot	(0)	0	Sep-11	(0)	Oct-11	1
9/20/2018	12/24/2018	3	-20%	-20%	21%	1/4/2019	Pause	0	(5)	Jul-18	(5)	Dec-19	12
2/19/2020	3/23/2020	1	-34%	-34%	44%	3/3/2020	Panic	(1)	(1)	Jan-20	(2)	Apr-20	1
MIN		1	-86%	-40%	7%	n/a	n/a	(21)	(32)	n/a	(34)	n/a	(11)
1st QUARTILE		5	-48%	-25%	17%	n/a	n/a	(3)	(8)	n/a	(10)	n/a	1
MEDIAN		12	-28%	-19%	21%	n/a	n/a	(1)	(1)	n/a	(5)	n/a	3
3rd QUARTILE		20	-22%	-15%	24%	n/a	n/a	0	0	n/a	(0)	n/a	5
MAX		62	-19%	-9%	112%	n/a	n/a	2	10	n/a	3	n/a	12
PERCENT POSITIVE		n/a	0%	0%	100%	n/a	n/a	33%	40%	n/a	24%	n/a	82%
PERCENT NEGATIVE		n/a	100%	100%	0%	n/a	n/a	67%	60%	n/a	76%	n/a	18%
PEAK HEADLINE CPI > 5% (n=8)		17	-32%	-17%	18%	n/a	n/a	(3)	(0)	n/a	(3)	n/a	4
PEAK HEADLINE CPI < 5% (n=9)		6	-28%	-20%	21%	n/a	n/a	(0)	(5)	n/a	(5)	n/a	2
BOTTOM IN RECESSION (n=9)		17	-34%	-23%	24%	n/a	n/a	(3)	(1)	n/a	(7)	n/a	3
BOTTOM OUT OF RECESSION (n=8)		7	-28%	-18%	20%	n/a	n/a	(0)	(1)	n/a	(1)	n/a	3
-20% to -30% (n=9)		8	-22%	-15%	17%	n/a	n/a	0	(5)	n/a	(5)	n/a	4
-30% to -50% (n=5)		18	-36%	-25%	21%	n/a	n/a	(3)	(1)	n/a	(2)	n/a	4
-50%+ (n=3)		32	-60%	-28%	40%	n/a	n/a	(2)	(1)	n/a	(7)	n/a	2
MEAN OF BOLDED SCENARIOS		14	-29%	-18%	20%	n/a	n/a	(2)	(2)	n/a	(5)	n/a	4

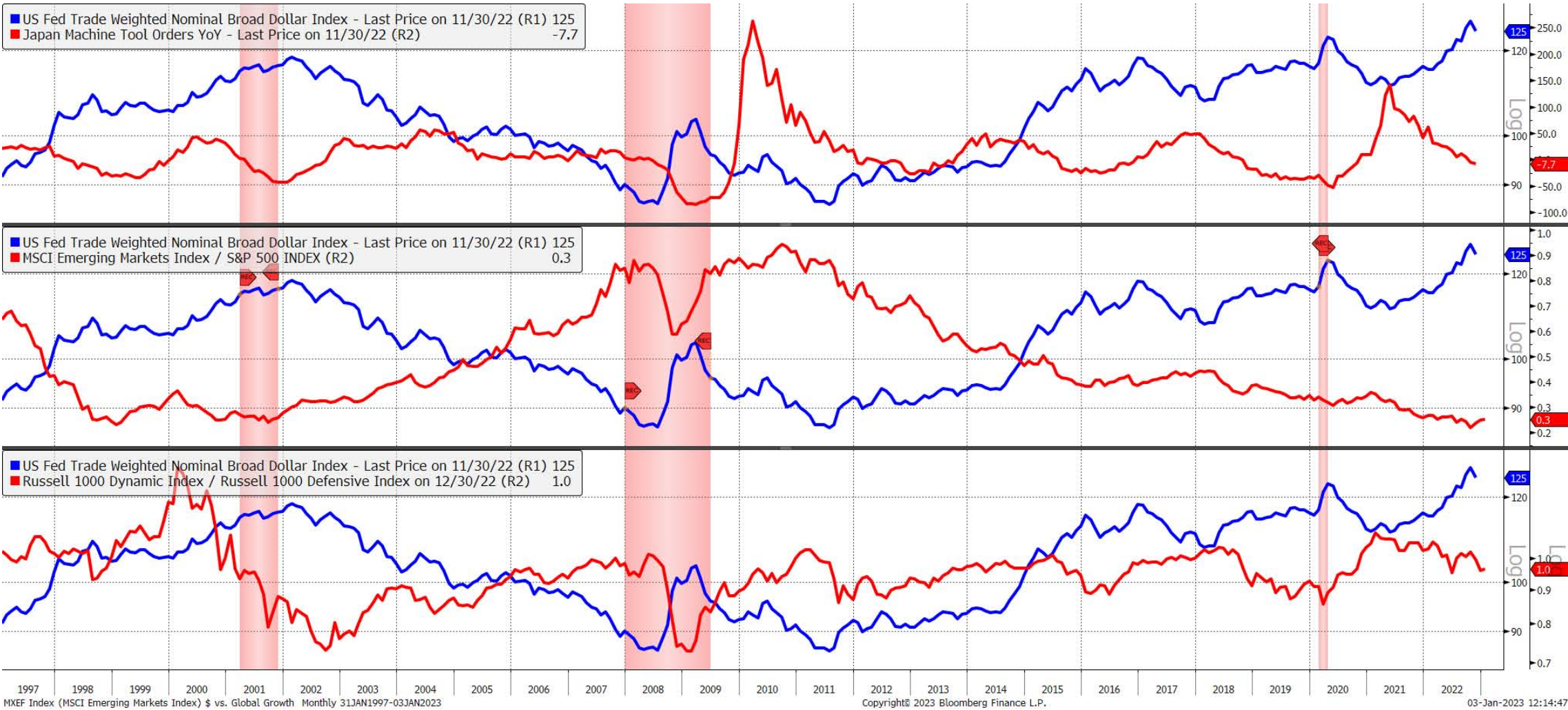
Data Source: Bloomberg. 3mo T-Bill Yield prior to 1971. Industrial Production YoY prior to 1956. ISM Manufacturing PMI onward. All summary statistics featured in the bottom clusters of rows are MEDIAN values. Intellectual Property of 42 Macro LLC.

Fed Pivots During Bear Markets Typically Mark The End Of US Dollar Strength

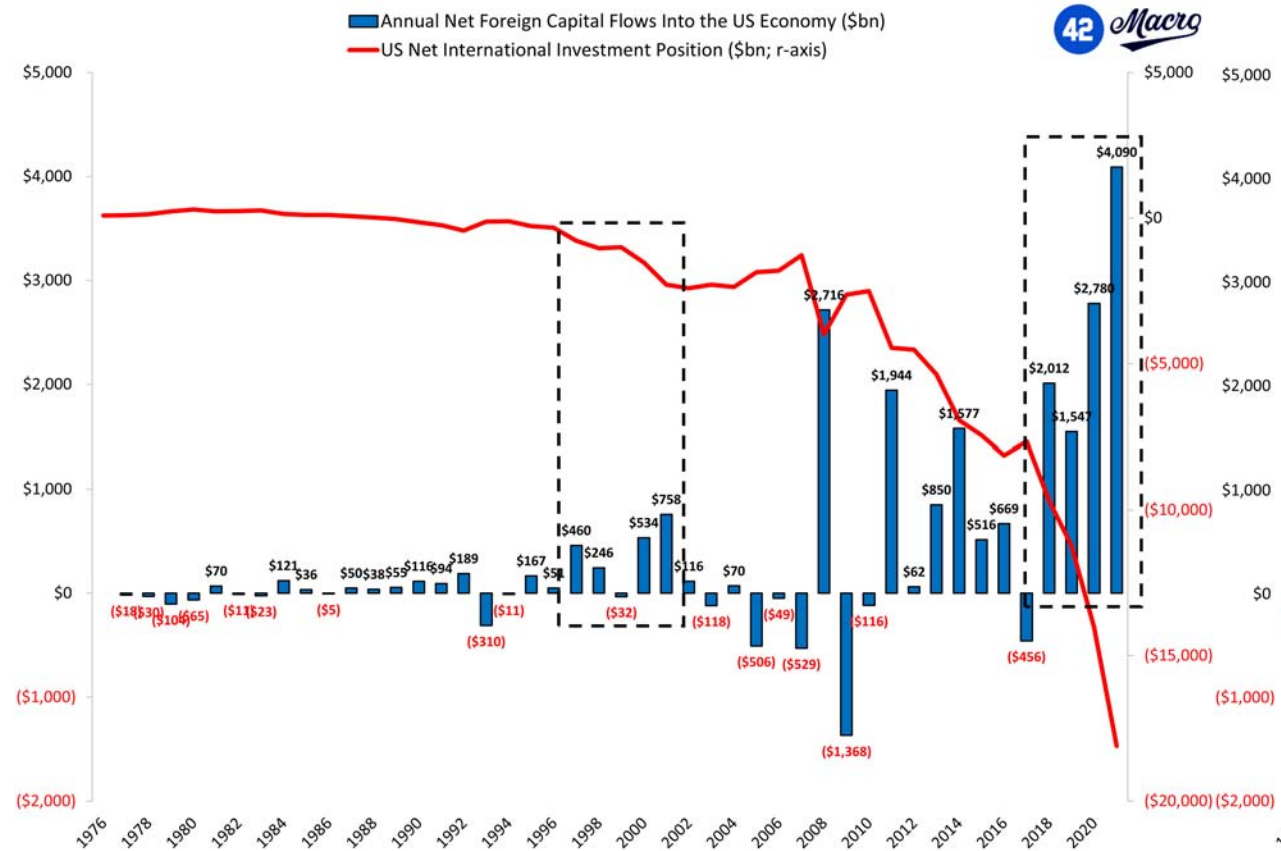
Date of Fed Pivot When Bayesian Prior = Bear Market	Style of Fed Pivot (Pause, Pivot, or Panic)	S&P 500 3mos Forward	S&P 500 6mos Forward	S&P 500 12mos Forward	Fed Funds Rate 3mos Forward	Fed Funds Rate 6mos Forward	Fed Funds Rate 12mos Forward	10yr Nominal Treasury Yield 3mos Forward	10yr Nominal Treasury Yield 6mos Forward	10yr Nominal Treasury Yield 12mos Forward	Bloomberg Commodity Index 3mos Forward	Bloomberg Commodity Index 6mos Forward	Bloomberg Commodity Index 12mos Forward	US Dollar Index 3mos Forward	US Dollar Index 6mos Forward	US Dollar Index 12mos Forward
4/1/1932	Pivot	-39%	11%	-20%												
7/1/1942	Pause	7%	18%	49%												
n/a (no observable pivot date for the 1946-47 bear)	n/a															
n/a (no observable pivot date for the 1948-49 bear)	n/a															
11/15/1957	Pivot	4%	12%	33%	-200bps	-250bps	-50bps									
7/19/1962	Pivot	1%	18%	23%	-25bps	-4bps	25bps	-10bps	-15bps	-2bps	1%	12%	13%			
9/22/1966	Pivot	3%	16%	24%	-75bps	-150bps	-125bps	-57bps	-71bps	10bps	-4%	-3%	-9%			
1/30/1970	Pivot	-5%	-9%	12%	-100bps	-150bps	-375bps	5bps	-39bps	-168bps	5%	8%	19%	-0%	-1%	-1%
7/1/1974	Pivot	-26%	-20%	11%	-375bps	-500bps	-650bps	30bps	-24bps	32bps	34%	22%	3%	2%	-3%	-4%
6/1/1981	Pivot	-7%	-5%	-16%	-450bps	-700bps	-700bps	191bps	-37bps	21bps	-11%	-17%	-26%	5%	-2%	7%
10/19/1987	Pivot	-9%	-8%	-1%	-62bps	-50bps	100bps	-188bps	-124bps	-149bps	-4%	-0%	-3%	-6%	-7%	-3%
10/29/1990	Panic	13%	23%	29%	-125bps	-225bps	-300bps	-62bps	-61bps	-117bps	-12%	-11%	-11%	-1%	10%	9%
1/3/2001	Pivot	-3%	-6%	-12%	-200bps	-275bps	-475bps	42bps	14bps	12bps	-2%	-8%	-21%	7%	8%	11%
9/18/2007	Pivot	-1%	-10%	-21%	-100bps	-300bps	-325bps	-44bps	-106bps	-64bps	6%	16%	-4%	-4%	-10%	-0%
9/21/2011	Pivot	5%	17%	20%	0bps	0bps	0bps	-6bps	27bps	-31bps	-9%	-9%	-4%	4%	3%	4%
1/4/2019	Pause	20%	22%	32%	0bps	-25bps	-75bps	-5bps	-54bps	-105bps	4%	2%	-3%	1%	2%	1%
3/3/2020	Panic	0%	9%	29%	-150bps	-150bps	-150bps	-51bps	-48bps	58bps	-10%	-2%	15%	0%	-4%	-4%
MIN	n/a	-39%	-20%	-21%	-450bps	-700bps	-700bps	-188bps	-124bps	-168bps	-12%	-17%	-26%	-6%	-10%	-4%
1st QUARTILE	n/a	-6%	-7%	-7%	-200bps	-275bps	-375bps	-52bps	-64bps	-108bps	-10%	-8%	-10%	-1%	-3%	-2%
MEDIAN	n/a	0%	11%	20%	-100bps	-150bps	-150bps	-8bps	-43bps	-16bps	-3%	-1%	-4%	1%	-1%	0%
3rd QUARTILE	n/a	4%	17%	29%	-62bps	-50bps	-50bps	11bps	-22bps	14bps	4%	9%	6%	4%	2%	7%
MAX	n/a	20%	23%	49%	0bps	0bps	100bps	191bps	27bps	58bps	34%	22%	19%	7%	10%	11%
PERCENT POSITIVE	n/a	53%	60%	67%	0%	0%	15%	33%	17%	42%	42%	42%	33%	60%	40%	50%
PERCENT NEGATIVE	n/a	47%	40%	33%	85%	92%	77%	67%	83%	58%	58%	58%	67%	40%	60%	50%
FED PAUSE (n=2)	n/a	13%	20%	40%	0bps	-25bps	-75bps	-5bps	-54bps	-105bps	4%	2%	-3%	1%	2%	1%
FED PIVOT (n=11)	n/a	-3%	-5%	11%	-100bps	-200bps	-225bps	-6bps	-37bps	-2bps	-2%	-0%	-4%	2%	-2%	-0%
FED PANIC (n=2)	n/a	7%	16%	29%	-138bps	-188bps	-225bps	-56bps	-55bps	-29bps	-11%	-7%	2%	-1%	3%	2%
FED PIVOT NOT IN RECESSION (n=9)	n/a	1%	16%	20%	-69bps	-100bps	-100bps	-8bps	-45bps	-16bps	-3%	-1%	-4%	3%	0%	2%
FED PIVOT IN RECESSION (n=6)	n/a	-2%	10%	20%	-150bps	-225bps	-300bps	-23bps	-43bps	-42bps	-3%	3%	9%	-0%	-2%	-3%
MEAN OF BOLDED SCENARIOS	n/a	5%	15%	27%	-56bps	-92bps	-108bps	-7bps	-48bps	-46bps	-1%	-0%	-4%	1%	0%	1%

Data Source: Bloomberg. All summary statistics featured in the bottom three clusters of rows are MEDIAN values. Intellectual Property of 42 Macro LLC.

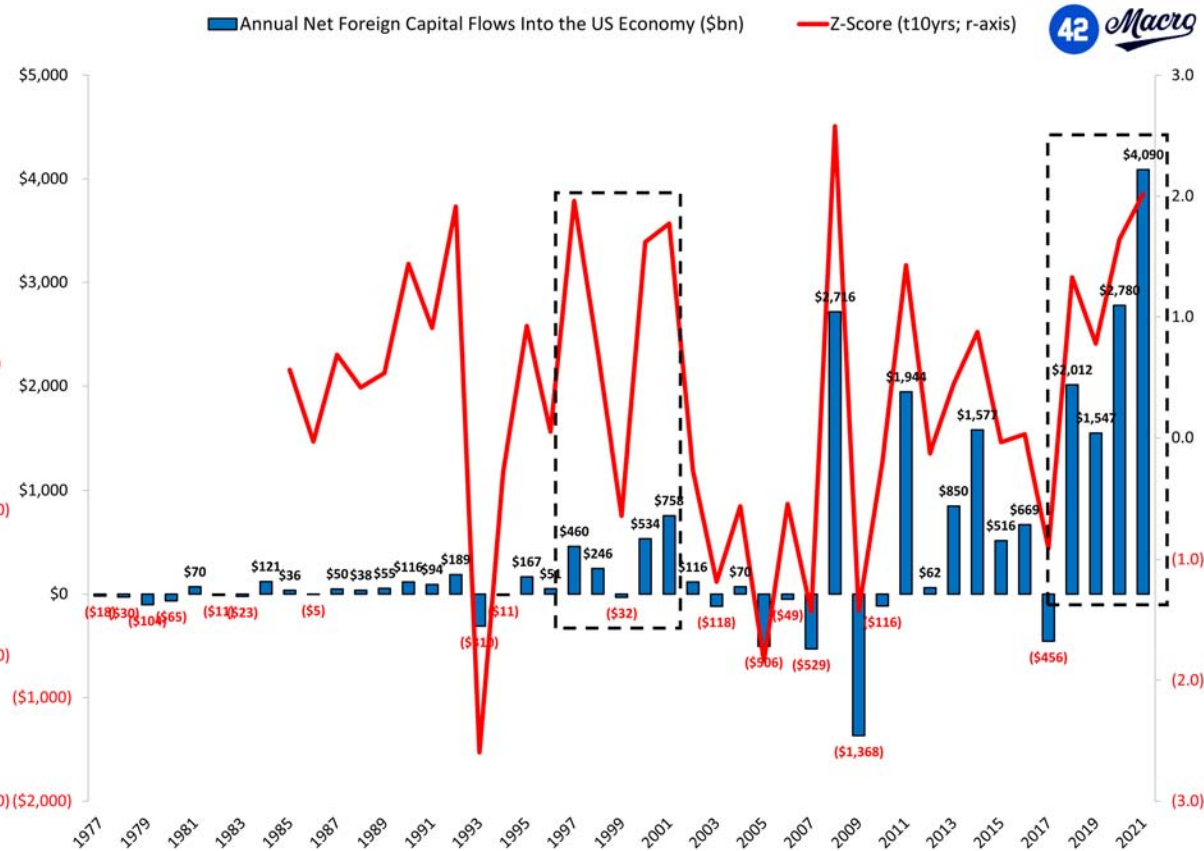
A Weaker USD Would Support Global Growth And Carry Trades



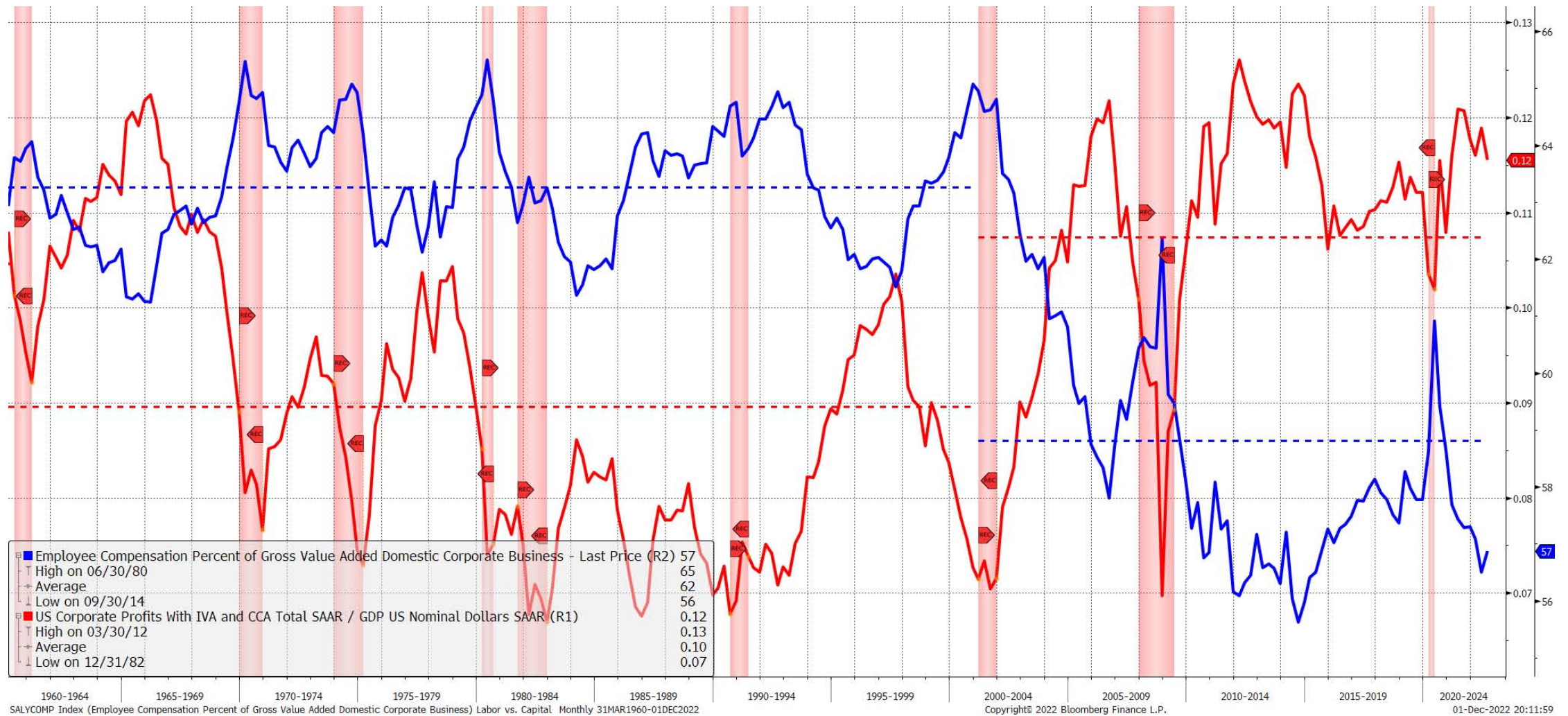
Capital Outflows Are A Key Risk For The US\$: Annual Net Foreign Capital Flows Into the US Economy And US Net International Investment Position



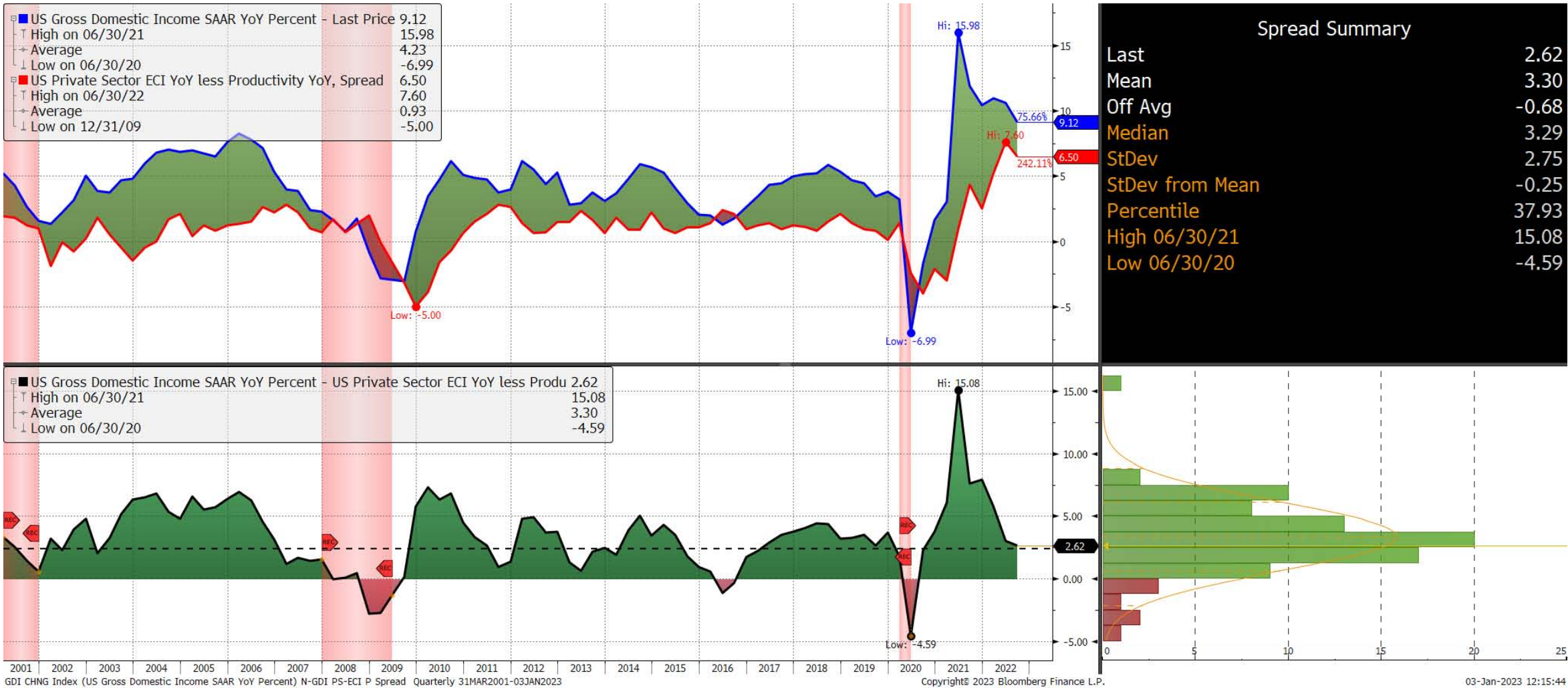
Capital Outflows Are A Key Risk For The US\$: Annual Net Foreign Capital Flows Into the US Economy And Its Trailing 3yr Z-Score



FYI, Labor Is Still Losing The Timeless Battle Versus Capital



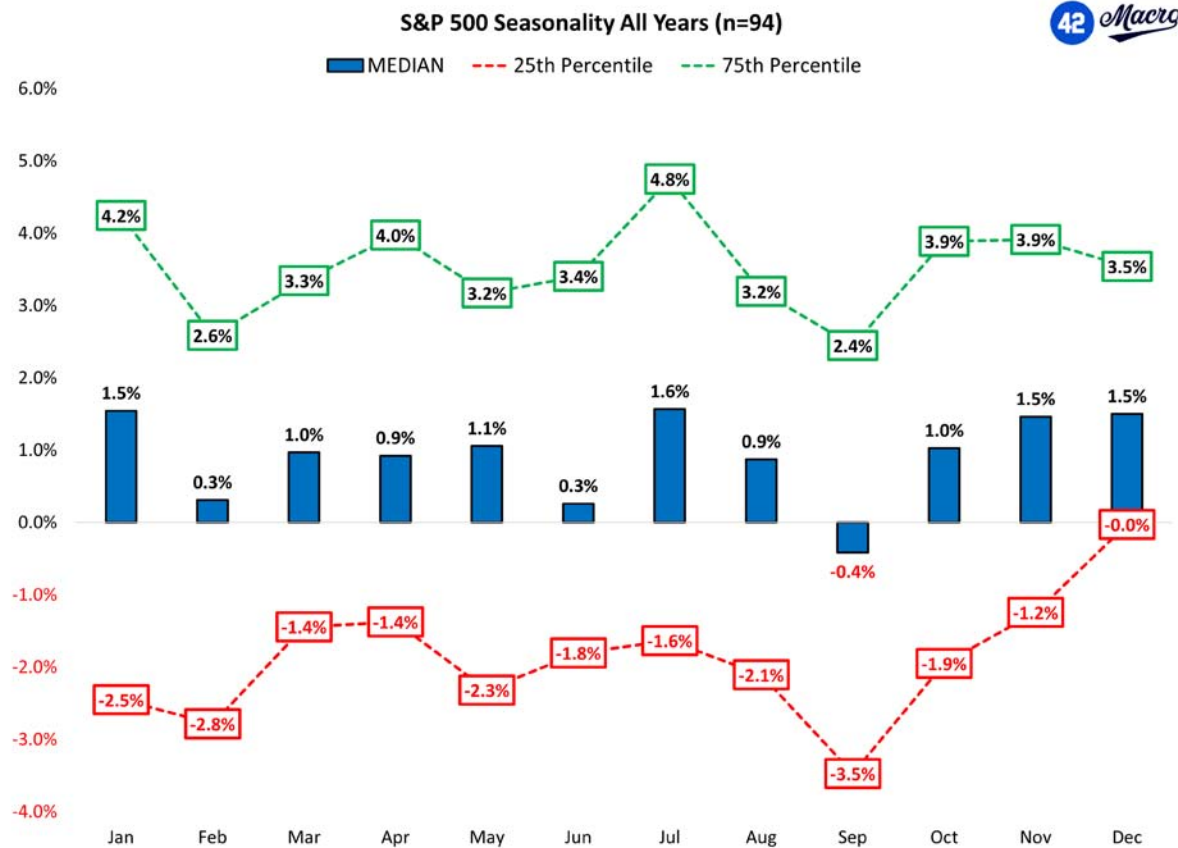
An Earnings Recession May Be Delayed As A Result



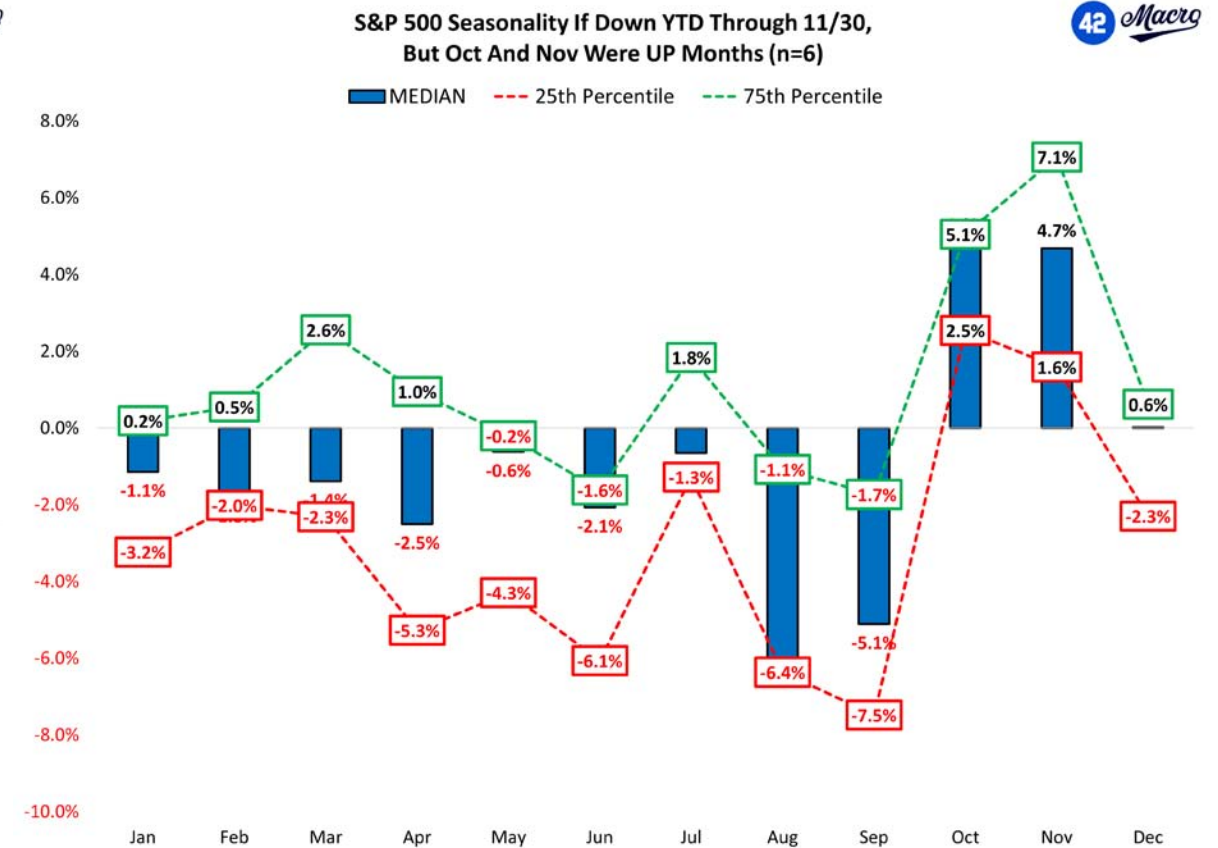
Left Tail Risk



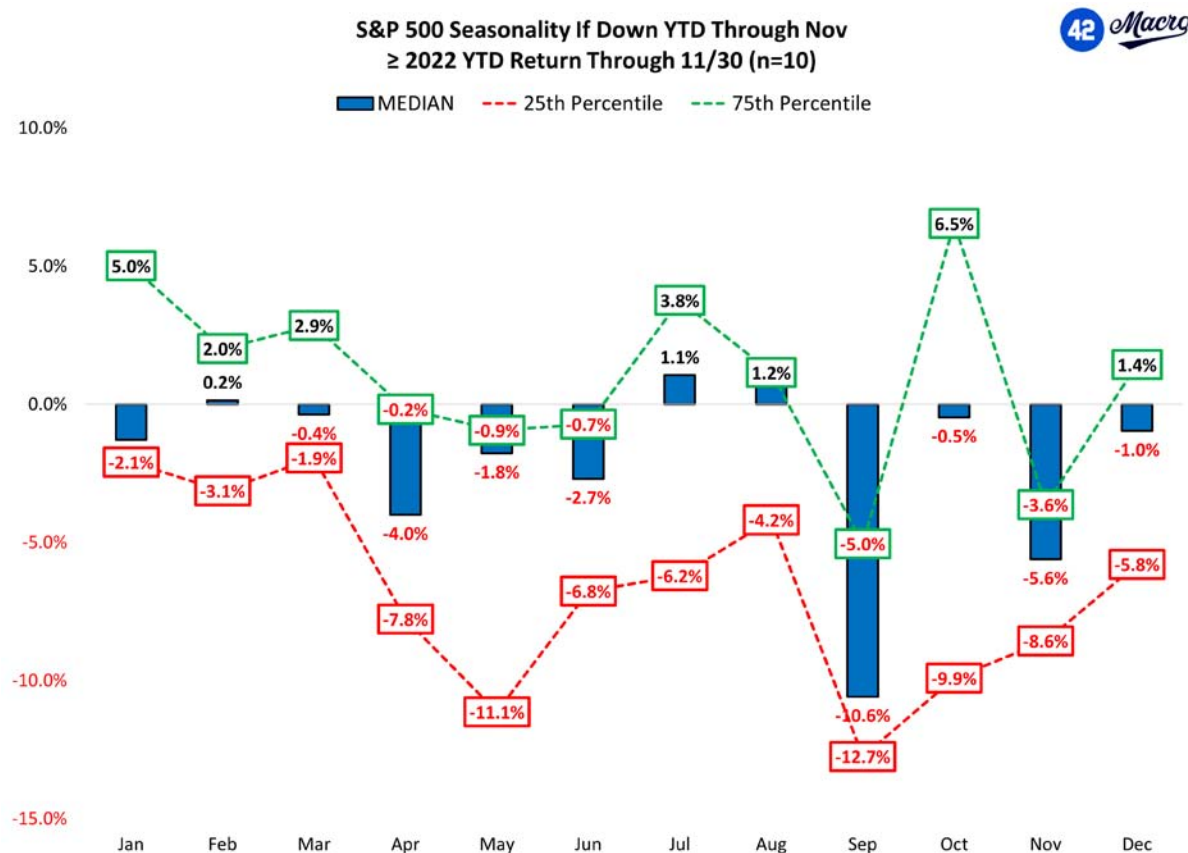
S&P 500 Seasonality



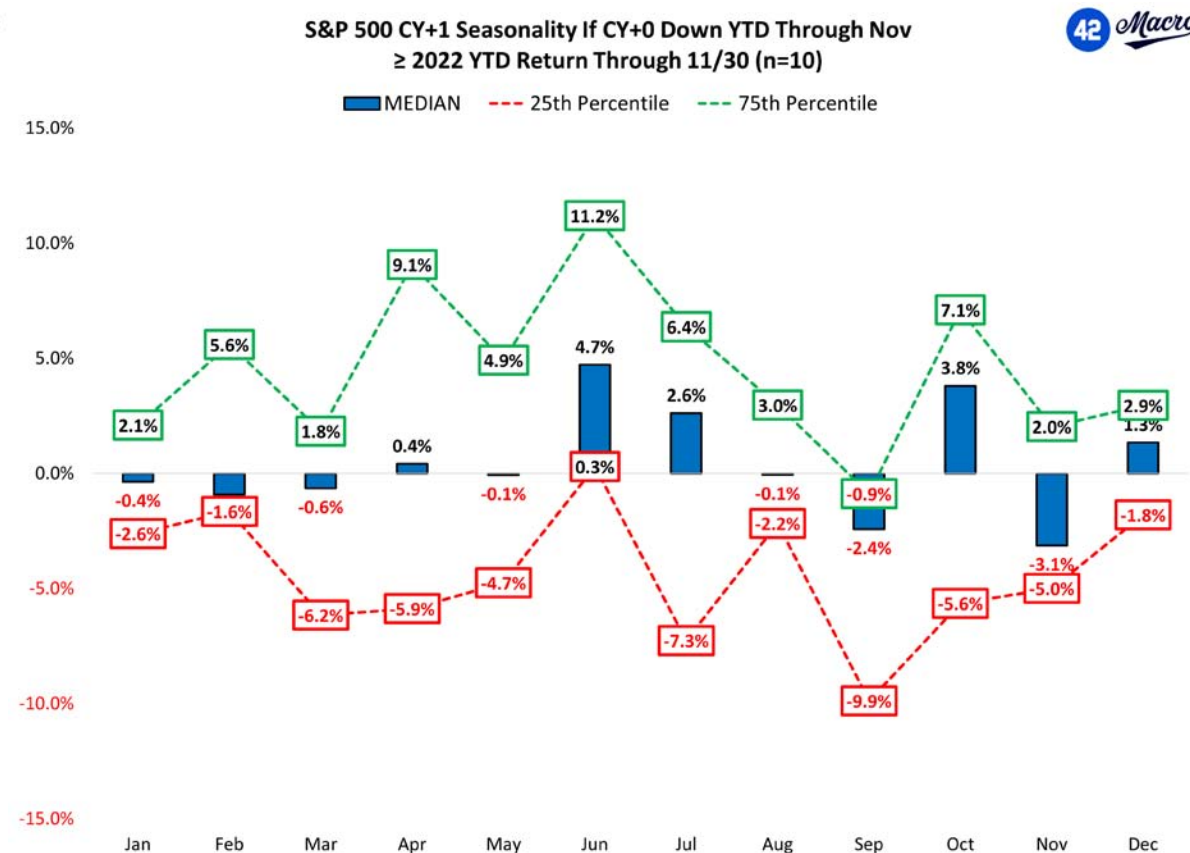
S&P 500 Seasonality If Down YTD Through 11/30, But Oct And Nov Are UP Months



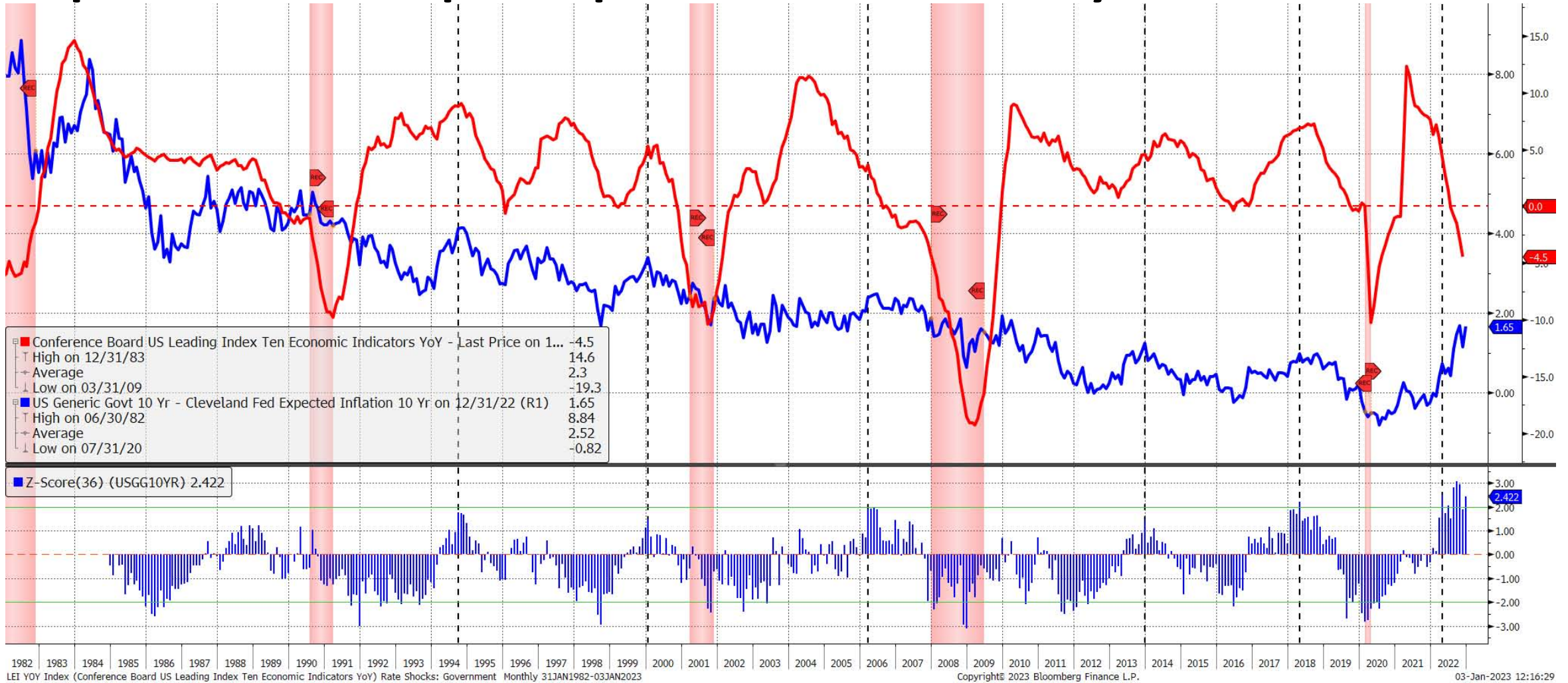
S&P 500 CY+0 Seasonality If CY+0 Is Down YTD Through November \geq The 2022 YTD Return Through 11/30



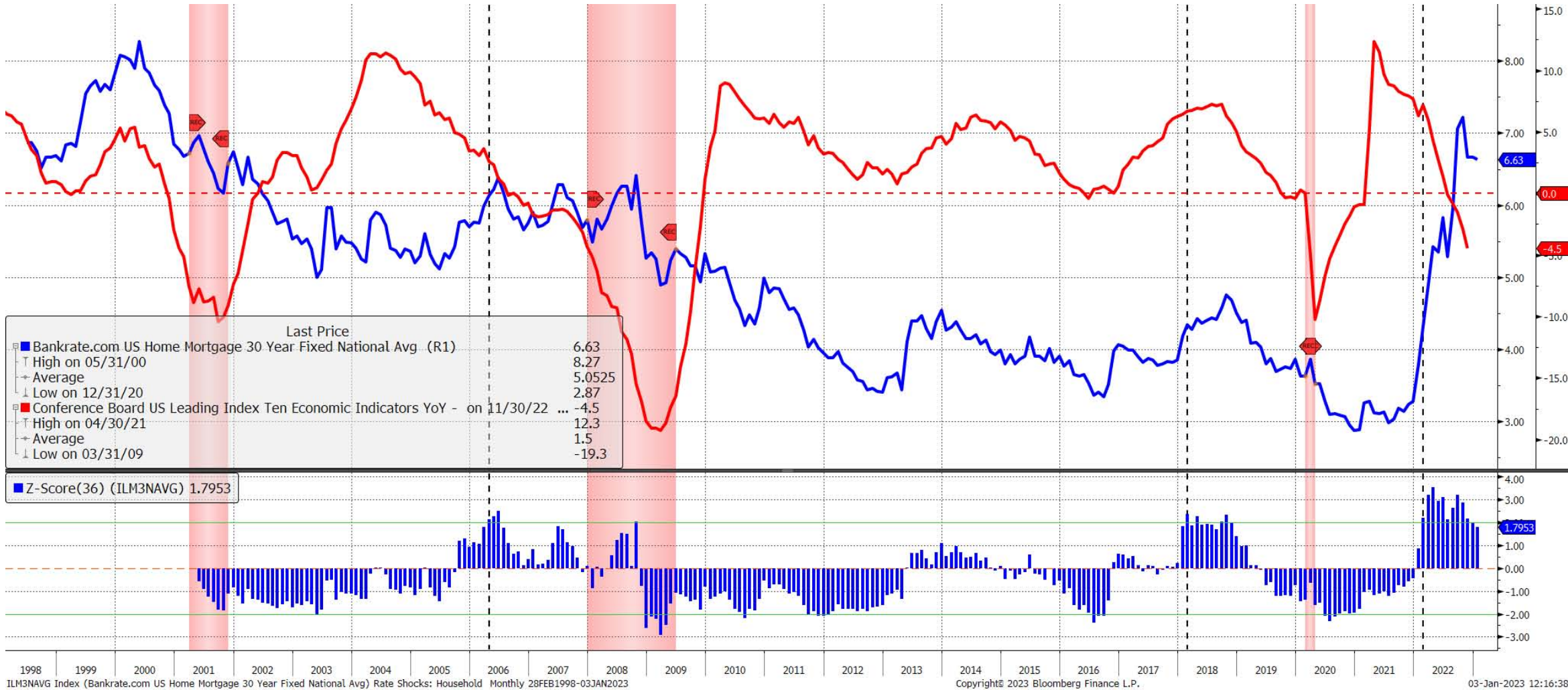
S&P 500 CY+1 Seasonality If CY+0 Is Down YTD Through November \geq The 2022 YTD Return Through 11/30



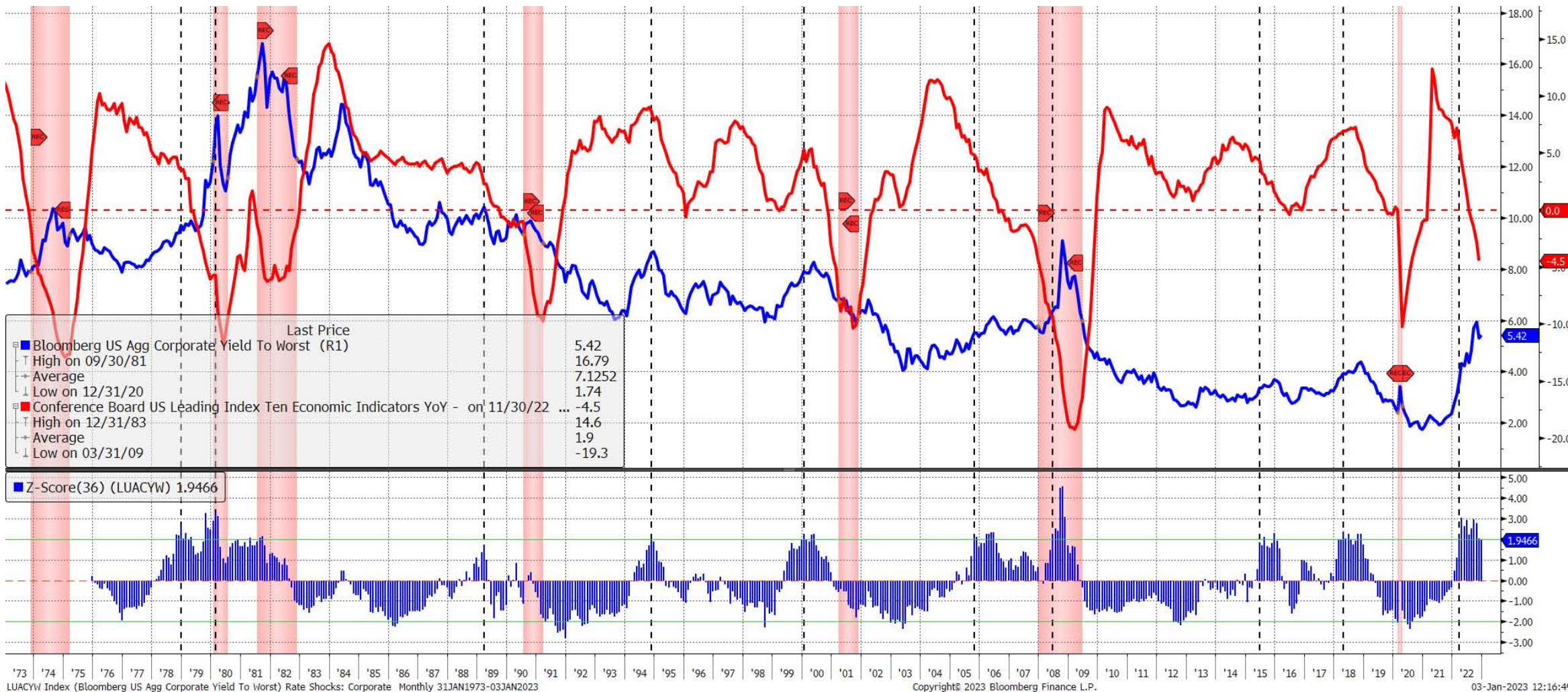
The Unprecedented Real Interest Rate Shock May Have An Unprecedented Impact Upon Economic Activity



The Historic Mortgage Rate Shock Will Continue To Slow Residential Fixed Investment



The Historic Corporate Borrowing Cost Shock Will Continue To Slow Non-Residential Fixed Investment

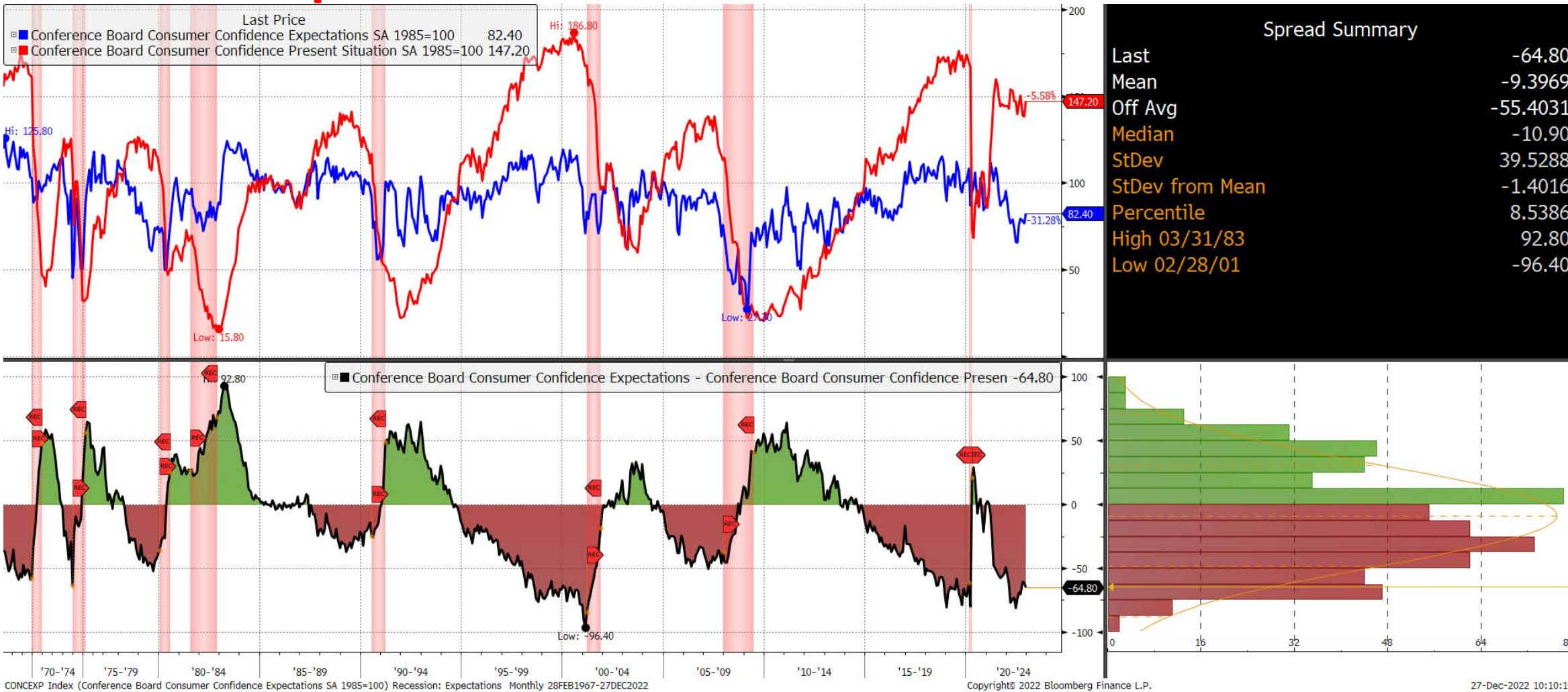


Technical Recession ≠ #actualrecession

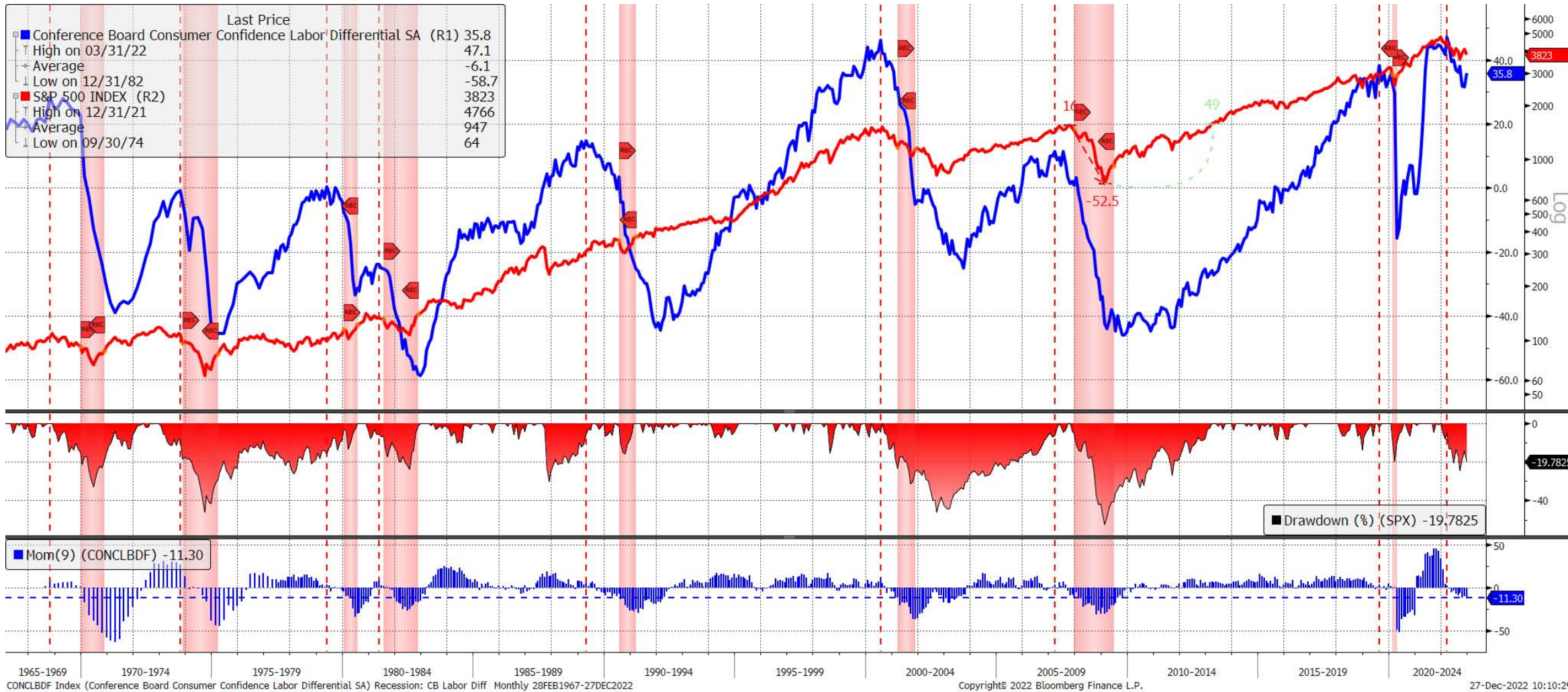
Start	End	Primary Trigger	Real GDP Contraction	Peak Unemployment Rate	Nonfarm Payrolls Max Drawdown	S&P 500 Max Drawdown	S&P 500 TTM EPS Max Drawdown	NIPA Corporate Profits Max Drawdown	Starting Private Non-Financial Sector Credit Gap*	Headline CPI YoY Peak	Headline CPI YoY Trough	bps Change	bps Change t-1	bps Change t-1	Core PCE YoY Peak	Core PCE YoY Trough	bps Change	bps Change t-1	bps Change t-1
Aug-29	Mar-33	Monetary Tightening	-26.7%	24.9%		-86%				1.2%	-10.7%	-1190bps	180bps	1560bps					
May-37	Jun-38	Fiscal Tightening	-18.2%	19.0%		-54%				5.1%	-2.1%	-720bps	580bps	0bps					
Feb-45	Oct-45	Fiscal Tightening	-12.7%	1.9%	-9%	-6%				3.0%	1.7%	-130bps	-70bps	1260bps					
Nov-48	Oct-49	Monetary Tightening	-1.7%	7.9%	-5%	-21%		-16%	0.9	10.2%	-2.9%	-1310bps	-370bps	670bps					
Jul-53	May-54	Monetary Tightening	-2.6%	6.1%	-3%	-15%		-22%	1.2	3.1%	0.4%	-270bps	-270bps	-140bps					
Aug-57	Apr-58	Pandemic	-3.7%	7.5%	-4%	-21%		-24%	1.5	3.7%	2.9%	-80bps	180bps	-330bps					
Apr-60	Feb-61	Monetary Tightening	-1.6%	7.1%	-2%	-14%		-15%	1.4	1.7%	1.0%	-70bps	140bps	-40bps	2.2%	1.2%	-94bps		10bps
Dec-69	Nov-70	Monetary Tightening/Fiscal Tightening	-0.6%	6.1%	-1%	-35%		-20%	1.7	6.2%	5.4%	-80bps	150bps	-230bps	4.8%	4.5%	-23bps	3bps	-88bps
Nov-73	Mar-75	Energy Price Shock	-3.2%	9.0%	-2%	-48%		-12%	1.8	8.3%	8.3%	0bps	460bps	-420bps	4.9%	4.9%	0bps	179bps	-387bps
Jan-80	Jul-80	Monetary Tightening/Energy Price Shock	-2.2%	7.8%	-1%	-15%		-18%	2.0	13.9%	13.1%	-80bps	460bps	-230bps	8.2%	8.2%	0bps	144bps	-37bps
Jul-81	Nov-82	Monetary Tightening	-2.7%	10.8%	-3%	-27%		-9%	0.8	13.1%	4.6%	-850bps	-230bps	-130bps	9.8%	5.9%	-389bps	-37bps	-138bps
Jul-90	Mar-91	Energy Price Shock	-1.4%	7.8%	-1%	-20%		-6%	0.9	5.3%	4.8%	-50bps	-20bps	-170bps	4.1%	3.7%	-42bps	1bps	-36bps
Mar-01	Nov-01	Monetary Tightening	-0.3%	6.3%	-2%	-49%	-28%	-8%	1.4	3.8%	1.9%	-190bps	-90bps	30bps	2.0%	1.2%	-82bps	3bps	-12bps
Dec-07	Jun-09	Monetary Tightening	-5.1%	10.0%	-6%	-57%	-34%	-37%	1.9	4.3%	-1.4%	-570bps	160bps	250bps	2.6%	0.7%	-184bps	9bps	84bps
Feb-20	Apr-20	Pandemic	-19.2%	14.7%	-14%	-34%	-16%	-18%	0.5	2.5%	0.3%	-220bps	80bps	390bps	1.8%	0.9%	-92bps	6bps	221bps
MEDIAN - All			-2.7%	7.8%	-3%	-27%	-28%	-17%	1.4	4.3%	1.7%	-190bps	140bps	-40bps	4.1%	3.7%	-82bps	5bps	-36bps
MEDIAN - Monetary Tightening			-2.2%	7.8%	-3%	-27%	-31%	-17%	1.4	4.3%	1.0%	-270bps	140bps	-40bps	3.7%	2.9%	-88bps	3bps	-24bps
MEDIAN - Fiscal Tightening			-12.7%	6.1%	-5%	-35%	n/a	-20%	1.7	5.1%	1.7%	-130bps	150bps	0bps	4.8%	4.5%	-23bps	3bps	-88bps
MEDIAN - Energy Price Shock			-2.2%	7.8%	-1%	-20%	n/a	-12%	1.8	8.3%	8.3%	-50bps	460bps	-230bps	4.9%	4.9%	0bps	144bps	-37bps
MEDIAN - Pandemic			-11.5%	11.1%	-9%	-27%	-16%	-21%	1.0	3.1%	1.6%	-150bps	130bps	30bps	1.8%	0.9%	-92bps	6bps	221bps
Correlation* to Real GDP Contraction			1.00	(0.79)	0.23	0.56	0.06	(0.45)	0.49	0.44	0.64	0.40	(0.29)	(0.69)	0.31	0.36	0.06	0.11	(0.57)
r ²			1.00	0.63	0.06	0.31	0.00	0.20	0.24	0.19	0.41	0.16	0.08	0.48	0.10	0.13	0.00	0.01	0.33
Data Source: NBER, Bloomberg, Intellectual Property of 42 Macro LLC.																			

Data Source: NBER, Bloomberg. Intellectual Property of 42 Macro LLC.

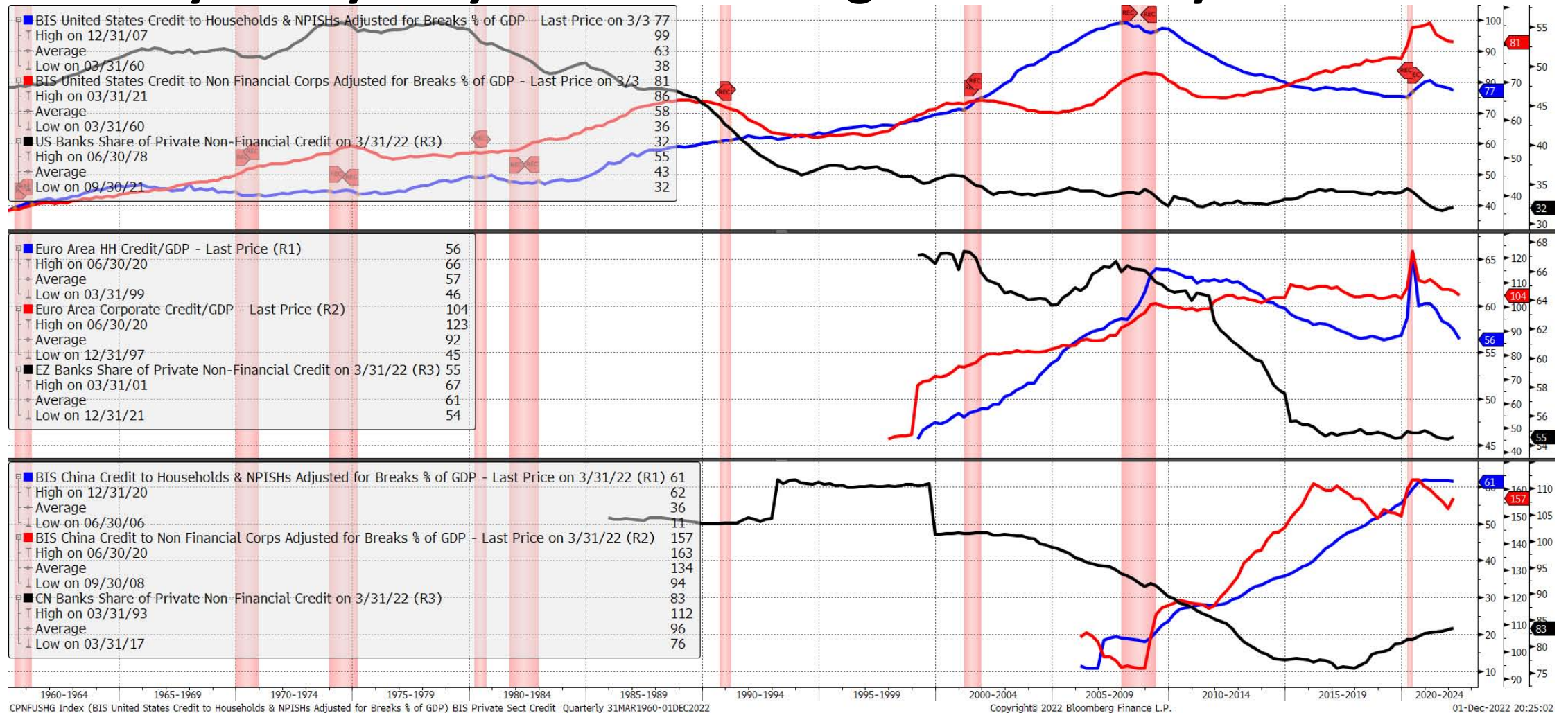
An #actualrecession May Not Be Imminent, But It Is Inevitable: Consumer Expectations



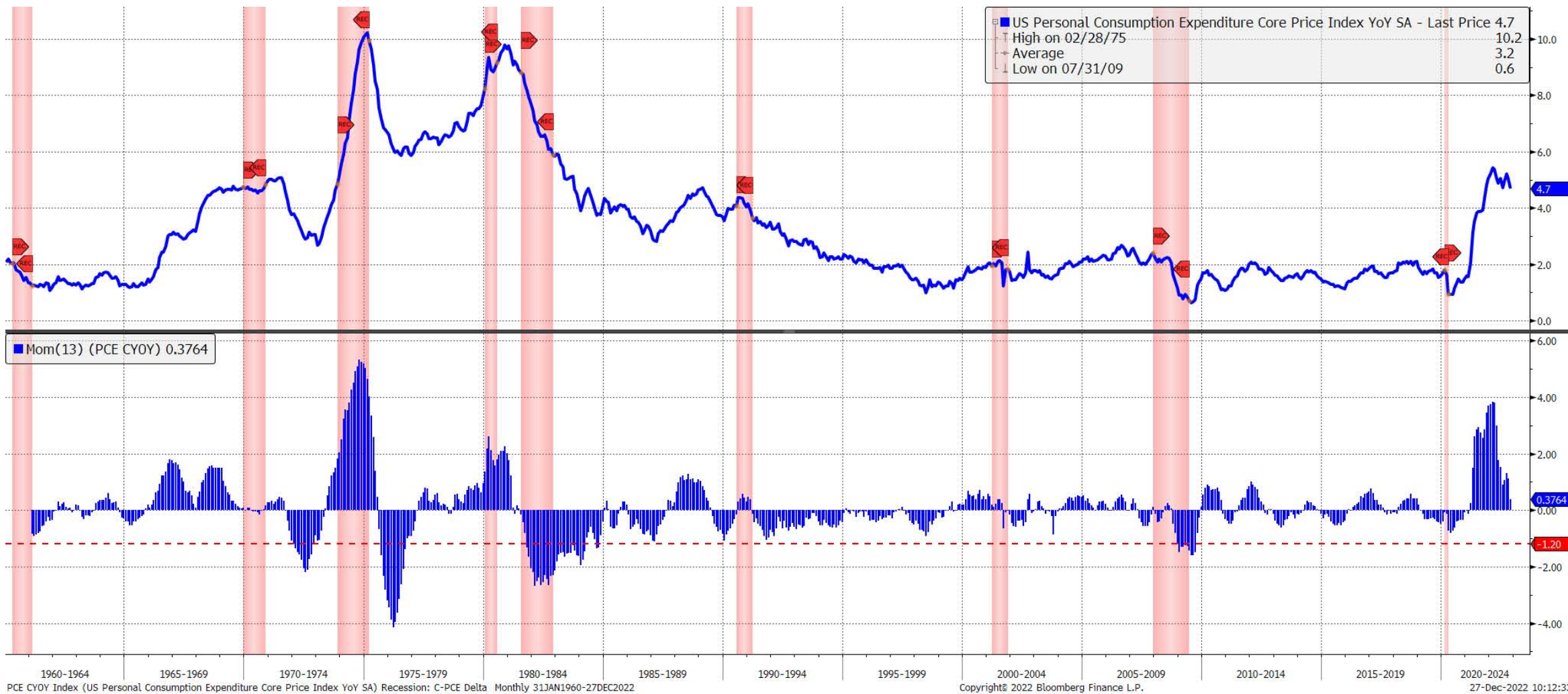
An #actualrecession May Not Be Imminent, But It Is Inevitable: Labor Market Conditions



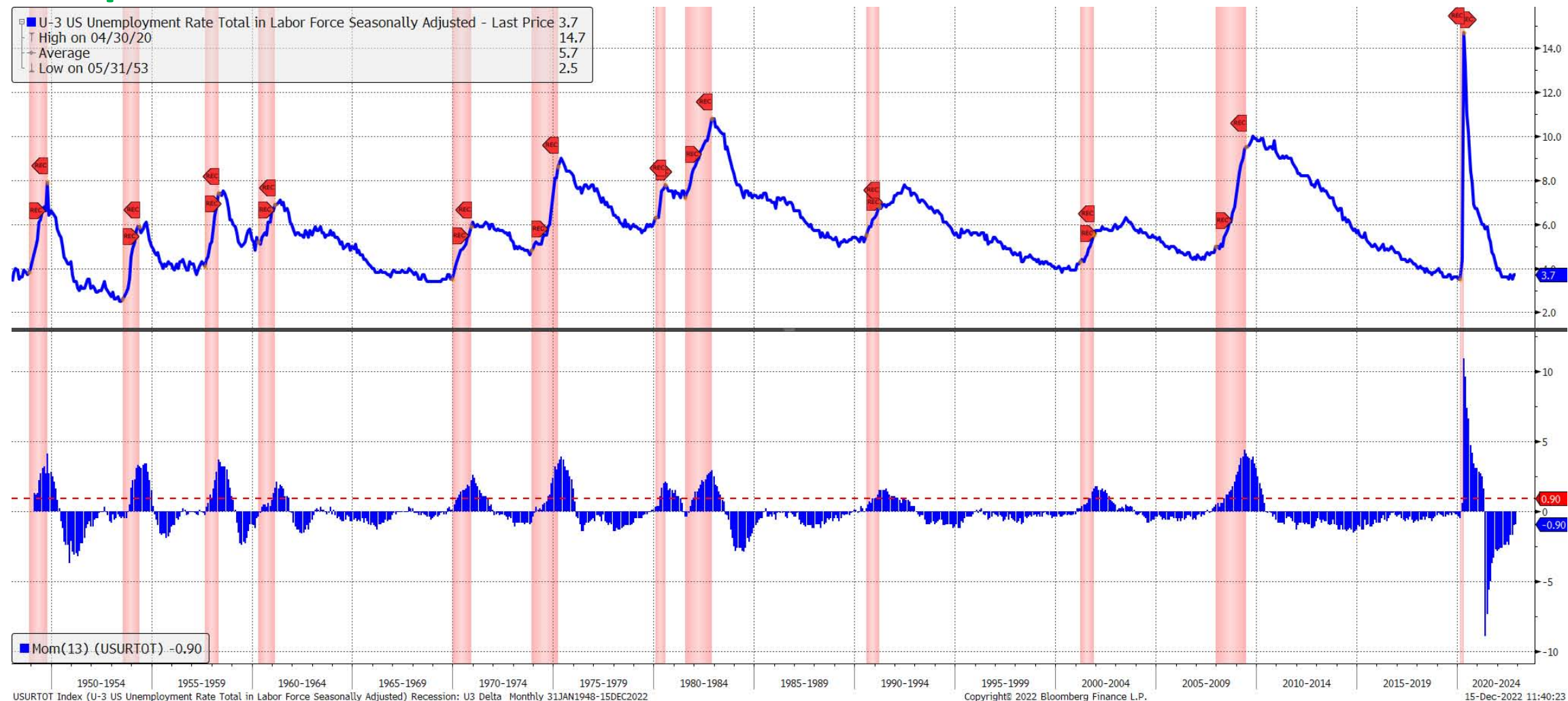
Per Powell's Own Words, The "Long And Variable Lags" Of Monetary Policy May Not Be As Long As Previously Estimated



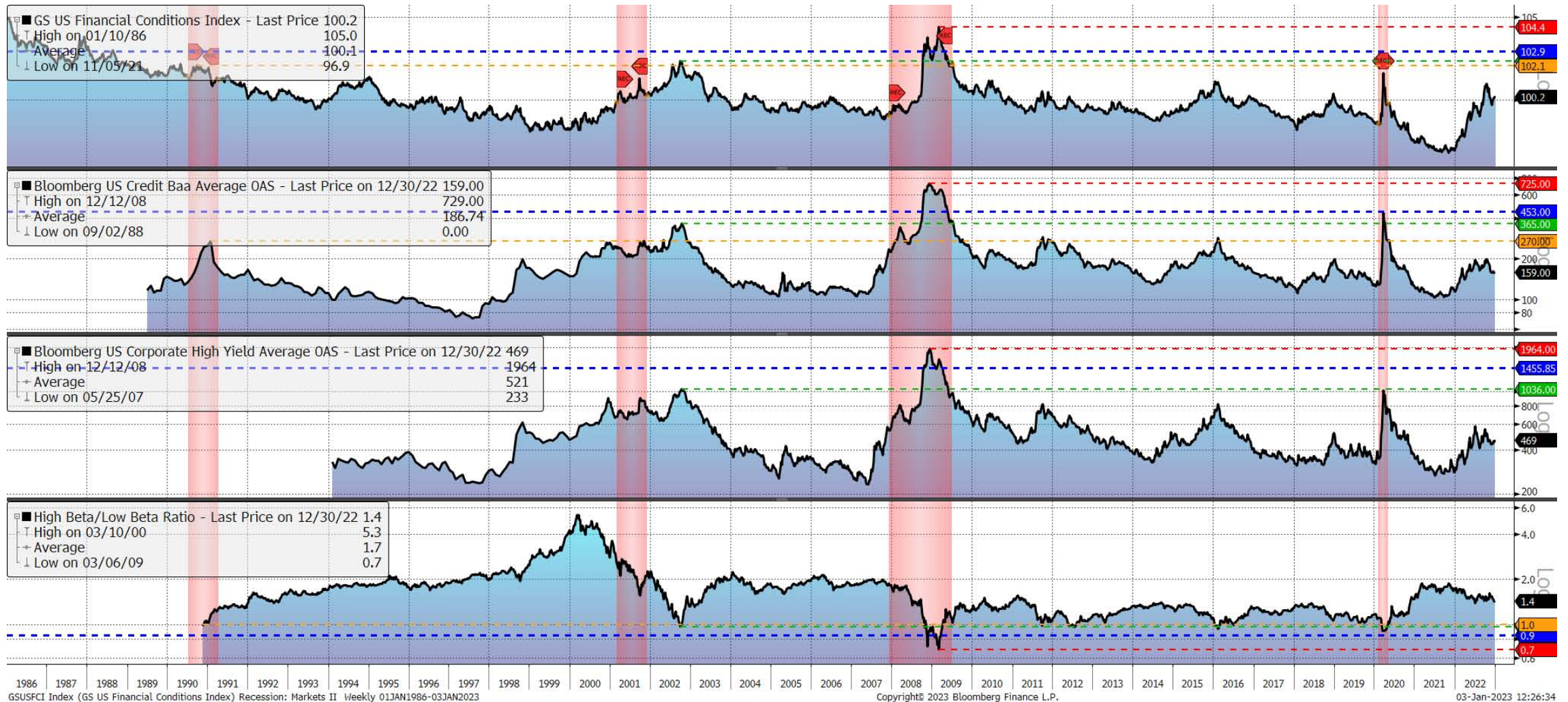
The Fed Sees Core PCE At 3.5% By Yearend 2023; Core PCE Has NEVER Declined **-120bps** Over A 13mo Timeframe Without An **#actualrecession**



The Fed Sees U3 At 4.6% By Yearend 2023; U3 Has NEVER Increased +90bps Over A 13mo Timeframe Without An #actualrecession



An #actualrecession Has NOT Been Adequately Priced In

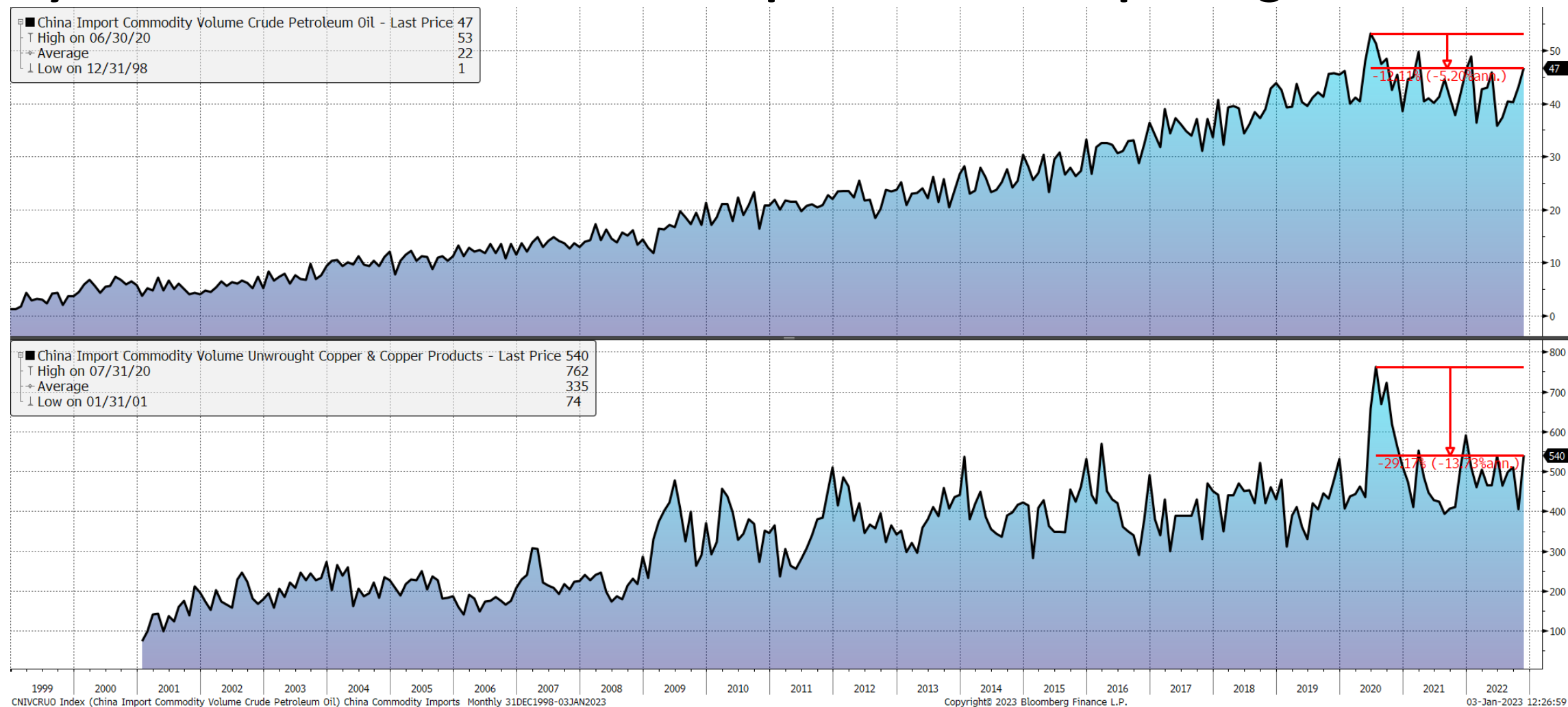


© 42 Macro LLC. Data Source: Bloomberg.

Green Line = 2001 recession peak/trough. Orange Line = 1990-91 recession peak/trough.

Red Line = GFC peak/trough. Blue Line = mean.

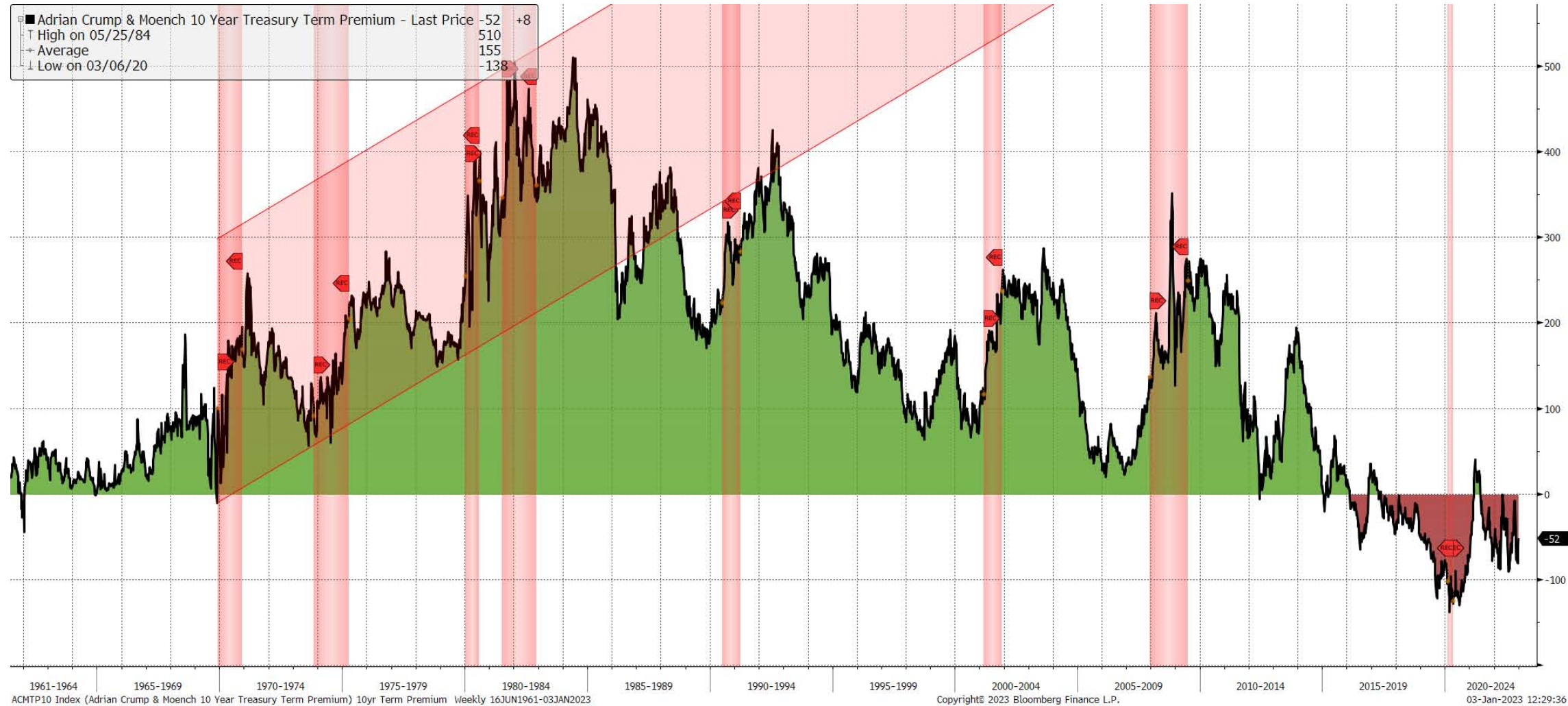
The Chinese Economy Is Operating Well Shy Of Its Normal Demand For Physical Commodities... Can It Reopen Without Exporting Inflation?



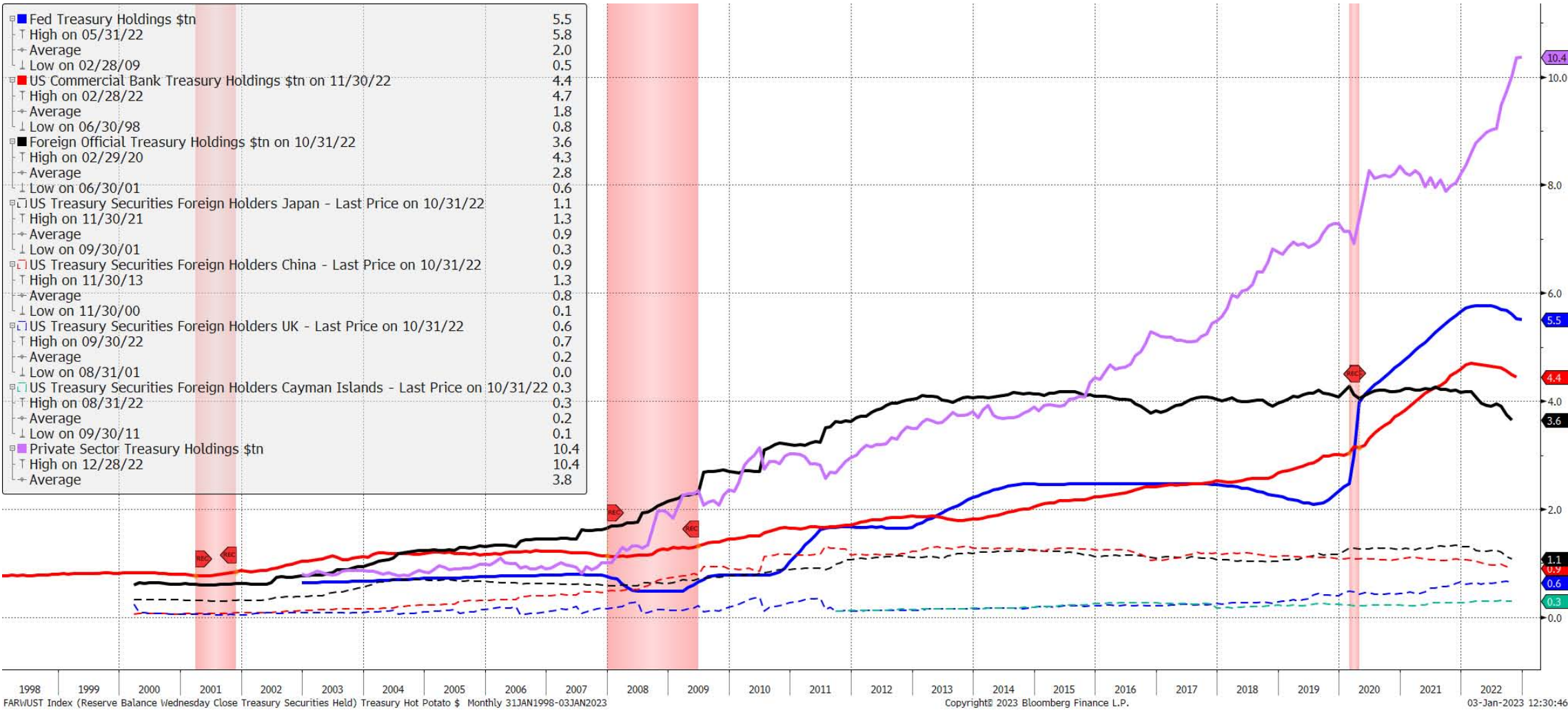
42 Macro Secular Inflation Model: Our #Math Suggests Core PCE Is Likely To Trend 70-130bps Higher Throughout This Decade; Will The Fed Accept 3%?

US SECULAR INFLATION MODEL FEATURES	Δ-ADJUSTED Z-SCORE (Latest Value vs. 2010-19 Sample)
Automation: Capex/Employee Compensation (Latest Value = 27%)	(0.1)
Commodities: CRB Index (Latest Value = 564)	2.8
Demographics: Share of Population ≥ 65 Years Old (Latest Value = 17%)	2.2
Fed Reaction Function: Fed Balance Sheet as a % of GDP (Latest Value = 34%)	4.0
Globalization: Imports of Goods and Services as a % of GDP (Latest Value = 13%)	2.6
Household Formation: Net Change in Domestic Households (Latest Value = 1066)	0.1
Income Inequality: Gini Coefficient (Latest Value = 0.49)	(3.3)
Money Supply: M2 YoY (Latest Value = 1.3%)	(2.5)
Money Velocity: M2/Nominal GDP (Latest Value = 1.2)	(3.4)
Monopsony Power: S&P 100 Market Cap/S&P 500 Market Cap (Latest Value = 65%)	(2.8)
Populism: 25-54 Employment-to-Population Ratio (Latest Value = 78%)	(0.2)
Public Debt: Federal Debt Held by the Public as a % of GDP (Latest Value = 104%)	5.5
Technology: NASDAQ 100 Market Cap/Russell 3000 Market Cap (Latest Value = 34%)	(2.8)
Wages: Employment Cost Index YoY (Latest Value = 5%)	7.8
Wealth Effect: Household Net Worth as a % of DPI (Latest Value = 778%)	2.6
Wealth Inequality: Top-10% Share of Household Wealth (Latest Value = 52%)	(0.2)
MEAN Z-SCORE MODEL	0.8
WEIGHTED Z-SCORE MODEL	2.6
2010-19 Trend of Core PCE YoY	1.6%
2020-29 Trend Projection - MEAN Z-SCORE MODEL	2.3%
2020-29 Trend Projection - WEIGHTED Z-SCORE MODEL	2.9%
2020-to-date Trend of Core PCE YoY	3.2%

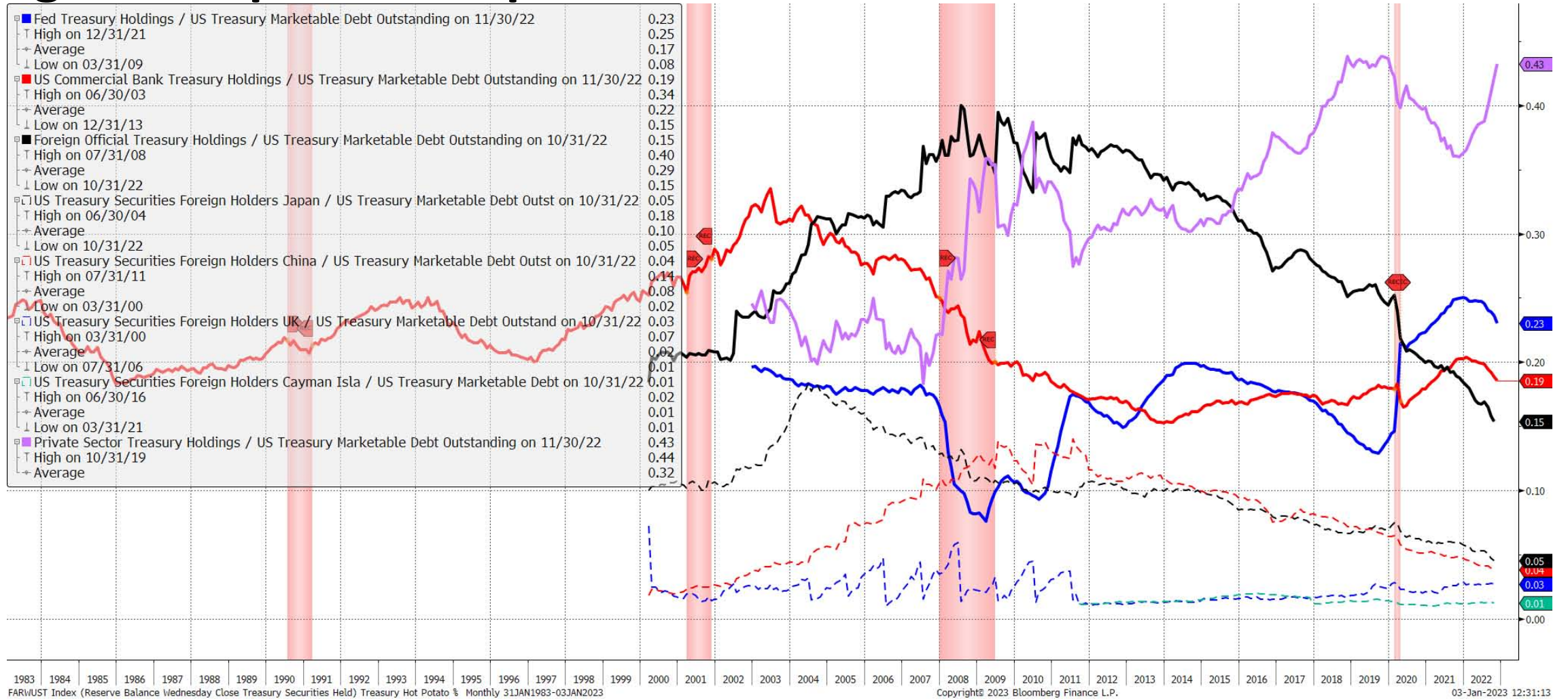
Treasurys Are Grossly Mispriced In A World Where 3-5% Inflation Is The Norm



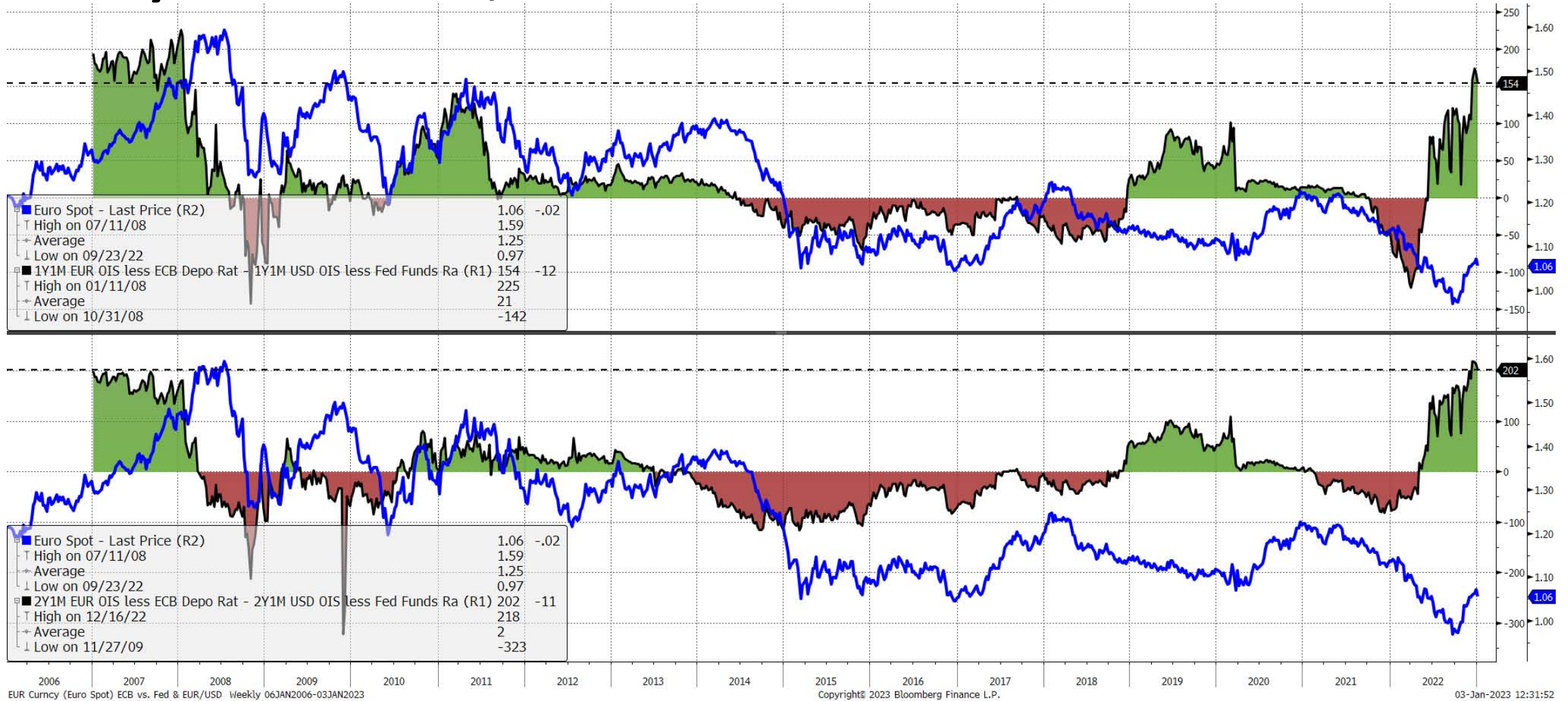
The US Treasury Cannot Afford For The Fed To Lose This Battle With Inflation



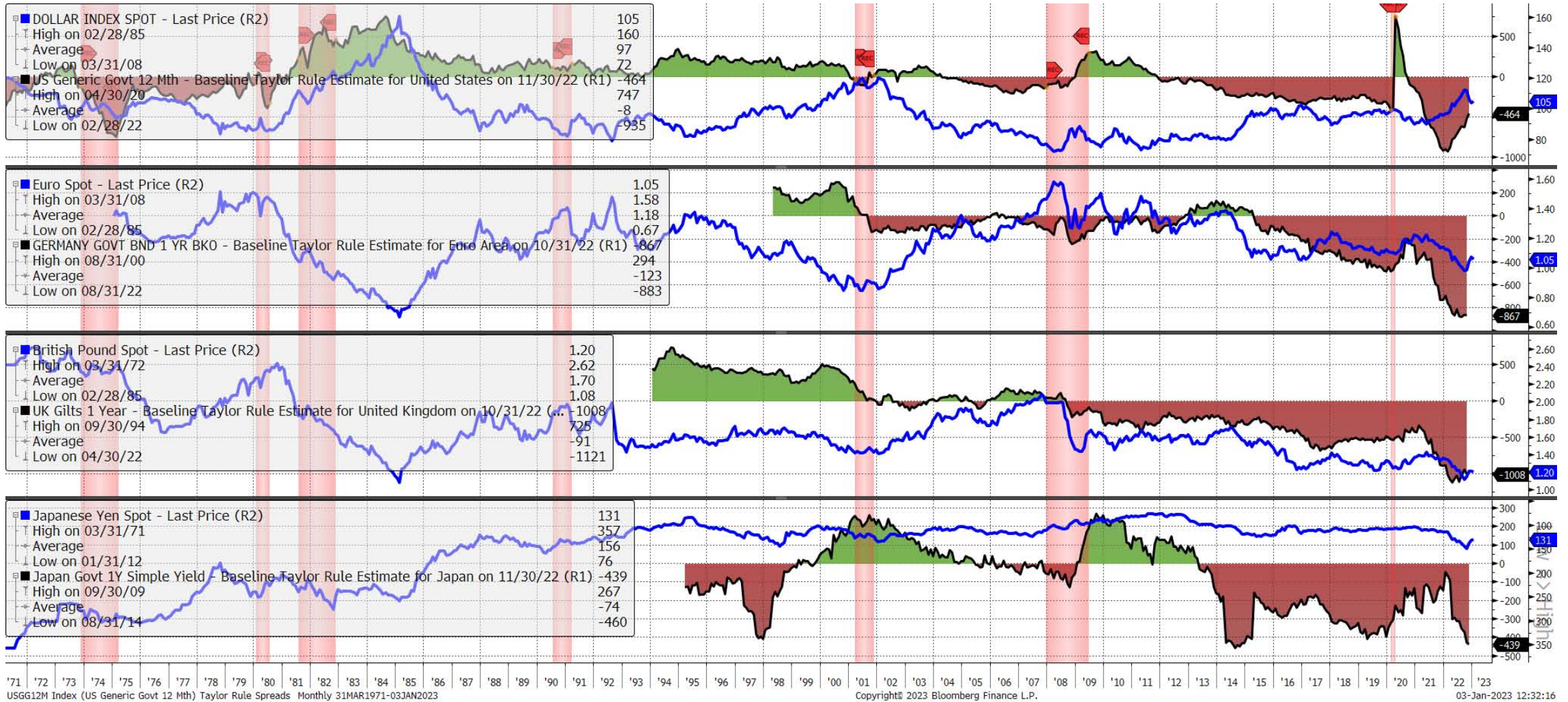
... Because Private Sector Creditors Will Demand Structurally Higher Coupons To Capitalize The US Government



We Believe Historic Relative Tight Policy Expectations Are A Liability For The Euro, Rather Than An Asset



Taylor Rule Spreads Suggest The Dollar Is Still King For Now



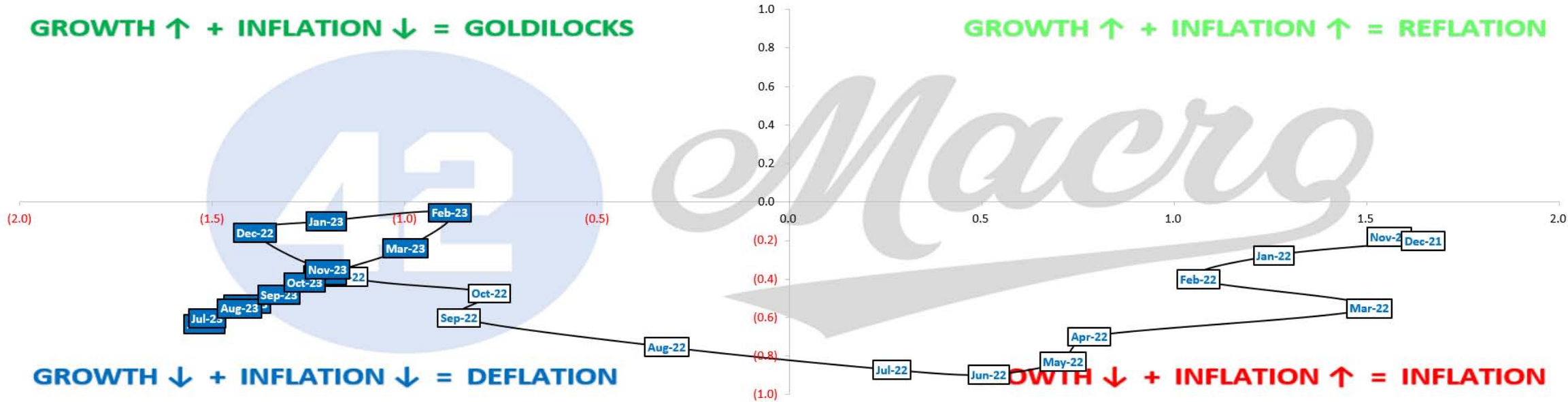
Blocking And Tackling



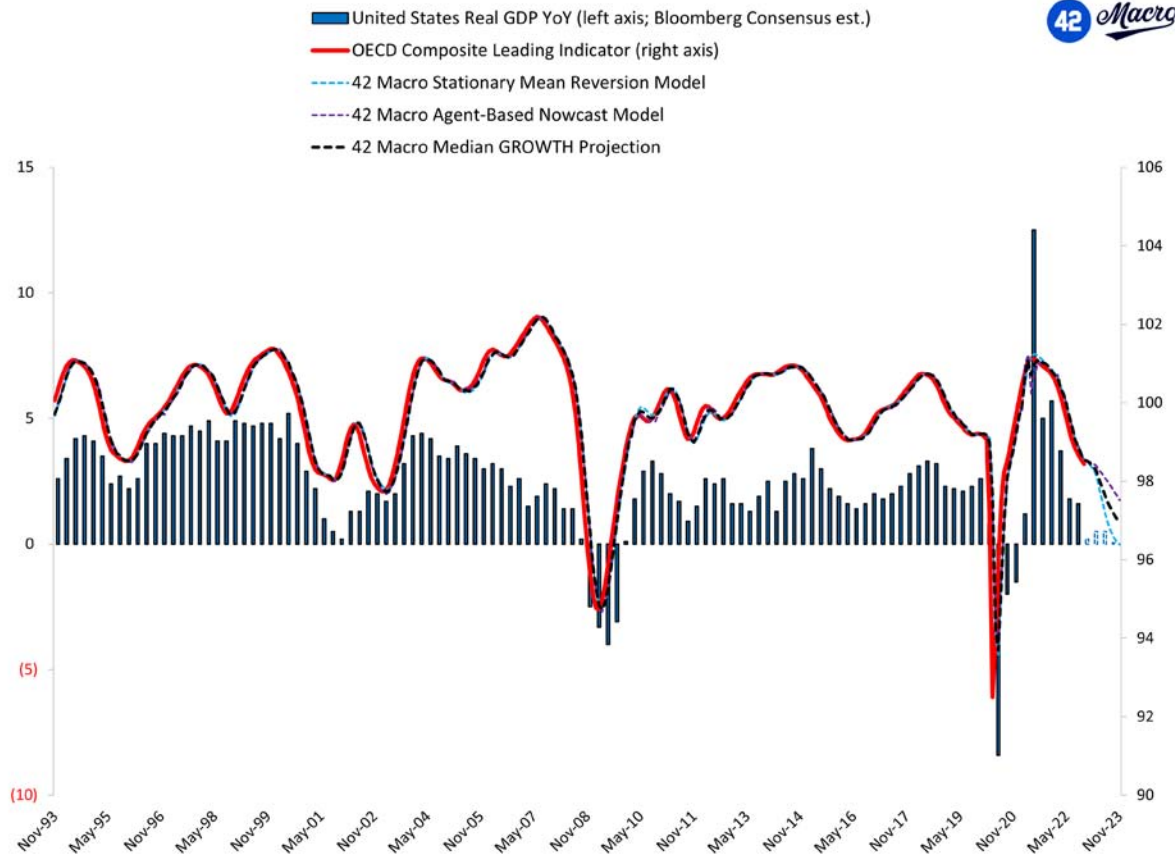
We Use The 42 Macro GRID Model To Forecast Inflections In The Liquidity Cycle And Dispersion Within And Across Asset Markets

United States		Actuals																Projections														
42 Macro GRID Framework		May-21	Jun-21	Jul-21	Aug-21	Sep-21	Oct-21	Nov-21	Dec-21	Jan-22	Feb-22	Mar-22	Apr-22	May-22	Jun-22	Jul-22	Aug-22	Sep-22	Oct-22	Nov-22	Dec-22	Jan-23	Feb-23	Mar-23	Apr-23	May-23	Jun-23	Jul-23	Aug-23	Sep-23	Oct-23	Nov-23
Macro Regime		R	R	R	D												D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	
Conditional Probability of GOLDSLOCKS		2%	2%	3%	14%	24%	13%	2%	1%	4%	3%	1%	2%	4%	3%	2%	6%	12%	14%	21%	34%	37%	39%	26%	15%	10%	8%	9%	9%	11%	13%	16%
Conditional Probability of REFLATION		70%	66%	50%	32%	14%	30%	40%	36%	29%	32%	14%	12%	6%	5%	6%	3%	1%	3%	3%	1%	2%	4%	2%	1%	0%	0%	0%	0%	1%	1%	1%
Conditional Probability of INFLATION		27%	31%	45%	37%	23%	40%	54%	61%	59%	59%	79%	76%	57%	56%	68%	30%	7%	15%	10%	2%	3%	6%	6%	4%	4%	3%	3%	4%	4%	5%	
Conditional Probability of DEFLATION		1%	1%	2%	16%	40%	17%	3%	2%	8%	6%	6%	10%	33%	36%	24%	61%	80%	67%	66%	63%	58%	51%	66%	80%	86%	88%	88%	87%	84%	82%	77%
OECD Composite Leading Indicator		101.1	101.1	101.1	101.0	100.9	100.9	100.8	100.7	100.6	100.4	100.2	99.9	99.6	99.3	99.0	98.8	98.7	98.6	98.4	98.5	98.4	98.4	98.3	98.1	97.9	97.6	97.5	97.3	97.2	97.0	97.0
3mo Δ		0.7	0.3	0.0	-0.1	-0.2	-0.2	-0.2	-0.2	-0.3	-0.4	-0.6	-0.7	-0.8	-0.9	-0.9	-0.8	-0.6	-0.5	-0.4	-0.2	-0.1	-0.1	-0.2	-0.4	-0.5	-0.6	-0.6	-0.6	-0.5	-0.4	-0.4
Z-Score (t3yrs)		0.3	0.2	0.0	-0.1	-0.1	-0.1	-0.1	-0.1	-0.2	-0.2	-0.3	-0.4	-0.4	-0.4	-0.5	-0.8	-0.5	-0.2	0.4	0.6	0.7	0.2	-0.2	-0.6	-0.8	-0.7	-0.6	-0.4	-0.2	0.0	
Headline CPI YoY		5.0	5.4	5.4	5.3	5.4	6.2	6.8	7.0	7.5	7.9	8.5	8.3	8.6	9.1	8.5	8.3	8.2	7.7	7.1	6.8	6.5	6.2	5.8	5.3	4.8	4.3	3.8	3.4	3.0	2.6	2.2
3mo Δ		3.3	2.8	1.2	0.3	0.0	0.9	1.6	1.6	1.3	1.1	1.5	0.8	0.7	0.5	0.3	-0.3	-0.9	-0.8	-1.2	-1.4	-1.2	-0.9	-1.0	-1.2	-1.4	-1.5	-1.5	-1.4	-1.3	-1.3	-1.2
Z-Score (t3yrs)		3.1	2.3	0.9	0.0	-0.2	0.5	1.1	1.1	0.7	0.5	0.9	0.2	0.1	0.0	-0.3	-0.8	-1.2	-1.1	-1.4	-1.5	-1.2	-1.0	-1.0	-1.3	-1.5	-1.5	-1.4	-1.3	-1.1	-1.0	-1.0

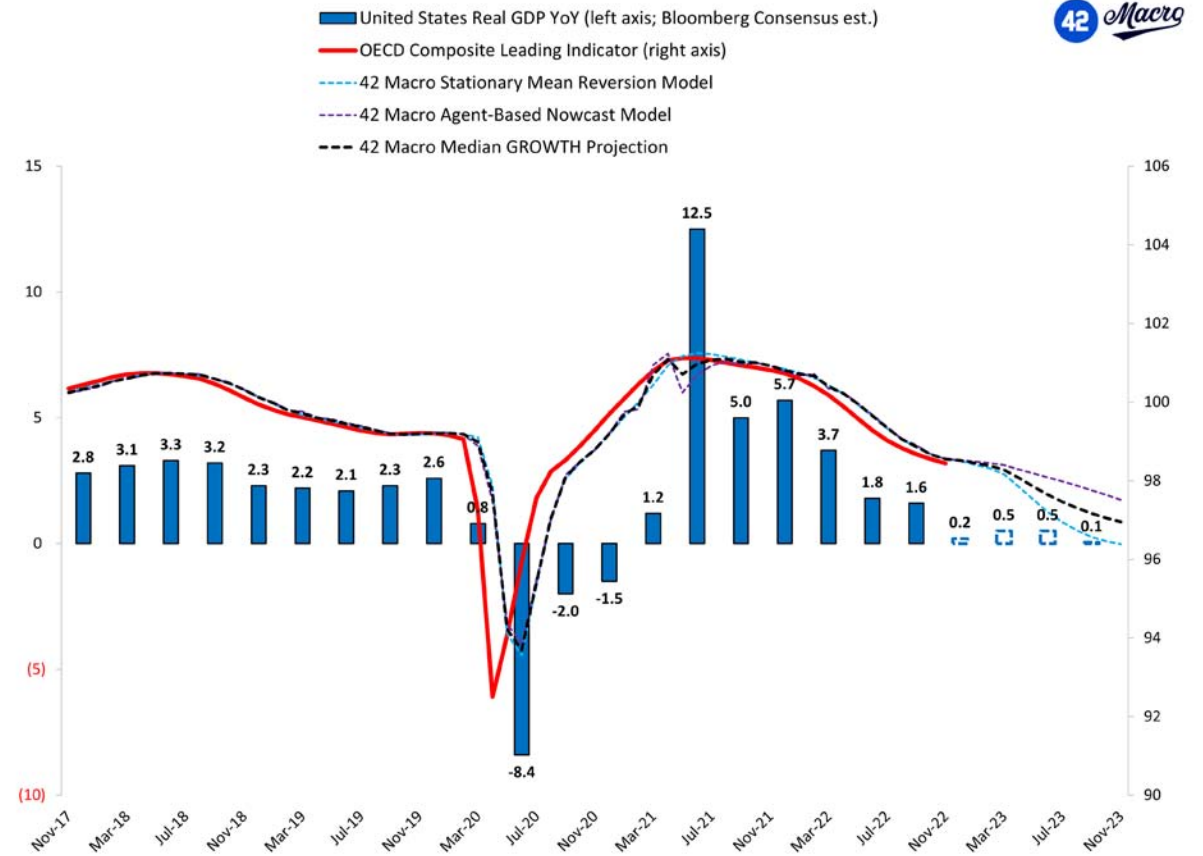
→ x-axis: 3mo Δ of Headline CPI YoY; y-axis: 3mo Δ of OECD Composite Leading Indicator



US GROWTH: Secular View



US GROWTH: Cyclical View

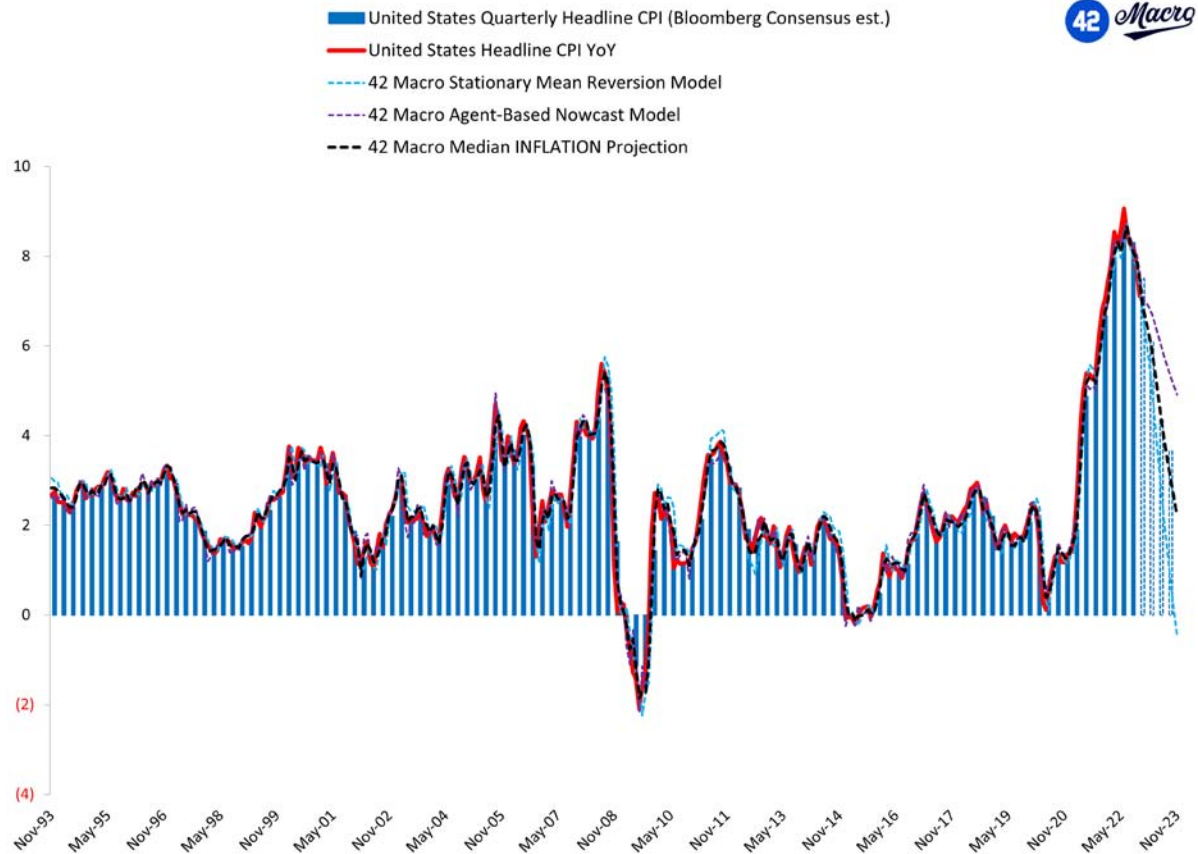


US GROWTH Agent-Based Nowcast Model

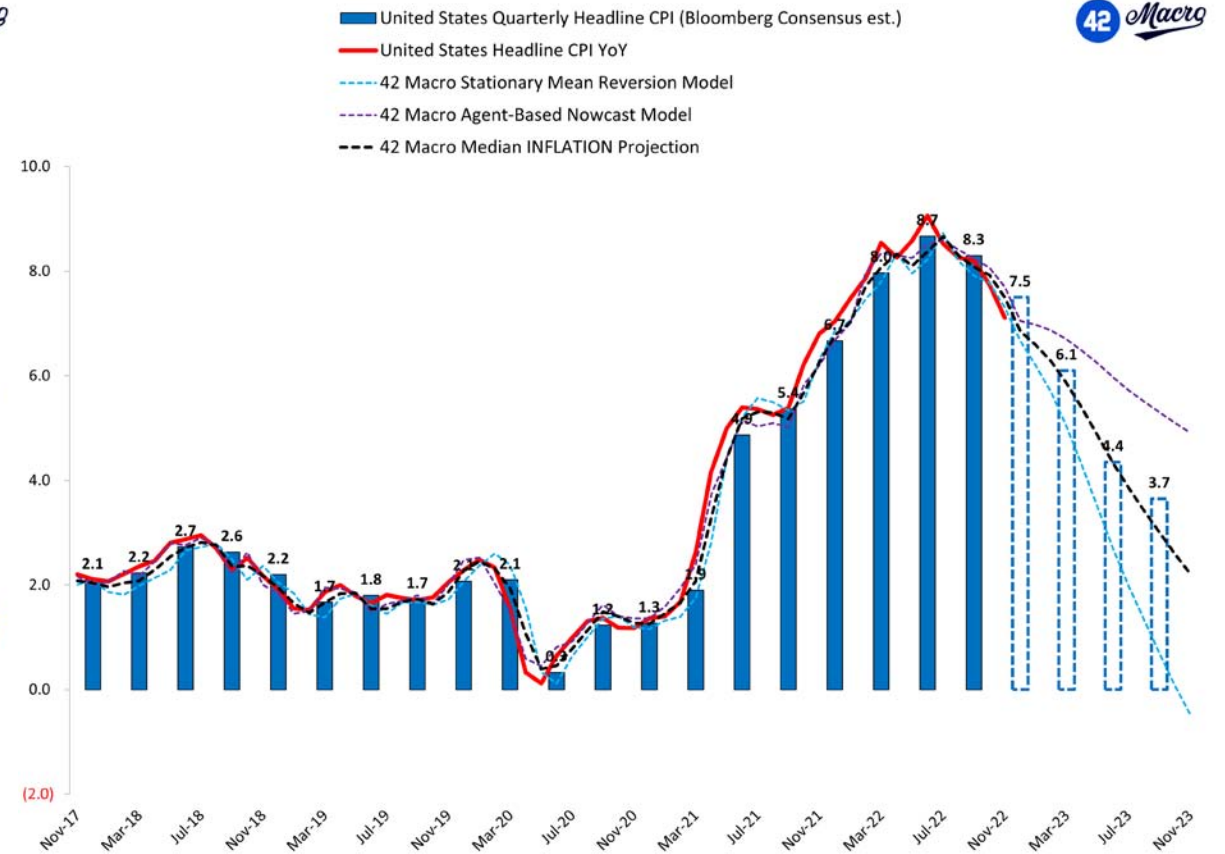
		42 Macro Agent-Based Nowcast GROWTH Model Features																													
United States	h-20	Jul-20	Aug-20	Sep-20	Oct-20	Nov-20	Dec-20	Jan-21	Feb-21	Mar-21	Apr-21	May-21	Jun-21	Jul-21	Aug-21	Sep-21	Oct-21	Nov-21	Dec-21	Jan-22	Feb-22	Mar-22	Apr-22	May-22	Jun-22	Jul-22	Aug-22	Sep-22	Oct-22	Nov-22	Dec-22
USA OECD Leading Indicators CLI Amplitude Adjusted SA	95.9	97.6	98.2	98.5	98.9	99.3	99.7	100.1	100.5	100.8	101.1	101.1	101.1	101.1	101.0	100.9	100.9	100.8	100.7	100.6	100.4	100.2	99.9	99.6	99.3	99.0	98.8	98.7	98.6	98.4	
US Industrial Production YOY SA (6%)	-10.6	-6.8	-6.6	-6.3	-4.9	-4.9	-3.6	-2.0	-5.4	1.0	16.6	15.6	9.2	5.9	4.9	3.9	4.7	5.0	3.7	2.9	6.9	4.8	5.3	4.4	3.8	3.6	3.6	5.0	3.3	2.5	
US Trade Balance of Exports YOY SA (4%)	-24.5	-19.0	-16.9	-14.1	-12.3	-10.9	-8.3	-4.7	-6.9	9.8	37.7	43.8	32.6	24.4	22.4	16.7	21.9	21.1	19.8	15.3	20.3	17.8	21.6	21.8	22.7	21.8	21.2	22.2	13.6		
Retail Sales Less Food Services Auto Dealers & Building Mat& Gas Station SA YoY (4%)	8.1	9.9	9.5	12.0	11.1	10.4	8.0	14.5	11.3	17.6	33.2	19.4	14.8	9.4	12.1	10.7	12.6	13.8	12.5	9.9	12.2	3.7	5.6	7.0	6.1	8.7	7.2	7.0	6.2	5.5	
ISM Manufacturing PMI SA (7%)	52.4	53.9	55.4	55.4	58.8	57.3	60.5	59.4	60.9	63.7	60.6	61.6	60.9	59.9	59.7	60.5	60.8	60.6	58.8	57.6	58.6	57.1	55.4	56.1	53.0	52.8	52.8	50.9	50.2	49.0	
ISM Services PMI (7%)	56.8	57.0	57.4	57.7	56.1	56.5	57.8	58.5	55.9	62.2	62.7	63.2	60.7	64.1	62.2	62.6	66.7	68.4	62.3	59.9	56.5	58.3	57.1	55.9	55.3	56.7	56.9	56.7	54.4	56.5	
USA Business Tendency Manufacturing Confidence Composite OECD Normalisd SA (3%)	-0.4	0.6	1.4	1.9	2.3	2.4	2.5	2.4	2.8	3.5	3.8	3.4	2.4	1.5	1.1	0.9	0.6	0.4	0.0	-0.4	-0.8	-1.1	-1.3	-1.3	-1.5	-1.6	-1.8	-2.1	-2.3	-2.4	
USA Consumer Opinion Confidence Composite OECD Normalised SA (3%)	-2.9	-2.6	-2.1	-1.8	-1.9	-2.2	-2.4	-2.4	-1.8	-0.5	0.9	1.3	1.2	0.7	-0.1	-0.8	-1.1	-1.2	-1.3	-1.6	-2.0	-2.6	-3.0	-3.4	-3.6	-3.2	-2.3	-1.8	-1.5	-1.4	
US Employees on Nonfarm Payrolls Total SA (6%)	-8.7	-7.9	-6.9	-6.4	-6.0	-5.9	-6.1	-6.0	-5.8	-4.4	10.9	9.0	5.8	5.3	4.4	4.0	4.0	4.2	4.7	4.7	4.7	4.4	4.5	4.5	4.3	4.1	4.0	3.9	3.6	3.3	
US Employees on Nonfarm Payrolls Total Private SA (6%)	-9.4	-8.4	-7.6	-6.9	-6.3	-6.2	-6.4	-6.3	-5.9	-4.4	13.1	10.2	6.4	5.8	5.1	4.6	4.5	4.7	5.2	5.2	5.2	5.0	5.1	5.0	4.9	4.7	4.5	4.3	4.0	3.6	
US Avg Weekly Hours Nonfarm Total Private Production and Nonsupervisory SA (0%)	1.2	1.2	1.8	1.8	2.1	2.4	2.1	2.4	1.2	3.0	2.7	0.6	0.9	0.9	0.0	0.3	-0.3	-0.3	-0.3	-1.2	0.3	-0.9	-0.9	-0.9	-0.9	-0.9	-0.9	-0.9	-0.6	-0.9	
Average Weekly Earnings Total (1%)	4.8	6.1	8.1	4.2	6.7	8.3	6.2	8.2	4.9	6.5	4.2	5.1	5.1	6.1	5.2	6.3	6.1	4.9	5.9	6.3	7.3	5.7	5.0	5.4	5.5	5.4	3.7	5.7	6.6	4.7	
US Job Openings By Industry Total SA (2%)	-15.5	-6.5	-11.6	-8.5	-7.3	-0.8	2.9	1.0	12.2	43.3	96.8	77.2	63.1	62.9	68.3	64.4	61.4	59.6	65.0	56.0	44.3	39.8	26.1	17.3	12.1	3.6	-3.3	0.1	-6.9		
Bureau of Labor Statistics Employment Diffusion Nonfarm Payrolls +1 Month SA (3%)	74.0	62.5	70.3	75.2	70.3	66.0	63.9	57.6	65.0	76.8	65.2	64.5	66.6	71.1	67.6	67.8	73.0	74.8	73.0	62.9	79.9	74.2	72.1	67.6	71.1	70.7	59.8	64.6	63.9	63.5	
US Personal Consumption Expenditures Chained 2012 Dollars SAAR (5%)	-3.7	-2.4	-2.1	-0.8	-0.6	-1.4	-2.0	-0.1	-1.3	10.4	25.5	15.4	9.8	7.9	7.6	6.6	7.1	7.4	7.0	5.6	6.7	2.3	2.4	2.6	2.1	2.2	2.3	2.1	1.9	2.0	
Real Personal Consumption Expenditures of Goods (3%)	7.3	9.1	8.2	10.5	10.2	8.7	6.9	12.8	9.9	22.0	38.1	17.9	11.1	6.7	7.4	5.8	7.3	7.8	6.3	3.9	5.0	-4.6	-3.0	-1.8	-1.6	-0.3	0.0	-0.2	-0.5	-0.7	
US Personal Consumption Expenditures Services Chained 2012 Dollars SAAR (5%)	-8.6	-7.5	-6.6	-5.8	-5.4	-5.9	-6.1	-5.8	-6.2	4.8	19.5	14.1	9.1	8.5	7.8	7.0	6.9	7.3	7.4	6.4	7.6	6.1	5.3	5.0	4.1	3.5	3.5	3.4	3.2	3.5	
US Disposable Personal Income Chained 2012 Dollars SA (1%)	9.6	10.1	5.2	5.3	4.7	2.9	3.5	12.9	2.8	28.0	-5.7	-3.9	-3.5	-3.4	0.4	-1.4	-0.9	0.1	-0.3	-11.5	-3.4	-21.6	-7.4	-4.8	-4.7	-4.9	-4.7	-3.3	-3.0	-2.5	
Adjusted Retail & Food Services Sales Total SA (3%)	2.2	3.4	3.6	6.6	5.9	4.2	3.2	9.3	6.9	30.3	53.7	29.0	19.8	15.5	15.7	14.4	16.4	19.1	16.8	13.7	17.7	7.1	7.8	8.7	8.8	10.0	9.7	8.4	8.3	6.5	
MBA US Purchase Index SA (1%)	14.6	18.9	27.6	21.6	21.8	27.3	24.7	17.9	1.5	40.4	32.0	-11.7	-17.3	-17.7	-16.3	-12.6	-10.0	-9.4	-13.0	-6.7	-8.7	-10.2	-11.0	-14.3	-4.7	-15.8	-23.1	-37.9	-40.8	-41.7	-34.2
US Auto Sales Total Annualized SAAR (1%)	-24.6	-13.7	-10.5	-4.9	-2.1	-9.0	-2.6	-1.2	-6.9	56.1	115.7	39.1	17.7	1.6	-14.0	-25.5	-19.9	-17.3	-23.5	-9.6	-10.2	-24.9	-22.8	-25.4	-15.4	-9.5	0.9	10.8	14.7	10.0	
US Capacity Utilization % of Total Capacity SA (5%)	-11.1	-7.2	-6.7	-6.2	-4.5	-4.2	-2.6	-0.8	-4.0	2.7	18.7	17.8	11.3	7.9	6.8	5.6	6.1	6.1	4.5	3.4	7.1	4.6	4.8	3.6	2.7	2.3	2.1	3.4	1.7	0.9	
US Manufacturers New Orders Total SA (5%)	-10.9	-7.1	-5.7	-3.9	-2.7	-0.2	0.6	1.5	1.1	12.9	31.2	26.3	18.9	13.0	13.0	11.4	12.2	13.2	11.9	11.7	12.1	12.9	14.4	14.2	14.0	12.4	11.4	12.0	11.1		
Capital Goods New Orders Nondefense Excluding Aircraft SA (4%)	-11.6	-8.8	-7.8	-4.7	-3.7	-1.3	1.6	3.9	5.4	8.5	22.3	18.5	16.4	14.3	14.6	11.5	12.5	13.0	11.3	11.5	11.6	10.6	7.6	9.9	8.9	8.8	8.4	8.0	6.2	5.7	
US Durable Goods New Orders Industries SA (4%)	-9.5	-3.2	-1.5	1.6	3.0	7.4	7.5	5.2	2.6	20.6	48.7	34.7	23.7	13.2	13.3	9.4	9.0	11.2	10.8	11.4	10.5	9.5	12.2	10.8	11.3	10.7	9.3	11.2	10.3	6.5	
US Trade Balance of Imports SA (4%)	-19.9	-11.4	-8.9	-6.1	-2.3	1.3	0.4	3.8	4.3	17.8	34.7	38.0	35.6	22.7	21.0	20.6	18.8	20.8	21.3	20.8	23.9	27.5	24.2	23.4	20.3	17.0	14.0	14.7	13.9		
Association of American Railroads Total Traffic US Freight Carloads (2%)	-13.8	-8.7	-6.2	-2.1	1.4	3.6	8.4	2.2	1.8	16.1	30.7	34.1	12.4	3.0	-0.7	-1.3	-2.0	-4.8	-2.4	-5.6	-0.3	-3.2	-6.3	-2.9	-4.4	0.6	1.4	-3.1	0.8	-4.1	1.2
Census Bureau US Construction Spending Total SA (2%)	5.5	4.4	4.3	4.9	6.2	5.7	7.0	6.3	4.5	6.1	9.7	10.9	11.3	11.0	10.4	8.5	7.8	7.9	7.3	9.0	11.7	10.5	10.7	10.6	10.8	11.0	9.5	10.2	9.2		

Data Source: Bloomberg, Intellectual Property of 42 Macro LLC. Nowcast feature weights are dynamically retrained monthly according to the relative strength of the first difference regressions between the independent and the dependent variables.

US INFLATION: Secular View



US INFLATION: Cyclical View



US INFLATION Agent-Based Nowcast Model

42 Macro Agent-Based INFLATION Nowcast Model Features																																
United States	n-20	Jul-20	Aug-20	Sep-20	Oct-20	Nov-20	Dec-20	Jan-21	Feb-21	Mar-21	Apr-21	May-21	Jun-21	Jul-21	Aug-21	Sep-21	Oct-21	Nov-21	Dec-21	Jan-22	Feb-22	Mar-22	Apr-22	May-22	Jun-22	Jul-22	Aug-22	Sep-22	Oct-22	Nov-22	Dec-22	
US CPI Urban Consumers NSA YoY	0.6	1.0	1.3	1.4	1.2	1.2	1.4	1.4	1.7	2.6	4.2	5.0	5.4	5.4	5.3	5.4	6.2	6.8	7.0	7.5	7.9	8.5	8.3	8.6	9.1	8.5	8.3	8.2	7.7	7.1		
US CPI Urban Consumers Less Food & Energy YoY NSA (8%)	1.2	1.6	1.7	1.7	1.6	1.6	1.6	1.4	1.3	1.6	3.0	3.8	4.5	4.3	4.0	4.0	4.6	4.9	5.5	6.0	6.4	6.5	6.2	6.0	5.9	5.9	6.3	6.6	6.3	6.0		
US PPI Final Demand YoY NSA (7%)	-0.7	-0.3	-0.3	0.3	0.6	0.8	0.8	1.6	3.0	4.1	6.5	7.0	7.6	8.0	8.7	8.8	8.9	9.9	10.0	10.1	10.4	11.7	11.2	11.1	11.2	9.7	8.7	8.5	8.1	7.4		
Commodity Research Bureau BLS/US Spot All Commodities (3%)	-11.7	-6.3	2.0	4.7	5.2	10.9	10.5	13.4	23.1	36.9	50.6	49.4	54.4	48.8	41.8	36.4	39.5	31.7	30.3	27.2	25.3	25.2	20.9	14.8	7.3	3.6	4.5	1.0	-3.8	0.0	-4.1	
Commodity Research Bureau BLS/US Spot Foodstuff (3%)	-16.3	-11.6	2.4	5.2	2.6	10.6	7.0	9.5	23.4	39.6	66.0	57.3	68.3	58.6	48.5	38.4	41.1	31.1	35.5	36.8	37.4	32.1	26.1	22.4	16.9	13.1	16.2	16.3	15.9	18.7	8.7	
Commodity Research Bureau BLS/US Spot Raw Industrials (1%)	-8.2	-2.5	1.6	4.4	7.0	11.1	13.0	16.2	22.9	35.0	40.8	44.2	45.5	42.5	37.3	35.0	38.3	32.1	26.8	20.9	17.5	20.7	17.4	9.7	1.1	-2.5	-2.8	-8.4	-15.4	-11.2	-12.0	
US CPI Urban Consumers Food NSA (2%)	4.5	4.1	4.1	3.9	3.9	3.7	3.9	3.8	3.6	3.5	2.4	2.2	2.4	3.4	3.7	4.6	5.3	6.1	6.3	7.0	7.9	8.8	9.4	10.1	10.4	10.9	11.4	11.2	10.9	10.6		
US CPI Urban Consumers Energy NSA (9%)	-12.6	-11.2	-9.0	-7.7	-9.2	-9.4	-7.0	-3.6	2.4	13.2	25.1	28.5	24.5	23.8	25.0	24.8	30.0	33.3	29.3	27.0	25.6	32.0	30.3	34.6	41.6	32.9	23.8	19.8	17.6	13.1		
US CPI Urban Consumers Commodities Less Food & Energy NSA (4%)	-1.1	-0.5	0.4	1.0	1.2	1.4	1.7	1.7	1.3	1.7	4.4	6.5	8.7	8.5	7.7	7.3	8.4	9.4	10.7	11.7	12.3	11.7	9.7	8.5	7.2	7.0	7.1	6.6	5.1	3.7		
US CPI Household Furnishings & Supplies NSA (0%)	1.3	1.5	2.6	2.1	1.9	2.9	2.9	2.4	2.3	2.8	3.2	3.7	3.4	3.0	3.3	4.8	6.1	6.0	7.4	9.3	10.3	10.8	10.6	9.7	10.2	10.8	10.6	9.9	8.8	8.3		
US CPI Urban Consumers Apparel NSA (7%)	-7.3	-6.5	-5.9	-6.0	-5.5	-5.2	-3.9	-2.5	-3.6	-2.5	1.9	5.6	4.9	4.2	4.2	3.4	4.3	5.0	5.8	5.3	6.6	6.8	5.4	5.0	5.2	5.1	5.1	5.5	4.1	3.6		
US CPI Transportation Commodities Less Motor Fuel NSA (2%)	-1.1	0.1	2.0	4.5	5.3	5.1	5.0	4.6	4.2	4.5	9.2	13.3	20.3	19.8	17.2	14.9	16.5	19.2	21.8	23.4	23.9	21.8	17.2	14.1	9.5	8.8	9.1	8.4	5.5	2.4		
US CPI Urban Consumers Medical Care Commodities NSA (2%)	1.3	1.1	0.8	0.9	-0.8	-1.1	-2.5	-2.3	-2.5	-2.4	-1.7	-1.9	-2.2	-2.1	-2.5	-1.6	-0.4	0.2	0.4	1.4	2.5	2.7	2.1	2.4	3.2	3.7	4.1	3.7	3.1	3.1		
US CPI Recreation Commodities NSA (4%)	-2.1	-1.3	-0.4	-0.8	-1.3	-1.0	-0.2	-0.2	0.3	0.8	2.9	3.5	3.2	3.2	3.3	3.5	4.0	3.9	3.3	4.1	4.6	4.7	4.0	3.8	4.5	4.1	3.8	4.0	4.3	3.6		
US CPI Education & Communication Commodities NSA (0%)	-3.0	-4.3	-4.8	-6.0	-5.0	-4.3	-2.5	-1.9	-2.7	-4.9	-2.2	-1.4	-1.2	-0.2	-0.5	2.6	2.5	0.9	0.2	0.8	0.3	1.3	-4.0	-6.0	-5.7	-7.0	-7.3	-8.3	-9.1	-9.7		
US CPI Urban Consumers Alcoholic Beverages NSA (2%)	2.2	1.5	1.7	1.8	2.3	3.0	2.8	2.4	2.0	2.0	1.9	1.6	1.9	2.4	2.6	2.8	2.2	1.9	2.3	2.7	3.5	3.7	3.9	4.0	4.0	4.2	4.3	4.1	5.0	5.5		
US CPI Urban Consumers Services Less Energy Services NSA (8%)	1.9	2.3	2.2	1.9	1.7	1.7	1.6	1.3	1.3	1.6	2.5	2.9	3.1	2.9	2.7	2.9	3.2	3.4	3.7	4.1	4.4	4.7	4.9	5.2	5.5	5.5	6.1	6.7	6.7	6.8		
US CPI Urban Consumers Shelter NSA (5%)	2.4	2.3	2.3	2.0	2.0	1.9	1.8	1.6	1.5	1.7	2.1	2.2	2.6	2.8	2.8	3.2	3.5	3.8	4.1	4.4	4.7	5.0	5.1	5.5	5.6	5.7	6.2	6.6	6.9	7.1		
US CPI Urban Consumers Water and Sewer and Trash Collection Services NSA (0%)	2.9	3.0	3.4	3.4	3.3	3.3	3.6	3.6	3.6	3.5	3.6	3.4	3.6	3.7	3.5	3.7	3.7	3.5	3.5	4.0	4.2	4.0	4.2	4.4	4.4	4.4	4.6	4.9	4.8	5.0		
US CPI Urban Consumers Medical Care Services NSA (0%)	6.0	5.9	5.3	4.9	3.7	3.2	2.8	2.9	3.0	2.7	2.2	1.5	1.0	0.8	1.0	0.9	1.7	2.1	2.5	2.7	2.4	2.9	3.5	4.0	4.8	5.1	5.6	6.5	5.4	4.4		
US CPI Urban Consumers Transportation Services NSA (7%)	-7.0	-3.7	-4.0	-5.1	-5.1	-3.4	-3.5	-4.1	-4.4	-1.6	5.6	11.2	10.4	6.4	4.6	4.4	4.5	3.9	4.2	5.6	6.6	7.7	8.5	7.9	8.8	9.2	11.3	14.6	15.2	14.2		
US CPI Recreation Services NSA (0%)	3.4	2.1	2.2	2.7	2.6	2.6	1.6	0.3	1.1	1.2	1.8	0.6	1.9	3.7	3.5	3.5	3.8	2.8	3.3	5.0	5.1	4.8	4.4	4.9	4.7	4.5	4.2	4.1	3.9	5.4		
US CPI Education & Communication Services NSA (0%)	1.8	2.9	2.9	2.8	2.7	2.4	2.3	2.0	2.1	2.0	2.0	2.2	2.4	1.2	1.3	1.7	1.7	1.7	1.7	1.7	1.7	1.6	1.7	1.7	1.7	1.5	1.5	1.4	1.3	2.2		
US Personal Consumption Expenditures Chain Type Price Index SA (11%)	0.7	0.9	1.2	1.3	1.1	1.1	1.3	1.5	1.7	2.5	3.6	4.0	4.3	4.4	4.5	4.7	5.2	5.9	6.0	6.1	6.4	6.8	6.4	6.5	7.0	6.4	6.3	6.3	6.1	5.5		
US Personal Consumption Expenditures Ex Food & Energy Deflator SA (9%)	0.9	1.1	1.3	1.5	1.4	1.4	1.5	1.6	1.6	2.0	3.1	3.5	3.8	3.9	3.9	3.9	4.3	4.8	5.0	5.2	5.4	5.4	5.0	4.9	5.0	4.7	4.9	5.2	5.0	4.7		
NFIB Small Business Higher Prices (6%)	-5.0	-2.0	1.0	13.0	15.0	18.0	16.0	17.0	25.0	26.0	36.0	40.0	47.0	46.0	49.0	46.0	53.0	59.0	57.0	58.0	64.0	66.0	63.0	65.0	63.0	56.0	53.0	51.0	50.0	51.0		
ISM Manufacturing Report on Business Prices Index NSA (1%)	51.3	53.2	59.5	62.8	65.5	65.4	77.6	82.1	86.0	85.6	89.6	88.0	92.1	85.7	79.4	81.2	85.7	82.4	68.2	76.1	75.6	87.1	84.6	82.2	78.5	60.0	52.5	51.7	46.6	43.0		
ISM Services PMI Report on Business Prices SA (0%)	61.6	57.0	63.7	59.3	62.8	64.3	65.4	64.7	71.6	73.5	76.0	79.1	78.8	81.4	75.9	79.5	83.0	83.0	83.9	82.3	83.1	83.8	84.6	82.1	80.1	72.3	71.5	68.7	70.7	70.0		

Data Source: Bloomberg. Intellectual Property of 42 Macro LLC. Nowcast feature weights are dynamically retrained monthly according to the relative strength of the first difference regressions between the independent and the dependent variables.

The GRIDs Are Global

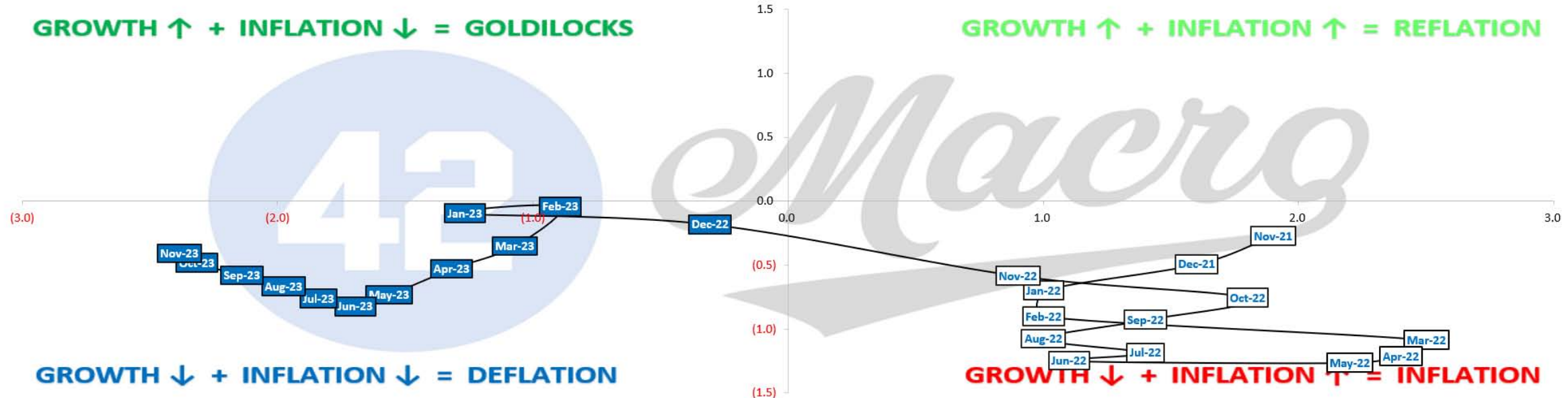
42 Macro		Actuals																							Projections																
Macro Regime	Nov-20	Dec-20	Jan-21	Feb-21	Mar-21	Apr-21	May-21	Jun-21	Jul-21	Aug-21	Sep-21	Oct-21	Nov-21	Dec-21	Jan-22	Feb-22	Mar-22	Apr-22	May-22	Jun-22	Jul-22	Aug-22	Sep-22	Oct-22	Nov-22	Dec-22	Jan-23	Feb-23	Mar-23	Apr-23	May-23	Jun-23	Jul-23	Aug-23	Sep-23	Oct-23	Nov-23				
United States	G	G	R	R	R	R	R	R	R	R	D	D			D								D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	United States		
Australia	R	R	R	R	R	R	R	R	R	R	D	D			D									D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	Australia		
Austria	G	G	G	G	R	R	R	R	R	R	R	R	R	R													D	D	D	D	D	D	D	D	D	D	D	D	Austria		
Belgium	G	G	G	G	R	R	R	R	R	R																	D	D	D	D	D	D	D	D	D	D	D	D	Belgium		
Brazil	R	R	R	R	R									D	D	D						D	D	D	D	D	D	G	G	G	G	D	D	D	D	G	G	G	Brazil		
Canada	R	R	R	R	R	R	R	R	R	R	R												D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	Canada			
Chile	R	G	R	R	D																				D	D	D	D	D	D	D	D	D	D	D	G	G	G	Chile		
China	G	G	G	R	R					D	D				D	D										D	D	D										D	China		
Denmark		G		R	R	R	R	R	R	R	R															D	D	D	G	D	D	D	D	D	D	D	D	D	Denmark		
Finland	R	R		R	R	R	R	R	R	G	G															D	D			D	D	D	D	D	D	D	D	G	Finland		
France				R	R	R	R	R	R	G	R	R	R											D				D	D	D	D	D	D	D	D	D	D	D	France		
Germany	G	G	R	R	R	R	R	R	R	R	R					D											D	D	D	D	D	D	D	D	D	D	D	D	Germany		
Greece	R	G	G	R	R	R	R	R	R	R																D	D	D	D	G	D	D	D	D	D	G	G	G	G	Greece	
India	R	G	G	G	R	R	R	R	R	G	G	G	D									D	D			D	D	G	G	D	D	D	D	D	D	D	D	D	India		
Indonesia	R	R	R	G	G	G	R	G	R	G	R	R	R	R	R												D	G	G	G	G	G	G	D	D	D	D	G	G	G	Indonesia
Ireland	R	R	R	R	R	R	R	R	R	R	R	R	R	R	G	R	R	R	R						D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	Ireland	
Israel	R			R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R						D	D		D	G	D	D	D	D	D	D	D	D	D	Israel	
Italy	R	R		R	R	R	R	R		R	R																	D	D	D	D	D	D	D	D	D	D	D	Italy		
Japan	G	G	G	R	R	G	G	G	R	R					R	R	R	R	R									D	D	D	D	D	D	D	D	D	D	D	Japan		
Korea	G	G	R	R	R	R	R	R	R	D						D									D	D	D	D	D	D	D	D	D	D	D	D	G	G	Korea		
Mexico	G	G	G	R	R	R	R	R	R	G	G	R		R	R	R	R	R									D	D	D	D	D	D	D	D	D	D	D	D	Mexico		
Netherlands	R	G	R	R	R	R	R	R	G	G	R										D						D	D	D	D	D	D	D	D	D	D	D	D	Netherlands		
Norway	G	G	R	R	R	R	G	G	R	R	R	R	R	R	G	D	D										D	D	D	D	D	D	D	D	D	D	D	D	Norway		
Poland	R	G	G	G	R	R	R	R	R	R	R	R	R	R													D	D	D	G	D	D	D	D	D	D	D	D	Poland		
Portugal	G	R	R	R	R	G	R	G	R	R	R	R	R	R	R	R												D	D	D	D	D	D	D	D	D	D	D	Portugal		
Russia	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R				G	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	Russia			
South Africa	R	R	G	G	R	R	R	R	R	G	R	R	R	R	R	R	G	R									D	D	D	D	D	D	D	D	D	D	D	D	South Africa		
Spain	G			R	R	R	R	R	R	R	R	R														D	D	D	D	D	D	D	D	D	D	D	D	D	Spain		
Sweden	G	R	R	R	R	R	R	R	G	G	R	R	R																D	D	D	D	D	D	D	D	D	D	Sweden		
Switzerland	R	G	R	R	R	R	R	R	R	R	R															D	D	D	D	D	D	D	D	D	D	D	D	D	G	Switzerland	
Taiwan	R	R	R	R	R	R	R	R	R	G	G	R	R	R	R	R	G	R					D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	Taiwan		
Turkey	R	R			R	R	R	R	R	R	R	R																D	D	D	D	D	D	D	D	D	D	D	Turkey		
United Kingdom	R	R	R	R	R	R	R	R	R	R	R	R																	D	D	D	D	D	D	D	D	G	G	United Kingdom		
Eurozone	G			R	R	R	R	R	R	R	R																		D	D	D	D	D	D	D	D	D	D	Eurozone		
World	G	G	R	R	R	R	R	R	R	R	R																	D	D	D	D	D	D	D	D	D	D	World			
MEDIAN Conditional Probability of GOLDLOCKS	35%	41%	28%	16%	3%	4%	3%	2%	13%	22%	11%	4%	2%	1%	5%	4%	2%	1%	1%	2%	1%	1%	5%	7%	9%	24%	36%	40%	23%	15%	11%	10%	12%	12%	14%	22%	24%				
MEDIAN Conditional Probability of REFLATION	39%	34%	53%	73%	85%	87%	70%	66%	51%	45%	45%	42%	35%	28%	21%	20%	14%	15%	11%	9%	9%	11%	9%	8%	9%	7%	5%	6%	3%	1%	1%	1%	1%	1%	1%	1%	1%				
MEDIAN Conditional Probability of INFLATION	9%	4%	7%	7%	5%	4%	10%	15%	19%	18%	27%	46%	52%	61%	50%	53%	67%	79%	70%	71%	77%	73%	53%	47%	32%	14%	7%	7%	10%	7%	6%	5%	4%	4%	4%	4%	4%				
MEDIAN Conditional Probability of DEFLATION	5%	4%	3%	1%	0%	0%	1%	1%	6%	9%	7%	4%	3%	2%	8%	12%	7%	2%	4%	8%	6%	8%	25%	31%	36%	51%	50%	46%	63%	75%	81%	83%	81%	79%	74%	72%	69%				

Data Source: Bloomberg. Intellectual property of 42 Macro LLC. GRID Regime backtests performed on monthly observations on a rolling out of sample basis beginning in Jan-98.

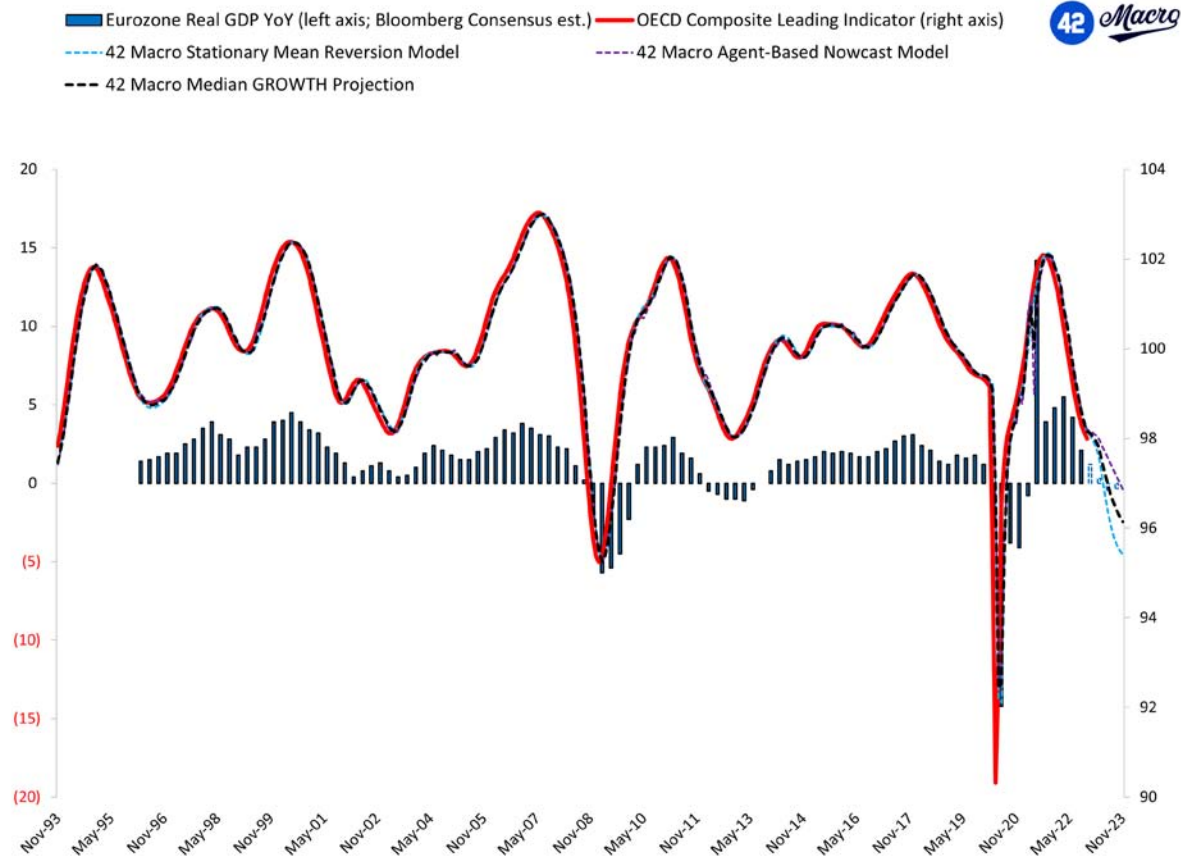
Eurozone GRID Outlook: Moving Past The Worst Of Times In Rate Of Change Terms

Eurozone		Actuals																				Projections										
42 Macro GRID Framework		May-21	Jun-21	Jul-21	Aug-21	Sep-21	Oct-21	Nov-21	Dec-21	Jan-22	Feb-22	Mar-22	Apr-22	May-22	Jun-22	Jul-22	Aug-22	Sep-22	Oct-22	Nov-22	Dec-22	Jan-23	Feb-23	Mar-23	Apr-23	May-23	Jun-23	Jul-23	Aug-23	Sep-23	Oct-23	Nov-23
Macro Regime		R	R	R	R	R															D	D	D	D	D	D	D	D	D	D	D	
Conditional Probability of GOLDILOCKS		2%	4%	11%	14%	2%	1%	1%	1%	1%	3%	0%	0%	0%	1%	1%	1%	2%	1%	1%	28%	41%	41%	22%	14%	10%	10%	10%	12%	14%	16%	20%
Conditional Probability of REFLATION		55%	86%	79%	70%	67%	44%	46%	32%	26%	15%	8%	9%	8%	8%	9%	9%	10%	12%	17%	11%	2%	5%	2%	1%	0%	0%	0%	0%	0%	1%	
Conditional Probability of INFLATION		41%	10%	8%	13%	30%	54%	52%	66%	70%	67%	87%	89%	89%	82%	85%	81%	77%	77%	76%	17%	3%	6%	6%	4%	3%	2%	2%	2%	2%	2%	
Conditional Probability of DEFLATION		2%	0%	1%	3%	1%	1%	1%	2%	3%	15%	5%	2%	2%	10%	6%	8%	12%	9%	6%	45%	54%	47%	70%	81%	86%	88%	87%	86%	83%	82%	78%
OECD Composite Leading Indicator		101.5	101.8	102.0	102.1	102.1	102.0	101.8	101.6	101.3	100.9	100.5	100.1	99.6	99.2	98.9	98.6	98.3	98.1	98.0	98.1	98.0	98.0	97.8	97.5	97.2	97.0	96.7	96.6	96.4	96.3	96.1
3mo Δ		1.5	1.3	1.0	0.6	0.3	0.0	-0.3	-0.5	-0.7	-0.9	-1.1	-1.2	-1.3	-1.2	-1.2	-1.1	-0.9	-0.8	-0.6	-0.2	-0.1	0.0	-0.3	-0.5	-0.7	-0.8	-0.8	-0.7	-0.6	-0.5	-0.4
Z-Score (t3yrs)		0.6	0.5	0.4	0.2	0.1	-0.1	-0.2	-0.2	-0.3	-0.4	-0.5	-0.5	-0.5	-1.4	-1.2	-1.0	-0.8	-0.5	-0.3	0.2	0.3	0.3	0.0	-0.2	-0.5	-0.6	-0.5	-0.4	-0.2	-0.1	0.0
Headline CPI YoY		2.0	1.9	2.2	3.0	3.4	4.1	4.9	5.0	5.1	5.9	7.5	7.5	8.1	8.6	8.9	9.1	10.0	10.7	10.0	9.7	9.4	9.1	8.6	8.1	7.5	6.9	6.3	5.6	4.8	4.0	3.2
3mo Δ		1.1	0.6	0.6	1.0	1.5	1.9	1.9	1.6	1.0	1.0	2.5	2.4	2.2	1.1	1.4	1.0	1.4	1.8	0.9	-0.3	-1.3	-0.9	-1.1	-1.3	-1.6	-1.7	-1.8	-2.0	-2.1	-2.3	-2.4
Z-Score (t3yrs)		1.7	0.9	0.9	1.5	2.0	2.3	2.1	1.6	0.9	0.8	2.3	2.0	1.7	0.5	0.8	0.4	0.7	1.1	0.1	-1.1	-1.9	-1.5	-1.6	-1.8	-2.0	-2.0	-1.9	-1.9	-1.9	-1.9	-1.8

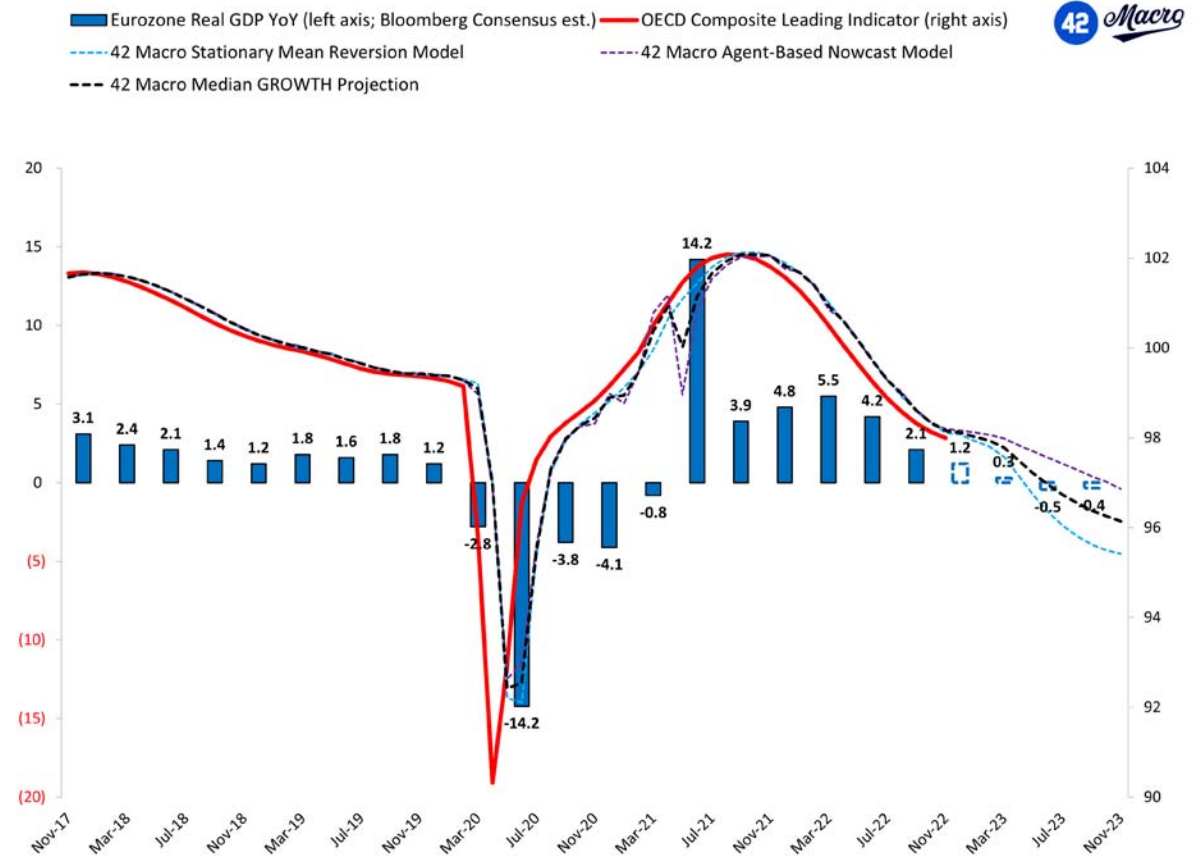
→ x-axis: 3mo Δ of Headline CPI YoY; y-axis: 3mo Δ of OECD Composite Leading Indicator



Eurozone GROWTH: Secular View



Eurozone GROWTH: Cyclical View

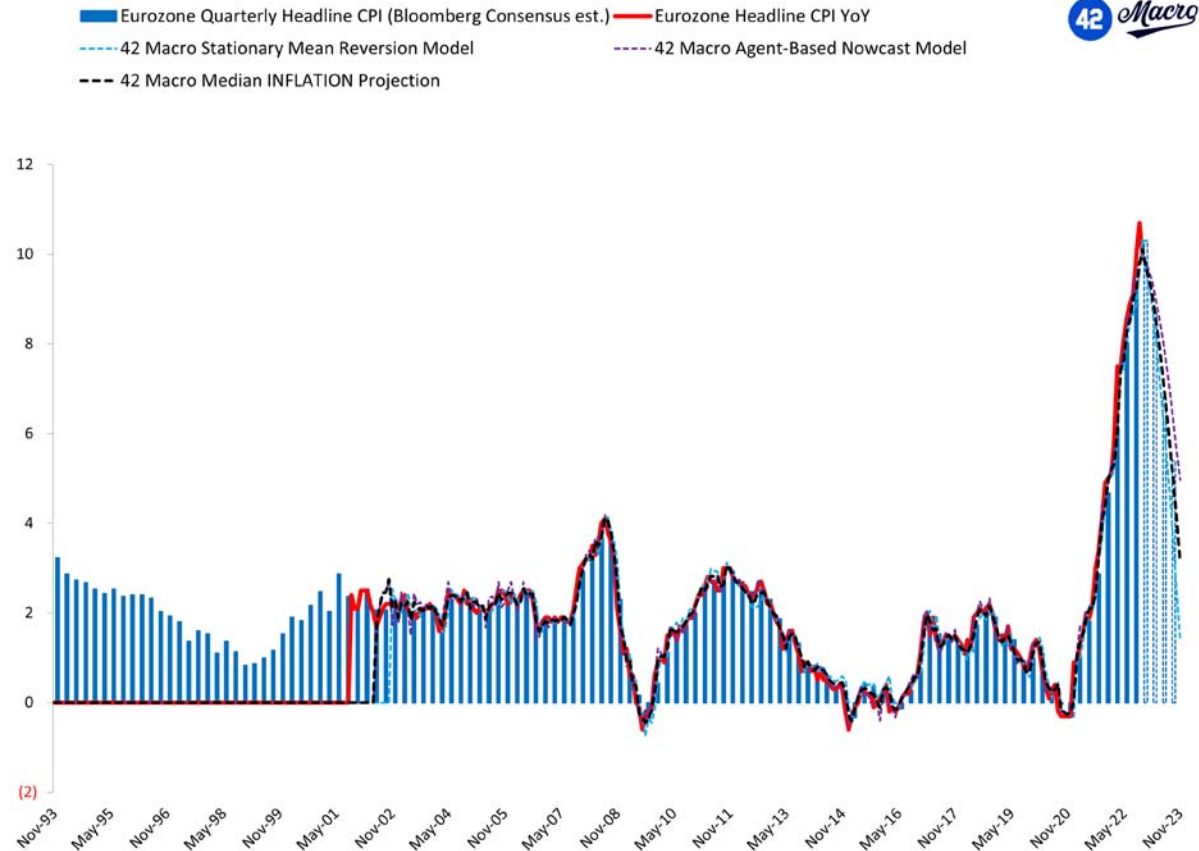


Eurozone GROWTH Agent-Based Nowcast Model

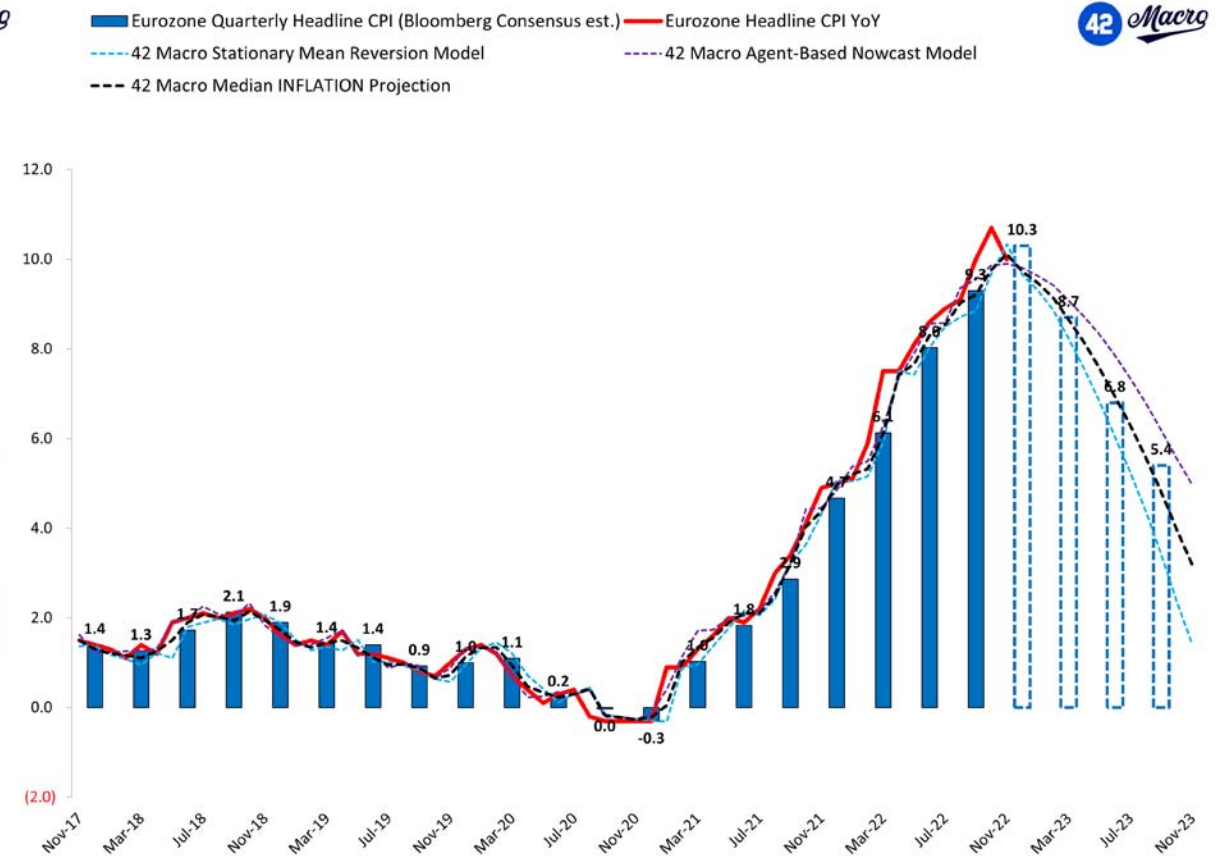
		42 Macro Agent-Based Nowcast GROWTH Model Features																														
Eurozone		h-20	Jul-20	Aug-20	Sep-20	Oct-20	Nov-20	Dec-20	Jan-21	Feb-21	Mar-21	Apr-21	May-21	Jun-21	Jul-21	Aug-21	Sep-21	Oct-21	Nov-21	Dec-21	Jan-22	Feb-22	Mar-22	Apr-22	May-22	Jun-22	Jul-22	Aug-22	Sep-22	Oct-22	Nov-22	Dec-22
Euro Area OECD Leading Indicators CLI Amplitude Adjusted SA		96.5	97.5	98.0	98.3	98.6	98.8	99.2	99.5	99.9	100.5	101.0	101.5	101.8	102.0	102.1	102.1	102.0	101.8	101.6	101.3	100.9	100.5	100.1	99.6	99.2	98.9	98.6	98.3	98.1	98.0	
Eurostat Industrial Production Eurozone Industry Ex Construction YoY WDA (3%)		-11.0	-5.8	-6.2	-5.6	-3.6	1.5	2.0	2.2	-0.3	13.3	41.6	21.8	11.1	8.3	5.4	4.0	0.1	-1.3	1.9	-1.3	1.7	-1.1	-2.5	1.6	2.2	-2.5	2.6	5.1	3.4		
OECD Euro Area International Trade Exports Value YoY SA (3%)		-16.3	-8.7	-4.1	-0.4	-1.1	4.2	6.8	6.6	7.3	17.0	61.2	50.4	29.6	20.1	14.6	10.6	9.9	9.3	3.1	8.6	9.9	6.3	5.4	6.1	7.1	0.9	4.6	3.7	1.7		
Eurostat Retail Sales Eurozone Volume YoY WDA (3%)		1.7	0.5	4.6	2.6	4.7	-1.3	1.8	-5.0	-1.5	13.9	23.7	8.6	5.6	3.3	1.3	2.6	1.7	9.0	2.5	9.7	6.2	2.3	5.1	1.1	-2.9	-0.8	-1.4	0.0	-2.7		
Eurozone Manufacturing PMI SA (10%)		47.4	51.8	51.7	53.7	54.8	53.8	55.2	54.8	57.9	62.5	62.9	63.1	63.4	62.8	61.4	58.6	58.3	58.4	58.0	58.7	58.2	56.5	55.5	54.6	52.1	49.8	49.6	48.4	46.4	47.1	47.8
Eurozone Services PMI SA (9%)		48.3	54.7	50.5	48.0	46.9	41.7	46.4	45.4	45.7	49.6	50.5	55.2	58.3	59.8	59.0	56.4	54.6	55.9	53.1	51.1	55.5	55.6	57.7	56.1	53.0	51.2	49.8	48.8	48.6	48.5	49.1
Euro Area Business Tendency Manufacturing Confidence Composite OECD Normalised SA (4%)		-3.5	-2.1	-1.0	-0.2	0.2	0.3	0.5	0.8	1.9	4.1	6.6	7.4	6.9	6.0	5.0	4.4	4.1	3.8	3.5	3.0	2.2	1.2	0.2	-0.5	-1.1	-1.8	-2.3	-2.6	-2.9	-3.0	
Euro Area Consumer Opinion Confidence Composite OECD Normalised SA (3%)		-3.0	-2.4	-2.1	-2.0	-2.2	-2.3	-2.0	-1.7	-0.8	1.1	3.1	4.0	3.9	3.4	3.0	2.8	2.6	2.2	1.6	0.9	-0.3	-2.2	-3.7	-4.9	-5.9	-6.4	-6.5	-6.6	-6.1	-5.1	
Europe Eurozone New Passenger Car Registrations YoY (0%)		-22.6	-5.8	-17.1	1.9	-7.4	-12.6	-2.8	-24.6	-20.9	95.5	265.1	51.7	8.3	-30.8	-21.8	-24.1	-31.4	-20.8	-22.6	-6.9	-6.9	-20.2	-22.1	-12.0	-15.0	-9.8	6.2	10.3	13.3	18.2	
Europe EU 27 New Passenger Car Registrations YoY (1%)		-5.7	-5.7	-18.9	3.1	-7.8	-12.0	-3.3	-24.0	-19.3	87.3	218.6	53.4	10.4	-23.2	-19.1	-23.1	-30.3	-20.5	-22.8	-6.0	-6.7	-20.5	-20.6	-11.2	-15.4	-10.4	4.4	9.6	12.2	16.3	
European Commission Consumer Confidence Indicator Eurozone (7%)		-14.3	-14.3	-14.1	-12.8	-14.5	-16.8	-12.2	-14.0	-13.3	-9.6	-9.7	-5.4	-1.9	-3.5	-5.2	-3.6	-5.1	-8.2	-9.4	-9.7	-9.7	-21.7	-22.1	-21.2	-23.7	-27.0	-24.9	-28.7	-27.5	-23.9	-22.2
European Commission Economic Sentiment Indicator Eurozone (10%)		16.3	84.0	90.6	94.9	95.1	91.8	96.6	96.0	97.6	103.4	105.8	110.2	115.8	117.8	116.9	117.6	118.0	115.7	114.2	113.0	114.0	106.2	104.5	104.4	103.2	98.6	97.4	93.7	92.7	93.7	
European Commission Manufacturing Confidence Eurozone Industrial Confidence (10%)		-21.4	-15.0	-10.7	-8.5	-6.0	-7.1	-3.6	-2.8	-0.2	4.1	7.2	9.1	11.4	13.9	13.4	13.8	14.1	13.5	13.8	13.1	13.4	8.9	7.6	6.2	6.9	3.3	1.2	-0.3	-1.2	-2.0	
European Commission Services Confidence Indicator Eurozone (8%)		-39.5	-27.5	-14.8	-6.2	-7.5	-12.4	-8.8	-8.2	-8.4	-4.1	-1.3	5.1	14.3	17.2	17.2	17.2	19.2	18.2	13.0	11.2	14.0	12.5	12.8	13.0	13.4	9.7	7.9	4.6	2.1	2.3	
European Commission Euro Area Business Climate Indicator (6%)		-1.5	-1.9	-1.3	-1.1	-0.6	-0.4	-0.1	0.0	0.2	0.5	1.0	1.3	1.5	1.7	1.6	1.6	1.7	1.8	1.8	1.8	1.8	1.7	1.6	1.3	1.4	1.1	0.8	0.8	0.7	0.5	
ZEW Eurozone Expectation of Economic Growth (0%)		58.6	59.6	64.0	73.9	52.3	32.8	54.4	58.3	69.6	74.0	66.3	84.0	81.3	61.2	42.7	31.1	21.0	25.9	26.8	49.4	48.6	-38.7	-43.0	-29.5	-28.0	-51.1	-54.9	-60.7	-59.7	-38.7	-23.6
Eurostat Industrial Production Eurozone Capital Goods YoY WDA (2%)		-14.0	-6.5	-11.3	-11.1	-9.4	4.9	2.8	6.9	1.7	20.7	70.1	30.8	8.2	7.6	4.7	2.6	-2.2	-9.2	0.6	-8.0	-3.5	-3.5	-8.9	1.0	8.0	-5.0	7.9	14.2	9.2		
Eurostat Industrial Production Eurozone Consumer Durables YoY WDA (2%)		-8.8	-3.2	4.4	0.4	0.6	-0.1	1.0	1.2	-0.1	34.9	117.3	37.5	15.9	9.3	-2.8	1.6	2.6	5.0	2.7	0.3	6.4	6.7	5.9	6.8	4.2	2.5	7.3	3.8	-0.1		
Eurostat Industrial Production Eurozone Consumer Non Durables YoY WDA (3%)		-6.1	-1.2	-3.6	-1.0	-0.1	-1.5	-2.3	-2.7	-2.8	4.4	20.1	13.4	13.8	10.6	10.7	7.8	1.5	5.9	5.4	7.0	9.2	2.2	3.0	6.2	-3.2	-1.4	1.1	5.4	10.5		
ECB Money Aggregates M1 YoY (1%)		12.5	13.6	13.0	13.8	14.2	14.3	15.5	16.7	16.4	13.5	12.4	11.4	11.6	11.3	11.1	11.2	10.7	10.1	9.8	8.9	8.9	8.9	8.5	7.9	7.2	6.8	6.7	5.6	3.5	3.3	
ECB Money Aggregates M2 YoY (1%)		9.2	10.1	9.4	10.3	10.6	10.7	11.7	12.4	12.1	10.1	9.2	8.2	8.2	7.8	7.8	7.6	7.5	7.2	7.0	6.6	6.6	6.6	6.5	6.1	6.0	5.9	6.2	6.2	5.0	4.6	
ECB M3 Annual Growth Rate SA (1%)		9.3	10.1	9.4	10.3	10.4	10.9	12.1	12.5	12.3	10.0	9.4	8.6	8.4	7.8	8.0	7.6	7.7	7.4	6.9	6.5	6.4	6.3	6.1	5.8	5.7	6.1	6.3	5.1	4.8		
Eurostat Retail Sales Germany Volume YoY WDA (1%)		4.6	5.1	7.0	5.5	9.1	9.8	3.0	-6.1	-3.2	8.0	7.1	-0.3	5.3	0.2	0.1	-1.3	-1.7	-0.3	1.5	14.5	10.8	0.6	3.4	-0.9	-7.7	-1.4	-3.9	-0.5	-4.8		
Eurostat Retail Sales France Volume YoY WDA (2%)		3.5	0.1	6.5	2.7	5.3	-11.2	8.2	2.5	4.3	25.6	43.0	11.1	5.8	6.8	2.6	6.6	4.2	24.7	0.6	7.0	5.6	4.3	11.0	5.1	2.3	0.5	1.0	2.9	0.3	-0.6	
Eurostat Retail Sales Netherlands Volume YoY WDA (1%)		6.1	5.6	8.1	3.8	3.0	7.0	-5.9	-9.3	-5.5	5.2	9.8	9.1	4.7	1.9	1.8	2.8	5.1	2.4	3.2	13.9	10.4	2.9	2.2	-4.2	-5.9	-1.7	-5.4	-3.0	-4.5		
Eurostat Retail Sales Italy Volume YoY WDA (3%)		-5.5	-7.9	0.8	-0.1	0.1	-8.5	-5.9	-10.6	-5.3	22.6	39.0	18.1	8.9	8.1	2.0	4.2	4.3	12.3	9.1	9.1	3.3	5.5	4.3	3.6	-2.9	-0.4	-2.5	-2.8	-4.7		
Eurostat Retail Sales Spain Volume YoY WDA (4%)		-4.6	-3.5	-2.9	-3.5	-2.0	-4.8	0.0	-8.9	-6.2	13.2	37.5	17.6	1.1	-0.2	-1.4	0.0	-1.0	4.9	-2.8	3.0	1.6	-4.7	1.5	1.4	0.6	-1.2	0.2	0.3	1.2		
Eurostat Retail Sales Portugal Volume YoY WDA (3%)		-4.2	-2.1	-3.2	1.8	0.8	-3.9	-2.1	-10.0	-15.1	1.2	28.3	16.0	6.9	2.7	3.7	3.0	3.8	11.0	7.0	10.7	17.5	11.9	4.8	2.0	1.0	3.5	4.2	2.5	1.2		

Data Source: Bloomberg. Intellectual Property of 42 Macro LLC. Nowcast feature weights are dynamically retrained monthly according to the relative strength of the first difference regressions between the independent and the dependent variables.

Eurozone INFLATION: Secular View



Eurozone INFLATION: Cyclical View



Eurozone INFLATION Agent-Based Nowcast Model

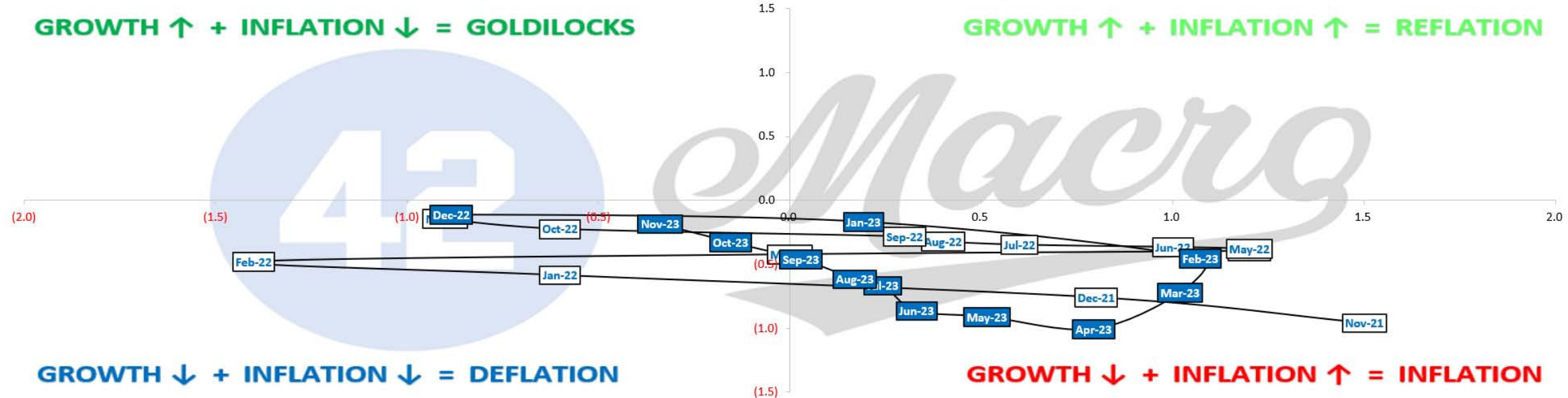
42 Macro Agent-Based INFLATION Nowcast Model Features																															
Eurozone	n-20	Jul-20	Aug-20	Sep-20	Oct-20	Nov-20	Dec-20	Jan-21	Feb-21	Mar-21	Apr-21	May-21	Jun-21	Jul-21	Aug-21	Sep-21	Oct-21	Nov-21	Dec-21	Jan-22	Feb-22	Mar-22	Apr-22	May-22	Jun-22	Jul-22	Aug-22	Sep-22	Oct-22	Nov-22	Dec-22
Eurostat Eurozone MUICP All Items YoY Flash Estimate NSA YoY	0.3	0.4	-0.2	-0.3	-0.3	-0.3	-0.3	0.9	0.9	1.3	1.6	2.0	1.9	2.2	3.0	3.4	4.1	4.9	5.0	5.1	5.9	7.5	7.5	8.1	8.6	8.9	9.1	10.0	10.7	10.0	
Eurostat Eurozone Core MUICP YoY NSA (7%)	0.8	1.2	0.4	0.2	0.2	0.2	0.2	1.4	1.1	0.9	0.7	1.0	0.9	0.7	1.6	1.9	2.0	2.6	2.6	2.3	2.7	3.0	3.5	3.8	3.7	4.0	4.3	4.8	5.0	5.0	
Eurostat PPI Eurozone Industry Ex Construction YoY (6%)	-3.7	-3.2	-2.6	-2.3	-2.0	-2.0	-1.1	0.4	1.5	4.4	7.6	9.6	10.3	12.4	13.5	16.1	21.9	23.7	26.4	30.8	31.5	36.9	37.2	36.2	36.1	38.1	43.4	41.9	30.8		
Commodity Research Bureau BLS/US Spot All Commodities (0%)	-10.8	-11.6	-6.2	-2.6	0.6	2.2	1.5	3.6	12.1	27.8	37.0	35.9	46.5	48.0	43.4	38.2	40.7	39.2	39.9	37.5	35.1	32.8	37.8	30.5	21.3	20.5	22.8	19.4	12.3	9.7	2.0
Commodity Research Bureau BLS/US Spot Foodstuff (1%)	-15.6	-16.6	-5.8	-2.1	-1.8	1.9	-1.7	0.0	12.4	30.4	51.0	43.1	59.7	57.7	50.2	40.2	42.4	38.5	45.5	47.9	48.2	40.0	43.7	39.2	32.2	31.5	36.4	37.5	35.2	30.2	15.6
Commodity Research Bureau BLS/US Spot Raw Industrials (0%)	-7.3	-7.9	-6.5	-2.9	2.4	2.4	3.8	6.2	12.0	26.1	28.1	31.2	38.0	41.6	38.9	36.8	39.6	39.6	36.2	30.7	26.7	27.9	33.9	24.8	14.3	13.4	14.1	8.3	-1.3	-2.6	-6.5
Euro Area HICP Food & non Alcoholic Beverages (1%)	3.0	1.6	1.2	1.4	1.7	1.5	0.9	1.0	0.8	0.7	0.0	0.1	0.2	1.4	1.9	1.9	1.8	2.2	3.5	3.9	4.7	5.7	7.4	8.7	10.4	11.5	12.4	13.8	15.5	16.0	
Euro Area HICP Alcoholic Beverages Tobacco & Narcotics (0%)	3.8	3.6	3.6	3.4	3.3	3.1	3.0	3.3	3.5	2.7	2.8	2.3	1.9	2.2	2.3	2.3	2.5	2.0	2.2	2.2	2.2	2.3	2.2	2.7	3.2	3.5	3.8	4.1	4.2	4.6	
Euro Area MUICP Clothing & Footwear (2%)	-0.9	6.3	-1.1	-1.4	-0.5	-0.9	-2.2	2.5	0.7	-1.3	-0.2	0.4	1.8	-3.3	3.6	1.7	0.9	1.4	2.8	-0.2	2.1	2.1	2.0	1.7	0.6	0.0	2.1	3.2	3.8	3.4	
Euro Area MUICP Housing NSA (9%)	-1.1	-1.2	-1.1	-1.2	-1.2	-1.0	-0.6	0.3	0.5	1.6	3.0	3.5	3.7	4.7	5.2	5.9	8.0	9.1	9.7	11.9	13.4	17.2	15.9	16.3	16.9	17.7	19.7	21.1	23.2	20.6	
Euro Area MUICP Furnishings & Household Equipment (7%)	0.7	0.8	0.3	0.2	0.1	0.0	0.1	1.2	0.8	0.8	0.7	0.8	1.0	1.3	2.0	2.1	2.3	2.6	2.8	2.8	3.8	4.2	5.0	5.9	6.5	6.9	7.4	7.8	8.5	8.6	
Euro Area MUICP Health NSA (2%)	0.9	0.8	0.5	0.3	0.2	0.2	0.2	0.2	0.2	0.2	0.0	0.2	0.2	0.3	0.4	0.6	0.8	0.9	0.9	0.8	0.9	1.0	1.1	1.3	1.1	1.3	1.2	1.4	1.8	1.7	
Euro Area MUICP Transport (9%)	-3.1	-3.0	-3.2	-3.2	-3.5	-3.6	-2.9	-1.1	0.4	3.5	5.1	6.6	6.0	6.8	7.4	8.5	10.6	12.2	10.4	9.4	10.3	14.6	13.0	14.0	14.4	12.7	9.9	10.9	10.0	8.7	
Euro Area MUICP Communications (1%)	-0.9	-1.7	-2.0	-2.2	-3.0	-2.5	-2.5	-1.3	-1.3	-1.7	-1.1	-1.1	-1.0	-0.1	0.1	0.2	1.0	0.5	0.6	-0.4	-0.4	0.0	0.1	-0.4	-0.3	-0.8	-0.7	-0.8	-0.9	-1.0	
Euro Area MUICP Recreation & Culture (3%)	0.6	0.7	0.0	0.0	0.0	-0.3	0.1	2.7	1.9	1.7	0.7	1.4	-0.4	-1.4	-0.5	1.1	1.6	4.0	2.9	2.8	3.1	3.1	3.6	3.6	4.4	4.4	4.8	4.6	4.9	4.7	
Euro Area MUICP Education (0%)	0.9	1.0	1.0	1.1	-0.1	-0.1	-0.1	0.0	0.1	0.1	0.1	0.3	0.2	0.2	0.2	-1.8	-1.0	-1.0	-0.9	-0.9	-0.9	-0.9	-0.9	-0.9	-1.0	-0.9	-0.8	3.8	4.1	4.1	
Euro Area MUICP Restaurants & Hotels (3%)	1.1	0.6	0.8	0.2	0.5	0.8	0.9	0.8	0.7	0.7	0.4	0.2	0.6	1.7	2.1	2.6	2.9	3.3	3.5	4.1	4.4	5.1	5.9	7.1	7.9	8.3	8.1	8.5	8.4	8.1	
Euro Area MUICP Misc Goods & Services (3%)	1.5	1.7	1.4	1.3	1.4	1.4	1.3	1.8	1.7	1.7	1.7	1.7	1.9	1.9	2.0	2.1	2.0	2.1	2.3	1.9	2.1	2.2	2.4	2.6	2.7	3.0	3.2	3.4	3.8	4.1	
Euro Area MUICP Goods (15%)	-0.5	-0.1	-0.9	-1.1	-0.9	-1.0	-1.0	0.5	0.7	1.3	2.1	2.6	2.8	3.3	4.5	4.6	5.5	6.3	6.8	7.1	8.3	10.8	10.4	11.3	12.5	12.7	13.1	14.0	15.1	14.2	
Euro Area MUICP Food Alcohol & Tobacco (1%)	3.2	2.0	1.7	1.8	2.0	1.9	1.3	1.5	1.3	1.1	0.6	0.5	0.5	1.6	2.0	2.0	1.9	2.2	3.2	3.5	4.2	5.0	6.3	7.5	8.9	9.8	10.6	11.8	13.1	13.6	
Euro Area MUICP Energy (9%)	-9.3	-8.4	-7.8	-8.2	-8.2	-8.3	-6.9	-4.2	-1.7	4.3	10.4	13.1	12.6	14.3	15.4	17.6	23.7	27.5	25.9	28.8	32.0	44.3	37.5	39.1	42.0	39.6	38.6	40.7	41.5	34.9	
Euro Area MUICP Services (5%)	1.2	0.9	0.7	0.5	0.4	0.6	0.7	1.4	1.2	1.3	0.9	1.1	0.7	0.9	1.1	1.7	2.1	2.7	2.4	2.3	2.5	2.7	3.3	3.5	3.4	3.7	3.8	4.3	4.3	4.2	
Euro Area CPI Services Related to Housing (3%)	1.4	1.3	1.3	1.3	1.2	1.2	1.2	1.2	1.3	1.3	1.4	1.4	1.4	1.4	1.4	1.5	1.6	1.6	1.6	1.7	1.8	1.9	2.1	2.3	2.4	2.6	2.6	2.7	2.9	3.0	
Euro Area CPI Services Related to Transport (1%)	1.1	0.2	-0.8	-0.6	-0.9	-0.6	-0.3	1.0	0.8	1.5	0.5	1.2	0.7	1.7	2.3	3.3	3.6	4.4	4.0	3.1	3.3	3.5	5.4	5.2	2.7	3.7	3.5	5.7	5.9	5.6	
Euro Area CPI Services Related to Communication (1%)	0.3	-0.6	-0.8	-0.8	-1.8	-1.3	-1.4	-0.3	-0.3	-0.7	0.1	-0.1	-0.1	0.7	0.7	0.6	1.5	1.0	1.0	0.0	-0.1	0.3	0.5	-0.1	0.0	-0.2	-0.2	-0.3	-0.7	-0.7	
Euro Area CPI Services Related to Recreation Incl Repairs & Pers Care (4%)	1.2	0.9	0.7	0.3	0.4	0.5	0.7	1.8	1.2	1.3	0.6	0.8	0.1	0.3	1.0	1.9	2.3	3.8	3.3	3.8	4.1	4.4	5.2	5.9	6.7	7.0	7.2	7.3	7.3	6.9	
Euro Area CPI Services Rel to Recr & Pers Care Excl Pack Holidays & Accom (2%)	1.8	1.8	1.8	1.8	1.8	1.7	1.7	1.6	1.5	1.6	1.7	1.5	1.7	1.8	1.8	2.1	2.2	2.5	2.6	2.9	3.3	3.5	4.0	4.6	4.7	5.0	5.4	5.8	6.1	6.4	
Euro Area CPI Services Related to Package Holidays & Accommodation (3%)	-1.2	-2.2	-3.1	-4.4	-4.1	-3.2	-2.5	0.1	-0.9	-0.6	-2.4	-0.5	-3.3	-0.5	3.0	3.7	4.0	7.8	6.6	9.4	8.2	9.2	10.6	11.4	15.5	14.3	13.1	13.4	12.5	9.7	

Data Source: Bloomberg; Intellectual Property of 42 Macro LLC. Nowcast feature weights are dynamically retrained monthly according to the relative strength of the first difference regressions between the independent and the dependent variables.

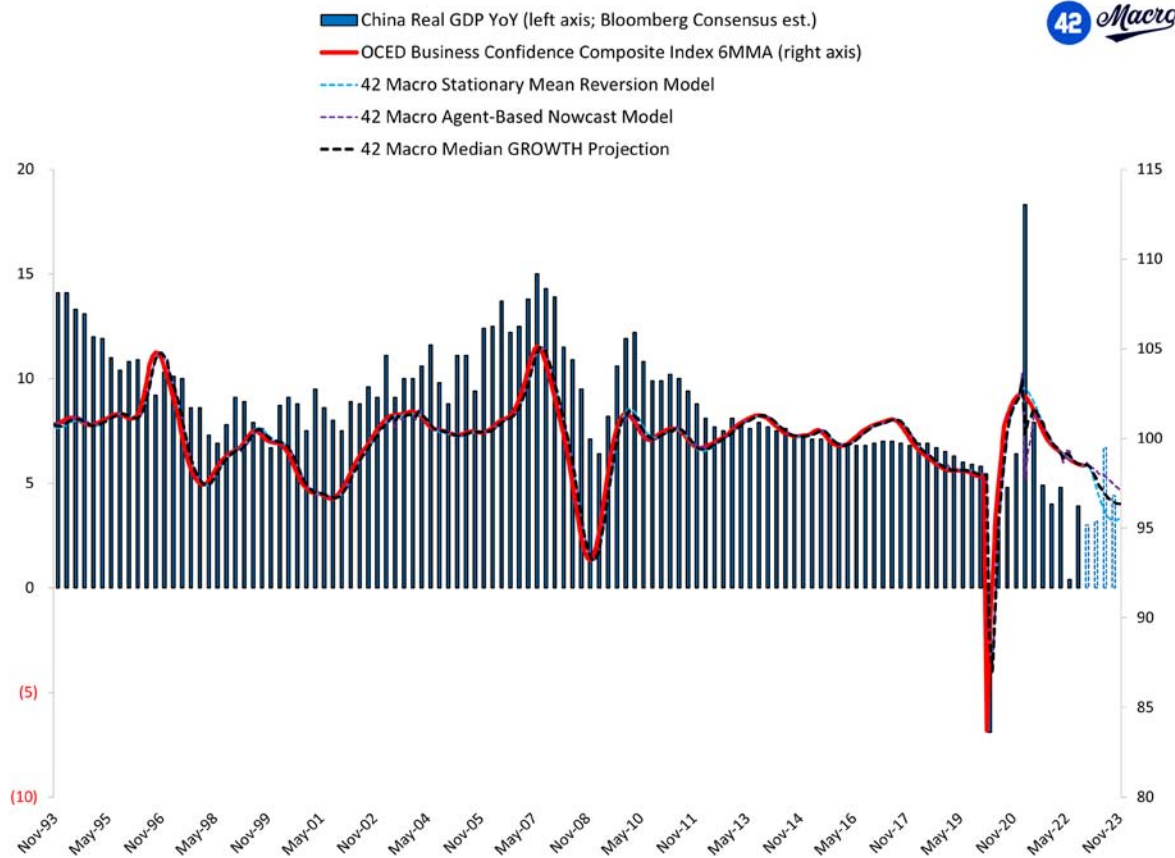
China GRID Outlook: INFLATION Is The Modal Outcome Absent Meaningful Fiscal And Monetary Stimulus

China		Actuals																				Projections											
42 Macro GRID Framework		May-21	Jun-21	Jul-21	Aug-21	Sep-21	Oct-21	Nov-21	Dec-21	Jan-22	Feb-22	Mar-22	Apr-22	May-22	Jun-22	Jul-22	Aug-22	Sep-22	Oct-22	Nov-22	Dec-22	Jan-23	Feb-23	Mar-23	Apr-23	May-23	Jun-23	Jul-23	Aug-23	Sep-23	Oct-23	Nov-23	
Macro Regime					D	D				D	D								D	D	D									D	D		
Conditional Probability of GOLDSLOCKS		0%	2%	3%	4%	5%	3%	1%	1%	7%	20%	4%	1%	1%	4%	3%	4%	7%	25%	31%	37%	16%	1%	1%	1%	2%	2%	4%	5%	7%	15%	24%	
Conditional Probability of REFLATION		4%	5%	4%	2%	3%	4%	8%	9%	6%	1%	4%	9%	37%	38%	27%	25%	23%	10%	6%	5%	21%	12%	9%	5%	5%	5%	6%	6%	7%	11%	12%	
Conditional Probability of INFLATION		86%	70%	49%	31%	31%	49%	83%	85%	42%	5%	4%	80%	60%	53%	65%	60%	53%	19%	10%	7%	36%	78%	82%	80%	70%	61%	54%	51%	45%	32%	22%	
Conditional Probability of DEFLATION		10%	23%	44%	63%	61%	44%	8%	5%	46%	73%	4%	11%	2%	6%	6%	10%	16%	45%	54%	52%	27%	8%	9%	14%	23%	32%	35%	38%	41%	43%	42%	
OECD Composite Leading Indicator		101.9	101.5	101.2	100.8	100.4	100.1	99.8	99.6	99.5	99.3	99.2	99.1	99.0	98.9	98.7	98.6	98.6	98.5	98.5	98.5	98.3	98.0	97.7	97.3	97.1	96.9	96.7	96.5	96.4	96.3	96.3	
3mo Δ		-0.6	-0.8	-1.0	-1.1	-1.1	-1.1	-1.0	-0.8	-0.6	-0.5	-0.4	-0.4	-0.4	-0.4	-0.3	-0.3	-0.3	-0.2	-0.1	-0.1	-0.2	-0.5	-0.7	-1.0	-0.9	-0.9	-0.7	-0.6	-0.5	-0.3	-0.2	
Z-Score (t3yrs)		-0.2	-0.2	-0.3	-0.3	-0.3	-0.3	-0.3	-0.2	-0.2	-0.1	-0.1	-0.1	-0.1	0.3	0.3	0.3	0.3	0.3	0.3	0.4	0.3	0.3	-0.5	-1.3	-1.0	-0.8	-0.2	0.0	0.4	0.8	1.2	
Headline CPI YoY		1.3	1.1	1.0	0.8	0.7	1.5	2.3	1.5	0.9	0.9	1.5	2.1	2.1	2.5	2.7	2.5	2.8	2.1	1.6	1.9	2.3	2.7	2.9	3.1	3.2	3.3	3.3	3.4	3.3	3.2	3.0	
3mo Δ		1.5	0.7	0.1	-0.5	-0.4	0.5	1.5	0.8	-0.6	-1.4	0.0	1.2	1.2	1.0	0.6	0.4	0.3	-0.6	-0.9	-0.9	0.2	1.1	1.0	0.8	0.5	0.3	0.2	0.2	0.0	-0.2	-0.3	
Z-Score (t3yrs)		1.3	0.6	0.1	-0.3	-0.2	0.5	1.3	0.7	-0.5	-1.1	0.0	1.0	1.0	0.8	0.5	0.3	0.2	-0.4	-0.6	-0.6	0.4	1.1	1.0	0.8	0.5	0.3	0.2	0.1	-0.1	-0.3	-0.7	

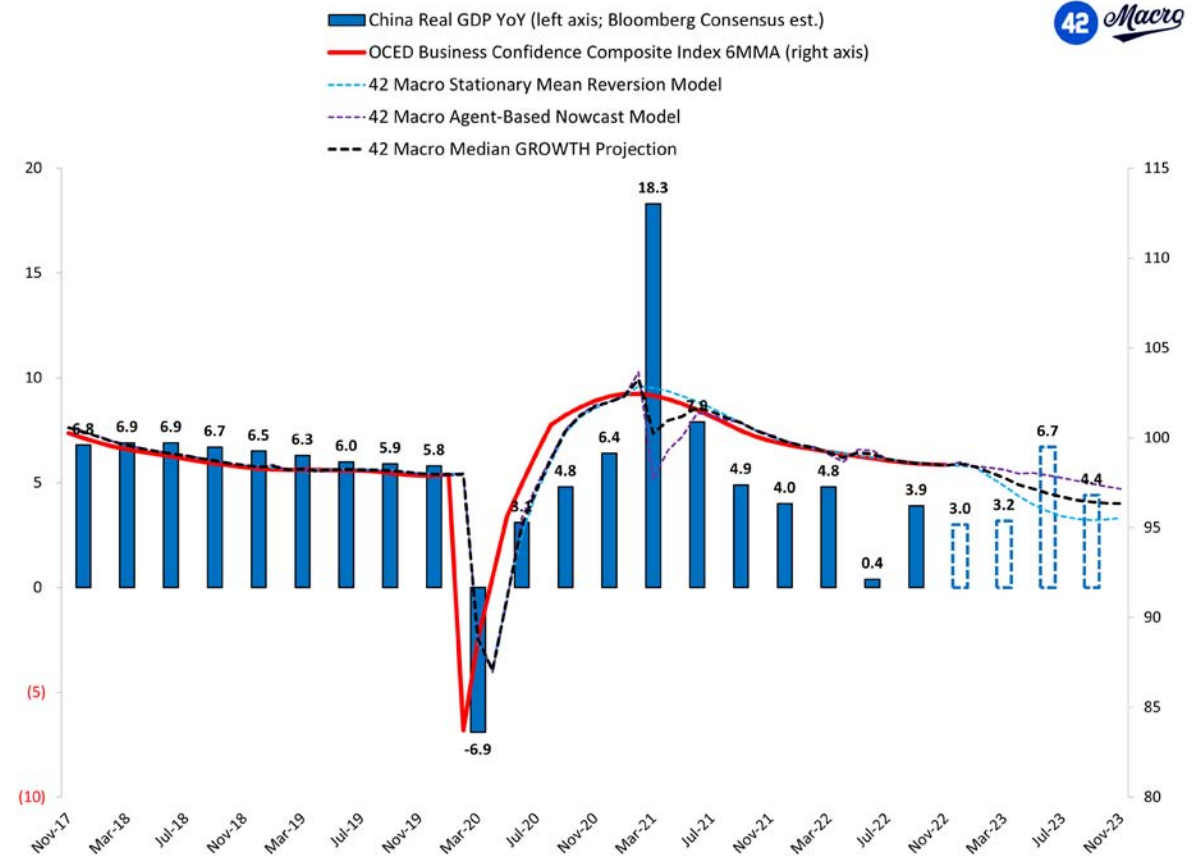
→ x-axis: 3mo Δ of Headline CPI YoY; y-axis: 3mo Δ of OECD Composite Leading Indicator



China GROWTH: Secular View



China GROWTH: Cyclical View

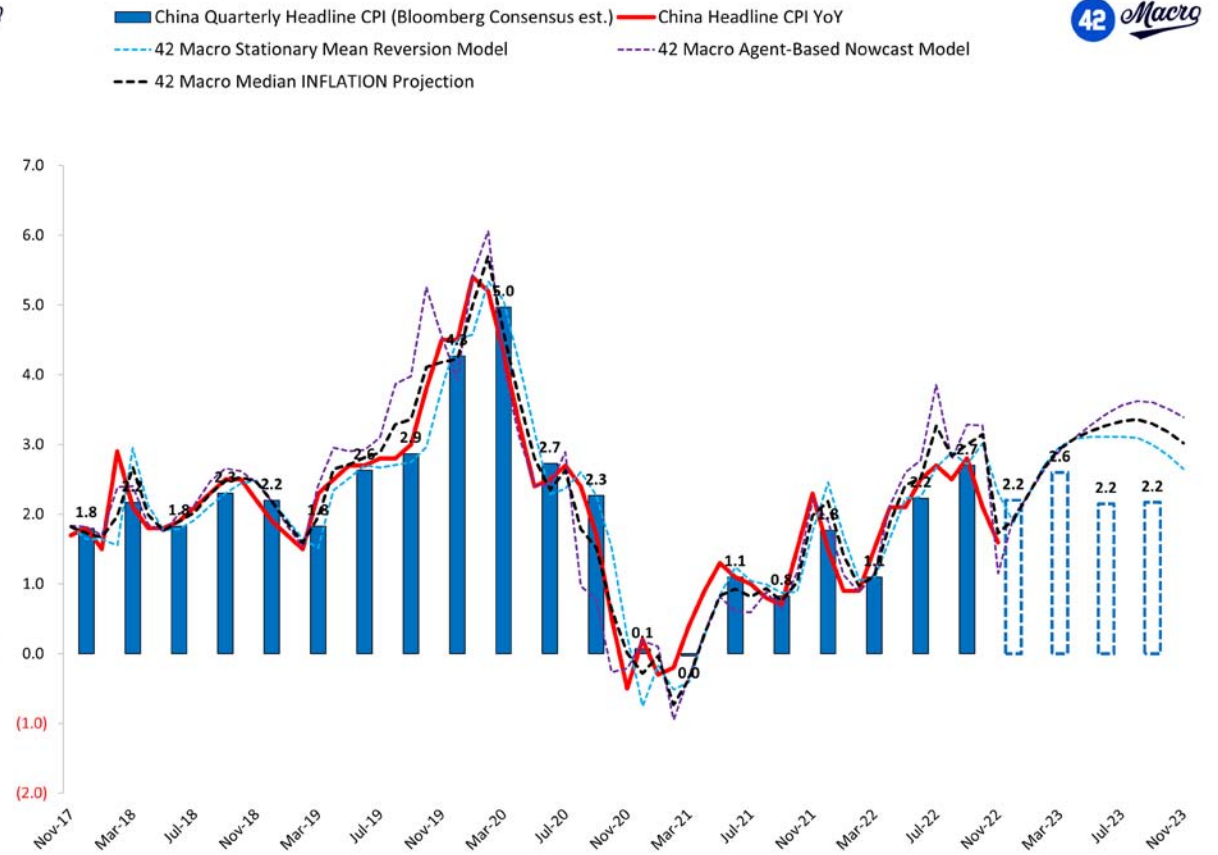


China GROWTH Agent-Based Nowcast Model

42 Macro Agent-Based Nowcast GROWTH Model Features																															
China	h-20	Jul-20	Aug-20	Sep-20	Oct-20	Nov-20	Dec-20	Jan-21	Feb-21	Mar-21	Apr-21	May-21	Jun-21	Jul-21	Aug-21	Sep-21	Oct-21	Nov-21	Dec-21	Jan-22	Feb-22	Mar-22	Apr-22	May-22	Jun-22	Jul-22	Aug-22	Sep-22	Oct-22	Nov-22	Dec-22
China OECD Leading Indicators CLI Amplitude Adjusted SA	97.4	99.1	100.7	101.3	101.7	102.1	102.3	102.4	102.4	102.3	102.1	101.9	101.5	101.2	100.8	100.4	100.1	99.8	99.6	99.5	99.3	99.2	99.1	99.0	98.9	98.7	98.6	98.6	98.5	98.5	
China Value Added of Industry YoY (0%)	4.8	4.8	5.6	6.9	6.9	7.0	7.3			14.1	9.8	8.8	8.3	6.4	5.3	3.1	3.5	3.8	4.3		5.0	-1.9	0.7	3.9	3.8	4.2	6.3	5.0	2.2		
China Export Trade USD YoY (1%)	0.2	6.8	9.1	9.4	10.9	20.6	18.1	24.6	154.6	30.4	32.1	27.7	32.1	19.2	25.4	28.0	26.9	21.7	20.9	24.0	6.1	14.3	3.5	16.2	17.1	18.2	7.5	5.7	-0.2	-8.9	
China Retail Sales Value YoY (0%)	-1.8	-1.1	0.5	3.3	4.3	5.0	4.6			34.2	17.7	12.4	12.1	8.5	2.5	4.4	4.9	3.9	1.7			-3.5	-11.1	-6.7	3.1	2.7	5.4	2.5	-0.5	-5.9	
China Manufacturing PMI SA (10%)	50.9	51.1	51.0	51.5	51.4	52.1	51.9	51.3	50.6	51.9	51.1	51.0	50.9	50.4	50.1	49.6	49.2	50.1	50.3	50.1	50.2	49.5	47.4	49.6	50.2	49.0	49.4	50.1	49.2	48.0	47.0
China Non-Manufacturing PMI SA (10%)	54.4	54.2	55.2	55.9	56.2	56.4	55.7	52.4	51.4	56.3	54.9	55.2	53.5	53.3	47.5	53.2	52.4	52.3	52.7	51.1	51.6	48.4	41.9	47.8	54.7	53.8	52.6	50.6	48.7	46.7	41.6
China Leading Index (1%)	-3.6	-1.3	0.3	2.4	6.2	12.4	21.1	29.9	34.9	33.7	27.4	19.1	11.5	5.8	1.8	-1.5	-4.7	-7.9	-11.3	-14.6	-17.0	-17.9	-17.0	-14.5	-10.8	-7.0	-4.0	-2.1			
China Coincident Index (1%)	3.2	4.4	5.0	5.2	5.6	6.5	7.7	8.5	8.4	6.8	4.1	0.8	-2.5	-5.2	-7.1	-8.0	-8.2	-8.2	-8.3	-8.7	-9.3	-9.8	-9.8	-9.0	-7.3	-5.1	-3.1	-1.8			
Bloomberg Economics China Credit Impulse (0%)	23.0	29.0	35.7	38.2	41.4	39.3	35.9	31.2	34.5	11.0	-1.8	-11.8	-13.6	-17.7	-22.6	-26.4	-27.5	-26.4	-22.6	-18.4	-21.9	-10.7	-9.5	-1.5	3.7	5.3	6.1	11.7	9.8	6.1	
Bloomberg Economics China Credit Impulse 12 Month Net Change (0%)	5.6	6.7	8.2	8.9	9.4	9.1	8.3	7.2	8.0	2.9	-0.5	-3.4	-4.1	-5.3	-7.1	-8.5	-8.8	-8.5	-7.1	-5.6	-6.8	-3.1	-2.6	-0.4	1.0	1.3	1.5	2.8	2.3	1.4	
China All-system Financing Aggregate YTD (1%)	42.8	41.9	44.5	43.7	44.4	41.2	36.0	2.7	16.6	-7.4	-14.5	-19.0	-14.7	-16.3	-16.4	-16.4	-14.9	-12.6	-9.9	16.7	4.6	15.4	5.4	10.9	17.0	14.4	10.0	11.4	8.0	5.2	
China Social Financing New Loan in Local Currency YTD (1%)	23.0	23.3	21.7	20.1	20.2	19.5	18.6	9.3	22.5	9.1	3.6	1.9	5.0	3.2	1.9	0.8	1.4	0.1	-0.5	10.0	-1.0	5.4	-5.4	-1.0	4.9	1.5	1.8	6.3	4.1	3.0	
China Monthly Money Supply M0 YoY (1%)	9.5	9.9	9.4	11.1	10.4	10.3	9.2	-3.9	4.2	4.2	5.3	5.6	6.2	6.1	6.3	5.5	6.2	7.2	7.7	18.5	5.8	9.9	11.4	13.5	13.8	13.9	14.3	13.6	14.3	14.1	
China Monthly Money Supply M1 YoY (1%)	6.5	6.9	8.0	8.1	9.1	10.0	8.6	14.7	7.4	7.1	6.2	6.1	5.5	4.9	4.2	3.7	2.8	3.0	3.5	-1.9	4.7	4.7	5.1	4.6	5.8	6.7	6.1	6.4	5.8	4.6	
China Monthly Money Supply M2 YoY (0%)	11.1	10.7	10.4	10.9	10.5	10.7	10.1	9.4	10.1	9.4	8.1	8.3	8.6	8.3	8.2	8.3	8.7	8.5	9.0	9.8	9.2	9.7	10.5	11.1	11.4	12.0	12.2	12.1	11.8	12.4	
China Total Loans of Financial Institutions YoY (1%)	13.2	13.0	13.0	13.0	12.9	12.8	12.8	12.7	12.9	12.6	12.3	12.2	12.3	12.3	12.1	11.9	11.9	11.7	11.6	11.5	11.4	11.4	10.9	11.0	11.2	11.0	10.9	11.2	11.1	11.0	
China PPI Manufacturing YoY (0%)	-2.0	-1.8	-1.4	-1.3	-1.2	-0.8	0.0	1.0	1.7	3.4	5.4	7.4	7.4	7.5	8.0	8.9	10.8	10.1	8.2	7.0	6.6	5.7	4.8	3.2	2.4	0.9	-0.7	-1.9	-1.5	-3.2	
China Retail Sales Cumulative Value YoY (6%)	-11.4	-9.9	-8.6	-7.2	-5.9	-4.8	-3.9			33.8	33.9	29.6	25.7	23.0	20.7	18.1	16.4	14.9	13.7	12.5		6.7	3.3	-0.2	-1.5	-0.7	-0.2	0.5	0.7	0.6	-0.1
China Value Added of Industry YoY Cumulative (6%)	-1.3	-0.4	0.4	1.2	1.8	2.3	2.8			35.1	24.5	20.3	17.8	15.9	14.4	13.1	11.8	10.9	10.1	9.6		7.5	6.5	4.0	3.3	3.4	3.5	3.6	3.9	4.0	3.8
China Fixed Assets Investment (Excluding Rural Households) Cumulative YoY (10%)	-3.1	-1.6	-0.3	0.8	1.8	2.6	2.9			35.0	25.6	19.9	15.4	12.6	10.3	8.9	7.3	6.1	5.2	4.9		12.2	9.3	6.8	6.2	6.1	5.7	5.8	5.9	5.8	5.3
China Fixed Assets Investment (Cumulative) YoY - State-owned & State holdings (10%)	2.1	3.8	3.2	4.0	4.9	5.6	5.3			32.9	25.3	18.6	11.8	9.6	7.1	6.2	5.0	4.1	3.0	2.9		14.1	11.7	9.1	8.5	9.2	9.6	10.1	10.6	10.8	10.2
China Fixed Assets Investment (Cumulative) YoY - Infrastructure (excluding electricity) (9%)	-2.7	-1.0	-0.3	0.2	0.7	1.0	0.9			36.6	29.7	18.4	11.8	7.8	4.6	2.9	1.5	1.0	0.5	0.4		8.1	8.5	6.5	6.7	7.1	7.4	8.3	8.6	8.7	8.9
China Private Investments in Fixed Assets YTD YoY (9%)	-7.3	-5.7	-2.8	-1.5	-0.7	0.2	1.0			36.4	26.0	21.0	18.1	15.4	13.4	11.5	9.8	8.5	7.7	7.0		11.4	8.4	5.3	4.1	3.5	2.7	2.3	2.0	1.6	1.1
China Completed Investment in Real Estate(Cumulative)YoY (8%)	1.9	3.4	4.6	5.6	6.3	6.8	7.0			38.3	25.6	21.6	18.3	15.0	12.7	10.9	8.8	7.2	6.0	4.4		3.7	0.7	-2.7	-4.0	-5.4	-6.4	-7.4	-8.0	-8.8	-9.8
China Import Trade USD YoY (2%)	2.3	-1.6	-2.3	12.7	4.4	3.9	6.5	28.7	18.9	39.1	44.0	52.0	37.1	28.2	32.7	17.2	20.4	31.4	19.5	21.0	11.8	0.7	0.2	3.5	0.1	1.8	0.1	0.3	-0.7	-10.6	
China Property - Land Areas Purchased YTD YoY (4%)	-0.9	-1.0	-2.4	-2.9	-3.3	-5.2	-1.1			33.0	16.9	4.8	-7.5	-11.8	-9.3	-10.2	-8.5	-11.0	-11.2	-15.5		-42.3	-41.8	-46.5	-45.7	-48.3	-48.1	-49.7	-53.0	-53.0	-53.8
China Property - Floor Space of Newly Started Cumulative YoY% (5%)	-7.6	-4.5	-3.6	-3.4	-2.6	-2.0	-1.2			64.3	28.2	12.8	6.9	3.8	-0.9	-3.2	-4.5	-7.7	-9.1	-11.4		-12.2	-17.5	-26.3	-30.6	-34.4	-36.1	-37.2	-38.0	-37.8	-38.9
China Property - Total Sales of Buildings YoY (4%)	133.4	-2.1	1.6	3.7	5.8	7.2	8.7			133.4	88.5	68.2	52.4	38.9	30.7	22.8	16.6	11.8	8.5	4.8		-19.3	-22.7	-29.5	-31.5	-28.9	-28.8	-27.9	-26.3	-26.1	-26.6

Data Source: Bloomberg. Intellectual Property of 42 Macro LLC. Nowcast feature weights are dynamically retrained monthly according to the relative strength of the first difference regressions between the independent and the dependent variables.

China INFLATION: Cyclical View



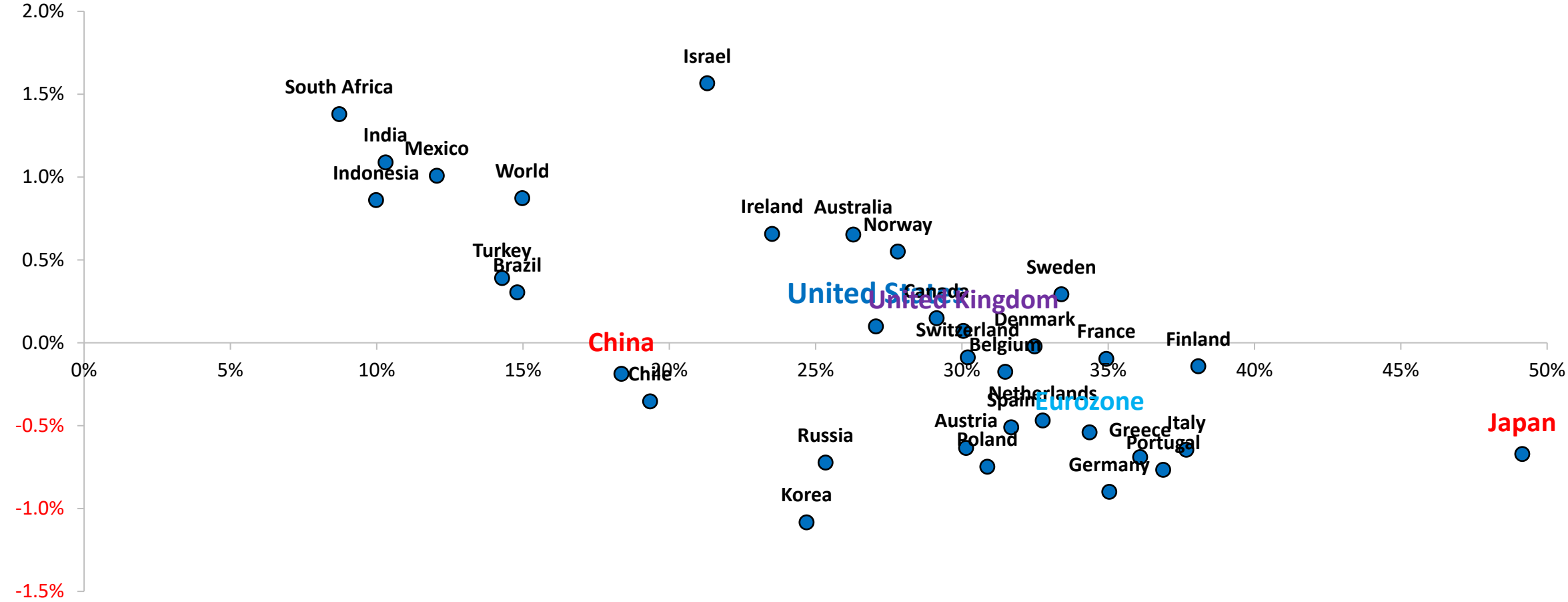
China INFLATION Agent-Based Nowcast Model

42 Macro Agent-Based INFLATION Nowcast Model Features																															
China	Jun-20	Jul-20	Aug-20	Sep-20	Oct-20	Nov-20	Dec-20	Jan-21	Feb-21	Mar-21	Apr-21	May-21	Jun-21	Jul-21	Aug-21	Sep-21	Oct-21	Nov-21	Dec-21	Jan-22	Feb-22	Mar-22	Apr-22	May-22	Jun-22	Jul-22	Aug-22	Sep-22	Oct-22	Nov-22	Dec-22
China CPI YoY	2.5	2.7	2.4	1.7	0.5	-0.5	0.2	-0.3	-0.2	0.4	0.9	1.3	1.1	1.0	0.8	0.7	1.5	2.3	1.5	0.9	0.9	1.5	2.1	2.1	2.5	2.7	2.5	2.8	2.1	1.6	
China Core CPI (excluding Food & Energy) YoY (1%)	0.9	0.5	0.5	0.5	0.5	0.5	0.4	-0.3	0.0	0.3	0.7	0.9	0.9	1.3	1.2	1.2	1.3	1.2	1.2	1.2	1.1	1.1	0.9	0.9	1.0	0.8	0.8	0.6	0.6	0.6	
China PPI YoY (11%)	-3.0	-2.4	-2.0	-2.1	-2.1	-1.5	-0.4	0.3	1.7	4.4	6.8	9.0	8.8	9.0	9.5	10.7	13.5	12.9	10.3	9.1	8.8	8.3	8.0	6.4	6.1	4.2	2.3	0.9	-1.3	-1.3	
Commodity Research Bureau BLS/US Spot All Commodities (0%)	-10.8	-11.6	-6.2	-2.6	0.6	2.2	1.5	3.6	12.1	27.8	37.0	35.9	46.5	48.0	43.4	38.2	40.7	39.2	39.9	37.5	35.1	32.8	37.8	30.5	21.3	20.5	22.8	19.4	12.3	9.7	2.0
Commodity Research Bureau BLS/US Spot Foodstuff (0%)	-15.6	-16.6	-5.8	-2.1	-1.8	1.9	-1.7	0.0	12.4	30.4	51.0	43.1	59.7	57.7	50.2	40.2	42.4	38.5	45.5	47.9	48.2	40.0	43.7	39.2	32.2	31.5	36.4	37.5	35.2	30.2	15.6
Commodity Research Bureau BLS/US Spot Raw Industrials (1%)	-8.2	-2.5	1.6	4.4	7.0	11.1	13.0	16.2	22.9	35.0	40.8	44.2	45.5	42.5	37.3	35.0	38.3	32.1	26.8	20.9	17.5	20.7	17.4	9.7	1.1	-2.5	-2.8	-8.4	-15.4	-11.2	-12.0
China CPI Food YoY (44%)	11.1	13.2	11.2	7.9	2.2	-2.0	1.2	1.6	-0.2	-0.7	-0.7	0.3	-1.7	-3.7	-4.1	-5.2	-2.4	1.6	-1.2	-3.8	-3.9	-1.5	1.9	2.3	2.9	6.3	6.1	8.8	7.0	3.7	
China CPI Pork YoY (24%)	81.6	85.7	52.6	25.5	-2.8	-12.5	-1.3	-3.9	-14.9	-18.4	-21.4	-23.8	-36.5	-43.5	-44.9	-46.9	-44.0	-32.7	-36.7	-41.6	-42.5	-41.4	-33.3	-21.1	-6.0	20.2	22.4	36.0	51.8	34.4	
China CPI Non Food YoY (12%)	0.3	0.0	0.1	0.0	0.0	-0.1	0.0	-0.8	-0.2	0.7	1.3	1.6	1.7	2.1	1.9	2.0	2.4	2.5	2.1	2.0	2.1	2.2	2.2	2.1	2.5	1.9	1.7	1.5	1.1	1.1	
China PPI Manufacturing YoY (4%)	-2.0	-1.8	-1.4	-1.3	-1.2	-0.8	0.0	1.0	1.7	3.4	5.4	7.4	7.4	7.5	8.0	8.9	10.8	10.1	8.2	7.0	6.6	5.7	4.8	3.2	2.4	0.9	-0.7	-1.9	-3.5	-3.2	
China 1st Tier Cities Newly Built Commercial Residential Bldgs Price YoY Avg (1%)	3.3	3.6	3.9	3.9	4.1	3.9	4.0	4.2	4.8	5.2	5.8	5.9	6.2	6.0	5.7	5.3	5.0	4.8	4.4	4.4	4.4	4.3	3.9	3.6	3.3	3.1	2.9	2.7	2.7	2.5	
China 2nd Tier Cities Newly Built Commercial Residential Bldgs Price YoY Avg (1%)	4.8	4.6	4.4	4.2	3.8	3.7	3.5	3.6	4.0	4.4	4.5	4.6	4.4	4.3	4.1	3.8	3.4	3.1	2.8	2.5	2.2	1.7	1.0	0.3	-0.2	-0.6	-1.0	-1.2	-1.4	-1.2	
China 3rd Tier Cities Newly Built Commercial Residential Bldgs Price YoY Average (1%)	5.2	5.1	5.1	4.9	4.5	4.2	3.9	3.8	4.1	4.3	4.2	4.2	4.0	3.7	3.1	2.5	2.0	1.5	1.0	0.5	-0.2	-0.7	-1.6	-2.3	-2.9	-3.3	-3.7	-3.9	-4.0	-3.9	
Data Source: Bloomberg. Intellectual Property of 42 Macro LLC. Nowcast feature weights are dynamically retrained monthly according to the relative strength of the first difference regressions between the independent and the dependent variables.																															

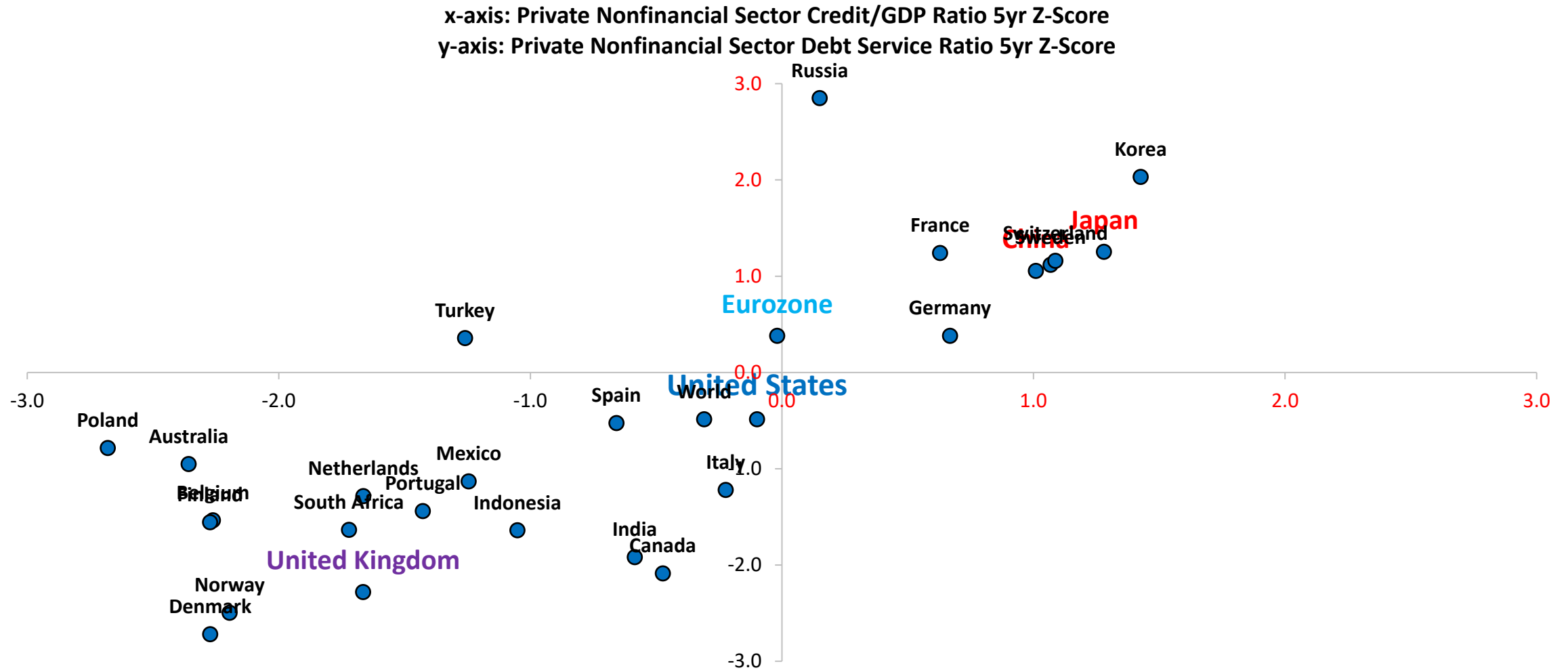
Data Source: Bloomberg. Intellectual Property of 42 Macro LLC. Nowcast feature weights are dynamically retrained monthly according to the relative strength of the first difference regressions between the independent and the dependent variables.

Four Horsemen Of Economic Risk: DEMOGRAPHICS

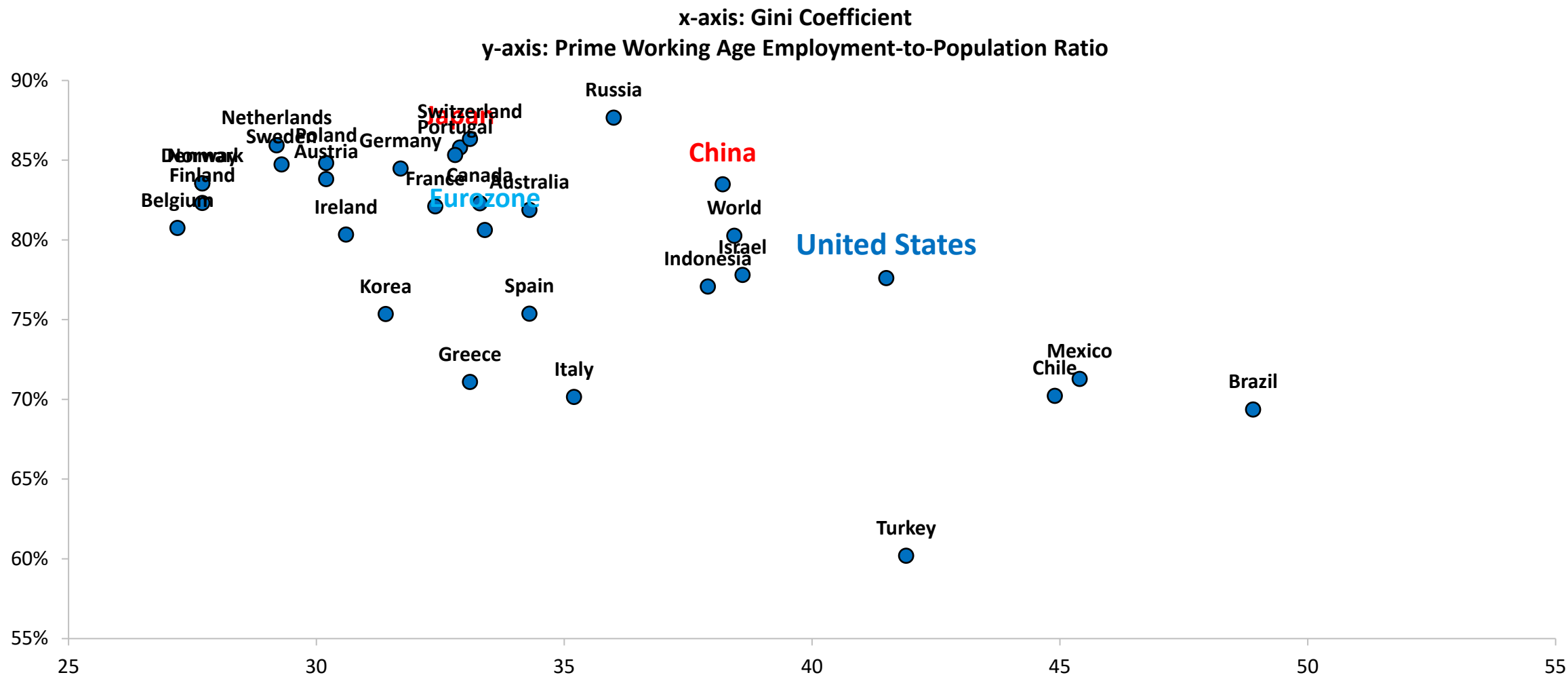
x-axis: 5yr Forward Old-Age Dependency Ratio
y-axis: Working Age Population 5yr Forward CAGR



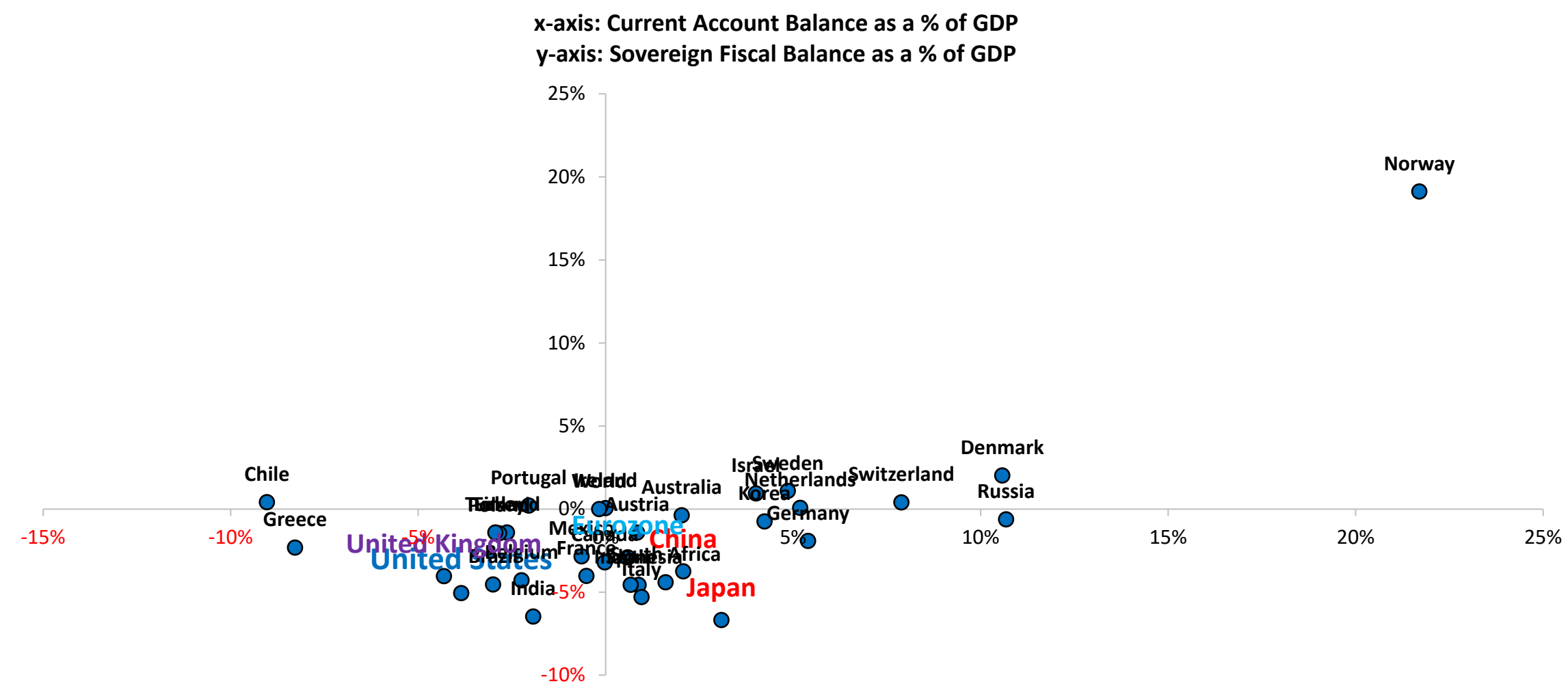
Four Horsemen Of Economic Risk: LEVERAGE



Four Horsemen Of Economic Risk: POLITICS

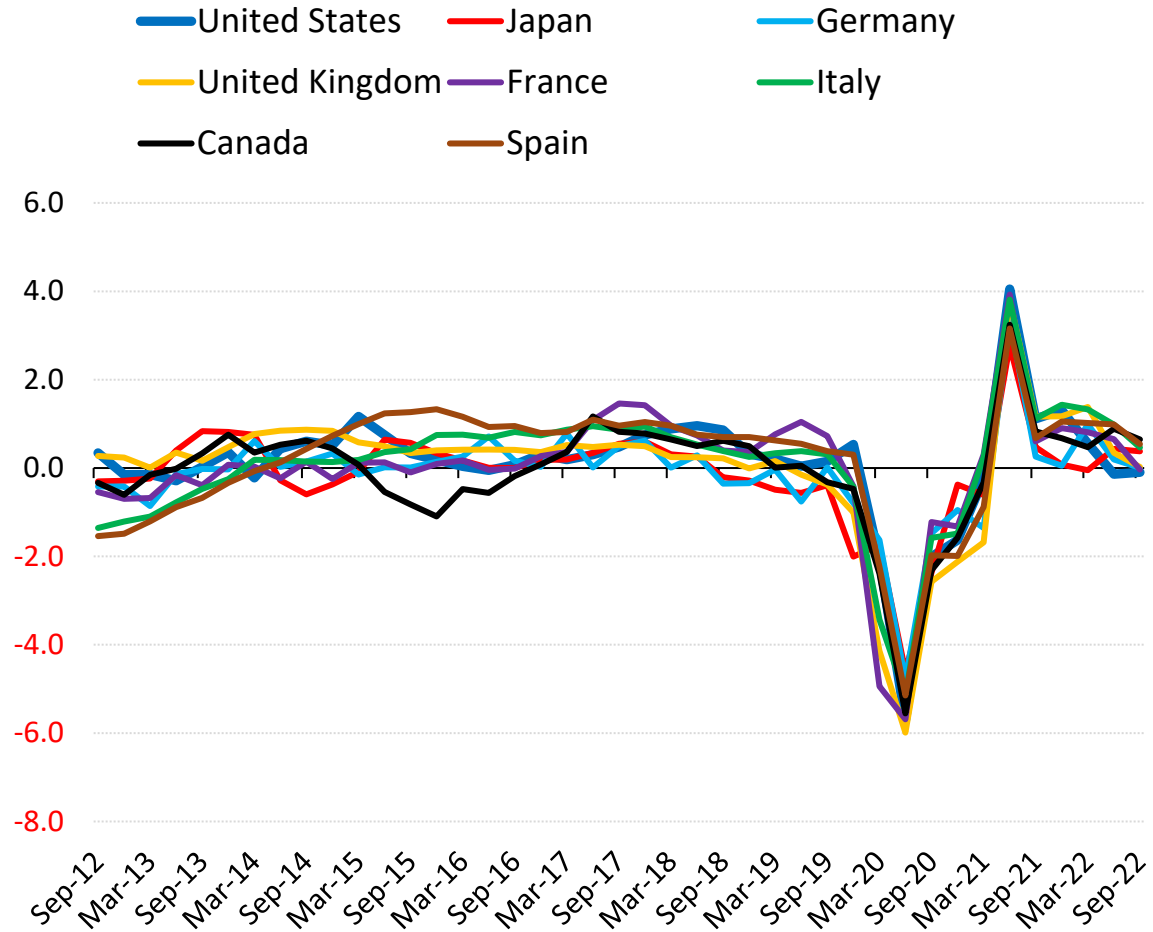


Four Horsemen Of Economic Risk: BALANCE OF PAYMENTS



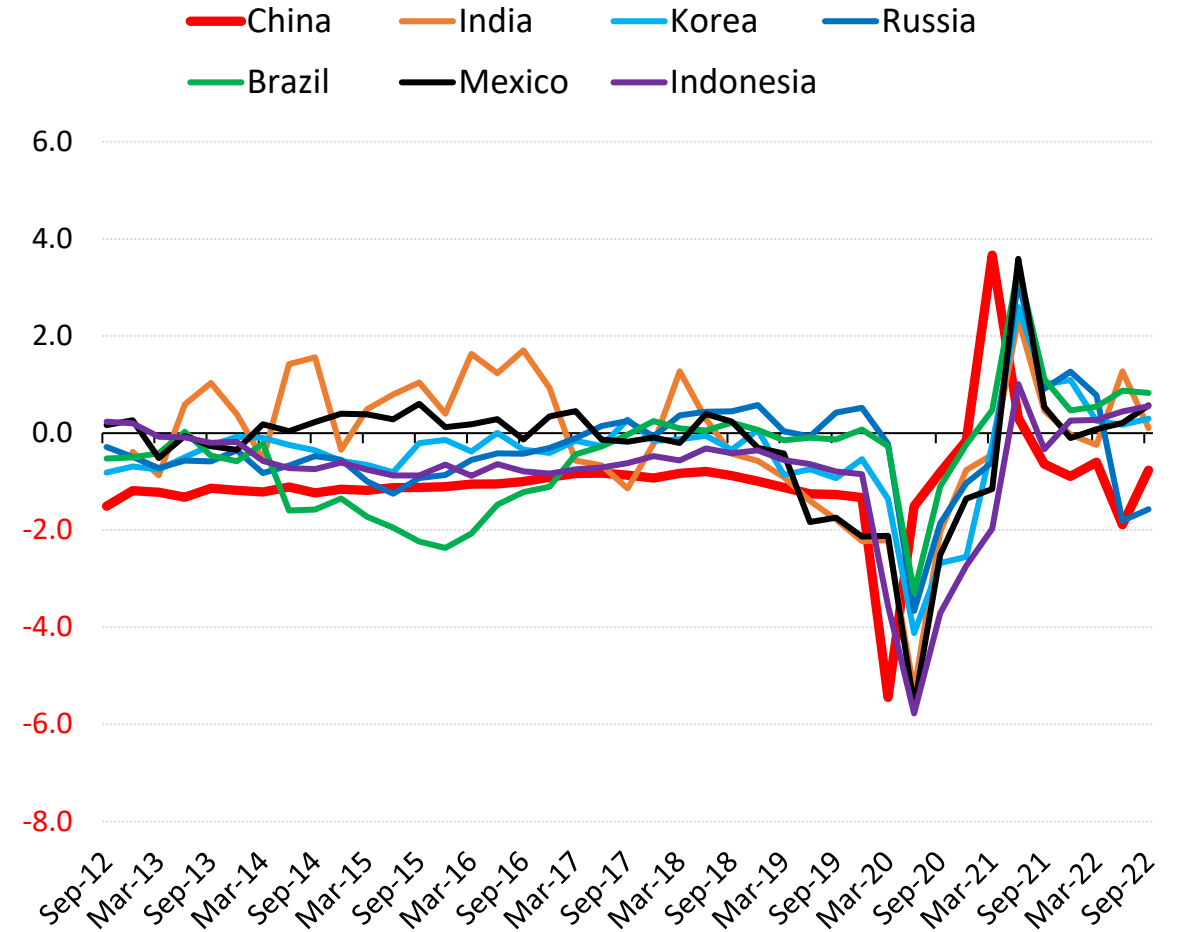
Real GDP: DM

Real GDP YoY, Trailing 10yr Z-Score



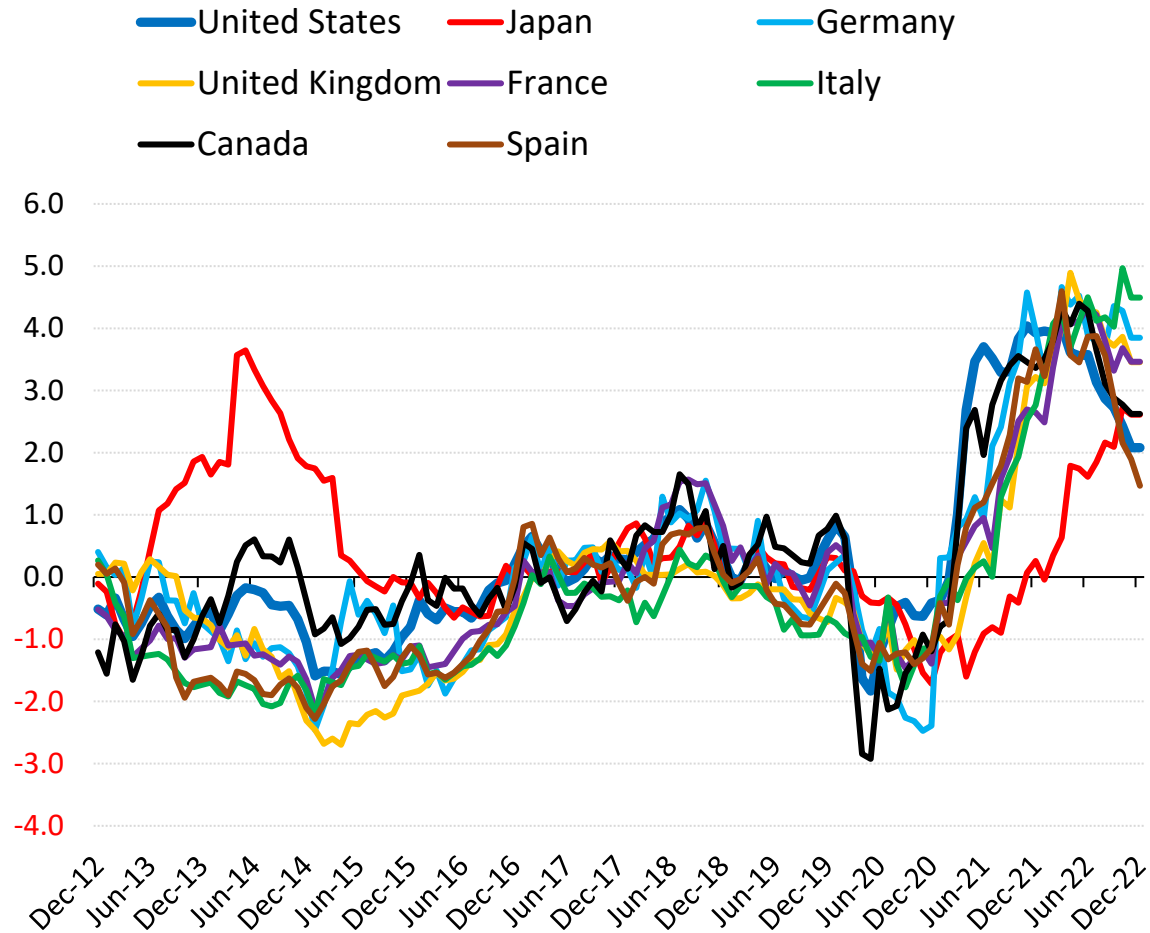
Real GDP: EM

Real GDP YoY, Trailing 10yr Z-Score



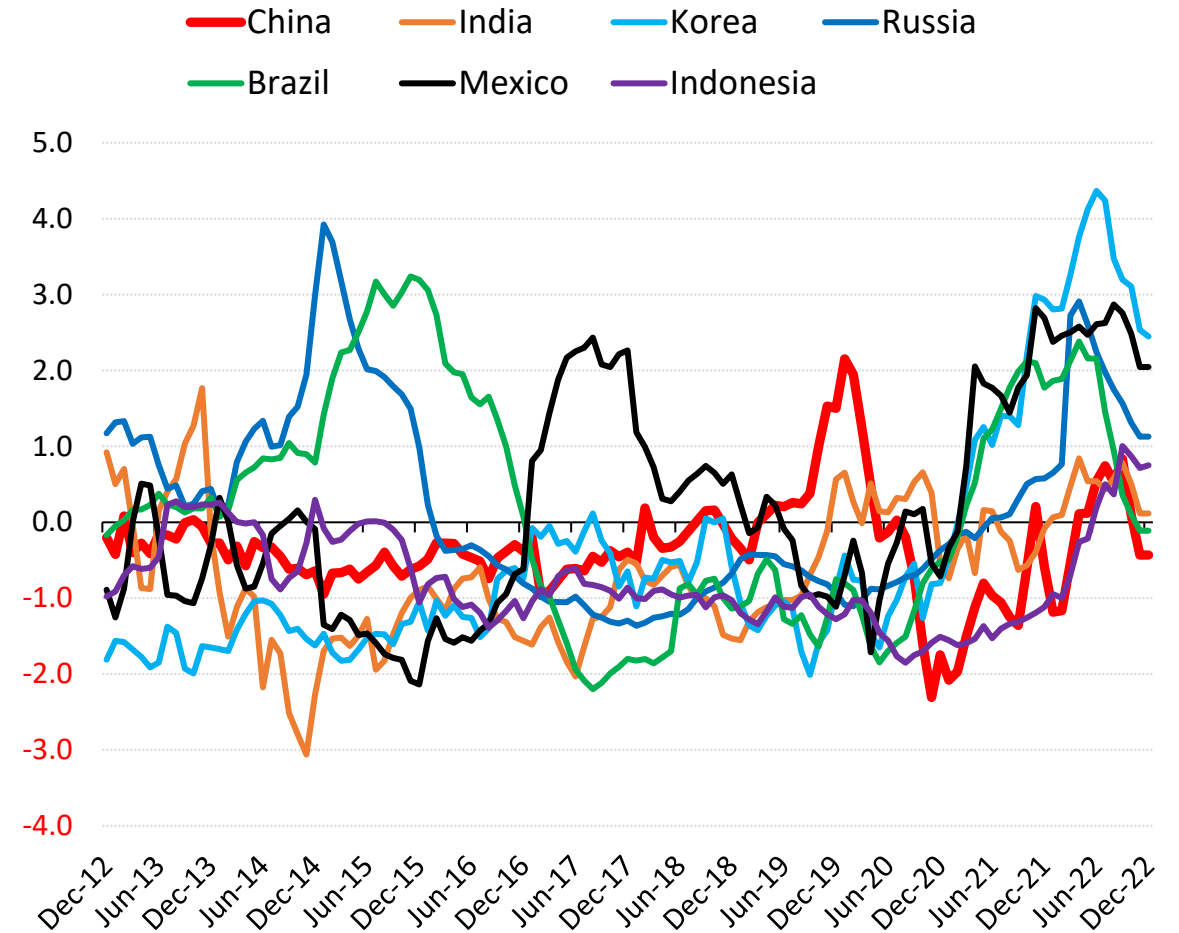
Headline CPI: DM

Headline CPI YoY, Trailing 10yr Z-Score



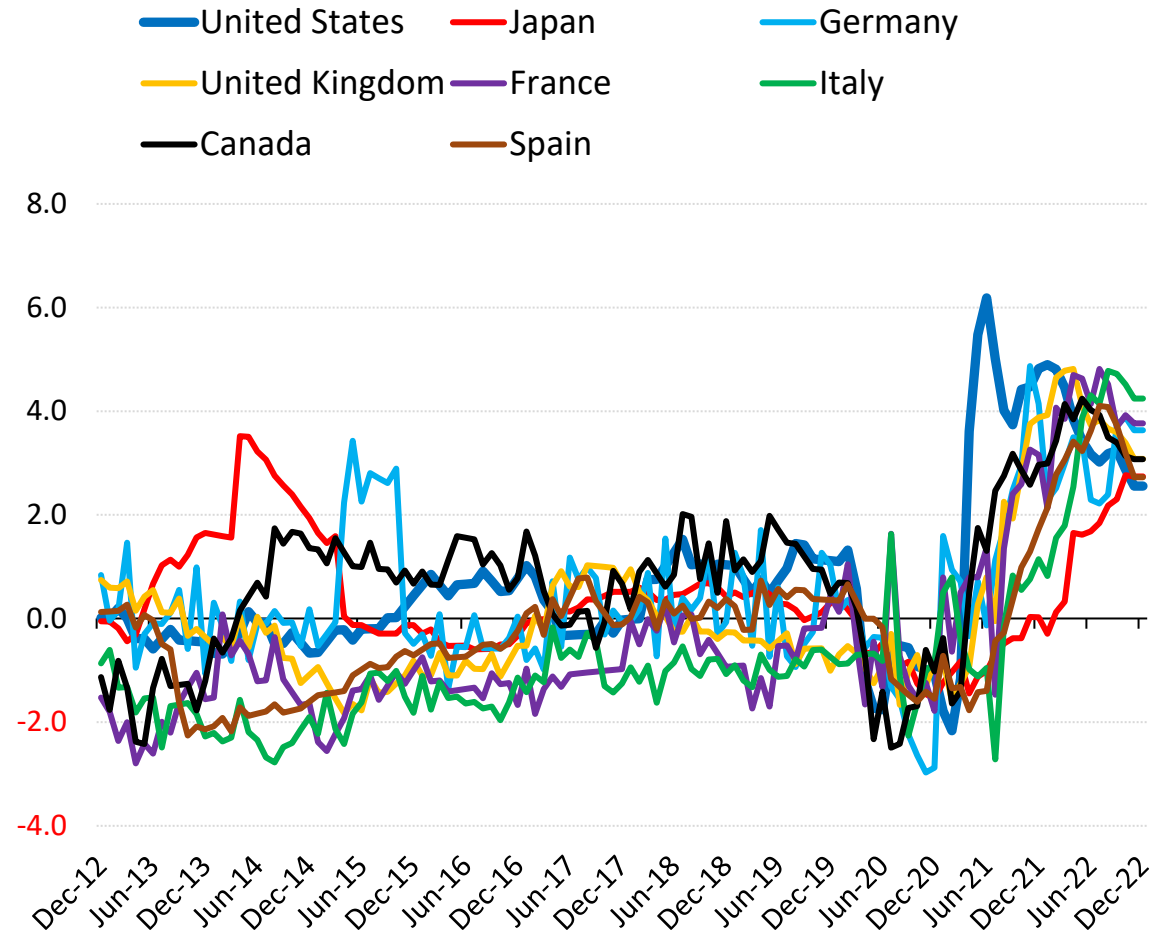
Headline CPI: EM

Headline CPI YoY, Trailing 10yr Z-Score



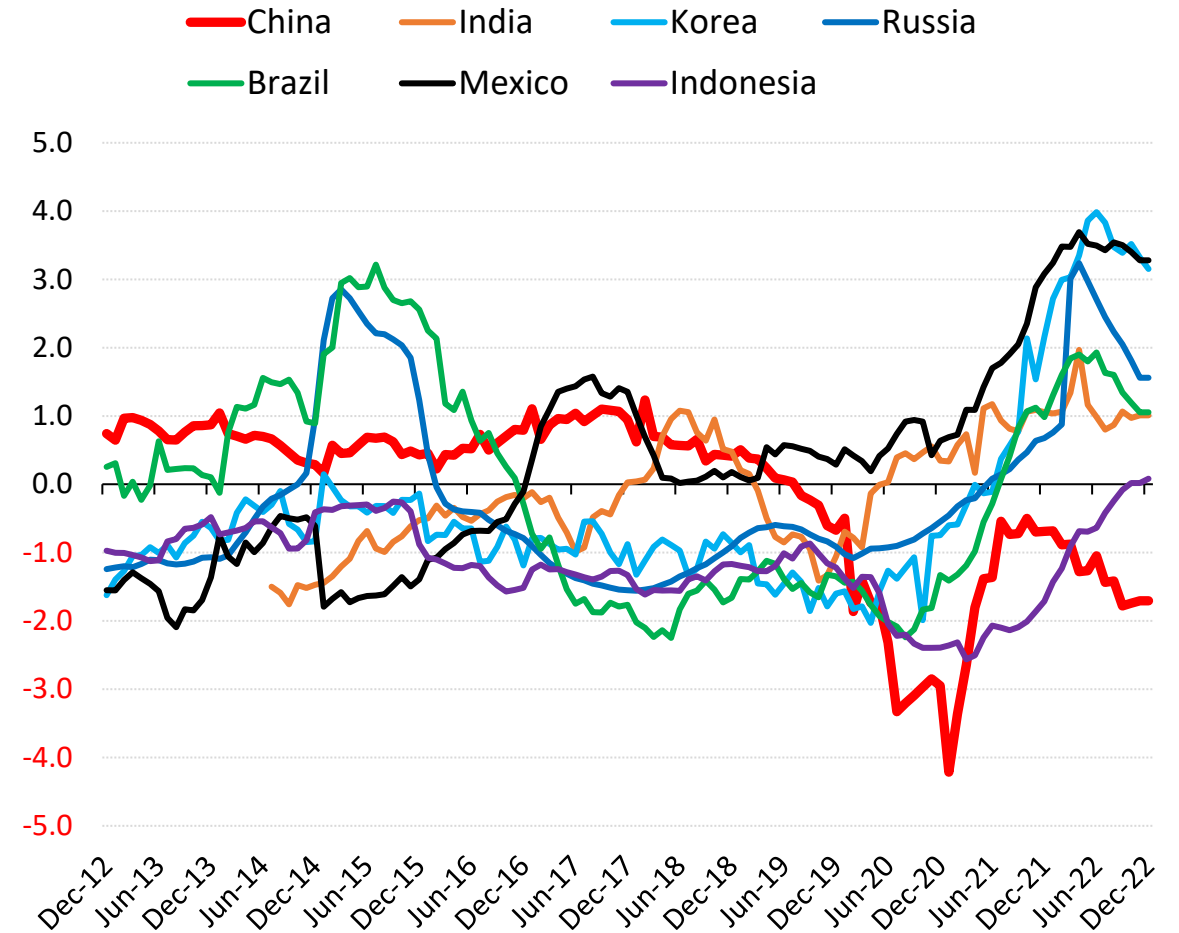
Core CPI: DM

Core CPI YoY, Trailing 10yr Z-Score



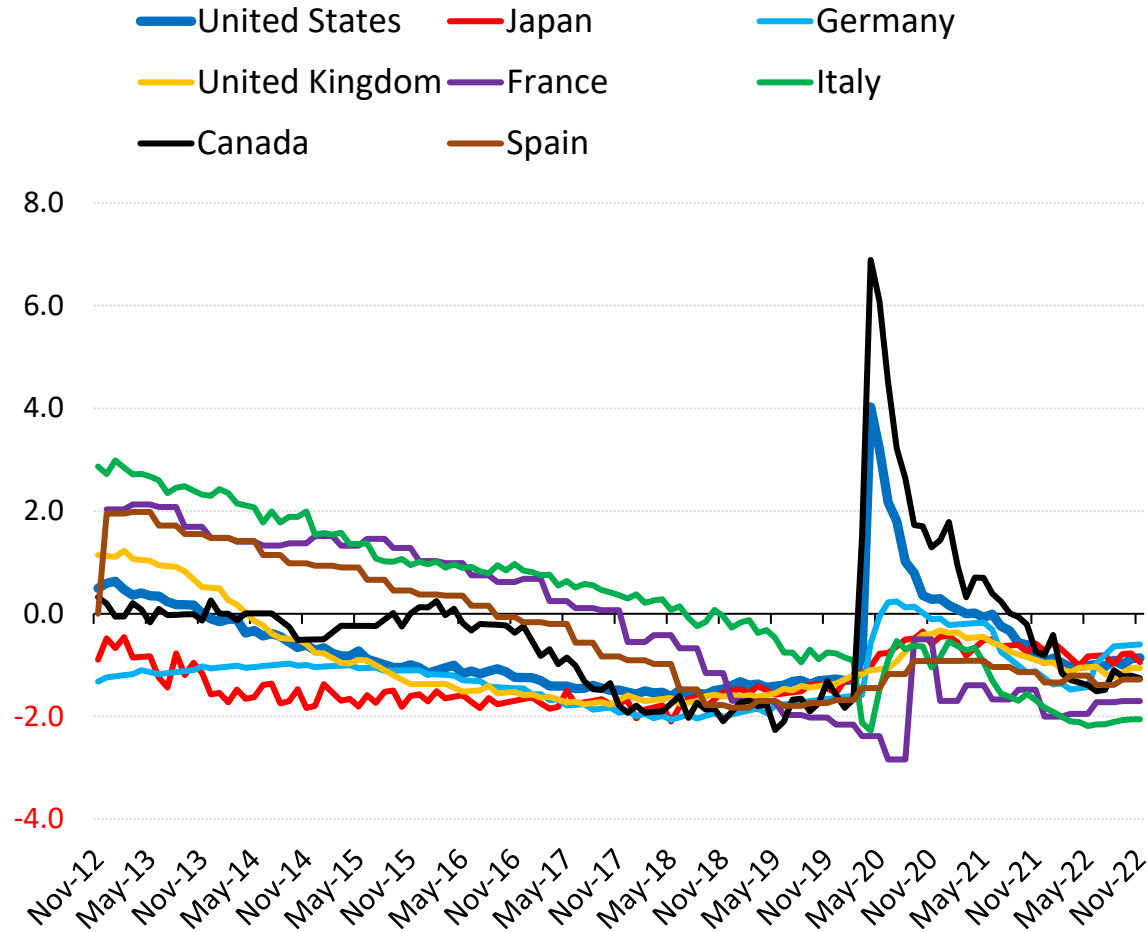
Core CPI: EM

Core CPI YoY, Trailing 10yr Z-Score



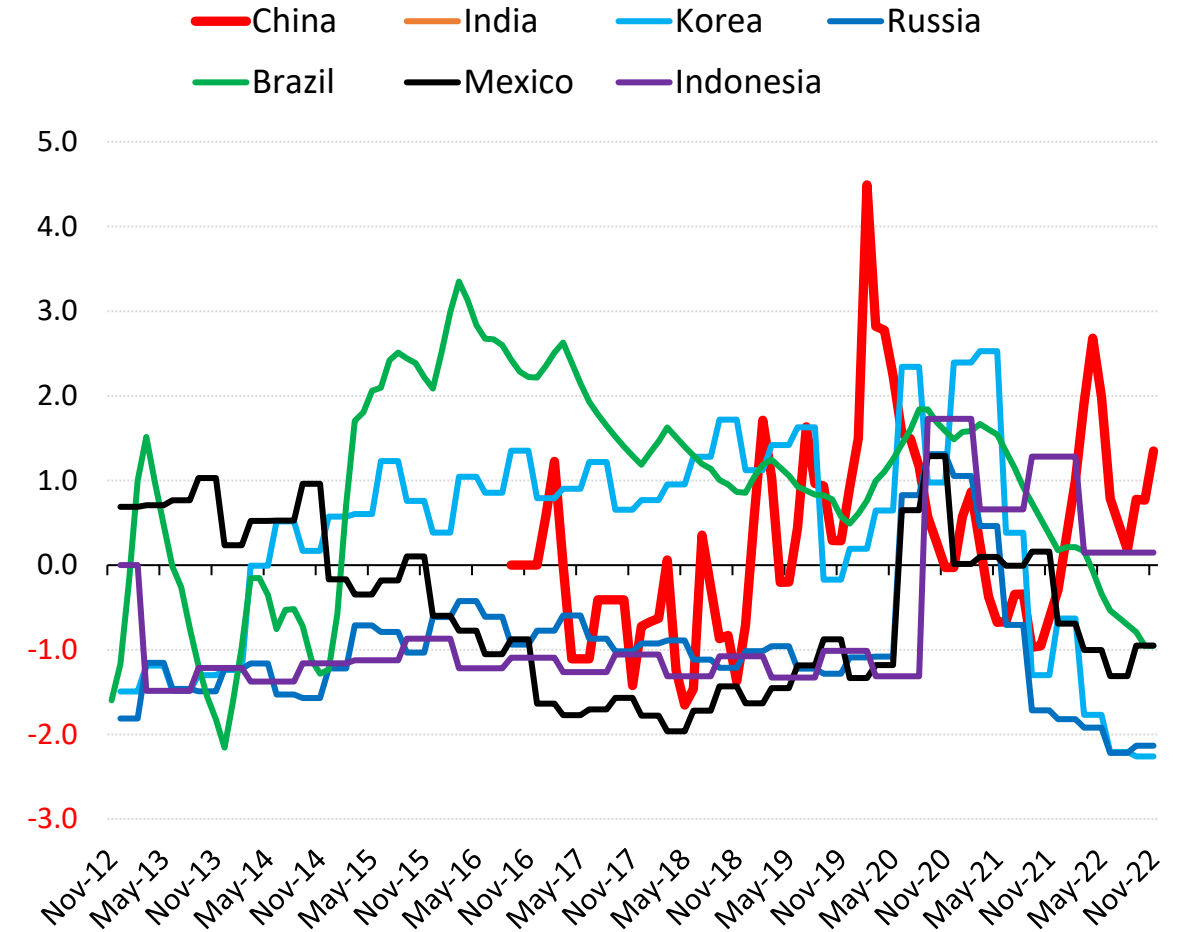
Headline Unemployment Rate: DM

Headline Unemployment Rate, Trailing 10yr Z-Score



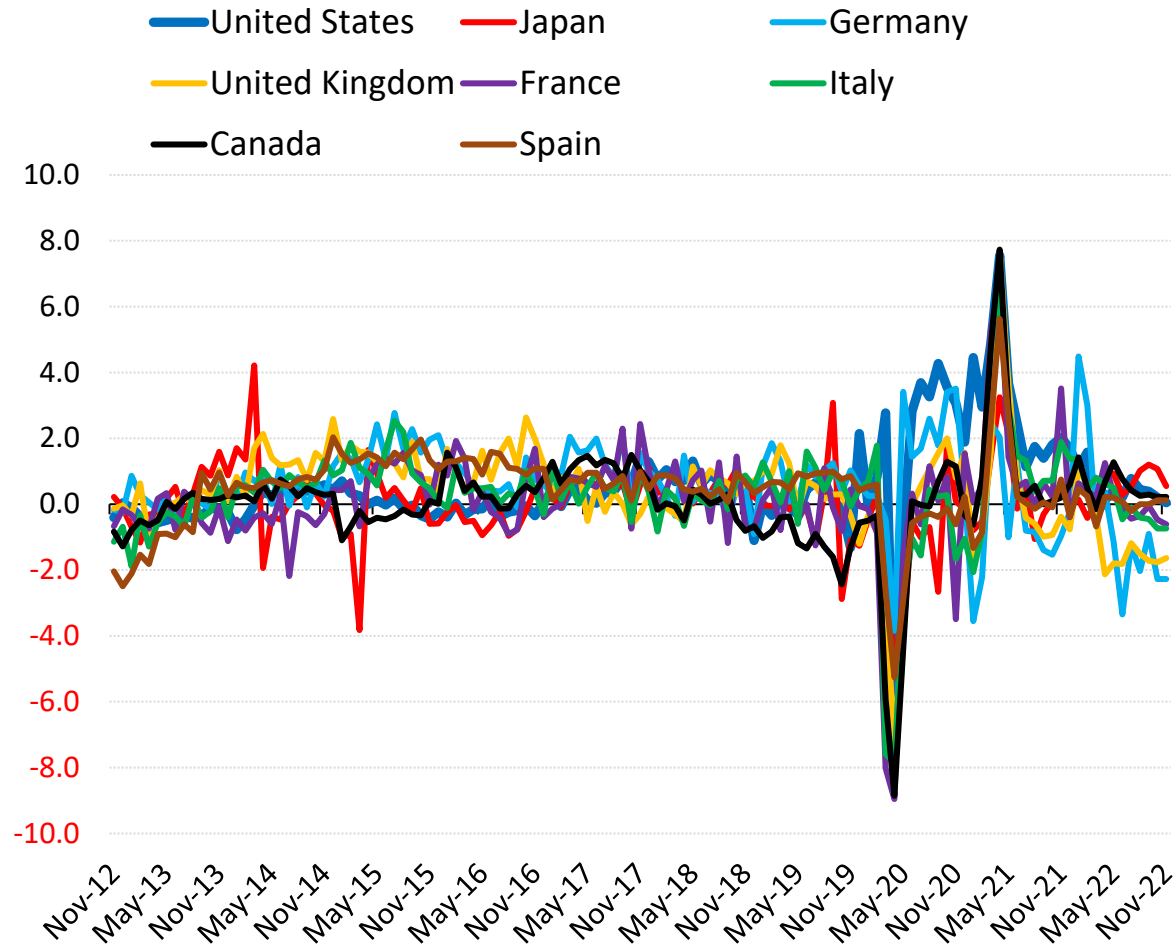
Headline Unemployment Rate: EM

Headline Unemployment Rate, Trailing 10yr Z-Score



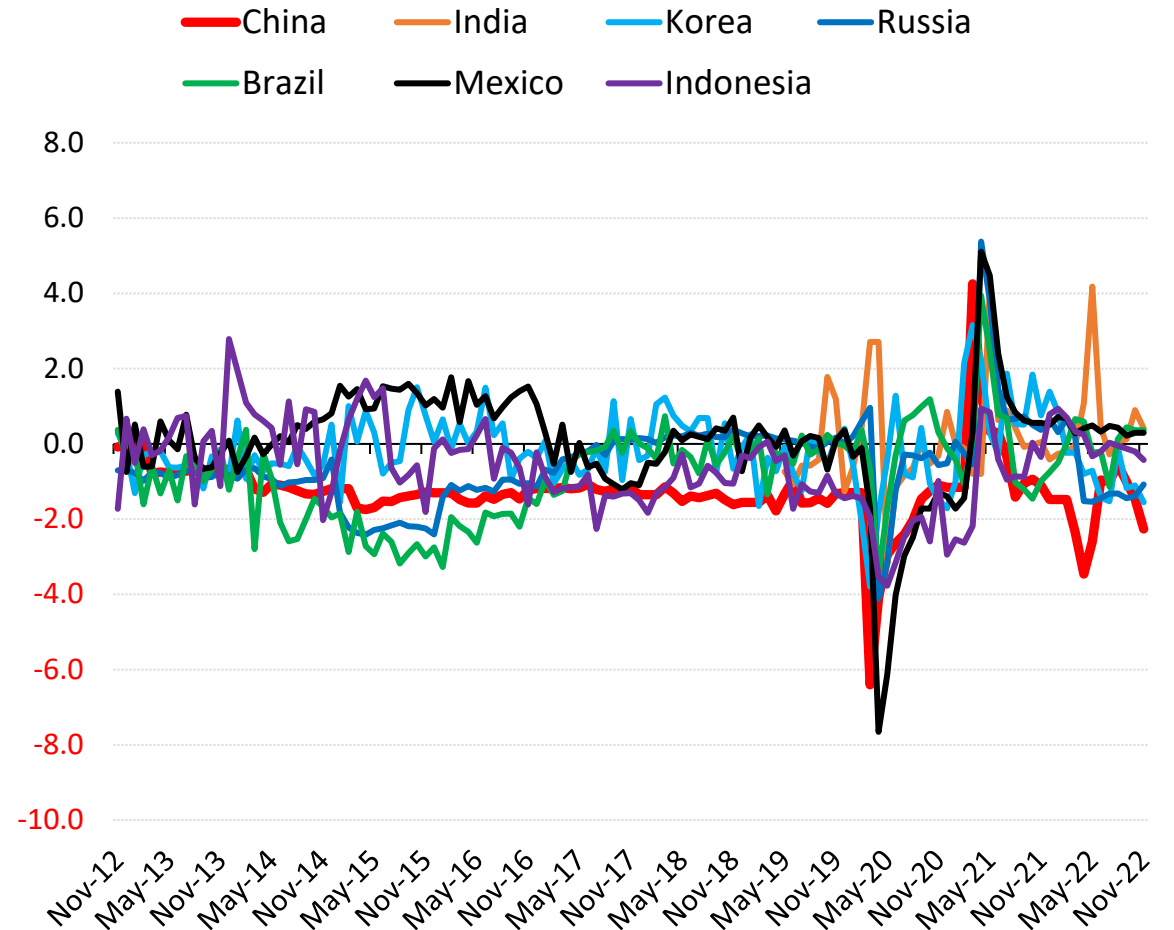
Consumption: DM

Consumer Spending YoY, Trailing 10yr Z-Score



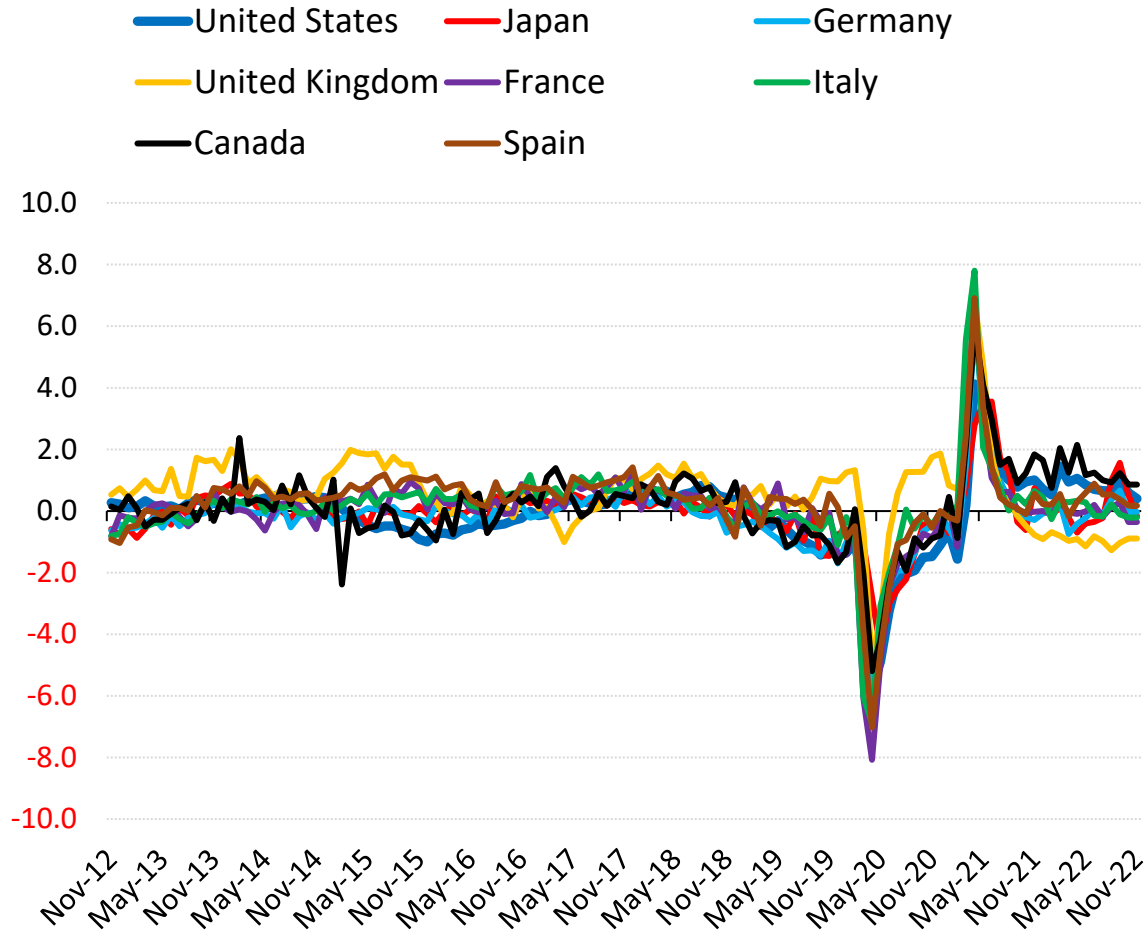
Consumption: EM

Consumer Spending YoY, Trailing 10yr Z-Score



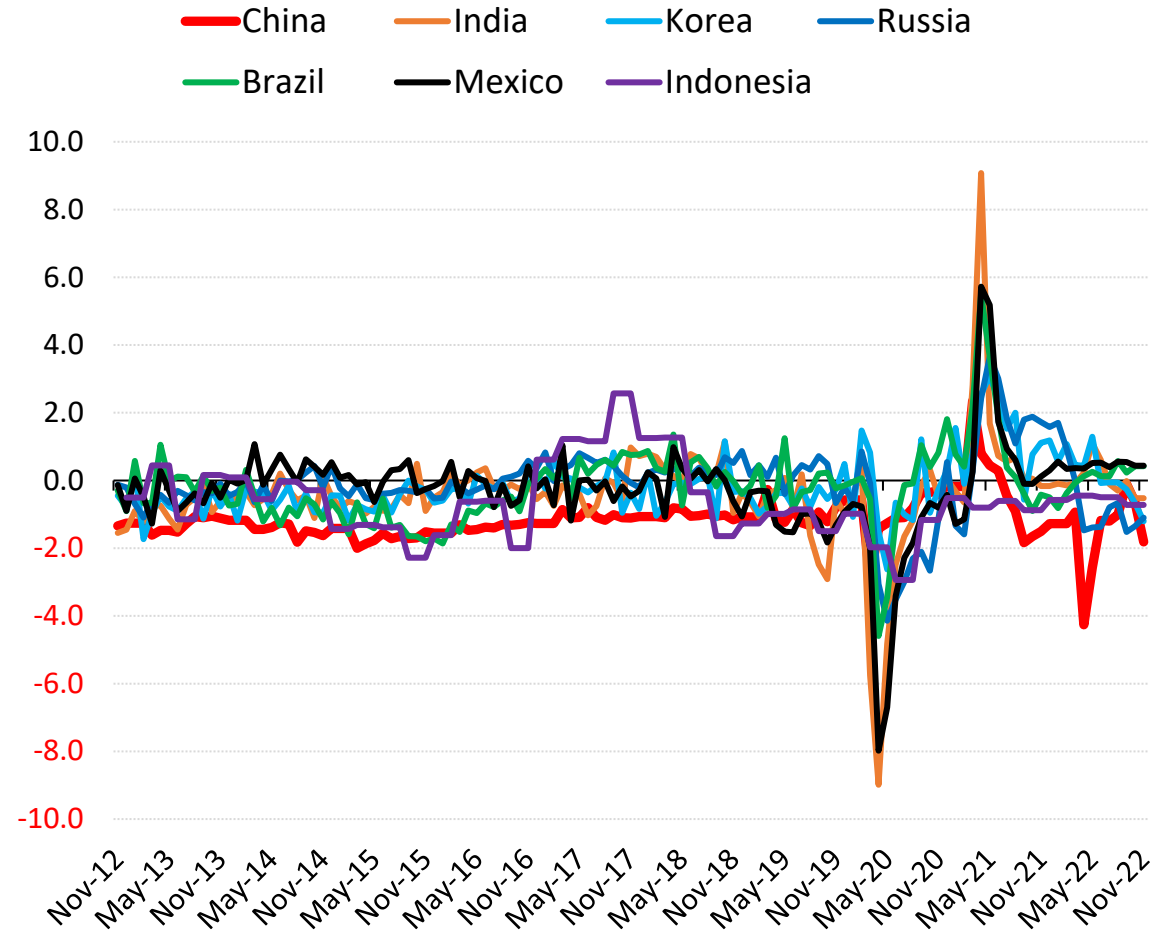
Production: DM

Industrial Production YoY, Trailing 10yr Z-Score



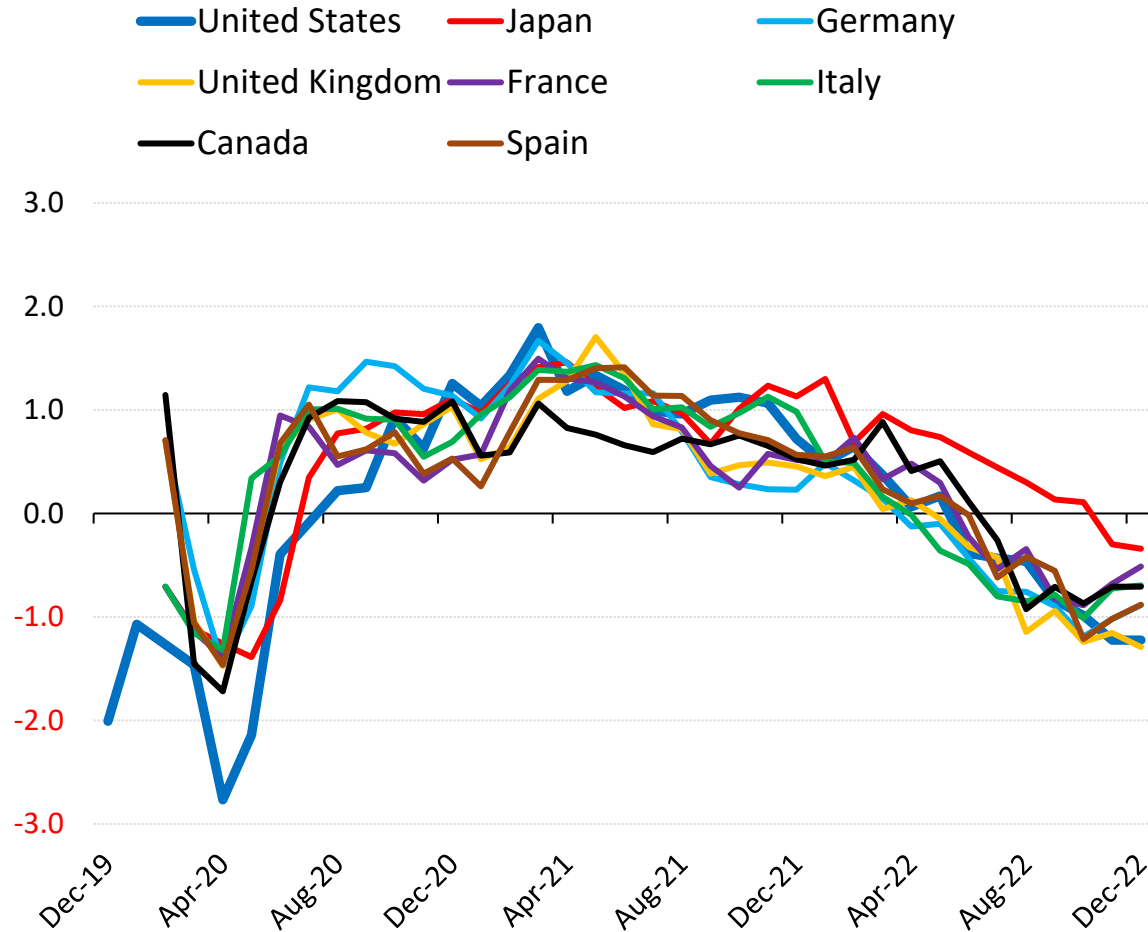
Production: EM

Industrial Production YoY, Trailing 10yr Z-Score



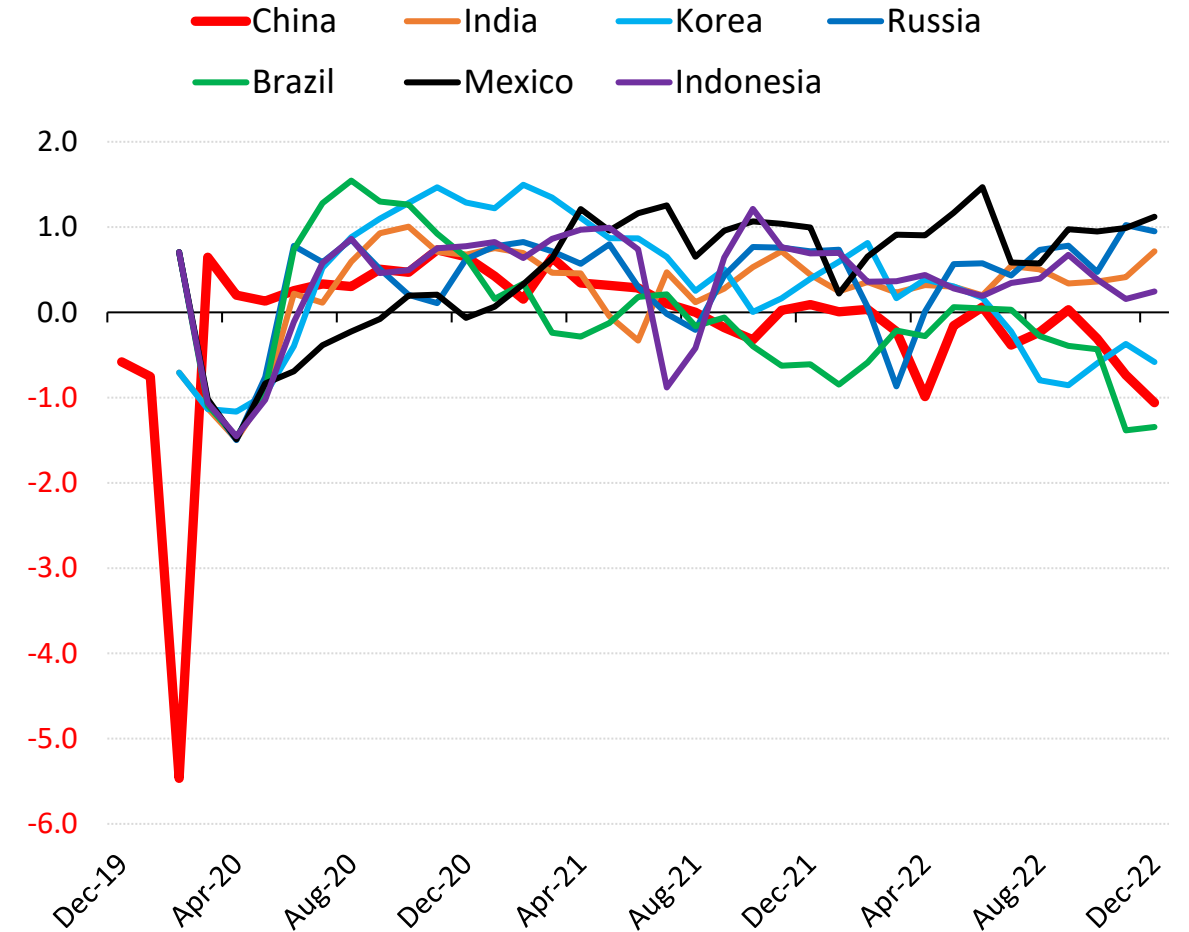
Manufacturing PMIs: DM

Manufacturing PMI, Trailing 3yr Z-Score



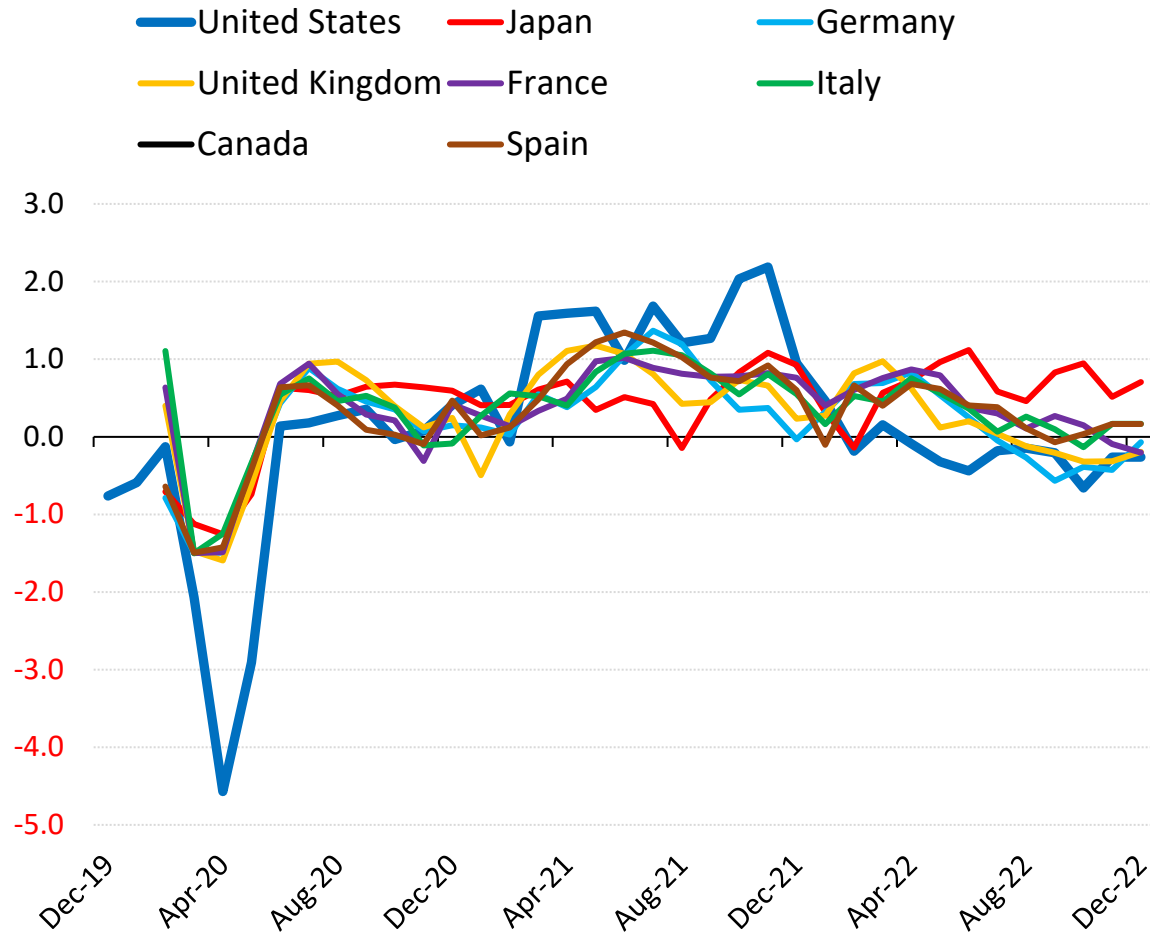
Manufacturing PMIs: EM

Manufacturing PMI, Trailing 3yr Z-Score



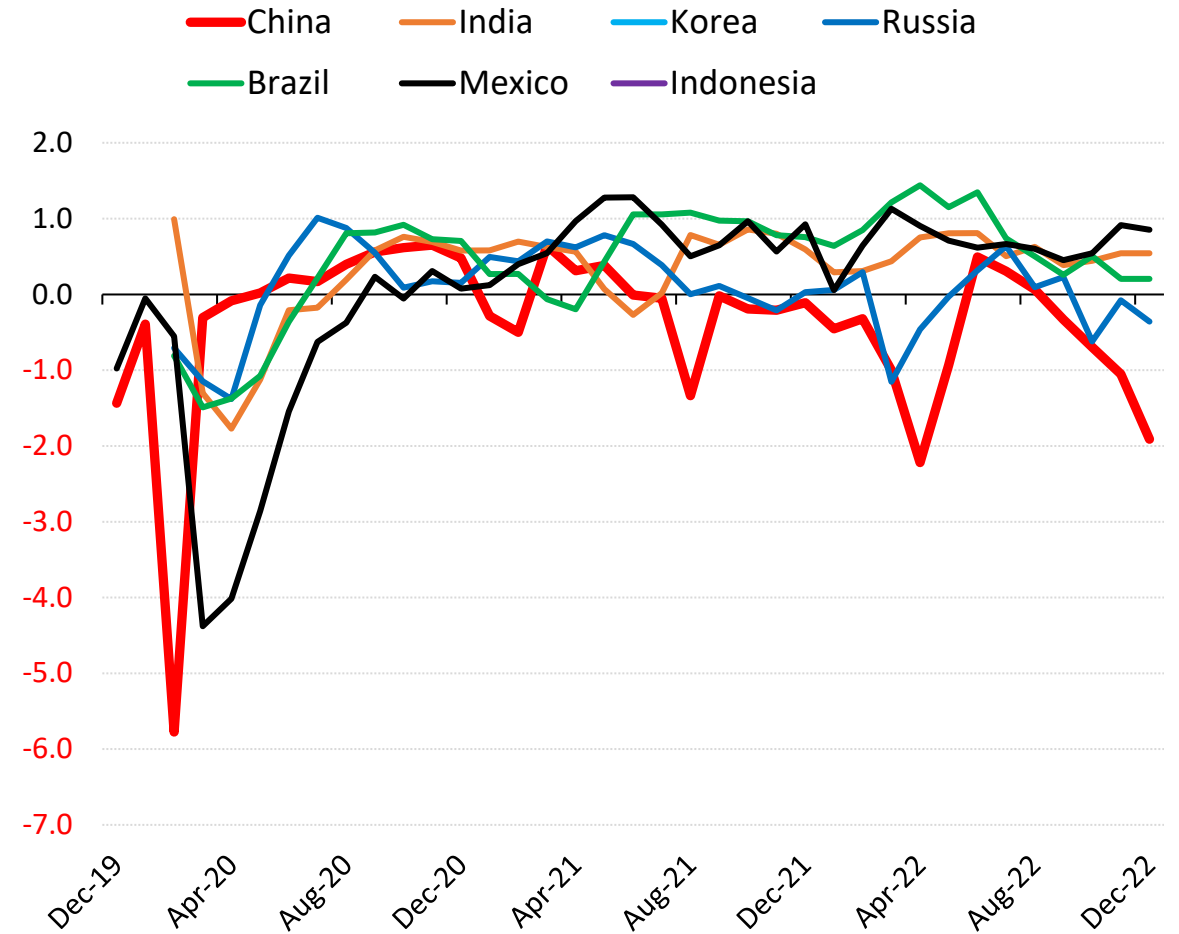
Services PMIs: DM

Services PMIs, Trailing 3yr Z-Score



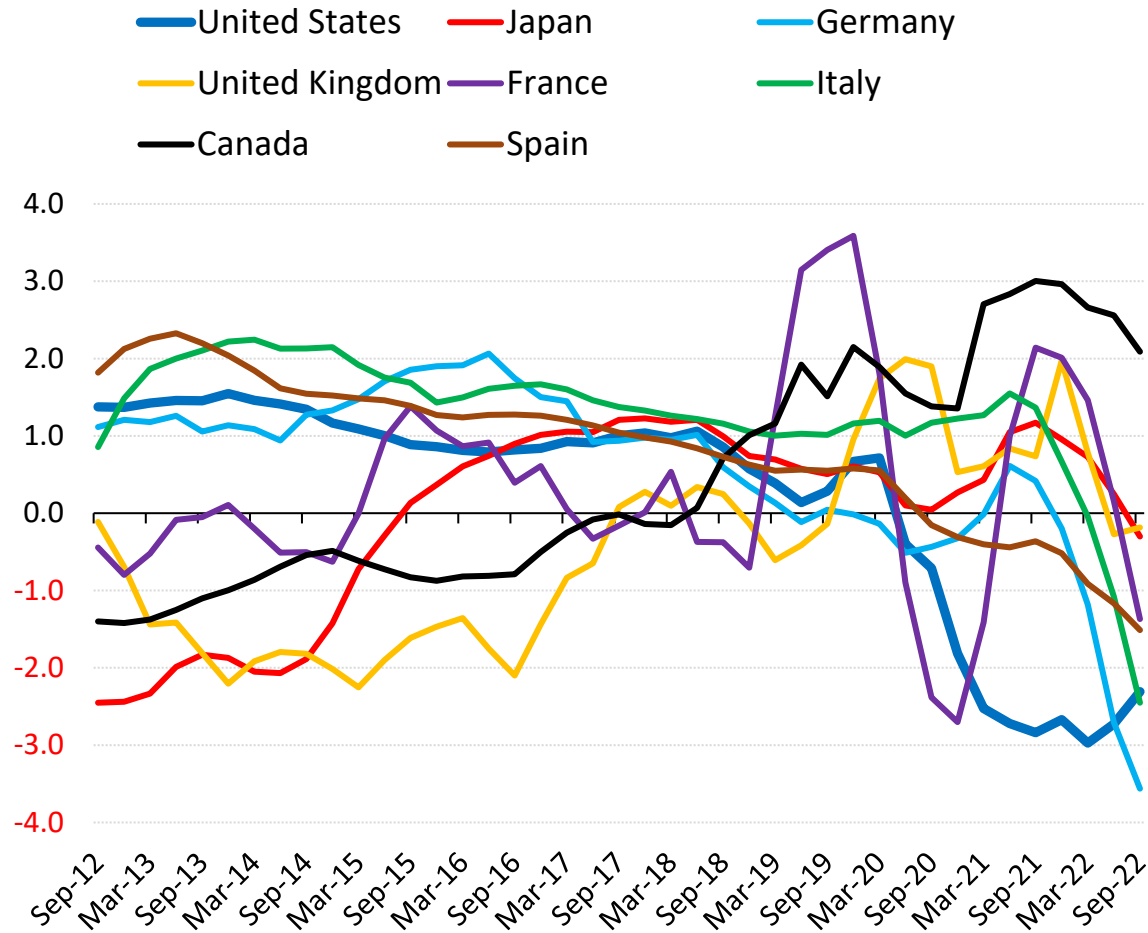
Services PMIs: EM

Services PMIs, Trailing 3yr Z-Score



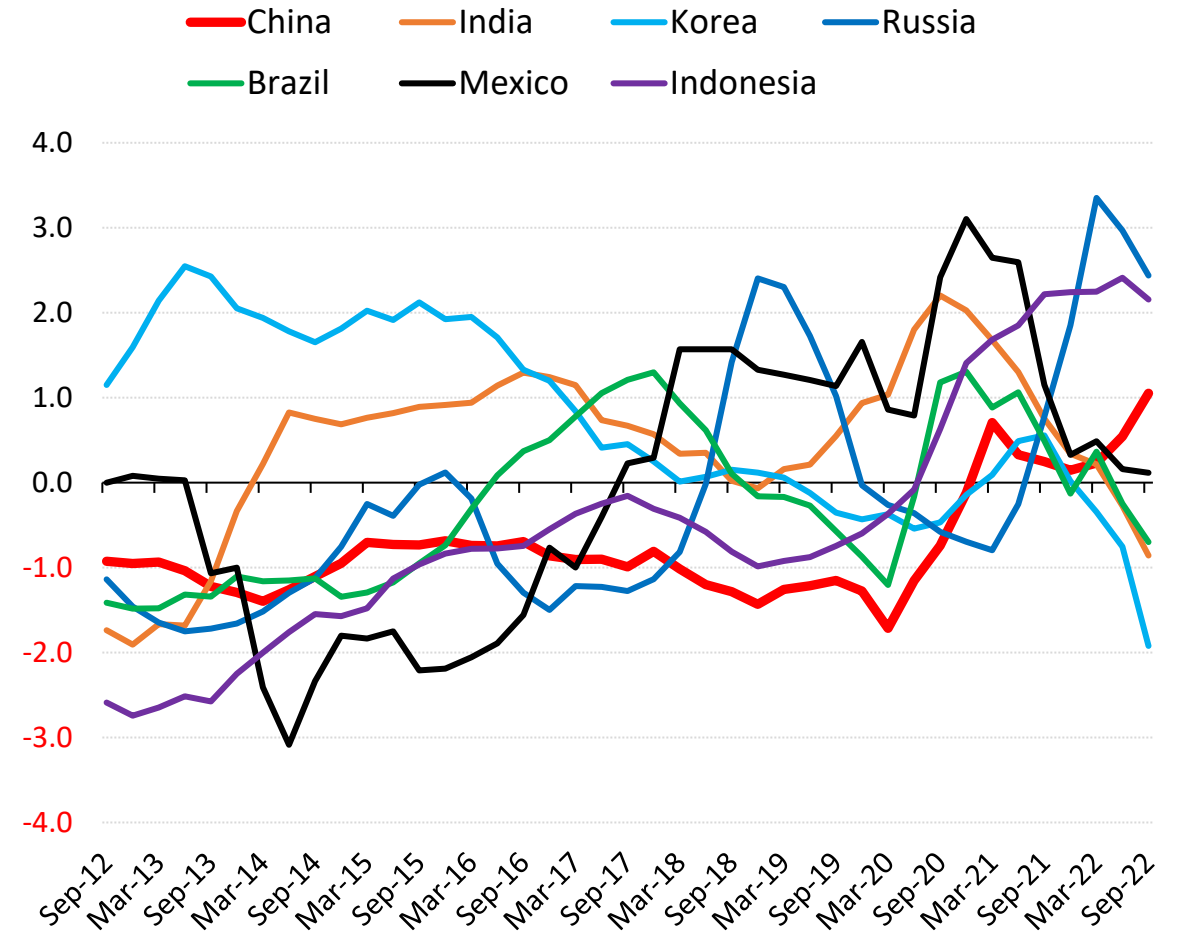
Current Account Balance/GDP: DM

Current Account Balance/GDP, Trailing 10yr Z-Score



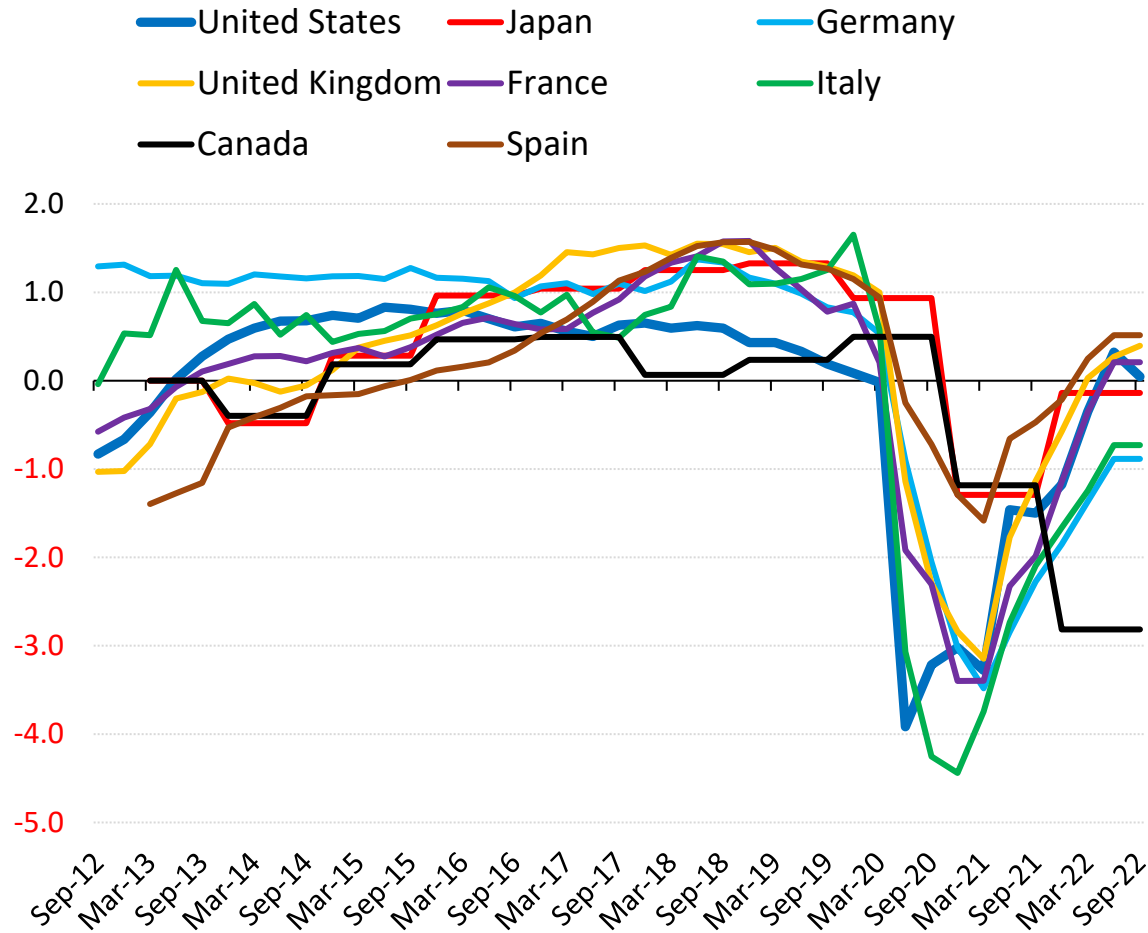
Current Account Balance/GDP: EM

Current Account Balance/GDP, Trailing 10yr Z-Score



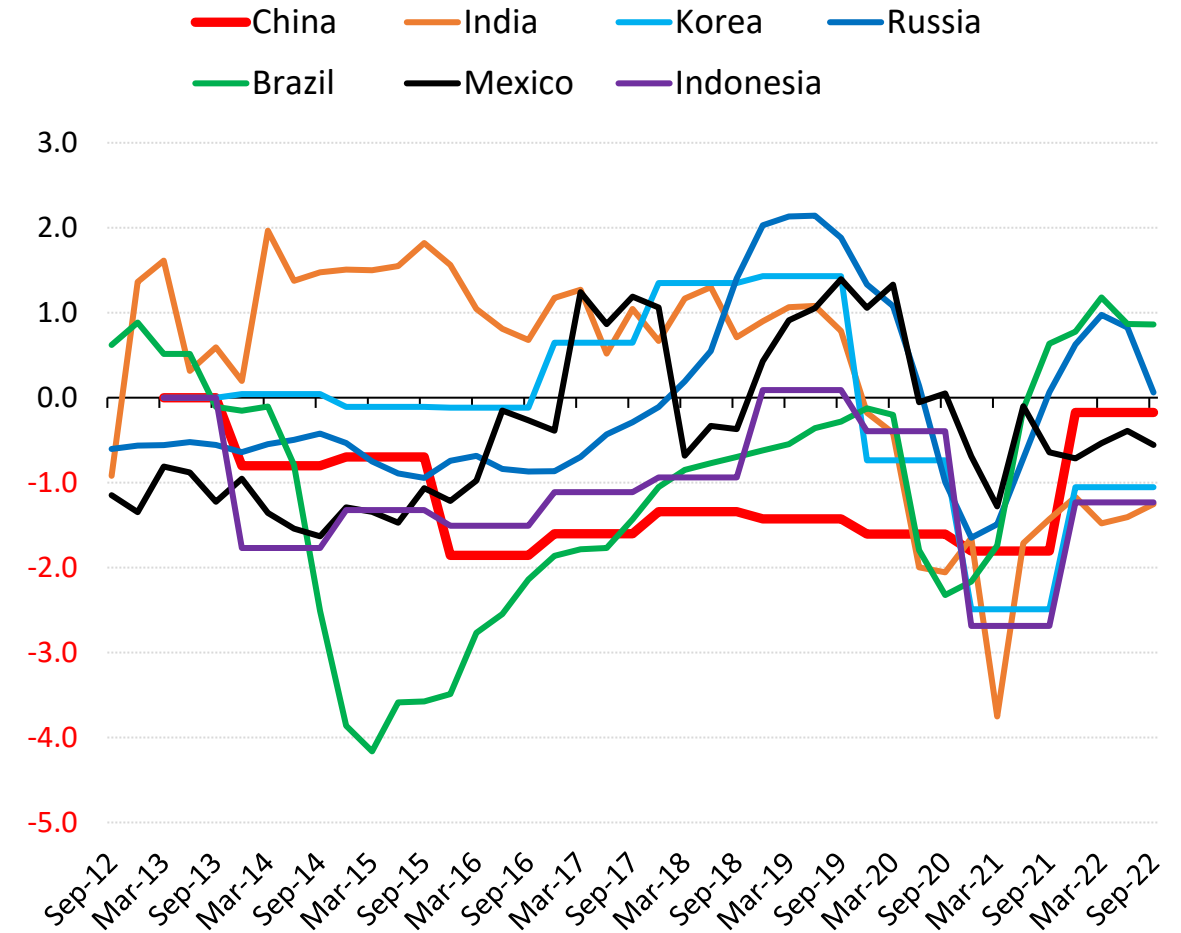
Sovereign Budget Balance/GDP: DM

Sovereign Budget Balance/GDP, Trailing 10yr Z-Score



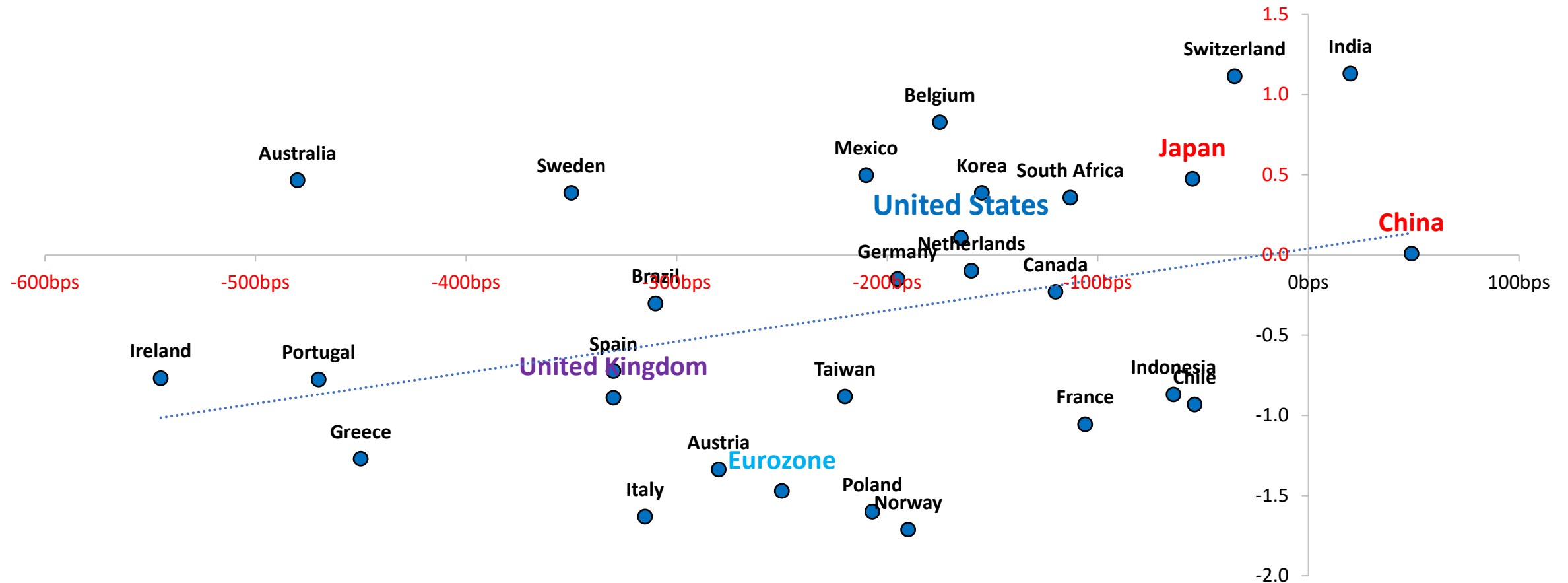
Sovereign Budget Balance/GDP: EM

Sovereign Budget Balance/GDP, Trailing 10yr Z-Score

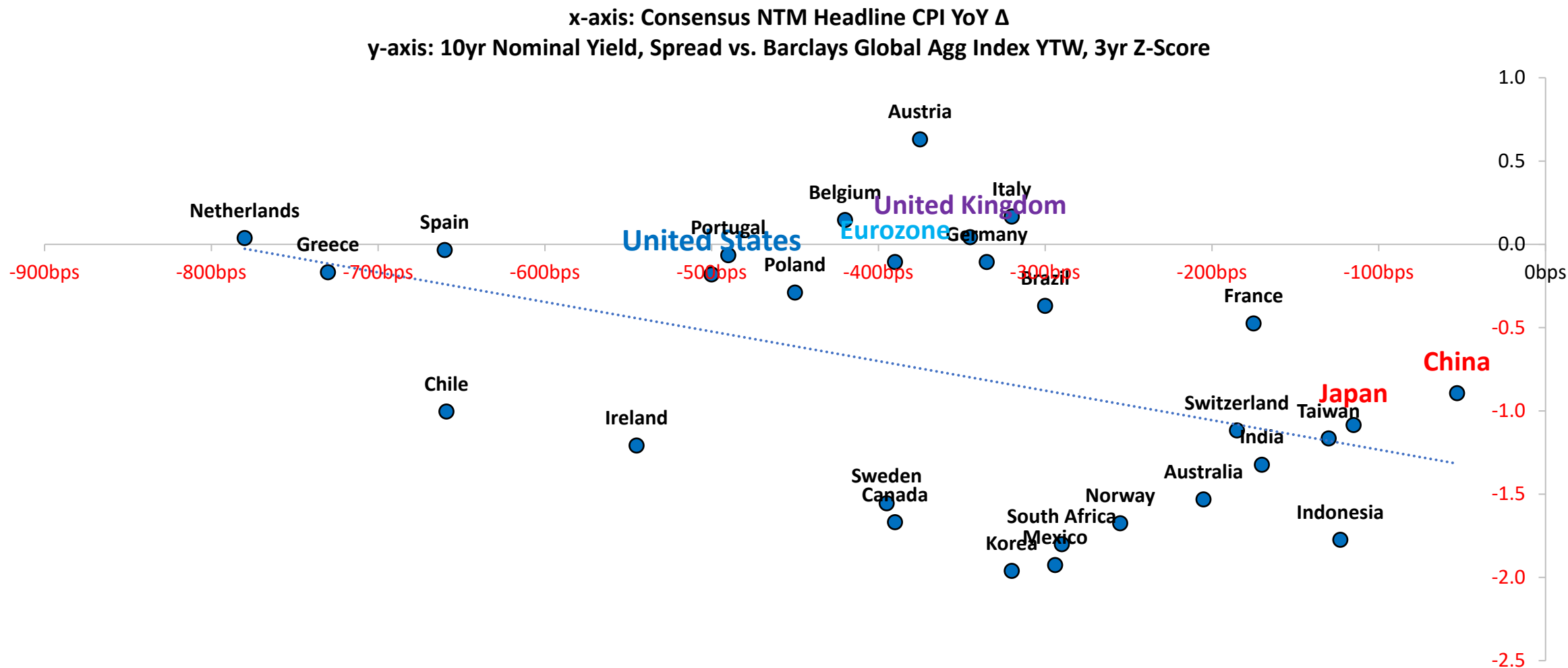


Relative Valuations: GLOBAL EQUITY MARKETS

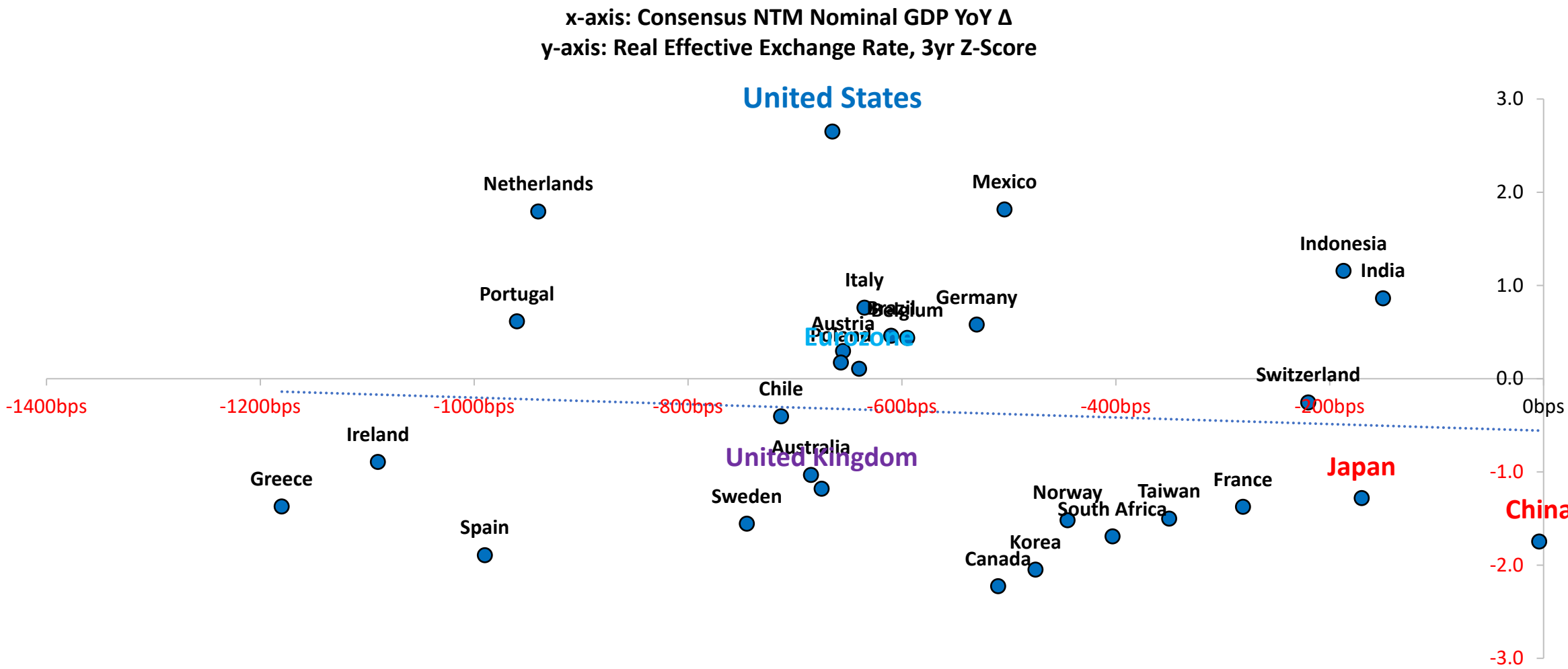
x-axis: Consensus NTM Real GDP YoY Δ
y-axis: NTM P/E Ratio, Spread vs. MSCI World Index, 3yr Z-Score



Relative Valuations: GLOBAL BOND MARKETS

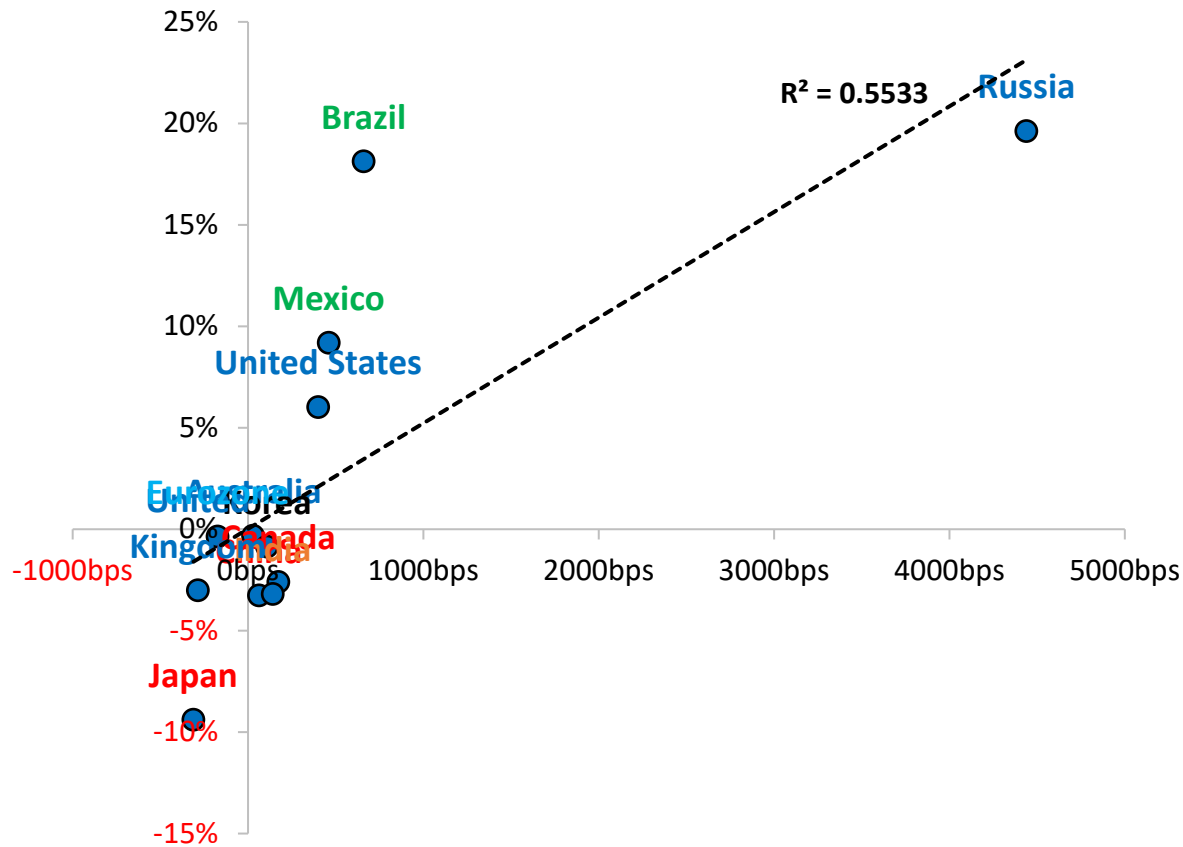


Relative Valuations: GLOBAL CURRENCY MARKETS



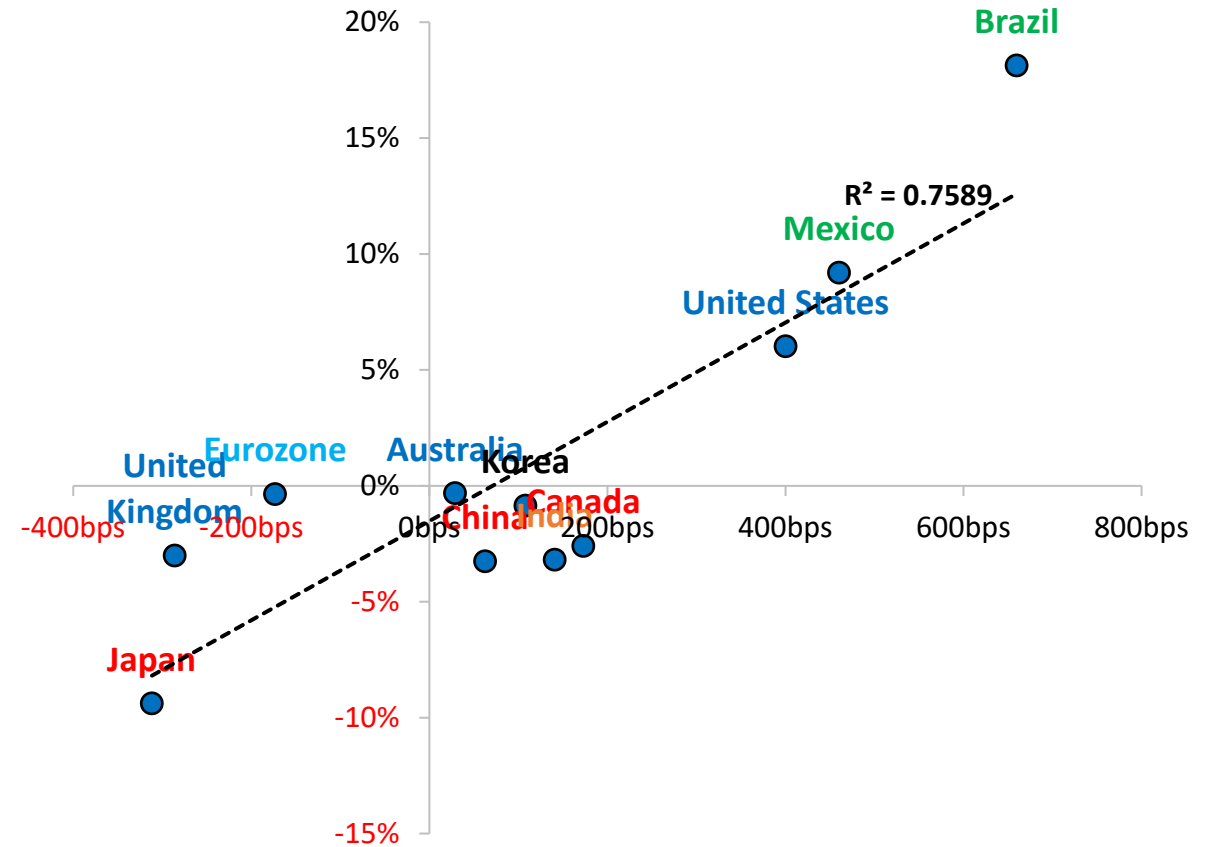
Foreign Exchange Model #1: Real Interest Rate Differentials

x-axis: 1yr Real Interest Rate, YoY bps Δ ; y-axis:
Nominal Effective Exchange Rate, YoY % Δ



(Same Chart ex-Russia)

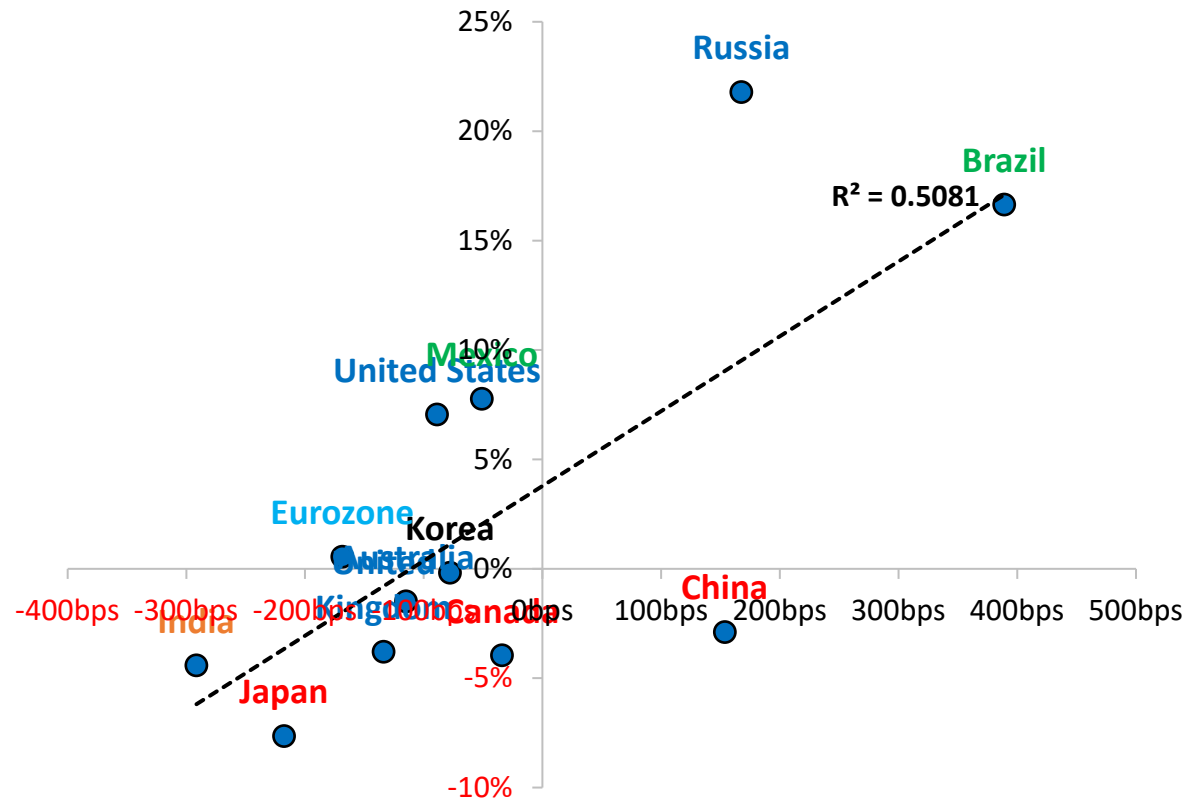
x-axis: 1yr Real Interest Rate, YoY bps Δ ; y-axis:
Nominal Effective Exchange Rate, YoY % Δ



Foreign Exchange Model #2: Fiscal Impulse

x-axis: Sovereign Budget Balance/GDP, bps Δ From
2015-19 Trend;

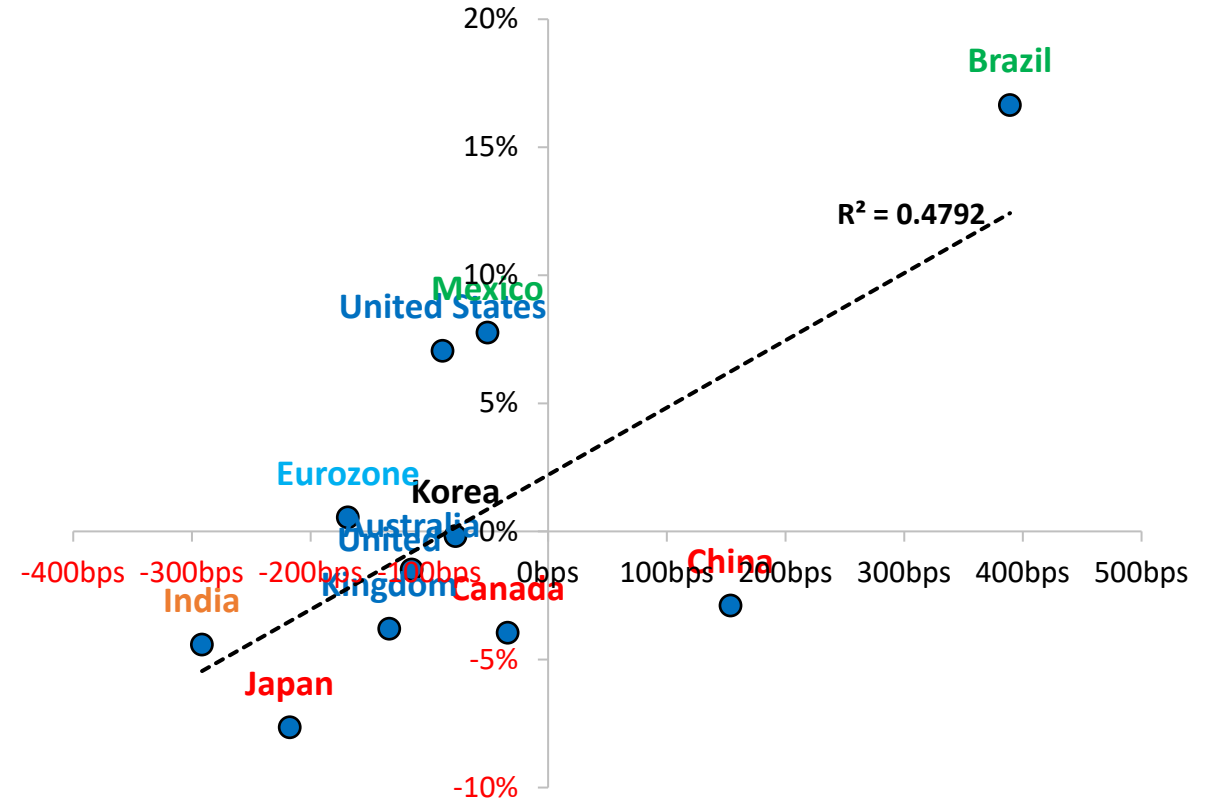
y-axis: Nominal Effective Exchange Rate, YoY % Δ



(Same Chart ex-Russia)

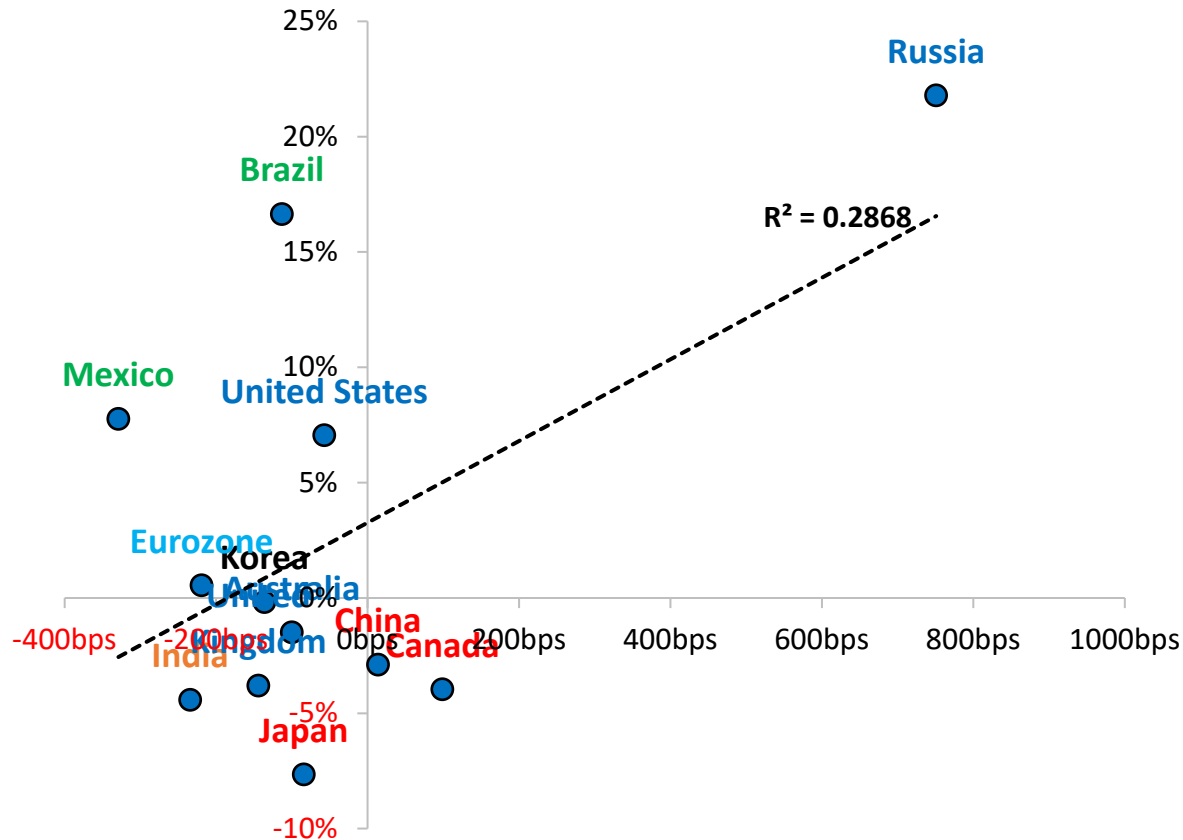
x-axis: Sovereign Budget Balance/GDP, bps Δ From
2015-19 Trend;

y-axis: Nominal Effective Exchange Rate, YoY % Δ



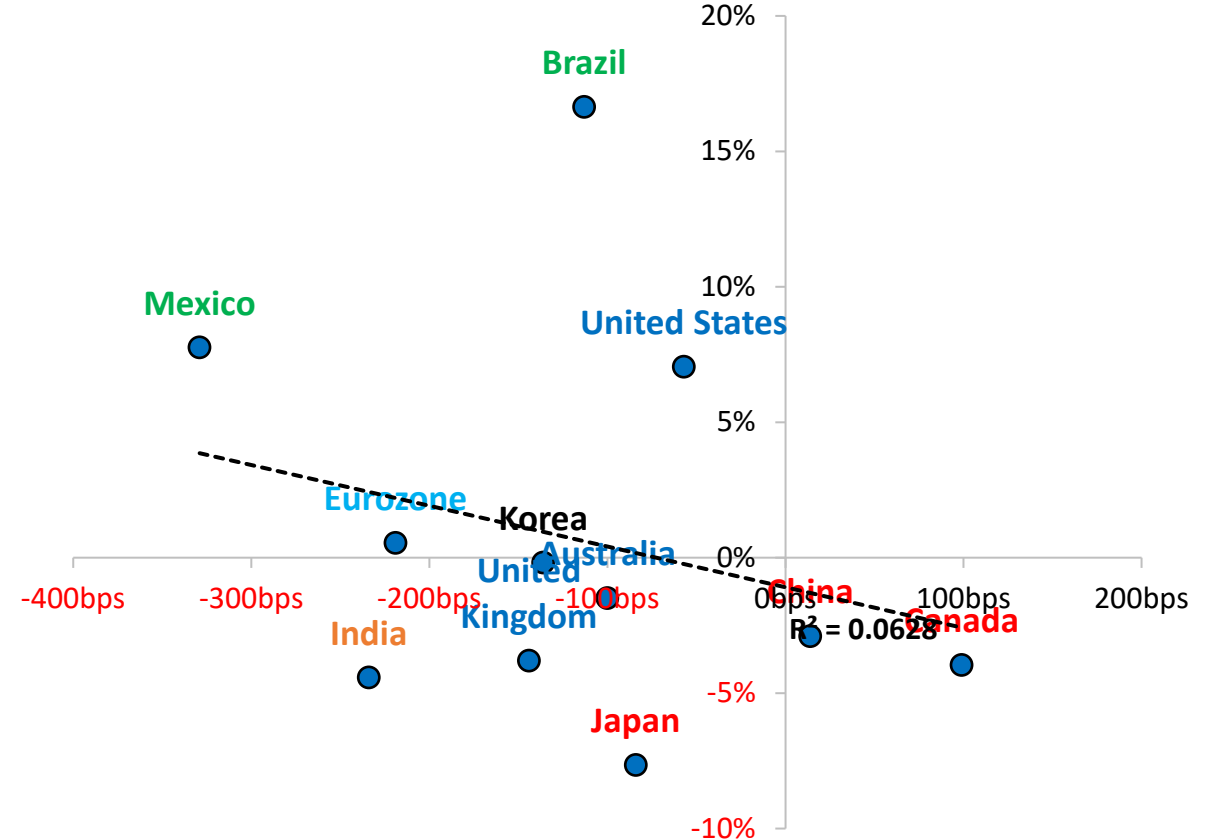
Foreign Exchange Model #3: Terms Of Trade

x-axis: Current Account/GDP, YoY bps Δ ; y-axis:
Nominal Effective Exchange Rate, YoY % Δ



(Same Chart ex-Russia)

x-axis: Current Account/GDP, YoY bps Δ ; y-axis:
Nominal Effective Exchange Rate, YoY % Δ



GRID Asset Market Backtests: Stocks

	SPX Index																			
	ANNUALIZED EXPECTED RETURN				PERCENT POSITIVE RATIO				VOLATILITY				COVARIANCE w/ US EQUITY BETA				NUMBER OF OBSERVATIONS			
	GOLDILOCKS	REFLATION	INFLATION	DEFLATION	GOLDILOCKS	REFLATION	INFLATION	DEFLATION	GOLDILOCKS	REFLATION	INFLATION	DEFLATION	GOLDILOCKS	REFLATION	INFLATION	DEFLATION	GOLDILOCKS	REFLATION	INFLATION	DEFLATION
OVERALL BACKTEST	<div>25%</div>	<div>18%</div>	<div>-8%</div>	<div>-4%</div>	<div>73%</div>	<div>66%</div>	<div>44%</div>	<div>52%</div>	<div>11%</div>	<div>9%</div>	<div>15%</div>	<div>16%</div>	<div>1.00</div>	<div>1.00</div>	<div>1.00</div>	<div>1.00</div>	<div>117</div>	<div>111</div>	<div>141</div>	<div>108</div>
-2σ GROWTH Δ	<div>-</div>	<div>-</div>	<div>17%</div>	<div>41%</div>	<div>-</div>	<div>-</div>	<div>33%</div>	<div>45%</div>	<div>-</div>	<div>-</div>	<div>10%</div>	<div>31%</div>	<div>-</div>	<div>-</div>	<div>1.00</div>	<div>1.00</div>	<div>-</div>	<div>-</div>	<div>12</div>	<div>13</div>
-1σ GROWTH Δ	<div>-</div>	<div>-</div>	<div>10%</div>	<div>9%</div>	<div>-</div>	<div>-</div>	<div>44%</div>	<div>50%</div>	<div>-</div>	<div>-</div>	<div>17%</div>	<div>15%</div>	<div>-</div>	<div>-</div>	<div>1.00</div>	<div>1.00</div>	<div>-</div>	<div>-</div>	<div>66</div>	<div>28</div>
0σ GROWTH Δ	<div>19%</div>	<div>11%</div>	<div>-4%</div>	<div>5%</div>	<div>67%</div>	<div>66%</div>	<div>45%</div>	<div>54%</div>	<div>11%</div>	<div>8%</div>	<div>13%</div>	<div>13%</div>	<div>1.00</div>	<div>1.00</div>	<div>1.00</div>	<div>1.00</div>	<div>69</div>	<div>77</div>	<div>63</div>	<div>67</div>
+1σ GROWTH Δ	<div>34%</div>	<div>18%</div>	<div>-</div>	<div>-</div>	<div>81%</div>	<div>63%</div>	<div>-</div>	<div>-</div>	<div>12%</div>	<div>10%</div>	<div>-</div>	<div>-</div>	<div>1.00</div>	<div>1.00</div>	<div>-</div>	<div>-</div>	<div>36</div>	<div>32</div>	<div>-</div>	<div>-</div>
+2σ GROWTH Δ	<div>25%</div>	<div>25%</div>	<div>-</div>	<div>-</div>	<div>83%</div>	<div>100%</div>	<div>-</div>	<div>-</div>	<div>12%</div>	<div>12%</div>	<div>-</div>	<div>-</div>	<div>1.00</div>	<div>1.00</div>	<div>-</div>	<div>-</div>	<div>12</div>	<div>2</div>	<div>-</div>	<div>-</div>
-2σ INFLATION Δ	<div>42%</div>	<div>-</div>	<div>-</div>	<div>1%</div>	<div>93%</div>	<div>-</div>	<div>-</div>	<div>50%</div>	<div>8%</div>	<div>-</div>	<div>-</div>	<div>21%</div>	<div>1.00</div>	<div>-</div>	<div>-</div>	<div>1.00</div>	<div>15</div>	<div>-</div>	<div>-</div>	<div>12</div>
-1σ INFLATION Δ	<div>6%</div>	<div>-</div>	<div>-</div>	<div>12%</div>	<div>52%</div>	<div>-</div>	<div>-</div>	<div>48%</div>	<div>10%</div>	<div>-</div>	<div>-</div>	<div>18%</div>	<div>1.00</div>	<div>-</div>	<div>-</div>	<div>1.00</div>	<div>29</div>	<div>-</div>	<div>-</div>	<div>33</div>
0σ INFLATION Δ	<div>28%</div>	<div>18%</div>	<div>-9%</div>	<div>0%</div>	<div>77%</div>	<div>67%</div>	<div>49%</div>	<div>54%</div>	<div>12%</div>	<div>9%</div>	<div>16%</div>	<div>14%</div>	<div>1.00</div>	<div>1.00</div>	<div>1.00</div>	<div>1.00</div>	<div>73</div>	<div>70</div>	<div>92</div>	<div>63</div>
+1σ INFLATION Δ	<div>-</div>	<div>9%</div>	<div>-6%</div>	<div>-</div>	<div>-</div>	<div>56%</div>	<div>38%</div>	<div>-</div>	<div>-</div>	<div>10%</div>	<div>12%</div>	<div>-</div>	<div>-</div>	<div>1.00</div>	<div>1.00</div>	<div>-</div>	<div>-</div>	<div>32</div>	<div>40</div>	<div>-</div>
+2σ INFLATION Δ	<div>-</div>	<div>24%</div>	<div>-5%</div>	<div>-</div>	<div>-</div>	<div>89%</div>	<div>22%</div>	<div>-</div>	<div>-</div>	<div>8%</div>	<div>13%</div>	<div>-</div>	<div>-</div>	<div>1.00</div>	<div>1.00</div>	<div>-</div>	<div>-</div>	<div>9</div>	<div>9</div>	<div>-</div>
POLICY RATE ↓	<div>33%</div>	<div>41%</div>	<div>23%</div>	<div>-4%</div>	<div>71%</div>	<div>100%</div>	<div>37%</div>	<div>50%</div>	<div>12%</div>	<div>6%</div>	<div>15%</div>	<div>17%</div>	<div>1.00</div>	<div>1.00</div>	<div>1.00</div>	<div>1.00</div>	<div>31</div>	<div>5</div>	<div>30</div>	<div>34</div>
POLICY RATE ↑	<div>11%</div>	<div>10%</div>	<div>-8%</div>	<div>-8%</div>	<div>65%</div>	<div>65%</div>	<div>45%</div>	<div>44%</div>	<div>11%</div>	<div>9%</div>	<div>13%</div>	<div>13%</div>	<div>1.00</div>	<div>1.00</div>	<div>1.00</div>	<div>1.00</div>	<div>31</div>	<div>31</div>	<div>53</div>	<div>27</div>
QUANTITATIVE EASING	<div>36%</div>	<div>17%</div>	<div>5%</div>	<div>10%</div>	<div>89%</div>	<div>70%</div>	<div>50%</div>	<div>57%</div>	<div>10%</div>	<div>10%</div>	<div>11%</div>	<div>29%</div>	<div>1.00</div>	<div>1.00</div>	<div>1.00</div>	<div>1.00</div>	<div>18</div>	<div>33</div>	<div>16</div>	<div>14</div>
QUANTITATIVE TIGHTENING	<div>21%</div>	<div>20%</div>	<div>-4%</div>	<div>10%</div>	<div>67%</div>	<div>88%</div>	<div>60%</div>	<div>59%</div>	<div>11%</div>	<div>11%</div>	<div>19%</div>	<div>20%</div>	<div>1.00</div>	<div>1.00</div>	<div>1.00</div>	<div>1.00</div>	<div>6</div>	<div>8</div>	<div>10</div>	<div>22</div>
FISCAL EASING	<div>17%</div>	<div>47%</div>	<div>25%</div>	<div>39%</div>	<div>82%</div>	<div>100%</div>	<div>50%</div>	<div>43%</div>	<div>8%</div>	<div>2%</div>	<div>11%</div>	<div>24%</div>	<div>1.00</div>	<div>1.00</div>	<div>1.00</div>	<div>1.00</div>	<div>11</div>	<div>2</div>	<div>2</div>	<div>7</div>
FISCAL TIGHTENING	<div>39%</div>	<div>38%</div>	<div>0%</div>	<div>19%</div>	<div>100%</div>	<div>67%</div>	<div>67%</div>	<div>50%</div>	<div>7%</div>	<div>16%</div>	<div>19%</div>	<div>19%</div>	<div>1.00</div>	<div>1.00</div>	<div>1.00</div>	<div>1.00</div>	<div>2</div>	<div>3</div>	<div>6</div>	<div>2</div>
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GRID Asset Market Backtests: Bonds

US Treasury Long Bond Futures																				
	ANNUALIZED EXPECTED RETURN				PERCENT POSITIVE RATIO				VOLATILITY				COVARIANCE w/ US EQUITY BETA				NUMBER OF OBSERVATIONS			
	GOLDOLOCKS	REFLECTION	INFLATION	DEFATION	GOLDOLOCKS	REFLECTION	INFLATION	DEFATION	GOLDOLOCKS	REFLECTION	INFLATION	DEFATION	GOLDOLOCKS	REFLECTION	INFLATION	DEFATION	GOLDOLOCKS	REFLECTION	INFLATION	DEFATION
OVERALL BACKTEST	-2%	-10%	2%	7%	53%	38%	49%	52%	8%	9%	10%	11%	-0.01	-0.19	-0.02	-0.03	77	86	104	95
-2σ GROWTH Δ	-	-	3%	32%	-	-	57%	77%	-	-	3%	15%	-	-	0.01	-0.09	-	-	7	13
-1σ GROWTH Δ	-	-	0%	-1%	-	-	48%	40%	-	-	12%	10%	-	-	-0.03	0.15	-	-	42	25
0σ GROWTH Δ	1%	-1%	4%	5%	53%	36%	49%	51%	7%	9%	9%	10%	-0.10	-0.12	-0.01	0.00	51	55	55	57
+1σ GROWTH Δ	1%	-8%	-	-	64%	41%	-	-	10%	8%	-	-	0.24	-0.15	-	-	22	29	-	-
+2σ GROWTH Δ	-5%	-4%	-	-	0%	50%	-	-	9%	6%	-	-	-0.35	-1.10	-	-	4	2	-	-
-2σ INFLATION Δ	-3%	-	-	16%	29%	-	-	64%	9%	-	-	19%	-0.55	-	-	0.02	7	-	-	11
-1σ INFLATION Δ	11%	-	-	0%	69%	-	-	45%	8%	-	-	12%	0.46	-	-	0.01	13	-	-	31
0σ INFLATION Δ	-1%	-1%	4%	9%	53%	37%	50%	53%	8%	10%	10%	8%	0.03	-0.17	0.03	-0.12	57	54	68	53
+1σ INFLATION Δ	-	-3%	-4%	-	-	39%	45%	-	-	6%	10%	-	-	-0.11	-0.25	-	-	23	33	-
+2σ INFLATION Δ	-	-6%	27%	-	-	44%	67%	-	-	8%	6%	-	-	0.33	-0.24	-	-	9	3	-
POLICY RATE ↓	-1%	-6%	-6%	10%	56%	50%	39%	43%	11%	3%	13%	12%	0.18	-0.49	-0.07	0.00	16	4	23	30
POLICY RATE ↑	-9%	-1%	-2%	-1%	37%	38%	45%	50%	6%	12%	8%	9%	-0.10	-0.13	0.35	0.17	19	26	41	26
QUANTITATIVE EASING	-8%	-7%	-7%	20%	44%	45%	31%	57%	8%	8%	8%	16%	0.04	-0.09	0.01	-0.01	18	33	16	14
QUANTITATIVE TIGHTENING	6%	-2%	14%	-3%	67%	50%	60%	45%	9%	3%	8%	14%	-0.39	0.11	-0.09	0.00	6	8	10	22
FISCAL EASING	-4%	-2%	-3%	4%	33%	50%	0%	43%	12%	10%	5%	16%	-0.44	-1.10	-	0.61	6	2	1	7
FISCAL TIGHTENING	-3%	-1%	-2%	42%	50%	33%	0%	100%	1%	8%	3%	-	-1.00	0.16	-0.15	-	2	3	4	1

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GRID Asset Market Backtests: Currencies

Bloomberg Dollar Index																				
	ANNUALIZED EXPECTED RETURN				PERCENT POSITIVE RATIO				VOLATILITY				COVARIANCE w/ US EQUITY BETA				NUMBER OF OBSERVATIONS			
	GOLDSLOCKS	REFLATION	INFLATION	DEFLATION	GOLDSLOCKS	REFLATION	INFLATION	DEFLATION	GOLDSLOCKS	REFLATION	INFLATION	DEFLATION	GOLDSLOCKS	REFLATION	INFLATION	DEFLATION	GOLDSLOCKS	REFLATION	INFLATION	DEFLATION
OVERALL BACKTEST	-3%	-1%	4%	6%	45%	51%	54%	56%	5%	4%	5%	6%	-0.50	-0.44	-0.35	-0.66	44	63	50	57
-2σ GROWTH Δ	-	-	13%	8%	-	-	60%	45%	-	-	5%	12%	-	-	0.37	-0.69	-	-	5	11
-1σ GROWTH Δ	-	-	-2%	13%	-	-	42%	76%	-	-	4%	6%	-	-	-0.02	-0.52	-	-	12	17
0σ GROWTH Δ	-1%	1%	5%	1%	46%	55%	58%	48%	5%	4%	6%	5%	-0.45	-0.45	-0.53	-0.72	39	40	38	29
+1σ GROWTH Δ	-18%	0%	-	-	40%	48%	-	-	5%	6%	-	-	-0.68	-0.32	-	-	5	21	-	-
+2σ GROWTH Δ	-	-25%	-	-	-	0%	-	-	0%	5%	-	-	-	1.80	-	-	-	2	-	-
-2σ INFLATION Δ	0%	-	-	4%	50%	-	-	43%	2%	-	-	9%	-1.00	-	-	-0.58	2	-	-	7
-1σ INFLATION Δ	-12%	-	-	18%	0%	-	-	67%	2%	-	-	7%	0.50	-	-	-0.73	5	-	-	15
0σ INFLATION Δ	-2%	0%	4%	1%	51%	52%	53%	54%	5%	4%	6%	5%	-0.54	-0.41	-0.34	-0.59	37	42	40	35
+1σ INFLATION Δ	-	-5%	5%	-	-	47%	67%	-	-	4%	3%	-	-	-0.55	-0.63	-	-	15	9	-
+2σ INFLATION Δ	-	4%	-2%	-	-	50%	0%	-	-	6%	0%	-	-	-0.55	-	-	-	6	1	-
POLICY RATE ↓	-	-24%	-6%	11%	-	0%	44%	57%	0%	2%	3%	7%	-	-	-0.03	-0.70	-	1	9	14
POLICY RATE ↑	-11%	1%	5%	10%	27%	60%	54%	63%	4%	4%	4%	4%	0.26	-0.31	-0.53	-0.46	11	15	13	16
QUANTITATIVE EASING	0%	-1%	1%	5%	61%	48%	56%	50%	8%	5%	4%	11%	-0.61	-0.46	-0.34	-0.78	18	38	16	14
QUANTITATIVE TIGHTENING	-1%	-3%	7%	12%	50%	50%	60%	68%	6%	8%	5%	7%	-0.66	-0.78	0.13	-0.70	6	8	10	22
FISCAL EASING	-8%	-2%	-	-6%	50%	50%	-	40%	5%	8%	-	12%	-1.00	1.80	-	-0.82	2	2	-	5
FISCAL TIGHTENING	-10%	-7%	8%	-10%	50%	67%	50%	0%	5%	10%	5%	-	1.00	-0.79	-0.89	-	2	3	4	1

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GRID Asset Market Backtests: Commodities

Commodity Research Bureau BLS/US Spot All Commodities																				
	ANNUALIZED EXPECTED RETURN				PERCENT POSITIVE RATIO				VOLATILITY				COVARIANCE w/ US EQUITY BETA				NUMBER OF OBSERVATIONS			
	GOLDILOCKS	REFLATION	INFLATION	DEFLATION	GOLDILOCKS	REFLATION	INFLATION	DEFLATION	GOLDILOCKS	REFLATION	INFLATION	DEFLATION	GOLDILOCKS	REFLATION	INFLATION	DEFLATION	GOLDILOCKS	REFLATION	INFLATION	DEFLATION
OVERALL BACKTEST	7%	14%	3%	7%	60%	65%	45%	43%	6%	7%	7%	10%	0.33	0.15	0.09	0.38	67	82	80	88
-2σ GROWTH Δ	-	-	20%	30%	-	-	14%	23%	-	-	7%	18%	-	-	-0.81	0.33	-	-	7	13
-1σ GROWTH Δ	-	-	3%	3%	-	-	41%	48%	-	-	5%	9%	-	-	-0.27	-0.07	-	-	22	25
0σ GROWTH Δ	8%	18%	0%	3%	57%	63%	51%	45%	6%	7%	7%	7%	0.39	0.16	0.34	0.33	47	51	51	50
+1σ GROWTH Δ	11%	11%	-	-	65%	66%	-	-	6%	3%	-	-	0.25	0.13	-	-	20	29	-	-
+2σ GROWTH Δ	-	56%	-	-	-	100%	-	-	0%	9%	-	-	-	-1.00	-	-	-	2	-	-
-2σ INFLATION Δ	7%	-	-	-16%	75%	-	-	33%	3%	-	-	10%	0.97	-	-	0.05	4	-	-	9
-1σ INFLATION Δ	30%	-	-	-22%	70%	-	-	31%	5%	-	-	12%	-0.29	-	-	0.33	10	-	-	29
0σ INFLATION Δ	3%	11%	3%	3%	57%	63%	50%	52%	6%	3%	7%	8%	0.33	0.14	0.05	0.11	53	54	54	50
+1σ INFLATION Δ	-	14%	2%	-	-	63%	35%	-	-	6%	6%	-	-	0.17	0.11	-	-	19	23	-
+2σ INFLATION Δ	-	25%	1%	-	-	78%	33%	-	-	9%	7%	-	-	0.12	0.59	-	-	9	3	-
POLICY RATE ↓	5%	13%	7%	-18%	45%	50%	63%	36%	6%	3%	6%	12%	-0.12	-0.61	-0.08	0.33	13	4	19	28
POLICY RATE ↑	33%	4%	4%	7%	67%	59%	45%	45%	5%	4%	7%	6%	-0.27	-0.04	0.33	0.15	12	22	22	22
QUANTITATIVE EASING	11%	23%	2%	-22%	61%	73%	44%	36%	9%	10%	8%	19%	0.39	0.44	0.10	0.14	18	33	16	14
QUANTITATIVE TIGHTENING	3%	11%	-10%	38%	33%	75%	20%	45%	9%	7%	7%	8%	0.36	0.35	-0.57	0.33	6	8	10	22
FISCAL EASING	3%	10%	-10%	-33%	50%	50%	0%	29%	7%	16%	2%	15%	0.35	1.00	-	0.19	6	2	1	7
FISCAL TIGHTENING	4%	30%	0%	-17%	50%	67%	50%	0%	3%	13%	14%	-	1.00	1.00	0.38	-	2	3	4	1

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GRID Asset Market Backtests: Crypto

Bitcoin																				
	ANNUALIZED EXPECTED RETURN				PERCENT POSITIVE RATIO				VOLATILITY				COVARIANCE w/ US EQUITY BETA				NUMBER OF OBSERVATIONS			
	GOLDBLOCKS	REFLATION	INFLATION	DEFLATION	GOLDBLOCKS	REFLATION	INFLATION	DEFLATION	GOLDBLOCKS	REFLATION	INFLATION	DEFLATION	GOLDBLOCKS	REFLATION	INFLATION	DEFLATION	GOLDBLOCKS	REFLATION	INFLATION	DEFLATION
OVERALL BACKTEST	483%	87%	64%	-17%	100%	56%	50%	35%	29%	36%	26%	19%	0.05	0.06	0.04	0.08	7	25	18	20
-2σ GROWTH Δ	-	-	-	-64%	-	-	-	33%	-	-	0%	54%	-	-	-	0.05	-	-	-	6
-1σ GROWTH Δ	-	-	542%	101%	-	-	100%	60%	-	-	26%	20%	-	-	-0.08	0.05	-	-	2	5
0σ GROWTH Δ	418%	87%	4%	-51%	100%	53%	44%	22%	30%	35%	31%	8%	0.05	0.01	0.08	0.07	6	15	16	9
+1σ GROWTH Δ	872%	69%	-	-	100%	50%	-	-	32%	39%	-	-	-0.08	0.07	-	-	1	8	-	-
+2σ GROWTH Δ	-	162%	-	-	-	100%	-	-	0%	33%	-	-	-	-1.00	-	-	-	2	-	-
-2σ INFLATION Δ	-	-	-	148%	-	-	-	67%	0%	-	-	33%	-	-	-	0.03	-	-	-	3
-1σ INFLATION Δ	468%	-	-	-95%	100%	-	-	22%	35%	-	-	24%	0.04	-	-	0.02	2	-	-	9
0σ INFLATION Δ	489%	128%	72%	9%	100%	60%	53%	38%	30%	41%	31%	14%	0.08	-0.03	0.09	0.09	5	15	15	8
+1σ INFLATION Δ	-	115%	22%	-	-	71%	33%	-	-	23%	17%	-	-	0.00	-0.09	-	-	7	3	-
+2σ INFLATION Δ	-	-179%	-	-	-	0%	-	-	-	33%	0%	-	-	0.05	-	-	-	3	-	-
POLICY RATE ↓	-	-86%	-183%	29%	-	0%	0%	50%	0%	6%	12%	22%	-	0.09	-0.24	0.05	-	1	2	6
POLICY RATE ↑	461%	19%	-14%	-88%	100%	50%	50%	20%	53%	51%	26%	25%	0.01	-0.03	0.05	0.07	5	10	6	10
QUANTITATIVE EASING	649%	98%	-16%	55%	100%	58%	38%	60%	75%	46%	49%	44%	0.00	0.09	0.03	0.04	3	12	8	5
QUANTITATIVE TIGHTENING	823%	131%	323%	-41%	100%	63%	83%	27%	97%	113%	81%	43%	-0.09	-0.22	0.09	0.00	1	8	6	15
FISCAL EASING	596%	364%	-	-46%	100%	100%	-	0%	48%	74%	0%	6%	0.02	1.00	-	0.05	1	1	-	2
FISCAL TIGHTENING	-	-69%	-200%	-	-	0%	33%	-	0%	10%	64%	0%	-	0.06	0.08	-	-	1	3	-

© 42 Macro LLC. Data Source: Bloomberg. GRID Asset Market Backtests performed on monthly observations spanning [Jan-68 through Dec-82] & [Jan-98 through present].

What Tends To **Outperform**/**Underperform** In Each **GRID** Regime?

GOLDILOCKS

Top 5 Equity Style Factors

High Beta (SPHB)
Small Caps (IWM)
Mega Cap Growth (MGK)
Cyclicals (IYT, IWN)
Mid Caps (IWR)

Bottom 5 Equity Style Factors

Low Beta (SPLV)
Defensives (DEF)
Size (OEF)
Quality (QUAL)
Dividends (SPHD)

Top 5 Equity Sectors

Consumer Discretionary (XLY)
Financials (XLF)
Technology (XLK)
Materials (XLB)
Industrials (XLI)

Bottom 5 Equity Sectors

Utilities (XLU)
Communication Services (XLC)
Real Estate (XLRE)
Consumer Staples (XLP)
Health Care (XLV)

Top 5 Fixed Income Sectors

BDCs (BIZD)
Convertibles (CWB)
HY Credit (HYG)
EM \$ Debt (EMB)
Preferreds (PFF)

Bottom 5 Fixed Income Sectors

Long Bond (TLT, EDV, ZROZ)
0-5yr TIPS (STIP)
Treasury Belly (IEI, IEF)
MBS (MBS)
5-10yr TIPS (TIP)

REFLATION

Top 5 Equity Style Factors

Mega Cap Growth (MGK)
High Beta (SPHB)
Cyclicals (IYT, IWN)
Momentum (MTUM)
Small Caps (IWM)

Bottom 5 Equity Style Factors

Low Beta (SPLV)
Dividends (SPHD)
Defensives (DEF)
Quality (QUAL)
Large Caps (IWB)

Top 5 Equity Sectors

Technology (XLK)
Industrials (XLI)
Consumer Discretionary (XLY)
Financials (XLF)
Energy (XLE)

Bottom 5 Equity Sectors

Real Estate (XLRE)
Consumer Staples (XLP)
Utilities (XLU)
Communication Services (XLC)
Health Care (XLV)

Top 5 Fixed Income Sectors

BDCs (BIZD)
Convertibles (CWB)
Preferreds (PFF)
HY Credit (HYG)
EM Local Currency (EMLC)

Bottom 5 Fixed Income Sectors

Long Bond (TLT, EDV, ZROZ)
Treasury Belly (IEI, IEF)
IG Credit (LQD)
MBS (MBB)
Short Rates (SHY)

INFLATION

Top 5 Equity Style Factors

Low Beta (SPLV)
Mega Cap Growth (MGK)
Quality (QUAL)
Dividends (SPHD)
Defensives (DEF)

Bottom 5 Equity Style Factors

High Beta (SPHB)
Small Caps (IWM)
Cyclicals (IYT, IWN)
Value (IWD)
Mid Caps (IWR)

Top 5 Equity Sectors

Utilities (XLU)
Health Care (XLV)
Real Estate (XLRE)
Consumer Staples (XLP)
Communication Services (XLC)

Bottom 5 Equity Sectors

Energy (XLE)
Materials (XLB)
Financials (XLF)
Industrials (XLI)
Consumer Discretionary (XLY)

Top 5 Fixed Income Sectors

Long Bond (TLT, EDV, ZROZ)
EM \$ Debt (EMB)
5-10yr TIPS (TIP)
Treasury Belly (IEI, IEF)
IG Credit (LQD)

Bottom 5 Fixed Income Sectors

BDCs (BIZD)
Convertibles (CWB)
EM Local Currency (EMLC)
Preferreds (PFF)
Leveraged Loans (BKLN)

DEFLATION

Top 5 Equity Style Factors

Dividends (SPHD)
Low Beta (SPLV)
Quality (QUAL)
Defensives (DEF)
Growth (IWF)

Bottom 5 Equity Style Factors

High Beta (SPHB)
Cyclicals (IYT, IWN)
Value (IWD)
Small Caps (IWM)
Mid Caps (IWR)

Top 5 Equity Sectors

Real Estate (XLRE)
Health Care (XLV)
Consumer Staples (XLP)
Utilities (XLU)
Consumer Discretionary (XLY)

Bottom 5 Equity Sectors

Financials (XLF)
Industrials (XLI)
Technology (XLK)
Communication Services (XLC)
Energy (XLE)

Top 5 Fixed Income Sectors

Long Bond (TLT, EDV, ZROZ)
Treasury Belly (IEI, IEF)
IG Credit (LQD)
MBS (MBB)
Short Rates (SHY)

Bottom 5 Fixed Income Sectors

Preferreds (PFF)
BDCs (BIZD)
Leveraged Loans (BKLN)
HY Credit (HYG)
EM Local Currency (EMLC)

Current GRID Asset Market Backtests Overlay: DEFLATION

	Macro Regime	GROWTH Δ Z-Score	INFLATION Δ Z-Score	POLICY Rate	POLICY Balance Sheet	POLICY Fiscal Balance	US-World Regime	Blended Annualized Expected Return	Dynamic Macro Regime Ranking
	D	0σ	(1σ)	Tightening	Tightening	n/a	D-D	D	D
SPX Index	-3.8%	5.6%	-12.4%	-8.1%	-9.5%	-	-3.4%	-3.8%	21
NASDAQ 100 Stock Index	-3.0%	10.1%	-22.3%	-5.2%	-0.9%	-	-2.2%	-3.0%	23
Russell 2000 Index	-2.8%	11.1%	-23.1%	2.9%	-17.0%	-	-7.9%	-6.0%	16
MSCI USA Consumer Discretionary Index	-1.8%	8.1%	-26.4%	-7.8%	-5.6%	-	-4.4%	-5.6%	18
MSCI USA Consumer Staples Index	5.5%	6.8%	-13.3%	8.6%	0.4%	-	5.8%	5.5%	37
MSCI USA Communication Services Index	-7.0%	-3.4%	-15.6%	-12.7%	1.0%	-	-5.1%	-7.0%	12
MSCI USA Energy Index	3.9%	18.9%	-17.2%	18.8%	-10.3%	-	3.5%	3.5%	34
MSCI USA Financials Index	-10.4%	11.2%	-35.5%	-1.6%	-29.2%	-	-16.6%	-12.1%	7
MSCI USA Health Care Index	7.6%	11.7%	2.0%	12.3%	-3.3%	-	7.4%	7.4%	39
MSCI USA Industrials Index	-6.6%	9.7%	-27.9%	-0.2%	-16.3%	-	-11.9%	-9.1%	9
MSCI USA Information Technology Index	-2.6%	10.9%	-20.4%	-2.8%	2.5%	-	-1.0%	-2.6%	25
MSCI USA Materials Index	-1.3%	13.5%	-27.5%	-11.6%	-10.2%	-	-8.9%	-7.0%	11
MSCI US Real Estate Index	-6.0%	-18.6%	-45.3%	-13.4%	1.7%	-	-6.0%	-6.0%	15
MSCI USA Utilities Index	-3.2%	-1.8%	-20.2%	7.0%	-11.0%	-	-6.0%	-6.0%	17
S&P 500 High Beta Index	-11.6%	11.2%	-41.2%	-5.4%	-23.1%	-	-16.1%	-15.0%	4
S&P 500 Low Volatility Index	3.9%	10.0%	-2.8%	-1.1%	-2.6%	-	1.5%	3.6%	35
Russell 3000 Defensive	-0.3%	7.8%	-15.8%	3.1%	-7.3%	-	-1.3%	-1.3%	27
Russell 3000 Dynamic	-7.0%	9.4%	-33.1%	-2.6%	-12.4%	-	-10.2%	-10.2%	8
MSCI United States Growth Index	-0.4%	8.4%	-13.0%	-10.7%	-3.7%	-	-0.8%	-2.3%	26
MSCI United States Value Index	-3.8%	4.6%	-12.4%	-5.6%	-14.4%	-	-6.0%	-3.9%	20
MSCI Australia Index	-3.7%	5.8%	-4.6%	-0.2%	-2.4%	-	-1.1%	-1.1%	28
MSCI Brazil Index	-16.2%	1.4%	-36.4%	41.8%	9.2%	-	-19.4%	-16.2%	3
MSCI Canada Index	-7.1%	2.5%	-14.7%	2.3%	-4.1%	-	-7.3%	-6.1%	14
MSCI China Index	-0.6%	-1.4%	-51.3%	-3.4%	-24.0%	-	-0.1%	-3.4%	22
MSCI EMU Index	-4.5%	11.4%	-17.9%	2.5%	-9.1%	-	-7.3%	-4.5%	19
MSCI Japan Index	-7.0%	1.8%	-12.9%	-2.4%	-17.8%	-	-6.8%	-6.8%	13
Commodity Research Bureau BLS/US Spot All Commodities	-6.9%	-2.6%	-22.2%	-7.2%	-7.9%	-	-12.7%	-7.9%	10
Bloomberg Agriculture Subindex	-11.0%	-1.1%	-28.1%	-13.3%	-10.1%	-	-20.9%	-13.3%	5
Bloomberg Industrial Metals Subindex	-12.9%	1.3%	-27.2%	0.8%	-9.8%	-	-19.7%	-12.9%	6
Bloomberg Precious Metals Subindex	-0.5%	-5.1%	-26.4%	0.0%	12.3%	-	-1.9%	-0.5%	29
High Grade Copper	-4.4%	8.4%	-13.7%	8.7%	6.7%	-	-9.6%	-2.6%	24
WTI Crude Oil	0.7%	19.4%	-73.6%	28.7%	-7.6%	-	0.7%	0.7%	30
Bitcoin	-17.0%	-50.9%	-94.9%	-87.6%	-40.9%	-	-17.0%	-40.9%	2
Ethereum	-64.5%	-140.6%	-98.5%	-110.2%	-101.0%	-	-64.5%	-101.0%	1
Bloomberg Barclays U.S. Treasury 1-3 Year Total Return Index Value U	4.4%	3.6%	4.1%	1.7%	0.8%	-	4.3%	3.8%	36
Bloomberg Barclays U.S. Treasury 5-10 Yr Total Return Index Value Unh	9.5%	7.8%	4.4%	2.0%	1.0%	-	8.8%	6.1%	38
Bloomberg Barclays US Treasury 25+Y Total Return Index Value Unhedged USD	13.2%	12.1%	3.1%	-0.1%	-1.4%	-	12.4%	7.6%	40
Bloomberg Barclays TIPS 5-10 Year Index Adjusted TR Index	2.9%	6.1%	-13.8%	-2.7%	1.1%	-	1.6%	1.1%	32
Bloomberg Barclays US Credit Total Return Value Unhedged USD	8.9%	11.9%	4.6%	4.8%	3.7%	-	7.6%	8.3%	41
Bloomberg Barclays US Corporate High Yield Total Return Index Value Unhedged USD	0.8%	9.9%	-15.7%	4.5%	6.3%	-	-1.6%	0.8%	31
Bloomberg Dollar Index	5.9%	1.1%	18.5%	9.8%	11.9%	-	8.6%	9.8%	42
Gold	5.4%	1.5%	-15.1%	2.5%	12.6%	-	2.4%	2.5%	33

Pending GRID Asset Market Backtests Overlay: GOLDILOCKS

	Macro Regime	GROWTH Δ Z-Score	INFLATION Δ Z-Score	POLICY Rate	POLICY Balance Sheet	POLICY Fiscal Balance	US-World Regime	Blended Annualized Expected Return	Dynamic Macro Regime Ranking
	G	0σ	(1σ)	n/a	Tightening	n/a	G-G	G	G
SPX Index	24.5%	19.4%	5.6%	-	20.9%	-	29.2%	24.5%	24
NASDAQ 100 Stock Index	35.7%	38.6%	3.4%	-	32.5%	-	34.5%	33.5%	36
Russell 2000 Index	41.5%	32.9%	22.8%	-	18.0%	-	43.8%	30.9%	34
MSCI USA Consumer Discretionary Index	34.3%	36.2%	14.9%	-	29.5%	-	37.8%	33.6%	37
MSCI USA Consumer Staples Index	17.4%	13.3%	22.0%	-	27.7%	-	22.0%	17.6%	18
MSCI USA Communication Services Index	12.3%	13.2%	-4.7%	-	18.5%	-	19.4%	12.3%	12
MSCI USA Energy Index	27.8%	24.4%	22.9%	-	-14.7%	-	36.2%	23.7%	23
MSCI USA Financials Index	33.0%	28.9%	12.4%	-	10.2%	-	40.3%	25.2%	27
MSCI USA Health Care Index	17.8%	16.8%	23.0%	-	26.2%	-	22.6%	19.9%	20
MSCI USA Industrials Index	30.2%	29.9%	15.2%	-	17.5%	-	32.9%	25.2%	26
MSCI USA Information Technology Index	33.9%	35.5%	2.8%	-	37.3%	-	32.8%	33.9%	38
MSCI USA Materials Index	32.8%	31.5%	28.3%	-	13.8%	-	35.8%	29.9%	32
MSCI US Real Estate Index	17.7%	22.6%	11.3%	-	7.6%	-	20.4%	16.9%	17
MSCI USA Utilities Index	7.7%	3.9%	12.5%	-	32.2%	-	13.5%	8.2%	8
S&P 500 High Beta Index	48.6%	44.7%	15.4%	-	-0.8%	-	52.1%	30.0%	33
S&P 500 Low Volatility Index	19.1%	15.2%	12.3%	-	26.5%	-	22.6%	19.1%	19
Russell 3000 Defensive	21.5%	20.5%	15.2%	-	23.0%	-	25.6%	21.5%	21
Russell 3000 Dynamic	34.2%	32.8%	13.9%	-	17.6%	-	37.9%	27.7%	31
MSCI United States Growth Index	25.9%	22.3%	3.2%	-	26.6%	-	30.6%	25.9%	29
MSCI United States Value Index	26.0%	22.6%	9.6%	-	14.5%	-	29.8%	22.2%	22
MSCI Australia Index	14.3%	11.4%	9.1%	-	9.2%	-	20.9%	14.3%	13
MSCI Brazil Index	44.8%	37.6%	16.4%	-	-43.2%	-	58.1%	27.0%	30
MSCI Canada Index	21.7%	18.9%	11.0%	-	-1.5%	-	21.3%	15.0%	14
MSCI China Index	40.5%	33.0%	43.9%	-	16.1%	-	42.9%	38.5%	39
MSCI EMU Index	25.8%	23.0%	10.7%	-	-1.5%	-	29.6%	16.9%	16
MSCI Japan Index	30.0%	32.6%	17.0%	-	-2.3%	-	37.0%	24.8%	25
Commodity Research Bureau BLS/US Spot All Commodities	7.4%	5.6%	10.4%	-	-2.8%	-	12.1%	7.4%	6
Bloomberg Agriculture Subindex	9.7%	8.6%	9.2%	-	-34.9%	-	12.3%	8.9%	9
Bloomberg Industrial Metals Subindex	33.1%	23.1%	22.8%	-	23.5%	-	40.2%	31.9%	35
Bloomberg Precious Metals Subindex	7.2%	5.4%	-5.1%	-	-19.1%	-	2.8%	0.1%	2
High Grade Copper	44.5%	34.2%	11.6%	-	30.9%	-	52.1%	41.5%	40
WTI Crude Oil	27.3%	9.3%	37.2%	-	16.9%	-	34.6%	25.7%	28
Bitcoin	483.0%	418.3%	468.3%	-	823.1%	-	511.2%	483.0%	42
Ethereum	468.6%	468.6%	-	-	-	-	468.6%	468.6%	41
Bloomberg Barclays U.S. Treasury 1-3 Year Total Return Index Value Unh	1.4%	1.7%	3.0%	-	0.7%	-	1.9%	1.4%	3
Bloomberg Barclays U.S. Treasury 5-10 Yr Total Return Index Value Unh	0.6%	2.2%	10.2%	-	5.2%	-	2.3%	3.8%	4
Bloomberg Barclays US Treasury 25+Y Total Return Index Value Unhedged USD	-1.6%	0.3%	22.0%	-	13.9%	-	2.4%	8.2%	7
Bloomberg Barclays TIPS 5-10 Year Index Adjusted TR Index	3.5%	3.0%	9.1%	-	5.2%	-	5.8%	5.5%	5
Bloomberg Barclays US Credit Total Return Value Unhedged USD	8.7%	8.0%	13.3%	-	12.4%	-	10.3%	10.7%	10
Bloomberg Barclays US Corporate High Yield Total Return Index Value Unhedged USD	15.7%	13.4%	12.3%	-	17.1%	-	18.4%	15.7%	15
Bloomberg Dollar Index	-2.8%	-0.8%	-11.9%	-	-0.9%	-	-8.8%	-4.9%	1
Gold	10.9%	10.9%	13.6%	-	-4.8%	-	5.6%	10.9%	11

US Equities

Current GRID Regime: DEFLATION



US Equities

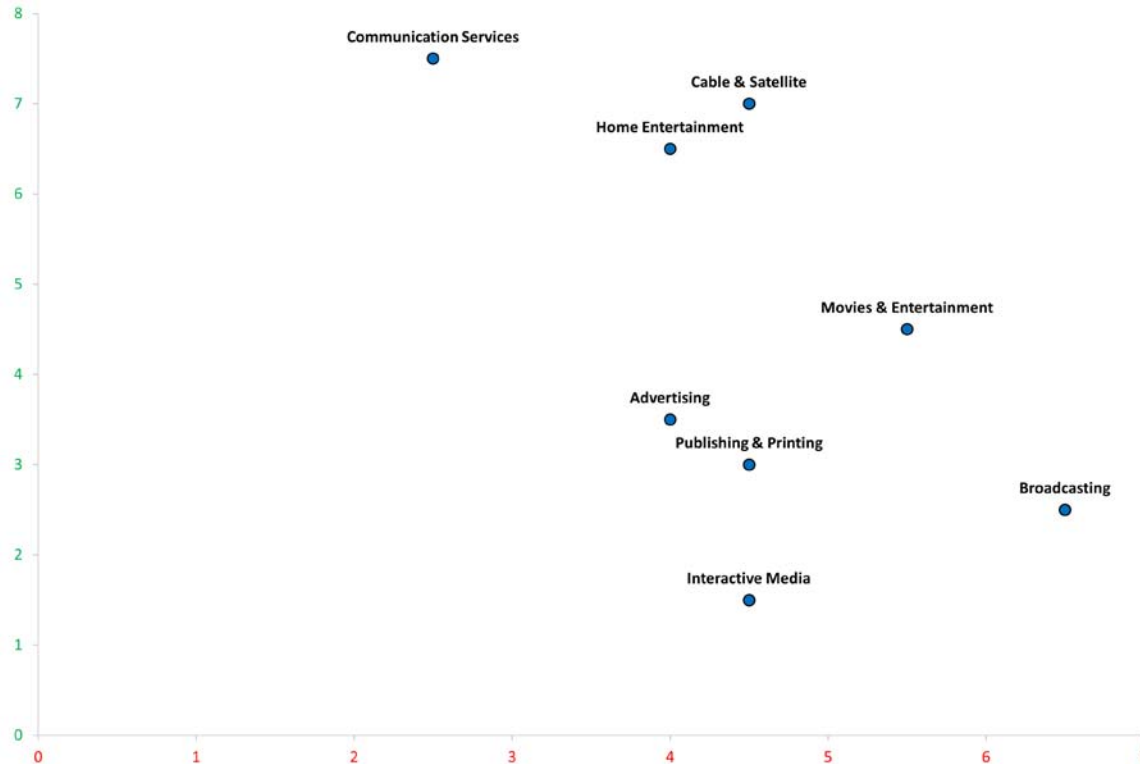
Pending GRID Regime: GOLDILOCKS



Communication Services

Current GRID Regime: DEFLATION

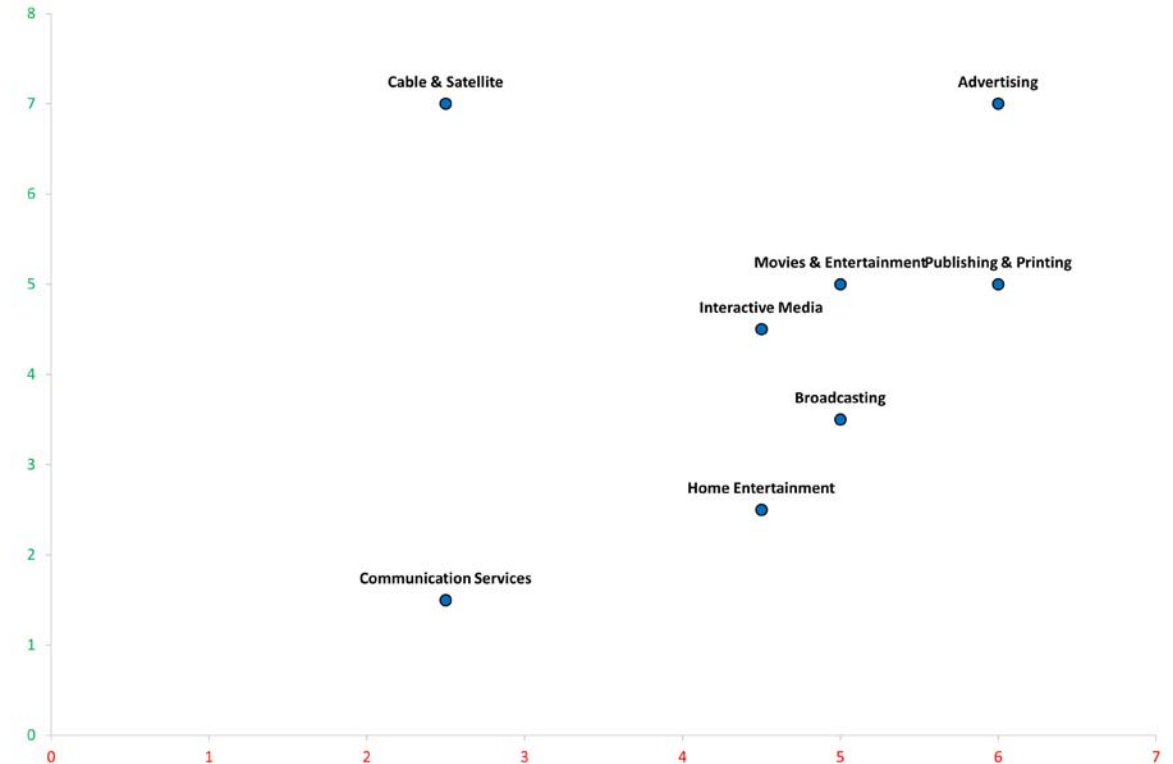
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y-axis: GRID Regime REWARD (Mean Blended Annualized Expected Return & Blended Percent Positive Ranking)



Communication Services

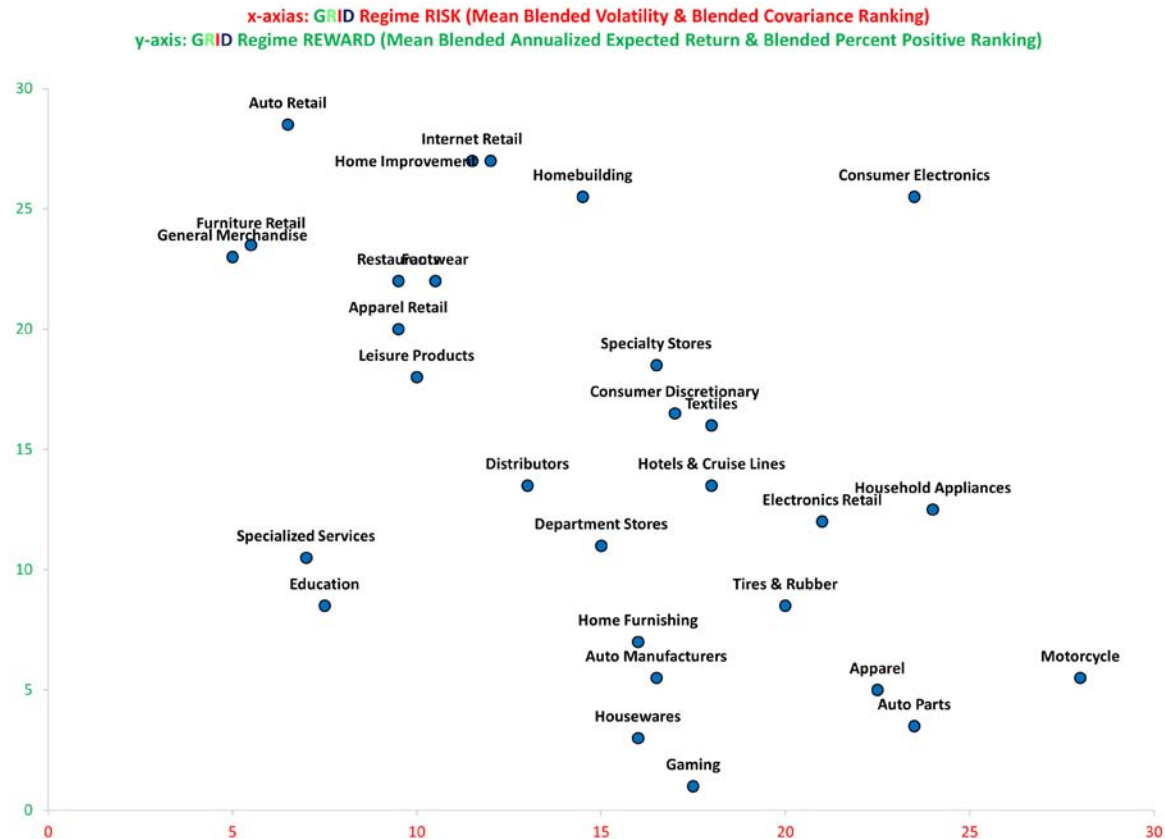
Pending GRID Regime: GOLDILOCKS

x-axis: GRID Regime RISK (Mean Blended Volatility & Blended Covariance Ranking)
y-axis: GRID Regime REWARD (Mean Blended Annualized Expected Return & Blended Percent Positive Ranking)



Consumer Discretionary

Current GRID Regime: DEFLATION



Consumer Discretionary

Pending GRID Regime: GOLDILOCKS



Consumer Staples

Current GRID Regime: DEFLATION



Consumer Staples

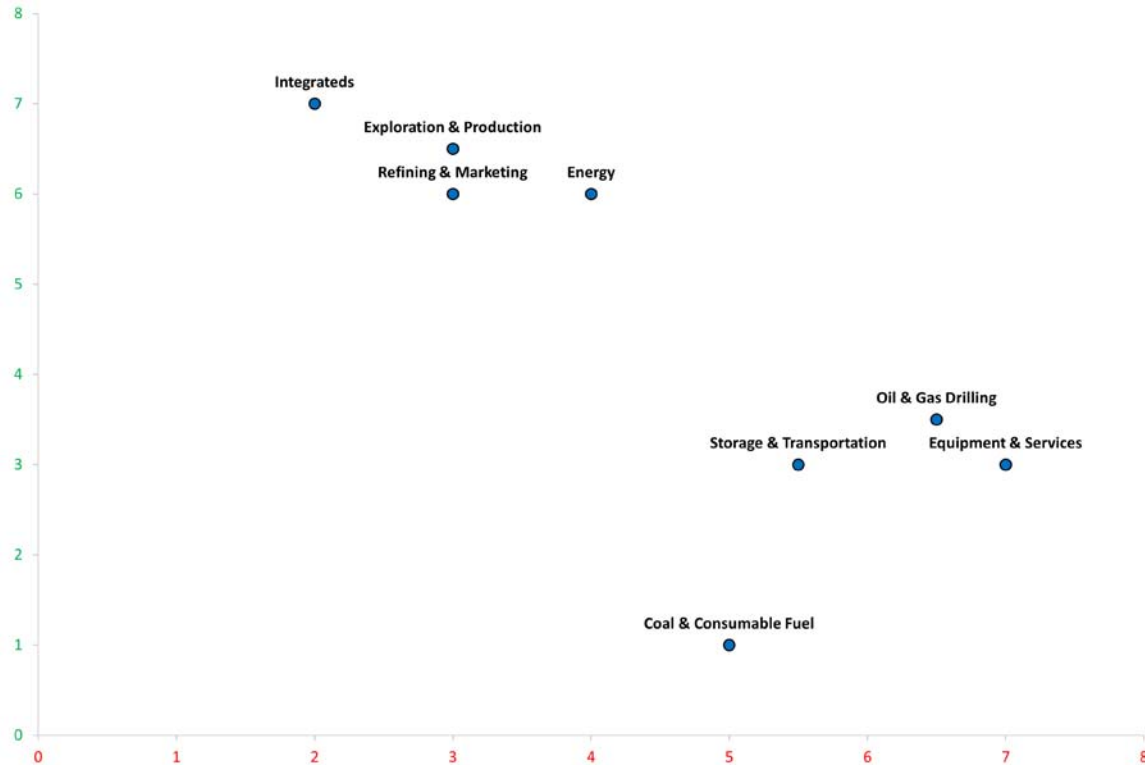
Pending GRID Regime: GOLDILOCKS



Energy

Current GRID Regime: DEFLATION

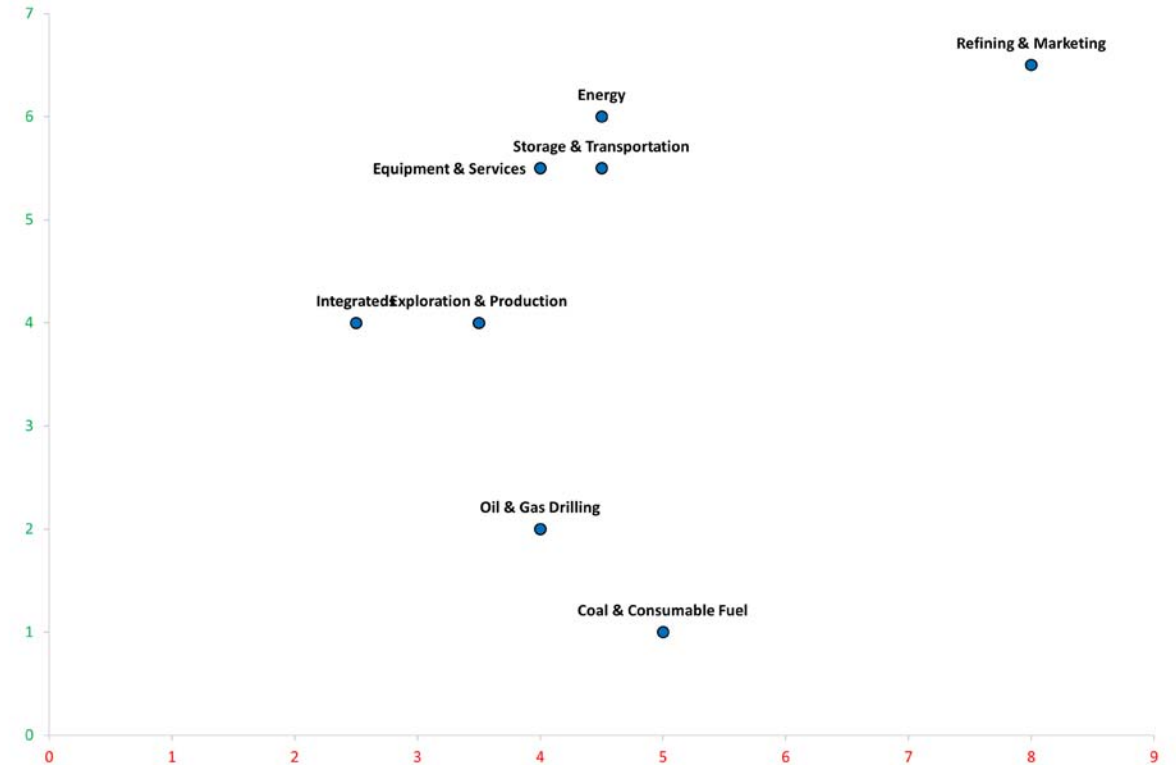
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y-axis: GRID Regime REWARD (Mean Blended Annualized Expected Return & Blended Percent Positive Ranking)



Energy

Pending GRID Regime: GOLDILOCKS

x-axis: GRID Regime RISK (Mean Blended Volatility & Blended Covariance Ranking)
y-axis: GRID Regime REWARD (Mean Blended Annualized Expected Return & Blended Percent Positive Ranking)



Financials

Current GRID Regime: DEFLATION

x-axis: GRID Regime RISK (Mean Blended Volatility & Blended Covariance Ranking)
y-axis: GRID Regime REWARD (Mean Blended Annualized Expected Return & Blended Percent Positive Ranking)



Financials

Pending GRID Regime: GOLDILOCKS

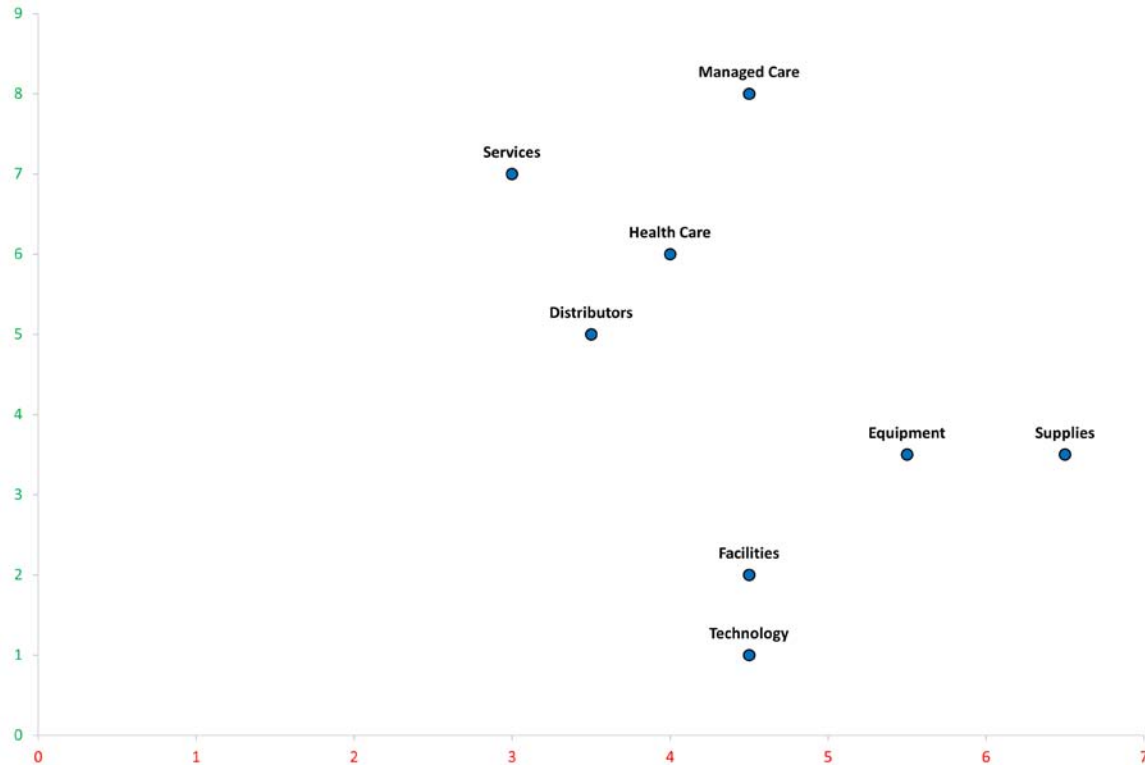
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y-axis: GRID Regime REWARD (Mean Blended Annualized Expected Return & Blended Percent Positive Ranking)



Health Care

Current GRID Regime: DEFLATION

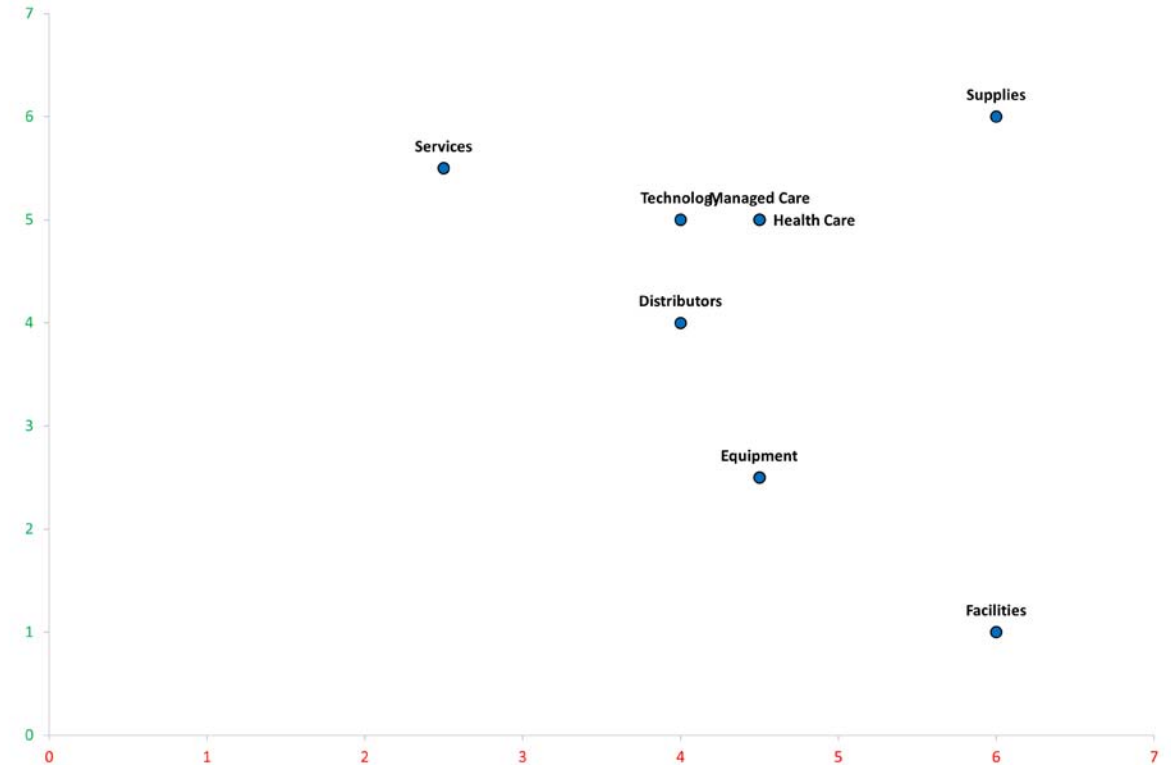
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y-axis: GRID Regime REWARD (Mean Blended Annualized Expected Return & Blended Percent Positive Ranking)



Health Care

Pending GRID Regime: GOLDBLOCKS

x-axis: GRID Regime RISK (Mean Blended Volatility & Blended Covariance Ranking)
y-axis: GRID Regime REWARD (Mean Blended Annualized Expected Return & Blended Percent Positive Ranking)



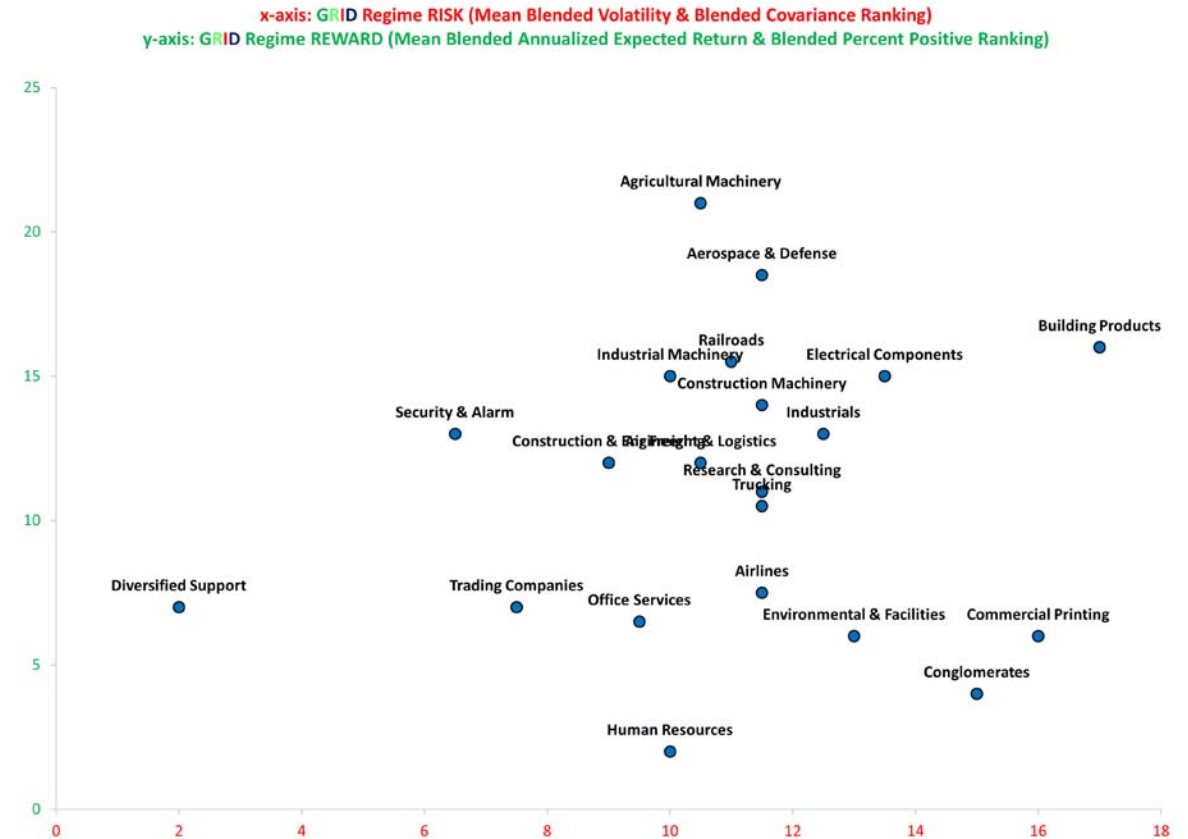
Industrials

Current GRID Regime: DEFLATION



Industrials

Pending GRID Regime: GOLDILOCKS



Information Technology

Current GRID Regime: DEFLATION

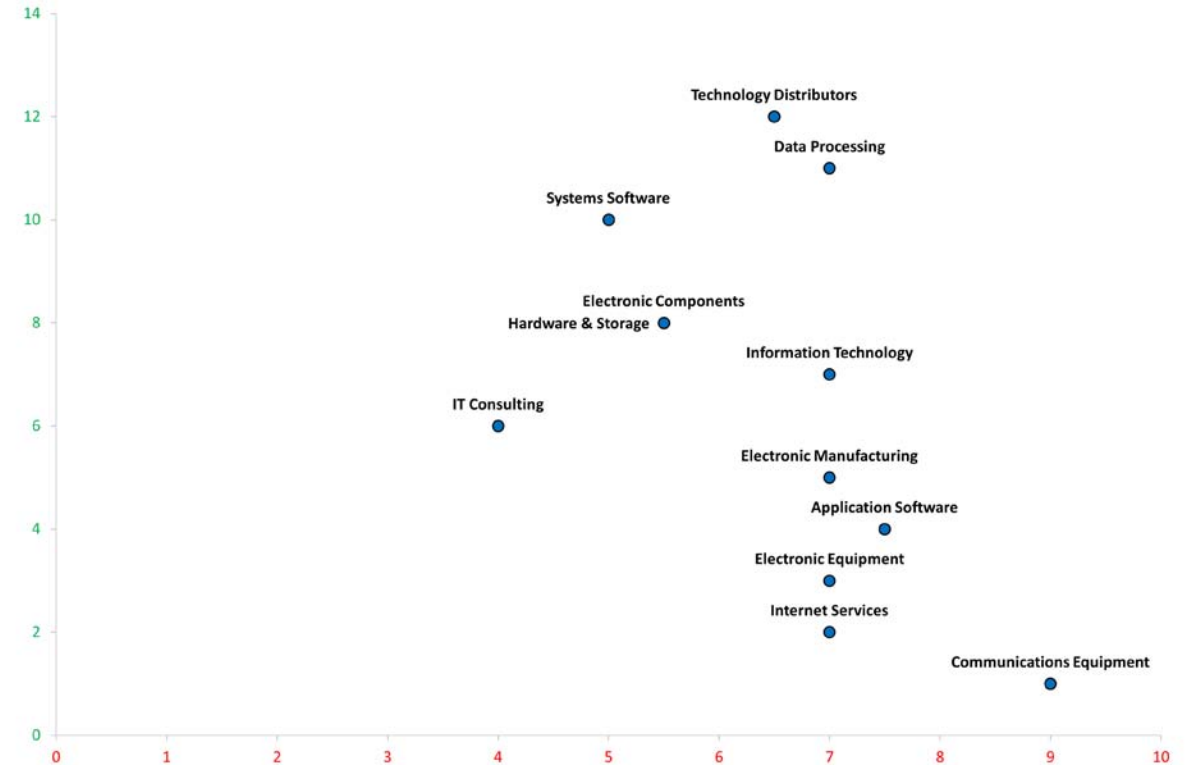
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y-axis: GRID Regime REWARD (Mean Blended Annualized Expected Return & Blended Percent Positive Ranking)



Information Technology

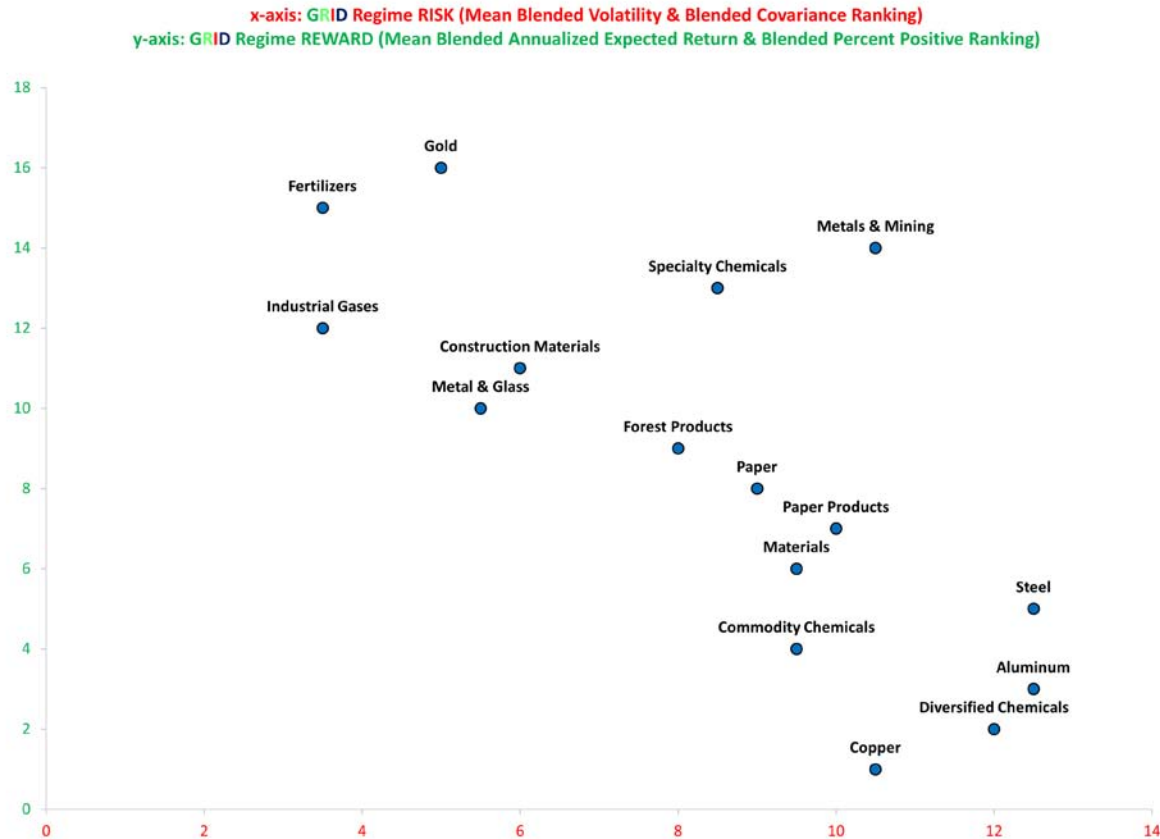
Pending GRID Regime: GOLDILOCKS

x-axis: GRID Regime RISK (Mean Blended Volatility & Blended Covariance Ranking)
y-axis: GRID Regime REWARD (Mean Blended Annualized Expected Return & Blended Percent Positive Ranking)



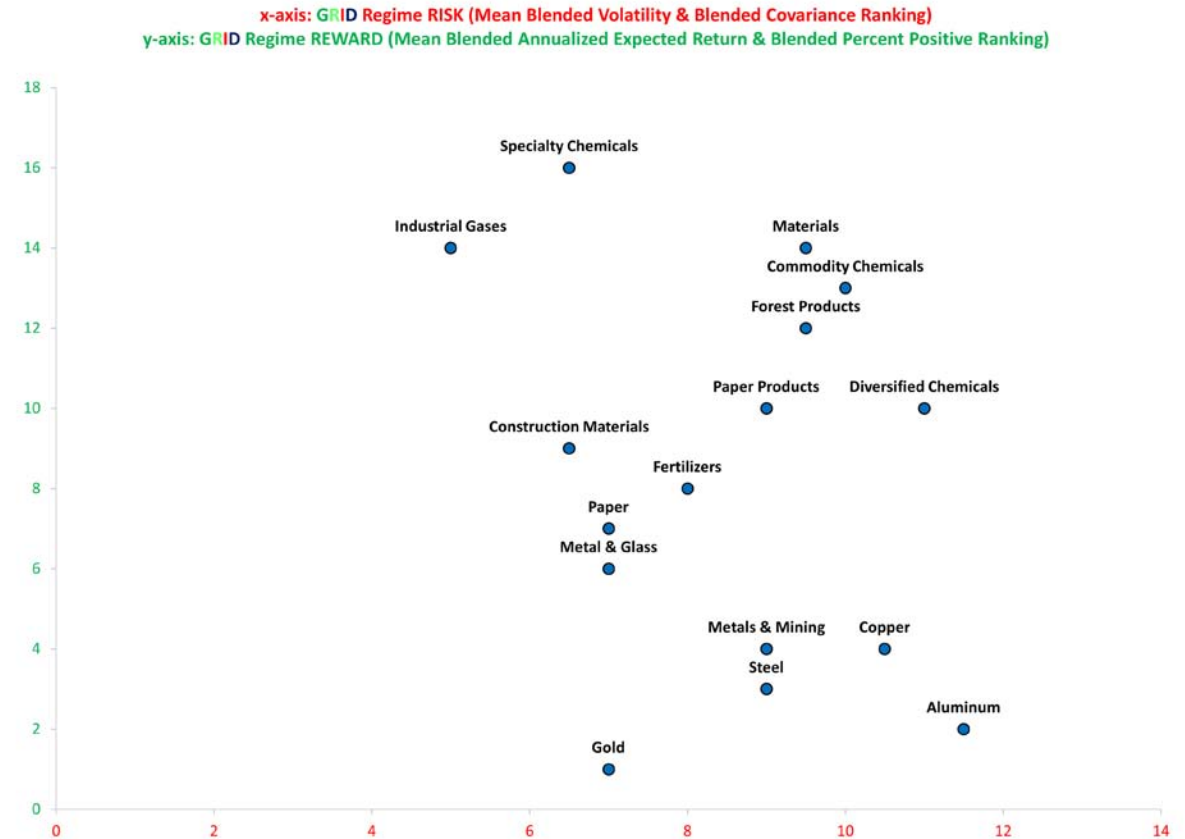
Materials

Current GRID Regime: DEFLATION



Materials

Pending GRID Regime: GOLDILOCKS



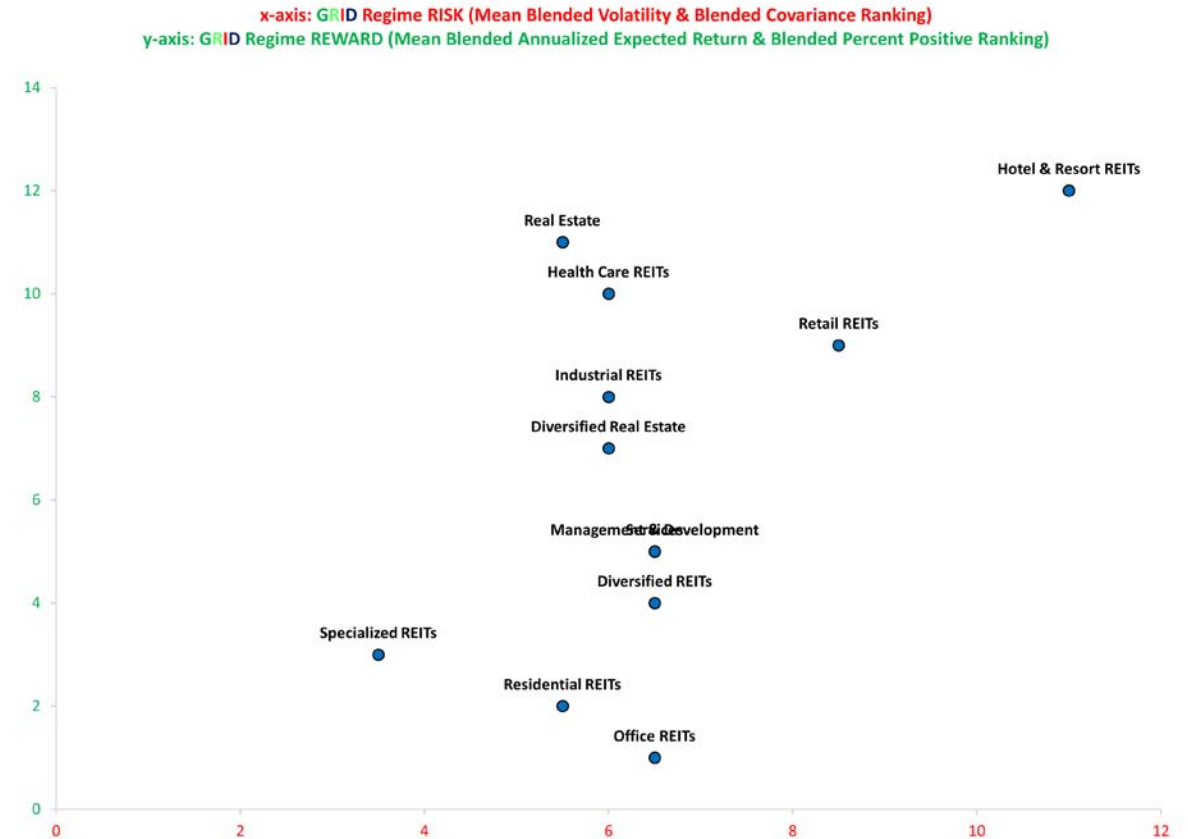
Real Estate

Current GRID Regime: DEFLATION



Real Estate

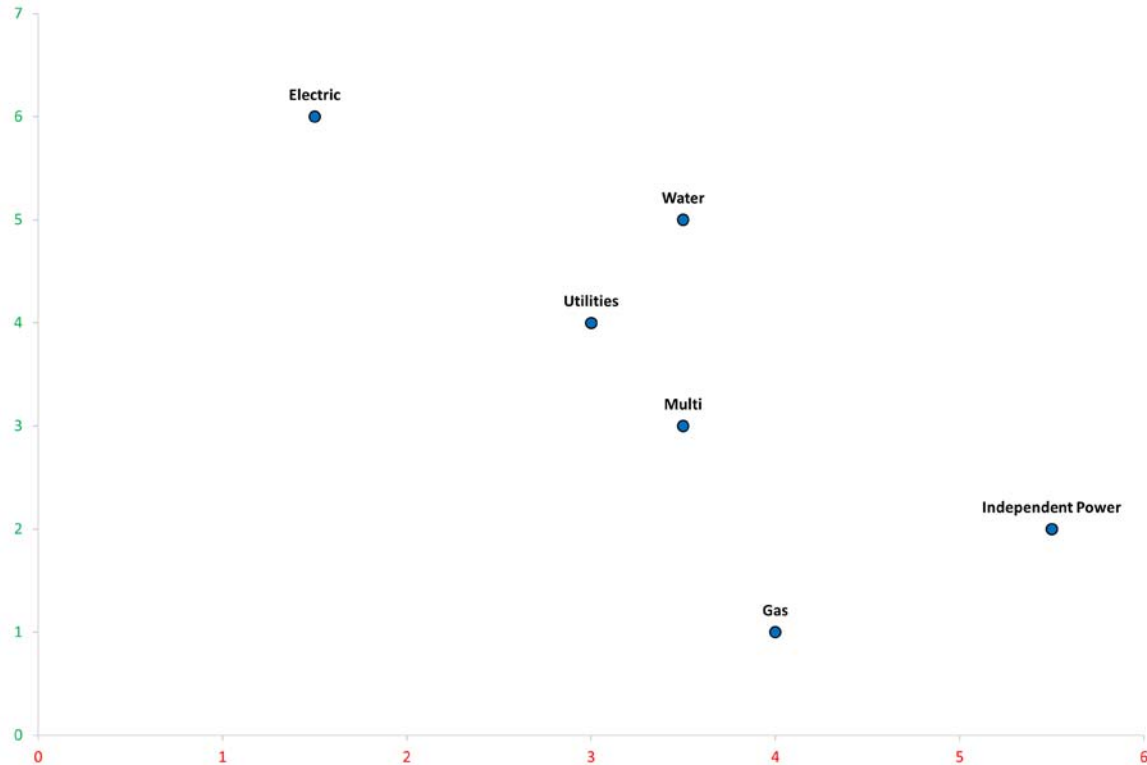
Pending GRID Regime: GOLDBLOCKS



Utilities

Current GRID Regime: DEFLATION

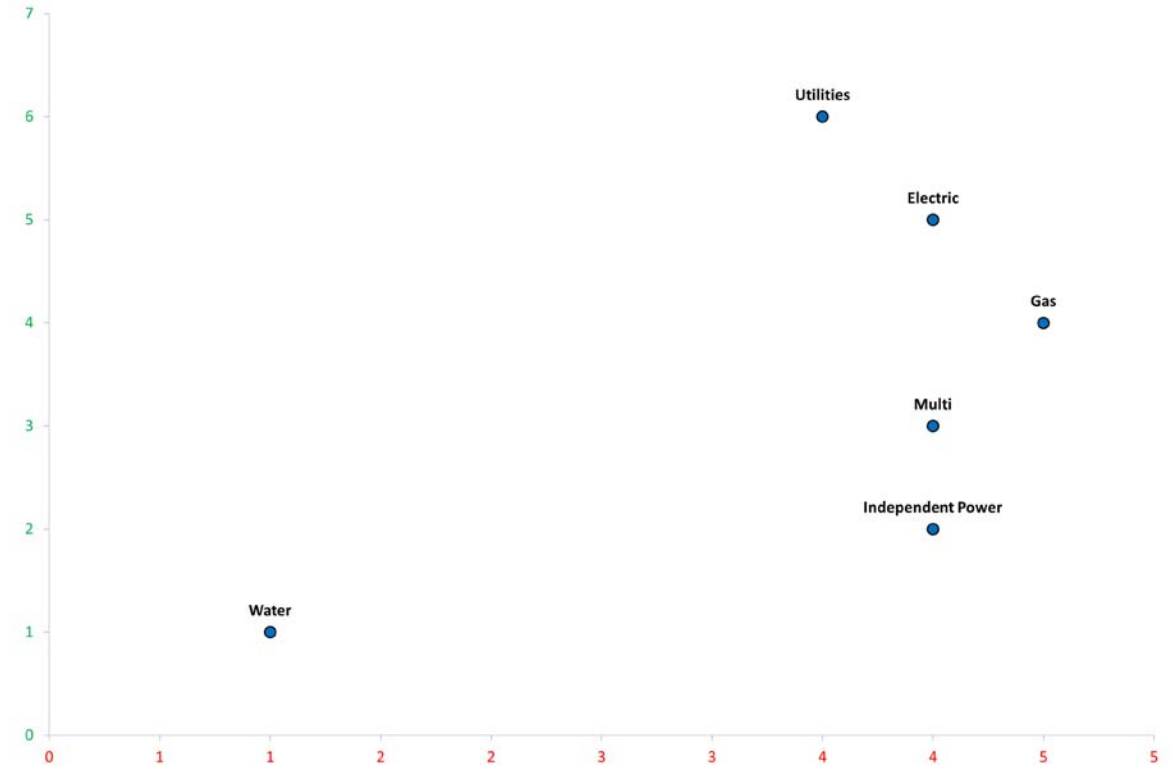
x-axis: GRID Regime RISK (Mean Blended Volatility & Blended Covariance Ranking)
y-axis: GRID Regime REWARD (Mean Blended Annualized Expected Return & Blended Percent Positive Ranking)



Utilities

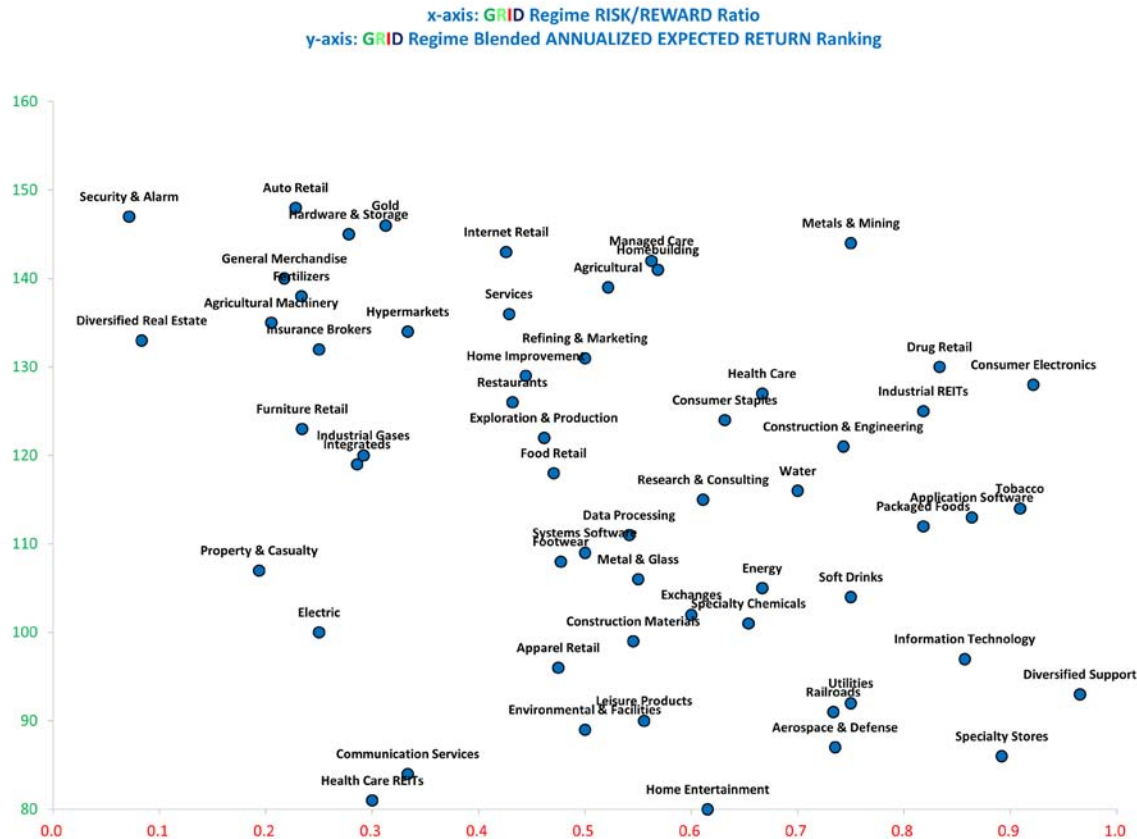
Pending GRID Regime: GOLDILOCKS

x-axis: GRID Regime RISK (Mean Blended Volatility & Blended Covariance Ranking)
y-axis: GRID Regime REWARD (Mean Blended Annualized Expected Return & Blended Percent Positive Ranking)



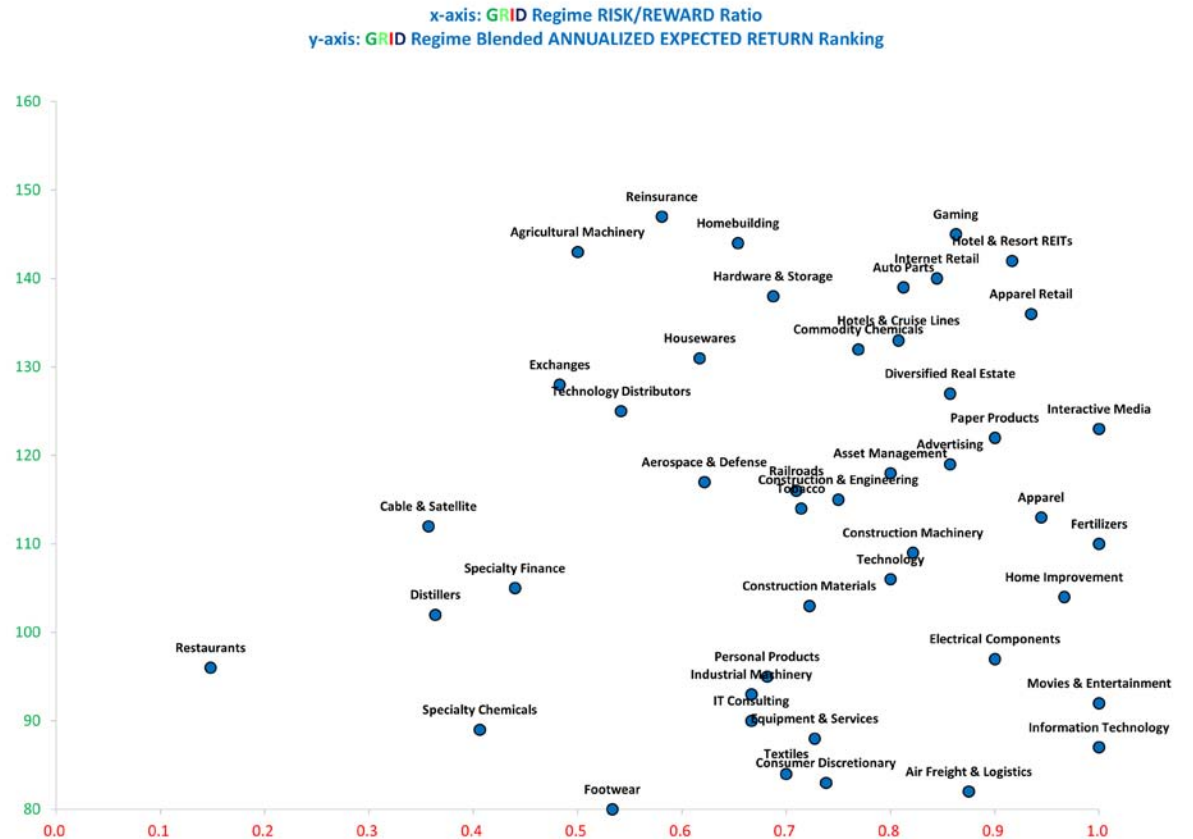
Portfolio Construction Candidates

Current GRID Regime: DEFLATION



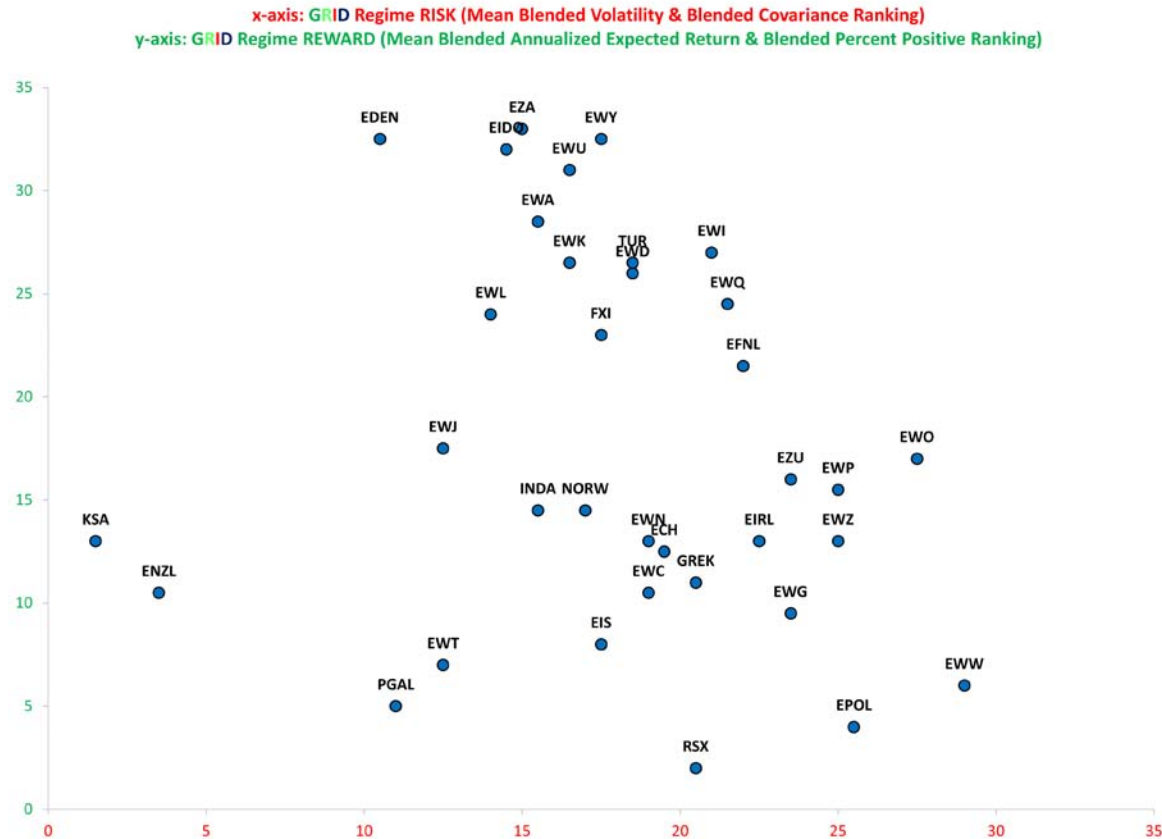
Portfolio Construction Candidates

Pending GRID Regime: GOLDILOCKS



Global Equities

Current GRID Regime: DEFLATION



Global Equities

Pending GRID Regime: GOLDBLOCKS



Commodities

Current GRID Regime: DEFLATION



Commodities

Pending GRID Regime: GOLDBLOCKS



Fixed Income

Current GRID Regime: DEFLATION



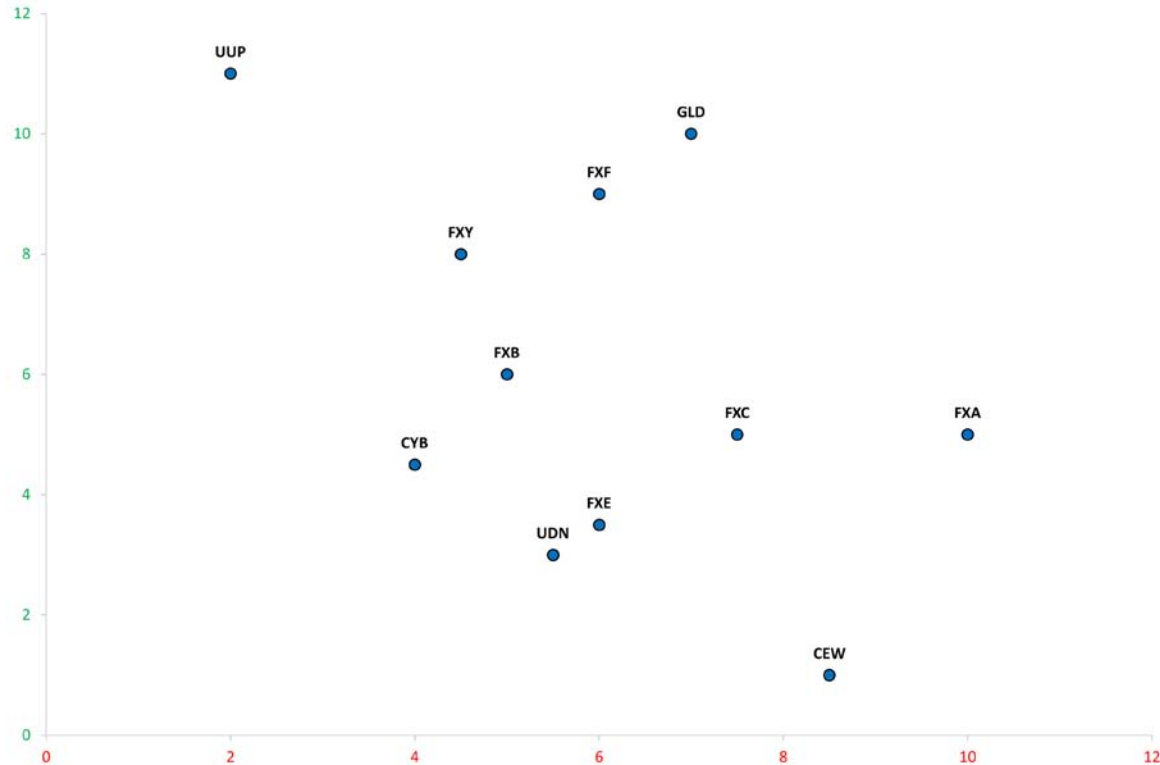
Fixed Income

Pending GRID Regime: GOLDILOCKS



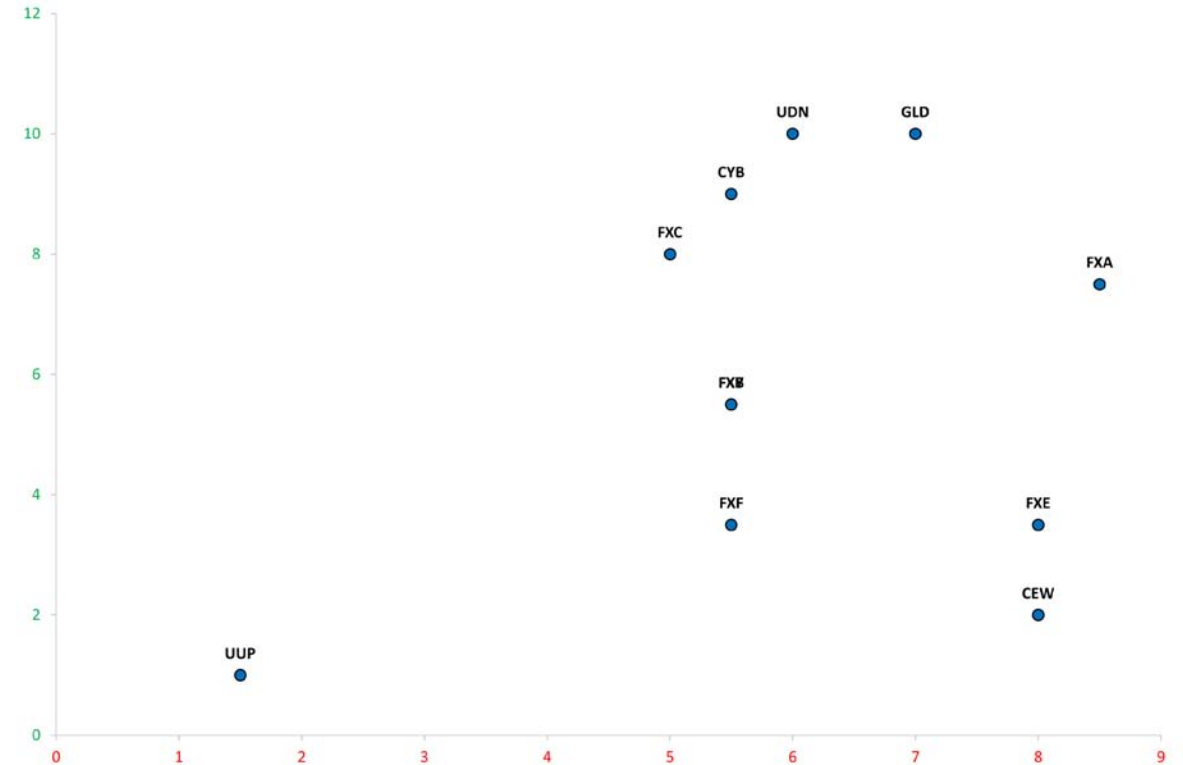
Foreign Exchange Current GRID Regime: DEFLATION

x-axis: GRID Regime RISK (Mean Blended Volatility & Blended Covariance Ranking)
y-axis: GRID Regime REWARD (Mean Blended Annualized Expected Return & Blended Percent Positive Ranking)



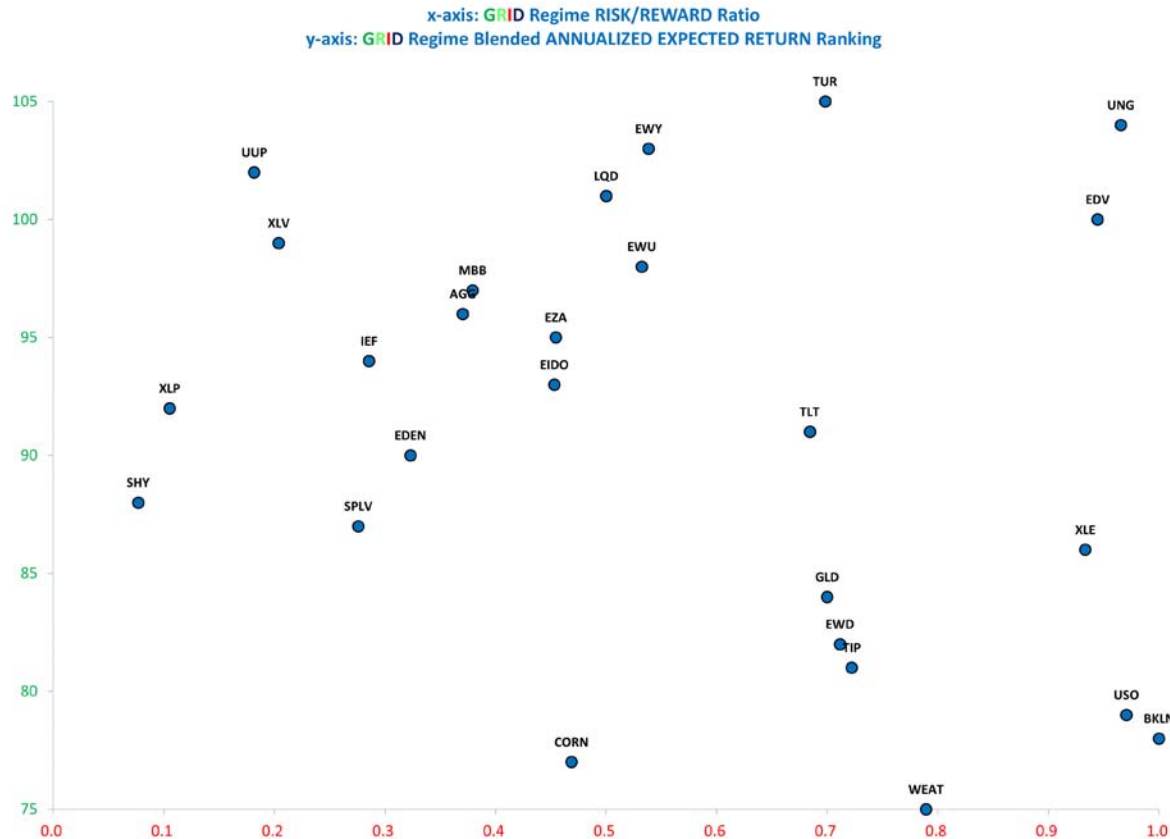
Foreign Exchange Pending GRID Regime: GOLDILOCKS

x-axis: GRID Regime RISK (Mean Blended Volatility & Blended Covariance Ranking)
y-axis: GRID Regime REWARD (Mean Blended Annualized Expected Return & Blended Percent Positive Ranking)



Portfolio Construction Candidates

Current GRID Regime: DEFLATION



Portfolio Construction Candidates

Pending GRID Regime: GOLDILOCKS



We Use The 42 Macro Global Macro Risk Matrix To Approximate Positioning And Flows In Real-Time

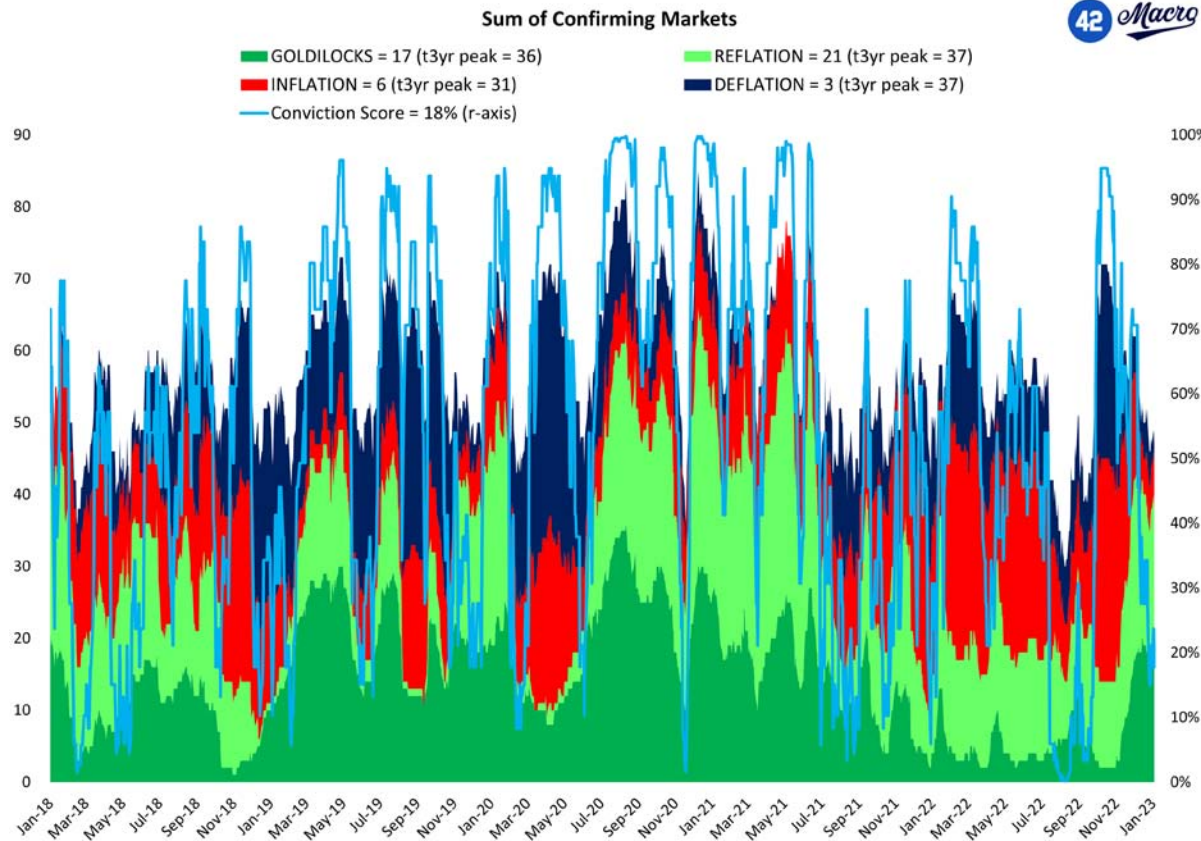
1/3/2023	DAX	ES1	MES1	NKY	NQ1	RTY1	SHCOMP	RVX1	VIX1	VXIX	VXN1	BCOMAG	BCOMIN	BGCI	CL1	XAG	AUD	BBDXY	EUR	GBP	USDCHE	USDCNY	USDJPY	XAU	FWISBP55	FWISEU55	FWISUS55	GDBR10	GJGB10	GUKG10	LF98OAS	LUACOAS	LUACYW	S0042FC 1Y1M	S0133FC 1Y1M	S0141FC 1Y1M	USGG10YR	USGG2YR	USGG30YR	USGGT10Y	USYC3M10	.1Y1YISR			
11/30/2022	✓	✓	✗	✓	✓	✓	✓	✗	✗	✗	✗	✓	✓	✗	✓	✗	✗	✗	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✗	✗	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✗	
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R	1	0	1	0	0	0	0	1	1	1	1	0	1	0	0	1	0	1	1	1	1	0	0	0	0	0	1	0	1	1	1	1	1	0	0	0	0	1	0	0	1	0	0		
I	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	1	1	1	0	0	0	0	0	0	0	1	0	0	0	0		
D	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1		

Ticker Key: <https://bit.ly/3SEwW0f>.

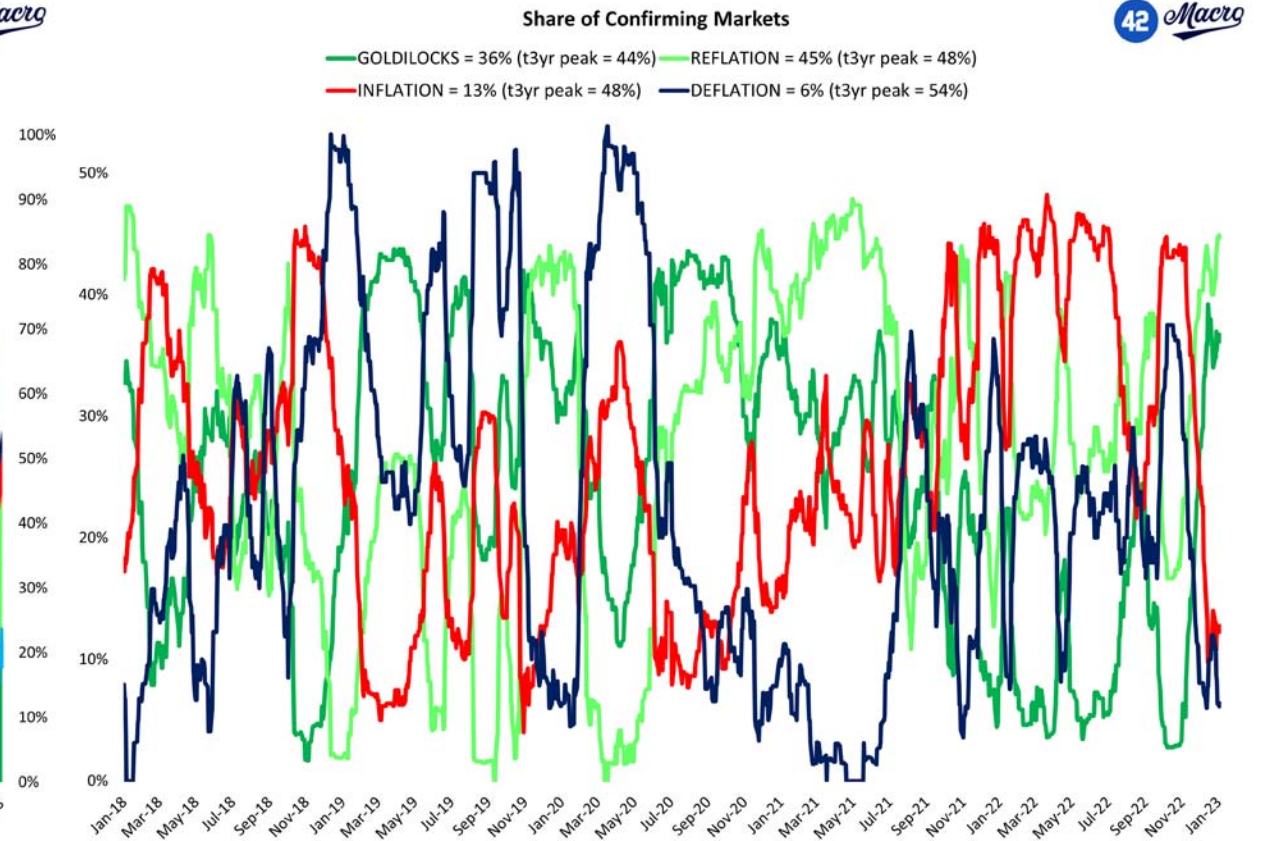
You may have to copy/paste the link into your browser if clicking on it does not work.

© 42 Macro LLC. Data Source: Bloomberg. Bullish VAMS = GREEN; Bearish VAMS = RED; and Neutral VAMS = ORANGE.

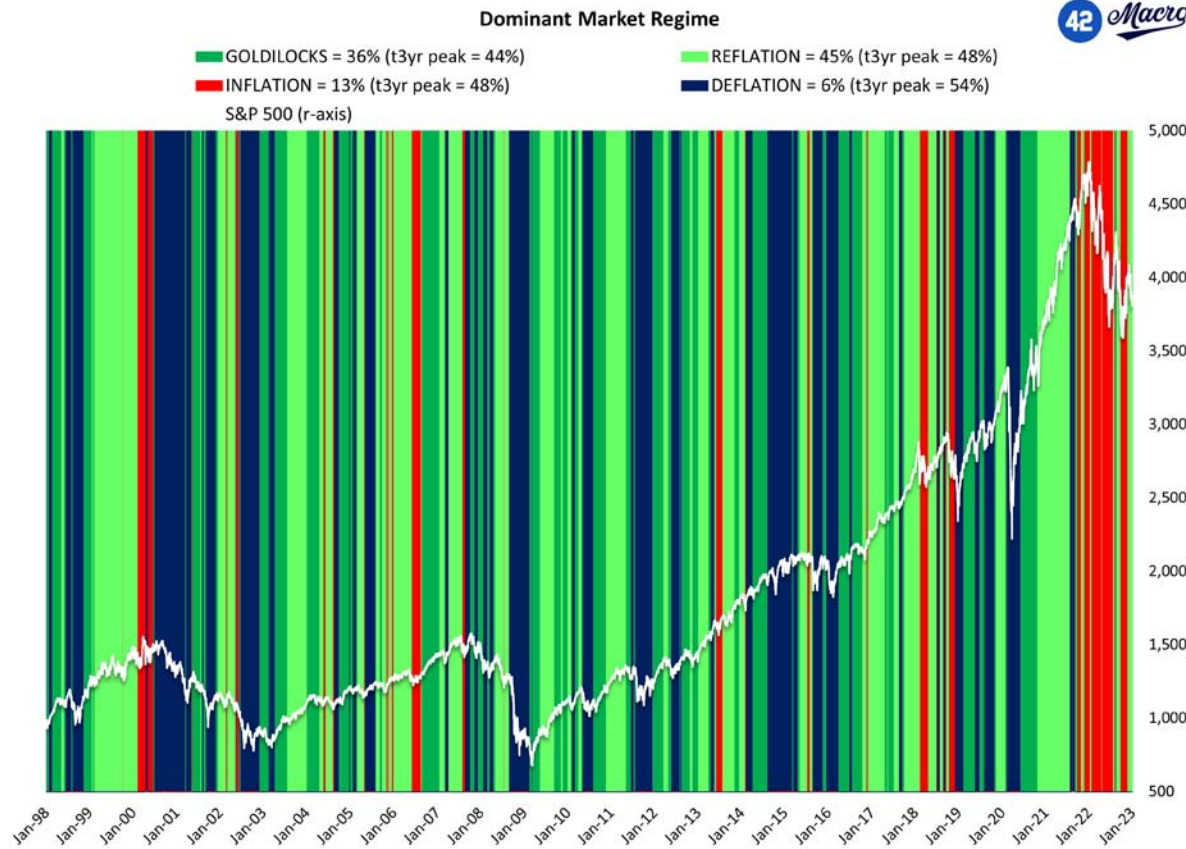
Global Macro Risk Matrix: Sum Of Confirming Markets



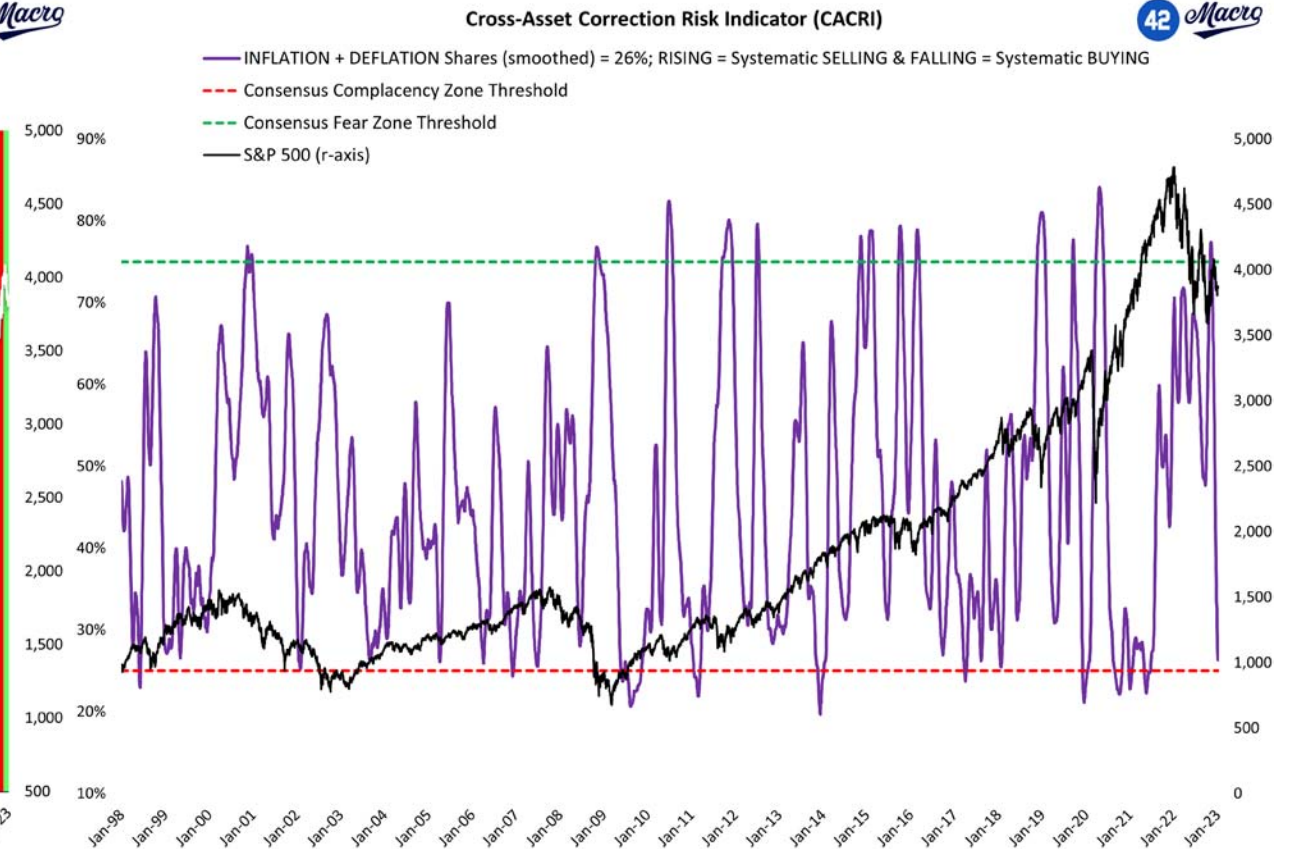
Global Macro Risk Matrix: Share Of Confirming Markets



Global Macro Risk Matrix: Dominant Market Regime

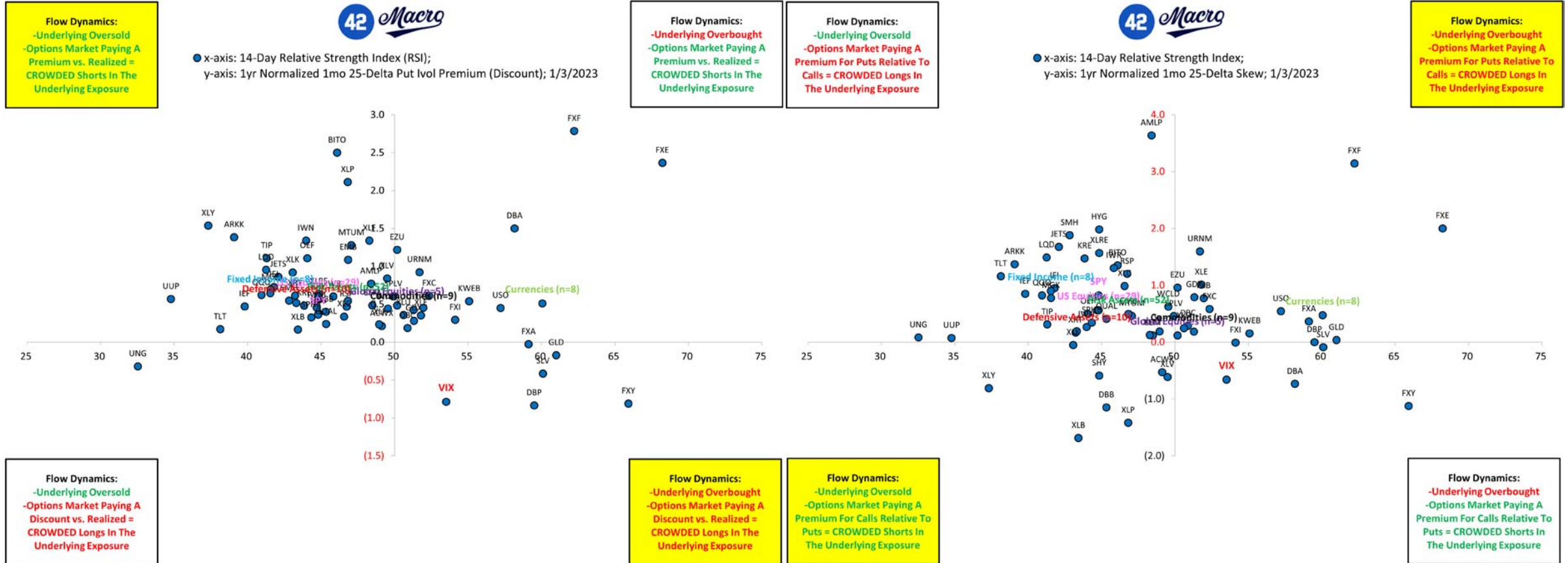


Cross-Asset Correction Risk Indicator (CACRI)

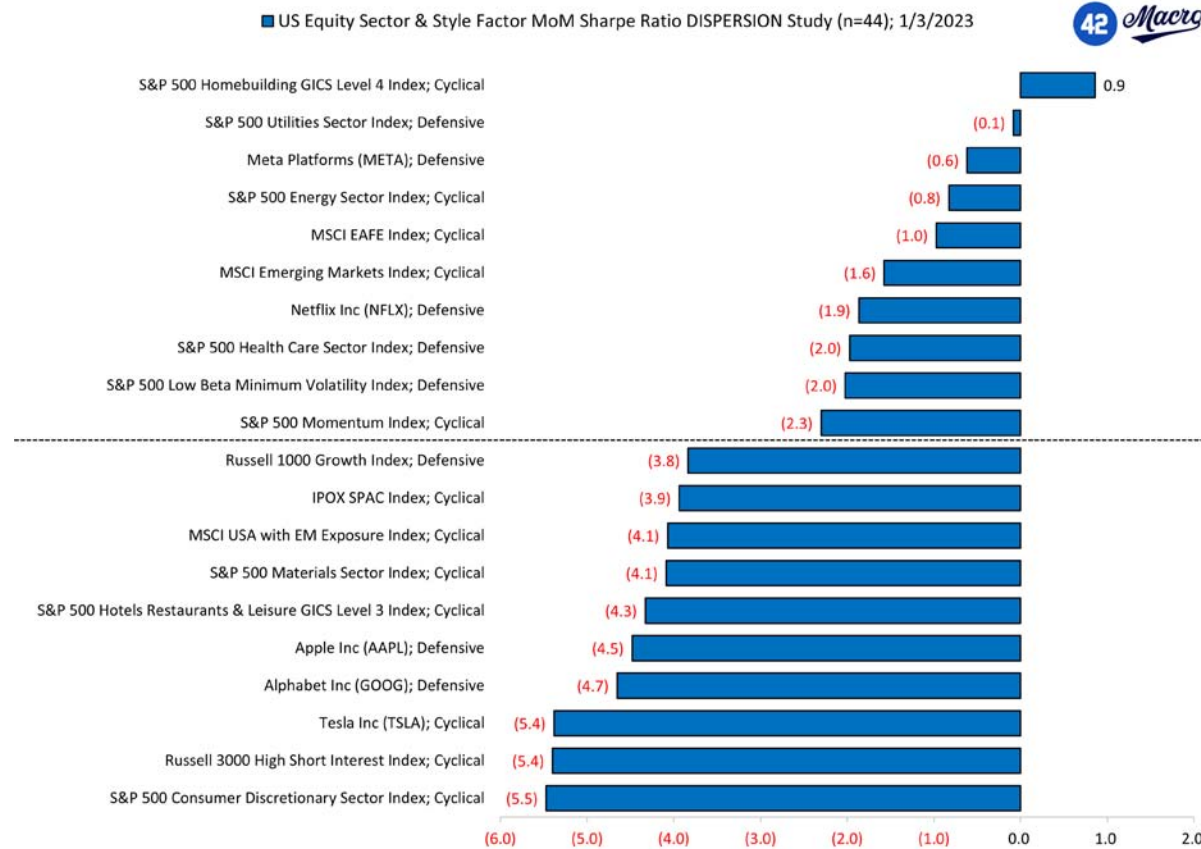


CROWDING Ivol Premium (Discount)

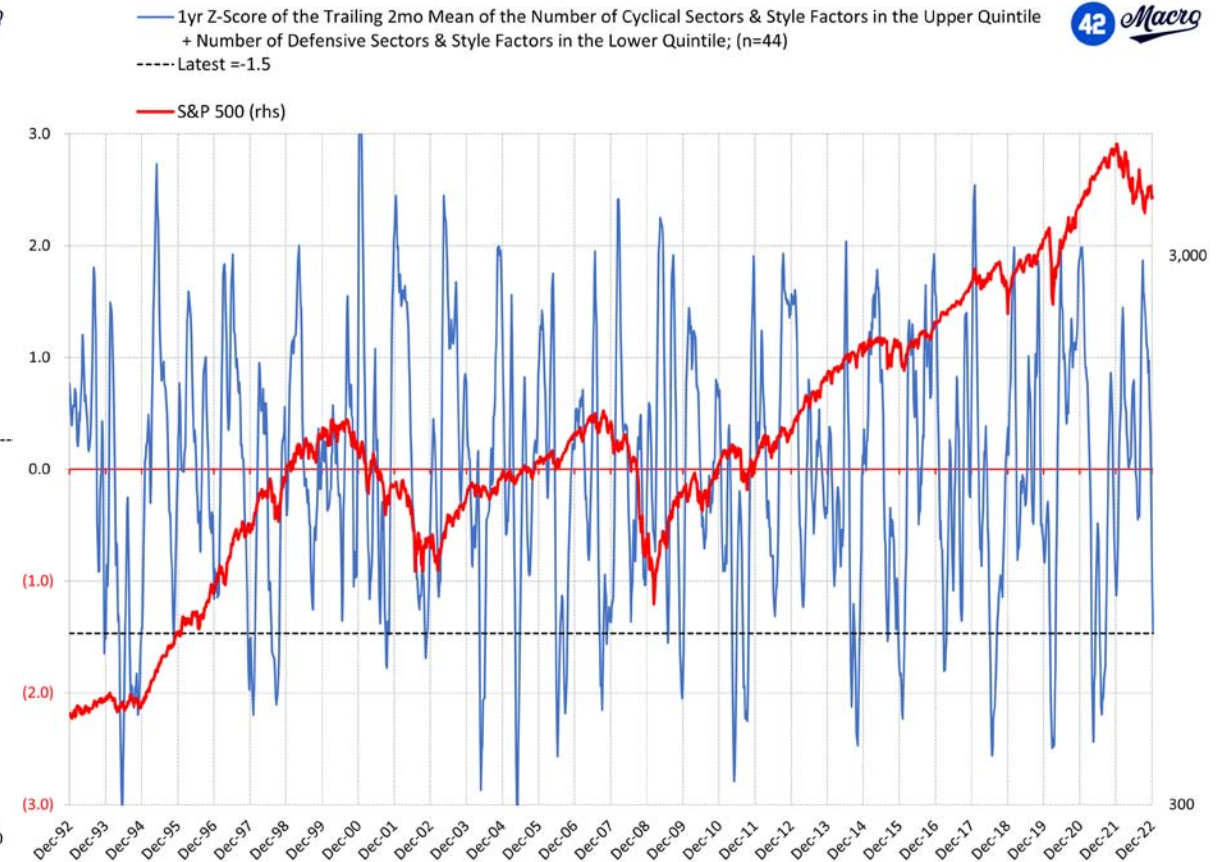
CROWDING Skew



DISPERSION Bar Chart



DISPERSION Time Series



© 42 Macro LLC. Data Source: Bloomberg.

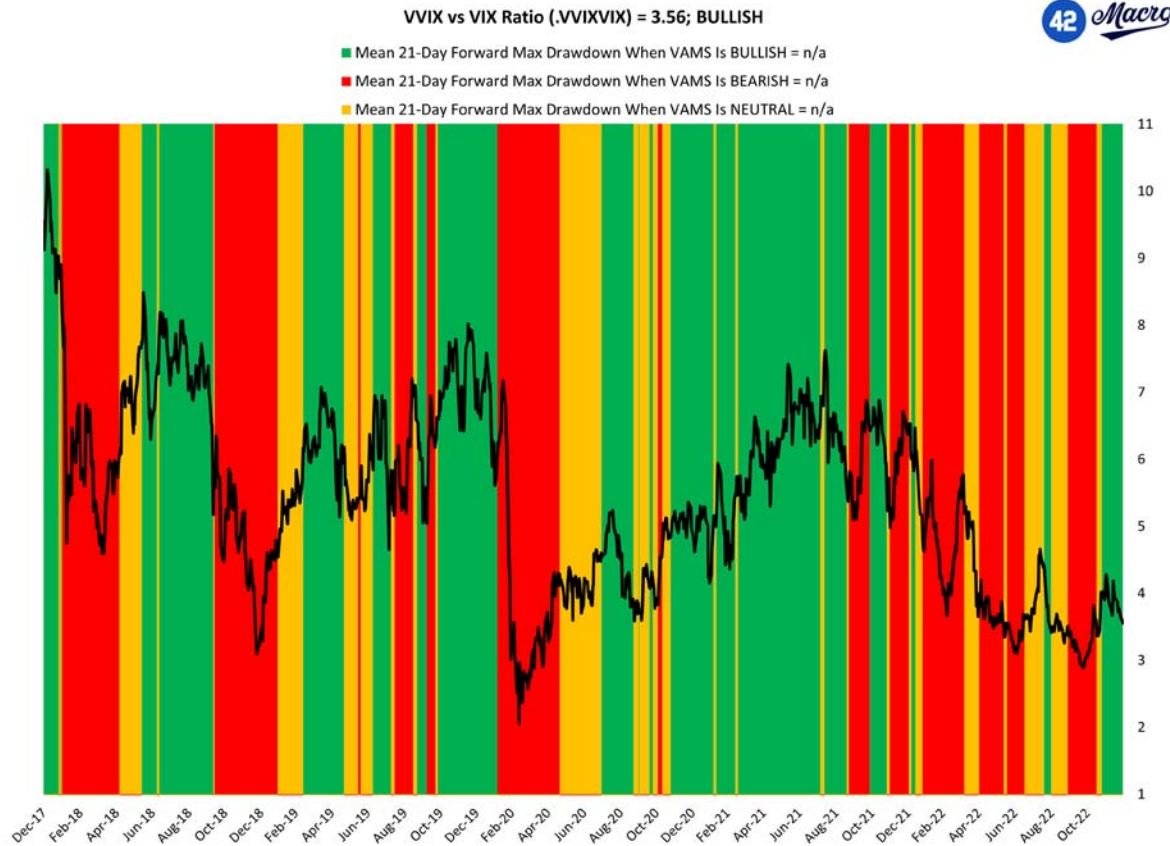
A HIGH number in the DISPERSION Time Series chart implies market internals have rotated in favor of Cyclicals.
 A LOW number in the DISPERSION Time Series chart implies market internals have rotated in favor of Defensives.

POSITIONING

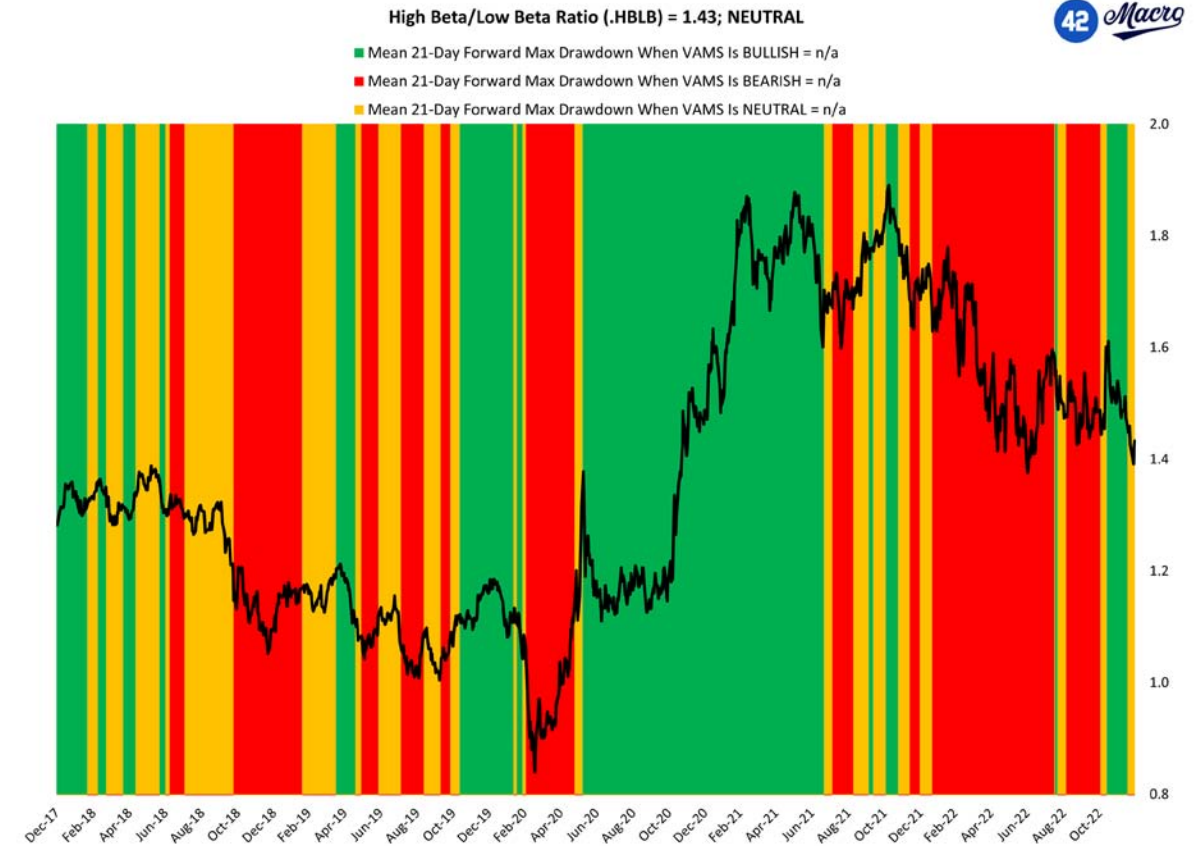
CFTC CoT Report	Non-Commercial Net Length as a % of Open Interest	1yr Percentile	All-time Percentile	Total Open Interest	1yr Percentile	All-time Percentile	CFTC CoT Report	1yr Z-Score	-2σ Median 1mo Forward Performance	-2σ Median 1mo Forward Percent Positive Ratio	+2σ Median 1mo Forward Performance	+2σ Median 1mo Forward Percent Positive Ratio
10yr Treasury	-6%	55%	14%	4,672,954	63%	92%	10yr Treasury	-0.1	0.3%	64%	0.2%	60%
2yr Treasury	-25%	8%	0%	2,245,087	80%	91%	2yr Treasury	-1.8	0.1%	63%	-0.0%	31%
30-Day Fed Funds Rate	-6%	6%	24%	1,556,477	22%	85%	30-Day Fed Funds Rate	-1.7	0.0%	3%	0.0%	0%
3mo Eurodollar Contract	-10%	2%	2%	8,995,464	2%	25%	3mo Eurodollar Contract	-3.7	0.0%	58%	0.0%	79%
5yr Treasury	-15%	0%	1%	4,380,860	47%	91%	5yr Treasury	-2.1	0.3%	55%	0.2%	71%
AUD/USD	-28%	49%	13%	137,791	4%	61%	AUD/USD	0.2	-1.1%	40%	0.3%	54%
Bitcoin	3%	73%	94%	17,979	94%	99%	Bitcoin	0.7	37.9%	100%	4.0%	59%
BRL/USD	12%	20%	57%	60,847	59%	92%	BRL/USD	-0.9	-3.9%	29%	-1.4%	35%
CAD/USD	-20%	0%	18%	153,276	6%	70%	CAD/USD	-1.9	0.9%	76%	-1.0%	20%
CHF/USD	-13%	86%	48%	31,745	0%	1%	CHF/USD	1.2	-1.0%	35%	-0.4%	29%
Cocoa	6%	73%	50%	336,702	53%	95%	Cocoa	0.7	0.5%	55%	-0.6%	48%
Coffee	-4%	14%	36%	241,724	14%	76%	Coffee	-1.8	-0.9%	45%	-0.2%	49%
Copper	0%	55%	47%	177,940	14%	72%	Copper	0.2	-1.3%	43%	2.0%	62%
Corn	15%	27%	80%	1,423,239	0%	38%	Corn	-0.5	-0.1%	50%	3.4%	88%
Cotton	7%	20%	40%	251,829	12%	59%	Cotton	-1.3	1.2%	60%	0.3%	53%
Dow Jones	-16%	57%	14%	75,013	37%	25%	Dow Jones	0.3	1.4%	66%	1.1%	93%
US Dollar Index (DXY)	41%	2%	66%	41,695	2%	52%	US Dollar Index (DXY)	-2.8	-0.7%	39%	0.2%	63%
EUR/USD	21%	100%	86%	840,548	96%	100%	EUR/USD	2.2	-1.0%	39%	0.6%	60%
Gasoline	20%	94%	70%	248,293	12%	18%	Gasoline	1.2	1.2%	57%	-2.2%	32%
GBP/USD	-6%	84%	50%	225,281	22%	78%	GBP/USD	1.2	0.5%	58%	-0.9%	20%
Gold	26%	53%	61%	579,634	8%	47%	Gold	0.2	0.1%	54%	-2.3%	27%
Goldman Sachs Commodity Index	-35%	2%	0%	14,753	65%	25%	Goldman Sachs Commodity Index	-3.4	4.4%	72%	-0.5%	44%
JPY/USD	-19%	88%	41%	194,207	0%	54%	JPY/USD	1.2	-0.0%	45%	-0.7%	40%
Lean Hogs	21%	71%	77%	243,792	6%	50%	Lean Hogs	0.7	4.7%	68%	0.8%	55%
Live Cattle	-4%	63%	9%	53,800	20%	76%	Live Cattle	0.1	2.6%	59%	1.1%	63%
Long Treasury Bond	-12%	0%	6%	1,307,508	35%	91%	Long Treasury Bond	-2.0	-1.0%	23%	1.0%	69%
Lumber	-47%	18%	1%	3,090	100%	15%	Lumber	-1.2	0.5%	57%	0.9%	62%
MXN/USD	-22%	4%	15%	233,038	82%	96%	MXN/USD	-1.5	2.2%	71%	1.0%	79%
NASDAQ	0%	14%	32%	295,190	18%	46%	NASDAQ	-1.1	3.4%	83%	1.5%	67%
Natural Gas	-16%	16%	13%	1,018,135	49%	48%	Natural Gas	-1.3	0.0%	50%	6.5%	61%
NZD/USD	19%	98%	52%	35,587	6%	60%	NZD/USD	2.5	-0.3%	40%	0.1%	50%
Palladium	-26%	45%	5%	8,288	78%	25%	Palladium	0.1	-2.1%	45%	1.0%	67%
Platinum	37%	96%	42%	67,180	53%	73%	Platinum	1.5	0.9%	60%	-2.4%	33%
Russell 2000	-16%	31%	9%	443,772	0%	9%	Russell 2000	-0.6	-1.4%	43%	-0.3%	45%
S&P 400	20%	96%	85%	42,536	4%	16%	S&P 400	2.0	3.2%	80%	1.2%	68%
S&P 500	-5%	27%	23%	2,796,409	0%	46%	S&P 500	-0.9	4.3%	91%	0.9%	61%
Silver	22%	84%	59%	153,052	12%	42%	Silver	1.1	3.8%	79%	-2.2%	43%
Soybeans	19%	92%	91%	682,246	2%	48%	Soybeans	1.2	-0.4%	48%	0.6%	53%
Sugar	24%	96%	94%	1,100,767	100%	83%	Sugar	1.5	-0.4%	42%	-1.8%	40%
VIX	-24%	29%	21%	289,519	25%	46%	VIX	-0.5			5.4%	100%
Wheat	-10%	6%	18%	387,675	14%	34%	Wheat	-1.8	2.2%	71%	-5.0%	43%
WTI Crude Oil	15%	73%	76%	1,865,771	6%	35%	WTI Crude Oil	0.5	-4.4%	42%	-1.6%	46%

Data Source: Bloomberg. All backtests trailing 10yrs. © 42 Macro LLC.

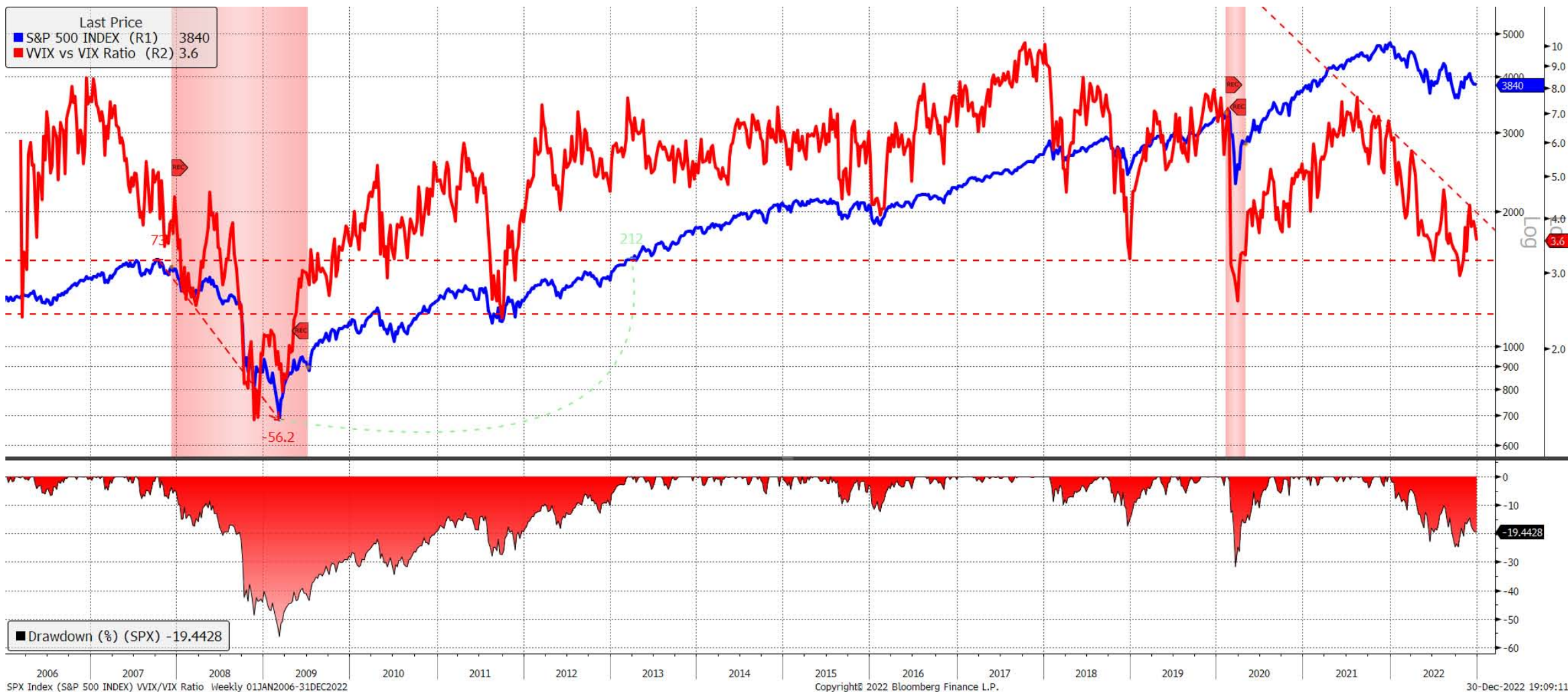
Four Horsemen Of Market Risk: VVIX/VIX Ratio



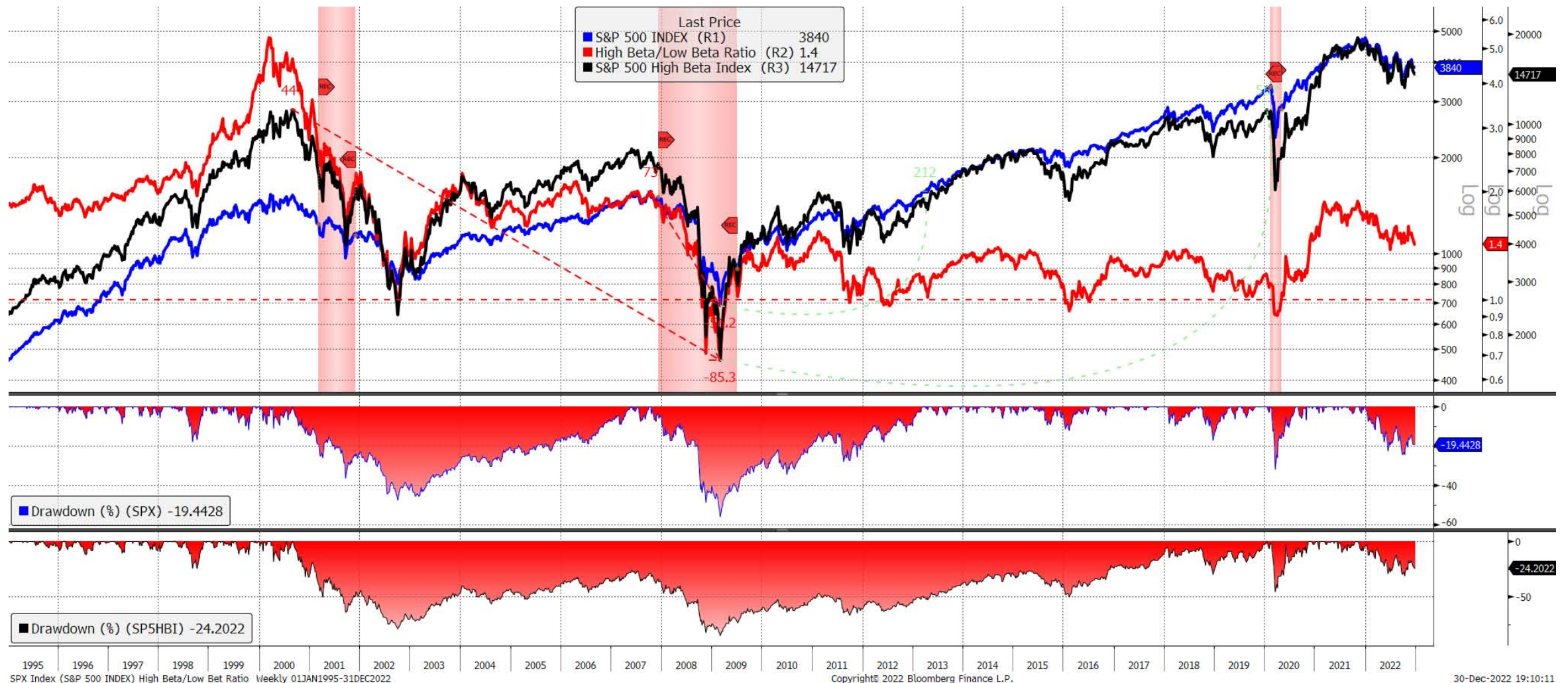
Four Horsemen Of Market Risk: High Beta/Low Beta Ratio



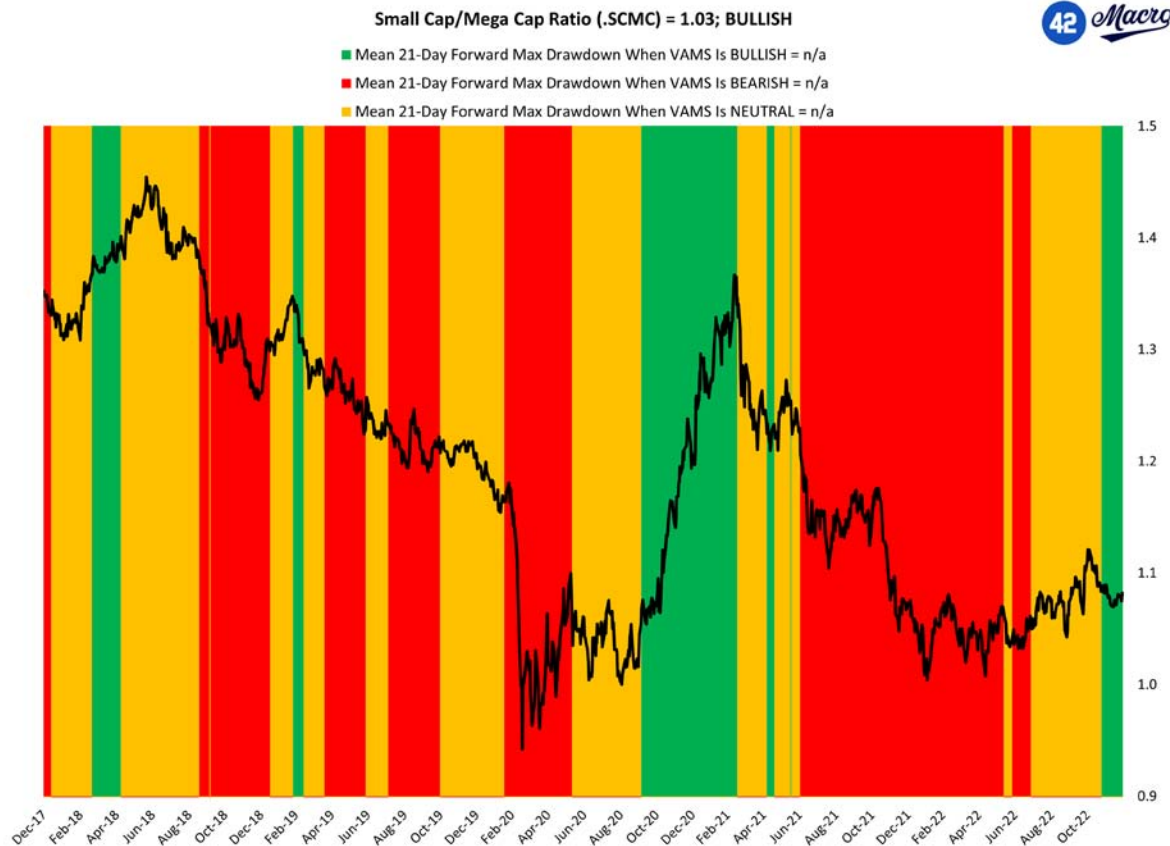
VVIX/VIX Ratio: ↓ Almost Always = Risk Off



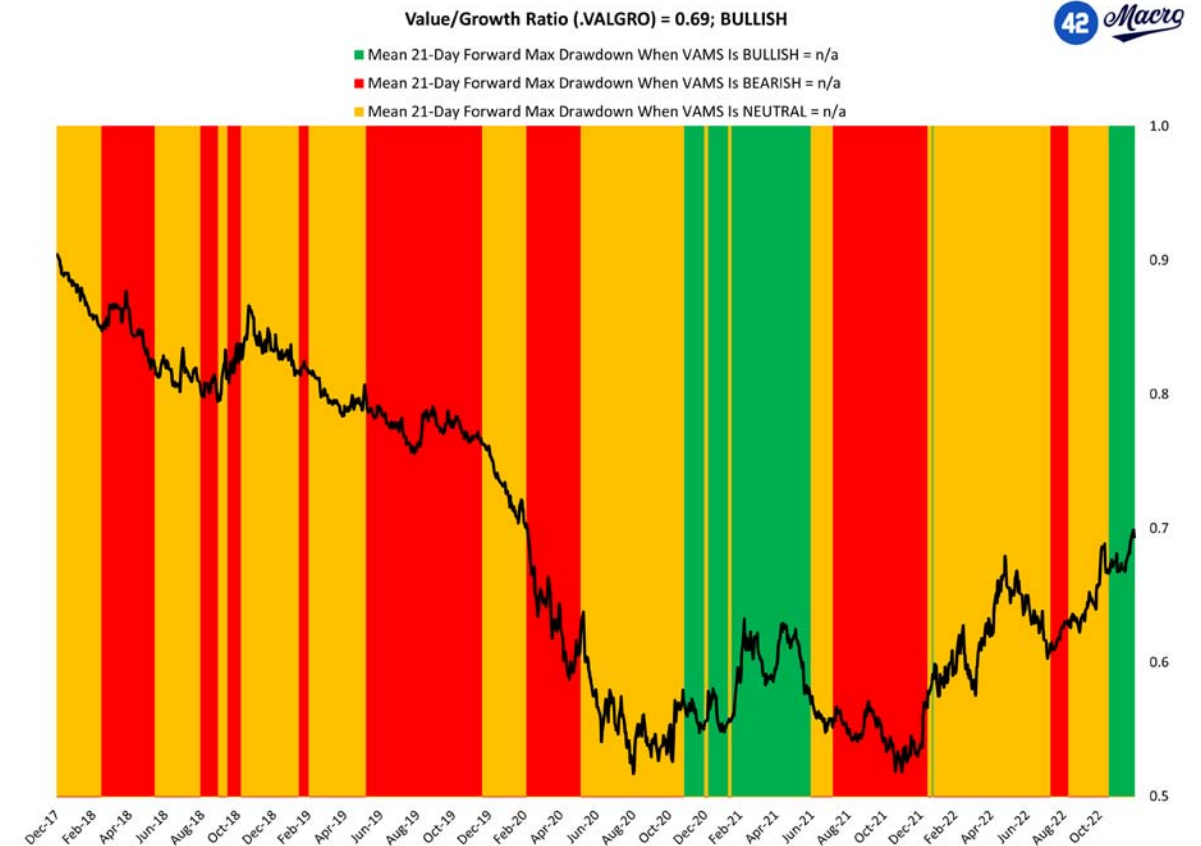
High Beta/Low Beta Ratio: ↓ Almost Always = Risk Off



Four Horsemen Of Market Risk: Small Cap/Mega Cap Ratio



Four Horsemen Of Market Risk: Value/Growth Ratio

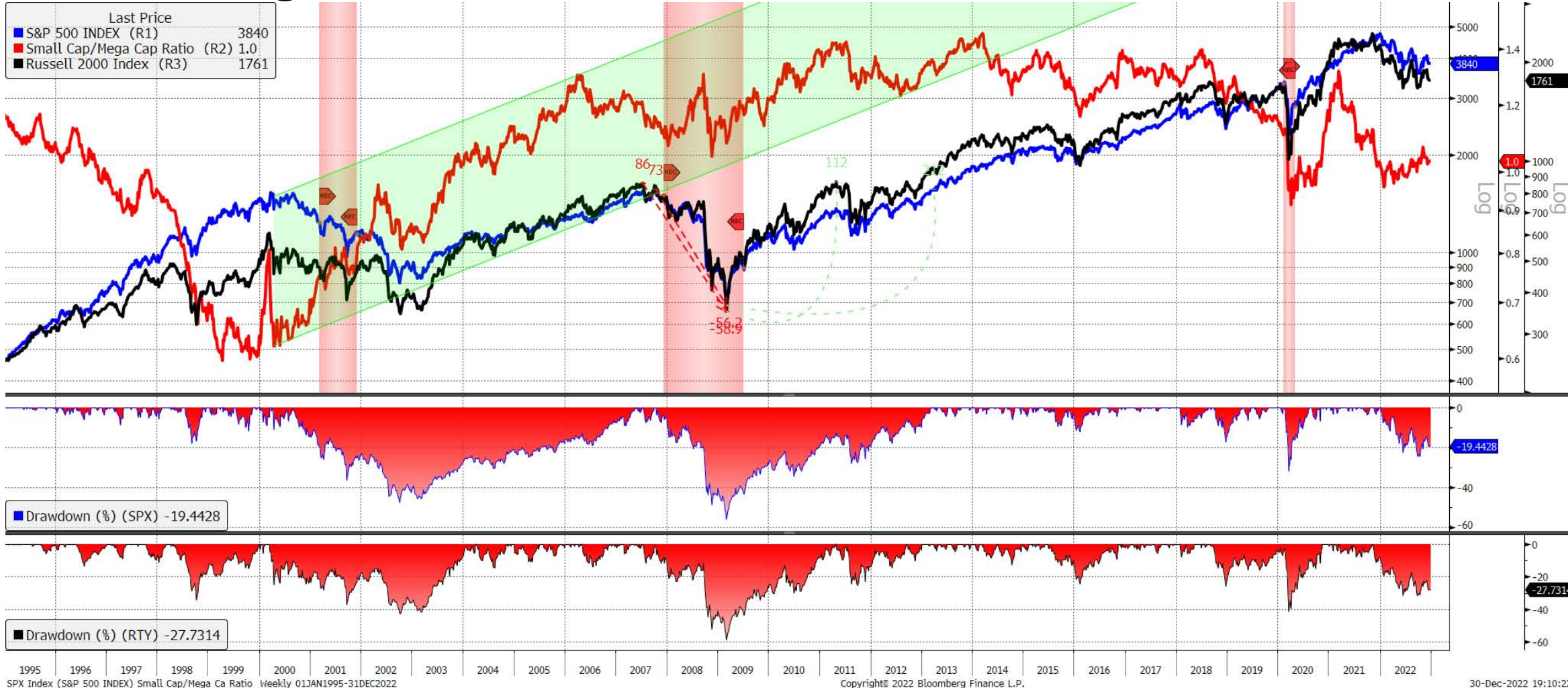


© 42 Macro LLC. Data Source: Bloomberg.

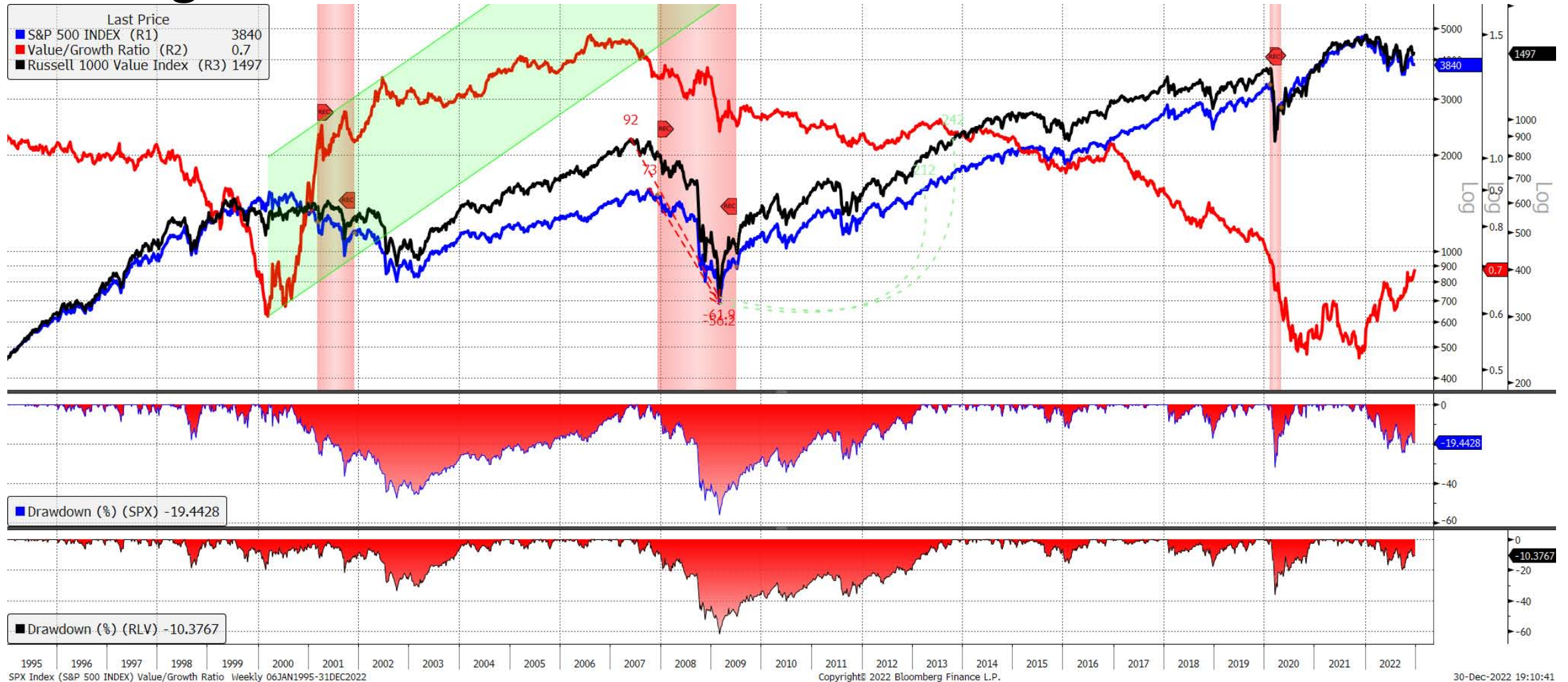
Volatility adjustment factors for the Small Cap/Mega Cap Ratio = BBDXY and Value/Growth Ratio = CCC OAS.

Bullish VAMS = GREEN; Bearish VAMS = RED; and Neutral VAMS = ORANGE.

Small Cap/Mega Cap Ratio: ↓ Almost Always = Risk Off, Save For The Bursting Of The Tech Bubble And 1H08



Value/Growth Ratio: ↑ Almost Always = Risk On, Save For The Bursting Of The Tech Bubble And 2H08



Why The GRIDs Work

- “I knew which shifts in the environment caused asset classes to move around, and I knew that those relationships had remained essentially the same for hundreds of years. There were only two big forces to worry about: growth and inflation. *Each could be rising or falling, so I saw that by finding four different investment strategies – each one of which would do well in a particular environment (rising growth with rising inflation, rising growth with falling inflation, and so on) – I could construct an asset allocation mix that was balanced to do well over time while being protected against unacceptable losses.*”
–Ray Dalio, Principles pg. 70
- “Subjective confidence in a judgment is not a reasoned evaluation of the probability that this judgment is correct. Confidence is a feeling, which reflects the coherence of the information and the cognitive ease of processing it. It is wise to take admissions of uncertainty serious, but *declarations of high confidence mainly tell you that an individual has constructed a coherent story in his mind, not necessarily that the story is true.*”
–Danny Kahneman & Amos Tversky, Thinking, Fast and Slow pg. 212
- “You cannot beat the market, says the standard market doctrine. Granted. But *you can sidestep its worst punches.*”
–Benoit Mandelbrot, The (Mis)Behavior of Markets pg. 249

**Thanks for reviewing.
See you next month!**

42 Macro Product Walkthroughs:

<https://42macro.com/walkthrough>

42 Macro Playbook:

<https://42macro.com/the-playbook/>