

HEDGEYE



HEDGEYE'S CURRENT MARKET OUTLOOK

Reflation's Finale

Updated: October 5th, 2021



MACRO THEMES

USA: #Quad2 in Q4?

Global Inflation's Acceleration

Long Emerging Markets?

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[1] USA: #Quad2 in Q4?

Sticky-high inflation enduring through Q4 remains the high probability setup amid still pervasive demand-supply imbalances, the widest PPI-CPI gap in over 40 years, containerized freight shipping cost indices making fresh ATHs on a daily basis and Shelter CPI lagging by the widest margin ever the explosion in home prices. But what about growth? Delta rampaged through August and has continued to suppress activity into September but with case counts rolling over both domestically and abroad the prospects for delayed activity resurgence in Q4 is driving up the probability of a growth acceleration in Q4

[2] Global Inflation's Acceleration

The Cantillon effect is on full display as the fastest growth in money printing globally has predictably produced not just the fastest pace of asset price inflation on record but also (and right on cue) the highest rates of global price inflation in decades. Both China and Europe are poised to see the strongest inflationary pressures in years over the next few quarters which, coupled with the US' already decades-high inflation, will create an enduring Quad 2/Quad 3 backdrop over the intermediate term.

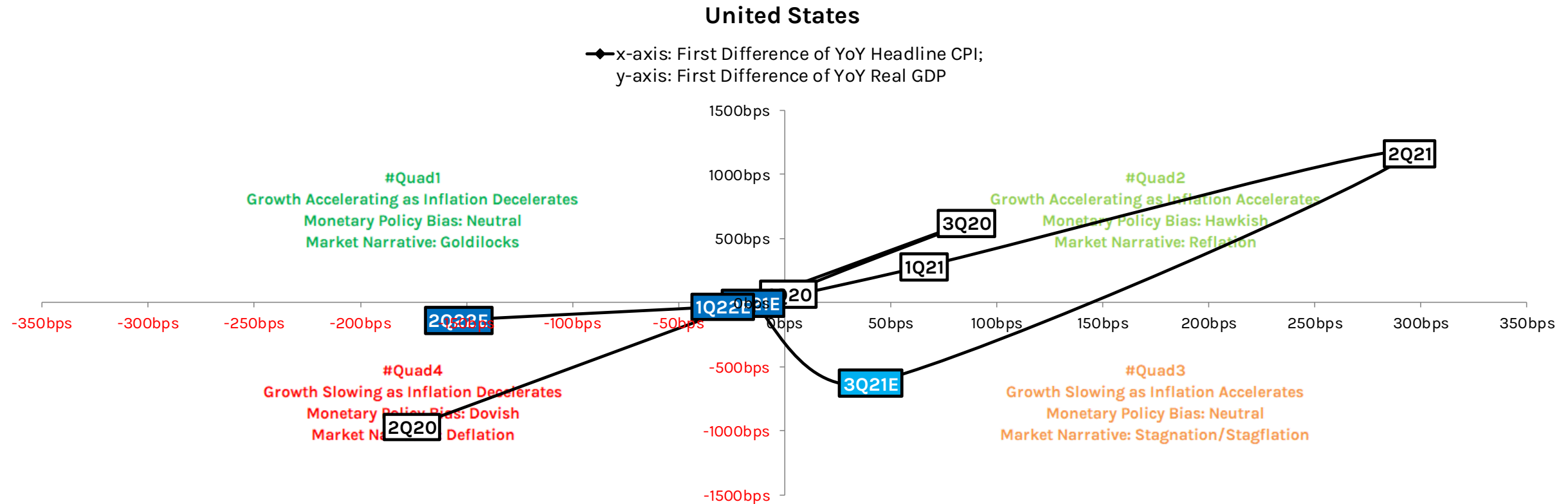
[3] Long Emerging Markets?

The only quad in which the dollar goes up is Quad 4 and we don't see a hard Quad 4 until 2Q of 2022. Meanwhile, Quad 2 is the second worst Quad for the dollar and the odds of Quad 2 are rising. Given that, the outlook for EM over the intermediate term is getting interesting, but not all EM countries look the same. We'll be focusing in on countries with favorable Signal and Quad Count setups, i.e. adjacent Quad 1/Quad 2 setups for EM long opportunities over the next 1-2 Quarters.

What Are The Quads?

Our GIP Model is a quantitatively oriented, regime-based framework that helps investors proactively prepare for volatility phase transitions within and across asset classes by triangulating the three factors that matter most to Macro Risk Management – i.e. GROWTH, INFLATION, and POLICY.

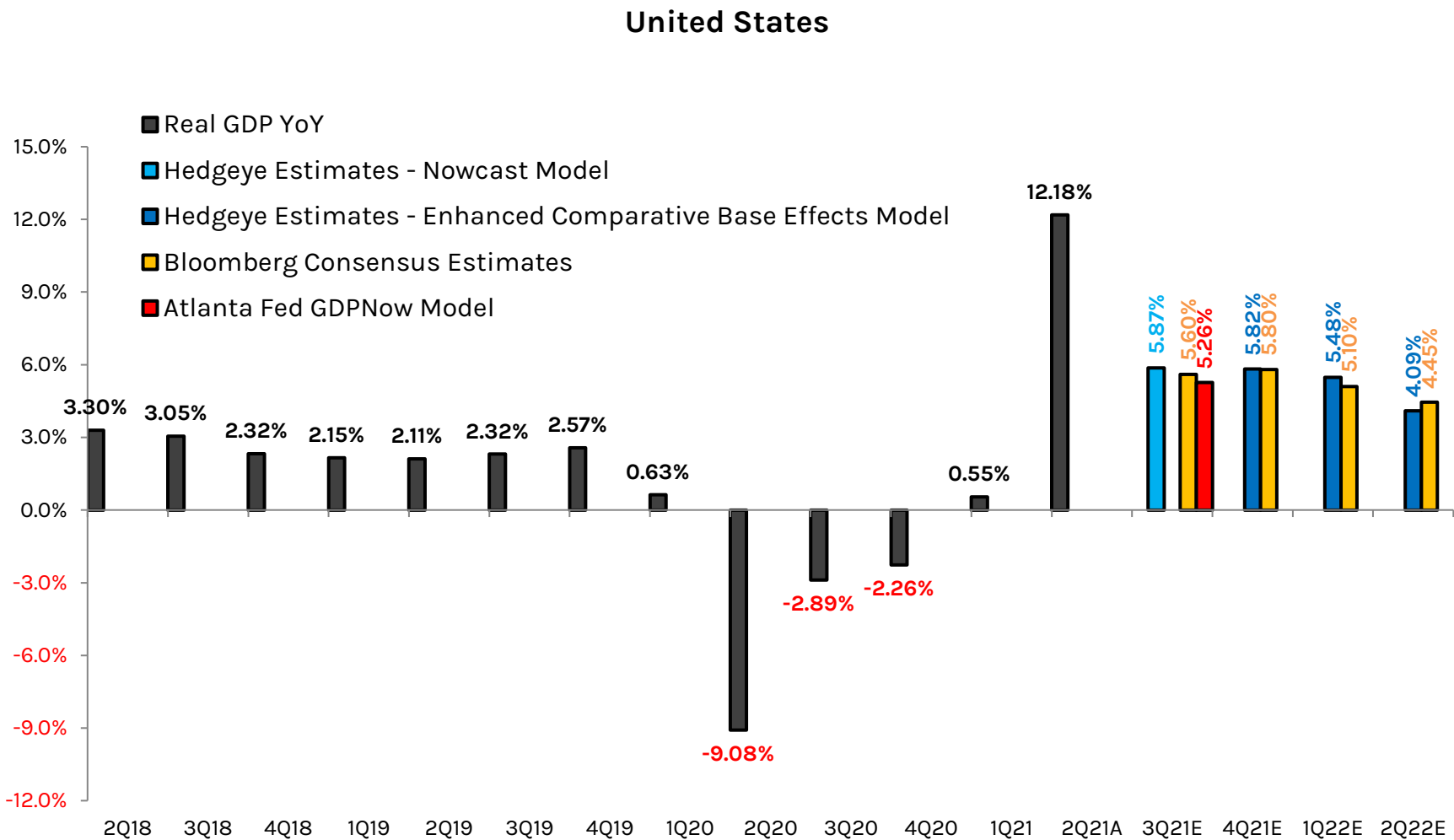
| United States | 3Q18 | 4Q18 | 1Q19 | 2Q19 | 3Q19 | 4Q19 | 1Q20 | 2Q20 | 3Q20 | 4Q20 | 1Q21 | 2Q21 | ← Actuals Estimates → | 3Q21E | 4Q21E | 1Q22E | 2Q22E |
|------------------------------|-------|-------|-------|-------|-------|-------|--------|---------|--------|--------|-------|--------|------------------------------|--------|-------|-------|-------|
| Real GDP QoQ SAAR | 1.90% | 0.90% | 2.40% | 3.20% | 2.80% | 1.90% | -5.10% | -31.20% | 33.80% | 4.50% | 6.30% | 6.60% | Real GDP QoQ SAAR | 5.97% | 4.28% | 4.85% | 1.04% |
| Real GDP YoY | 3.05% | 2.32% | 2.15% | 2.11% | 2.32% | 2.57% | 0.63% | -9.08% | -2.89% | -2.26% | 0.55% | 12.18% | Real GDP YoY | 5.87% | 5.82% | 5.48% | 4.09% |
| 2yr Comparative Base Effects | 1.96% | 2.36% | 2.45% | 2.72% | 2.66% | 2.52% | 2.58% | 2.70% | 2.69% | 2.45% | 1.39% | -3.49% | 2yr Comparative Base Effects | -0.28% | 0.15% | 0.59% | 1.55% |
| Headline CPI YoY | 2.64% | 2.20% | 1.64% | 1.81% | 1.76% | 2.03% | 2.12% | 0.36% | 1.22% | 1.24% | 1.90% | 4.85% | Headline CPI YoY | 5.25% | 5.11% | 4.82% | 3.28% |
| 2yr Comparative Base Effects | 1.54% | 1.96% | 2.38% | 2.31% | 2.30% | 2.16% | 1.93% | 2.26% | 2.20% | 2.12% | 1.88% | 1.09% | 2yr Comparative Base Effects | 1.49% | 1.64% | 2.01% | 2.61% |



Data Source: Bloomberg. Light Blue box = Hedgeye Nowcast Model estimate. Dark Blue boxes = Hedgeye Comparative Base Effects Model estimates.

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US Real GDP YoY Projections

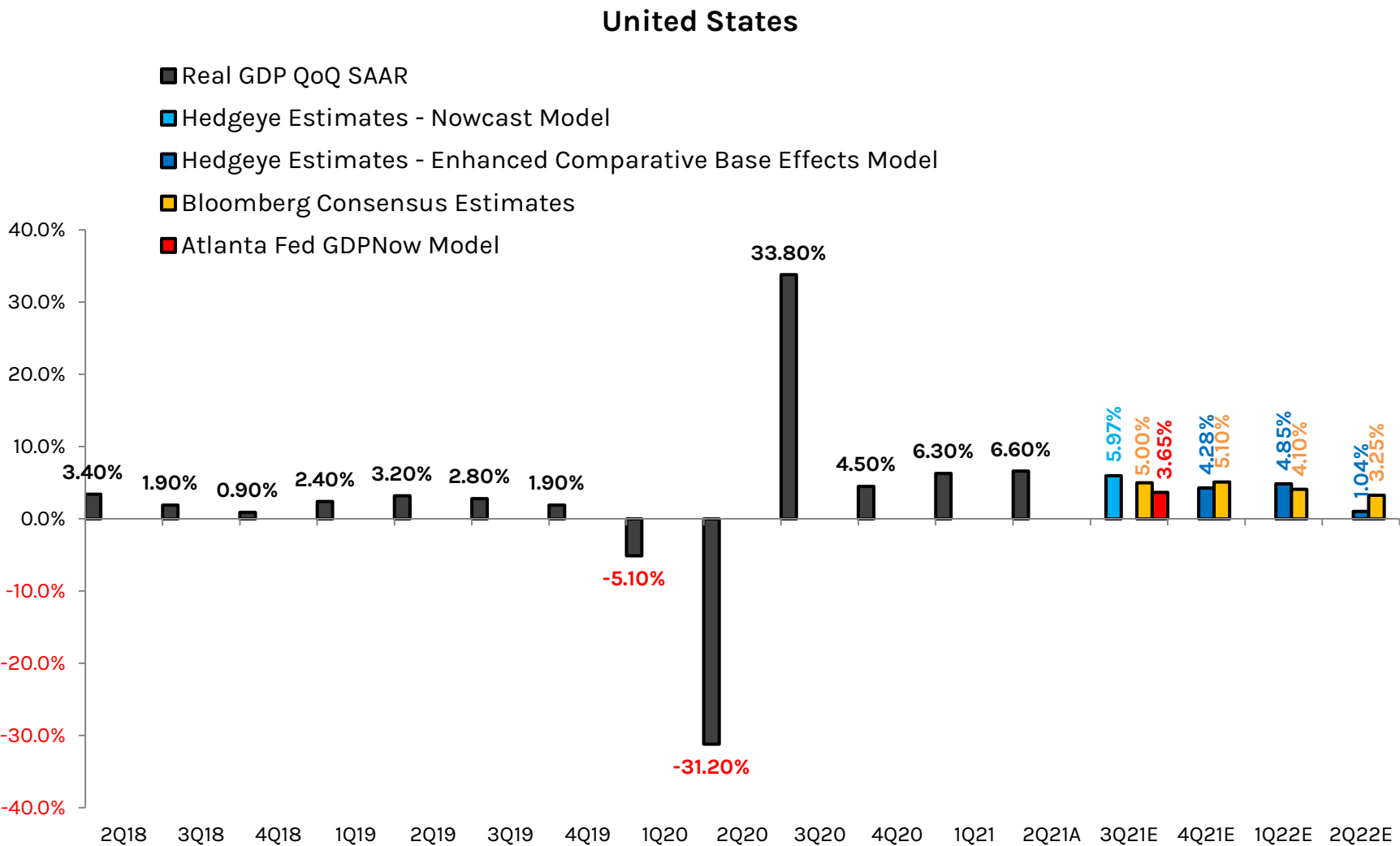


We use two distinct models to forecast the YoY growth rate of Real GDP and the combination of the two allows us to develop both a highly accurate real-time assessment of near-term economic momentum, as well as a high-probability scenario for where growth is likely to trend over the NTM.

Intra-quarter, we employ a stochastic nowcasting framework that anchors on nonlinear interpolation to relay rate of change signals from the individual features of the dynamic factor model to the base rate. In out-quarters where high-frequency data has yet to be reported, we employ a Bayesian Inference process that adjusts each of the preceding forecasted base rates inversely and proportionally to changes in the base effects.

All told, our US GDP nowcast model has an average absolute forecast error of 55bps and an 85% success rate in terms of accurately projecting the rate of change of GROWTH.

US Real GDP QoQ SAAR Projections

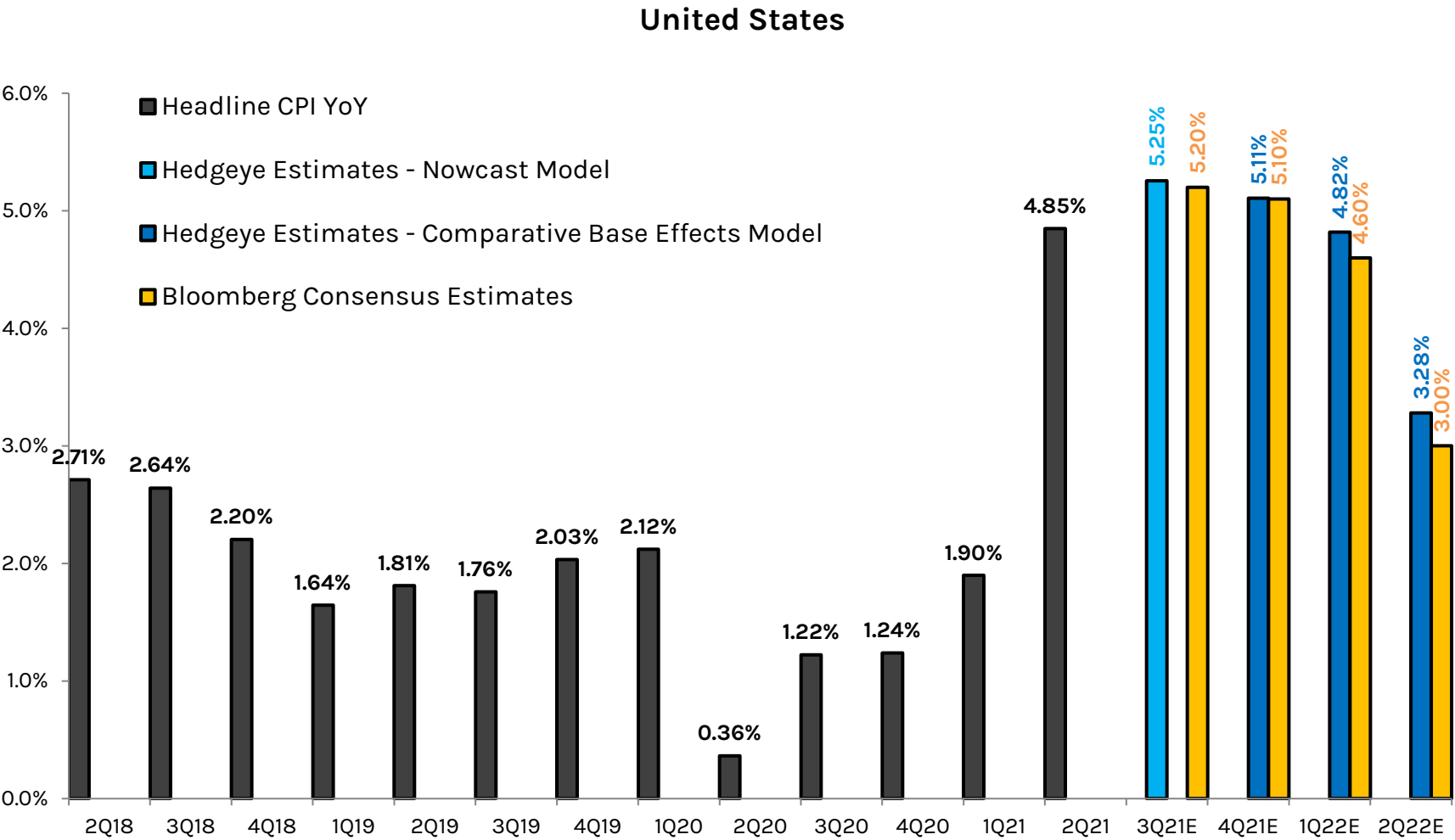


One differentiating factor of our forecasting process is that we aim to solve for where the economy is trending on a **Full Investing Cycle** basis, rather than trying to identify super short-term economic momentum.

Our rigorous study of financial market history suggests the latter to be little more than noise in the context of making accurate intermediate-to-long-term investment decisions.

As such, we are comfortable departing from the [perceived] “best” practices of economist consensus by interpolating our QoQ SAAR forecasts from our forecasted YoY growth rates. Macroeconomic Theory ≠ Macro Risk Management.

US Headline CPI YoY Projections



We use two distinct models to forecast the YoY growth rate of Headline CPI and the combination of the two allows us to develop both a highly accurate real-time assessment of near-term inflation momentum, as well as a high-probability scenario for where inflation is likely to trend over the NTM.

Intra-quarter, we employ a stochastic nowcasting framework that anchors on nonlinear interpolation to relay rate of change signals from the individual features of the dynamic factor model to the base rate. In out-quarters where high-frequency data has yet to be reported, we employ a Bayesian Inference process that adjusts each of the preceding forecasted base rates inversely and proportionally to changes in the base effects.

All told, our US CPI nowcast model has an average absolute forecast error of 36bps and an 85% success rate in terms of accurately projecting the rate of change of INFLATION.

US Real GDP Nowcast Model

Each of the following 30 features backtests as statistically significant with respect to predicting the rate of change of Real GDP growth and each feature's contribution to the overall signal is dynamically re-trained each quarter according to the relative strength of its first difference regression with the dependent variable.

| HEDGEYE US NOWCAST MODEL SUMMARY | | Oct-19 | Nov-19 | Dec-19 | Jan-20 | Feb-20 | Mar-20 | Apr-20 | May-20 | 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 | 2Q21 | 3Q21 | Δ |
|---|--|--------|--------|--------|--------|--------|---------|---------|---------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|
| Real PCE YoY (1) | | 2.03 | 1.94 | 2.83 | 2.77 | 2.82 | -4.65 | -16.43 | -9.58 | -4.56 | -3.46 | -3.08 | -1.91 | -1.57 | -2.44 | -3.26 | -0.80 | -2.16 | 9.65 | 25.38 | 15.05 | 9.27 | 7.56 | - | - | 16.57 | 7.56 | -9.01 |
| Real Disposable Personal Income YoY (14) | | 2.02 | 2.31 | 0.85 | 1.78 | 2.22 | 0.76 | 16.98 | 11.31 | 9.33 | 9.85 | 5.25 | 5.64 | 5.04 | 3.23 | 3.70 | 13.43 | 3.18 | 28.80 | -6.41 | -4.76 | -3.64 | -3.54 | - | - | -4.94 | -3.54 | 1.40 |
| Personal Savings Rate % of DPI (6) | | 7.4 | 7.5 | 7.3 | 7.8 | 8.3 | 13.1 | 33.8 | 24.8 | 19.3 | 18.7 | 15.0 | 14.3 | 13.6 | 13.0 | 14.0 | 19.9 | 13.5 | 26.6 | 12.3 | 9.8 | 8.8 | 9.6 | - | - | 10.3 | 9.6 | -0.7 |
| Headline Retail Sales YoY (9) | | 2.98 | 3.12 | 5.49 | 4.81 | 4.61 | -5.86 | -20.01 | -5.76 | 1.99 | 2.71 | 3.04 | 5.96 | 5.55 | 3.78 | 2.31 | 9.40 | 6.50 | 29.71 | 53.42 | 28.05 | 18.86 | 15.14 | 15.06 | - | 33.44 | 15.10 | -18.34 |
| Retail Sales Control Group YoY (13) | | 3.76 | 2.43 | 6.04 | 3.86 | 4.36 | 6.33 | -7.14 | 1.81 | 7.19 | 8.54 | 8.44 | 10.57 | 10.19 | 9.33 | 6.00 | 14.07 | 10.23 | 16.27 | 31.71 | 18.34 | 13.47 | 9.45 | 12.01 | - | 21.17 | 10.73 | -10.44 |
| Auto Sales YoY (10) | | -5.43 | -1.78 | -4.57 | 1.45 | 1.63 | -35.03 | -47.68 | -29.42 | -24.57 | -13.67 | -10.49 | -4.94 | -2.05 | -9.01 | -2.57 | -1.25 | -6.89 | 56.11 | 115.73 | 39.15 | 17.70 | 1.58 | -14.02 | - | 57.53 | -6.22 | -63.75 |
| MBA Mortgage Purchase Index YoY (24) | | 9.34 | 11.00 | 9.05 | 9.09 | 10.61 | -2.10 | -29.85 | -1.13 | 15.98 | 17.46 | 26.46 | 22.26 | 22.95 | 20.54 | 24.68 | 14.18 | 8.28 | 17.32 | 48.33 | 3.24 | -16.25 | -17.27 | -17.56 | -14.68 | 11.77 | -16.50 | -28.28 |
| Total Employees On Nonfarm Payrolls YoY (7) | | 1.30 | 1.40 | 1.34 | 1.39 | 1.62 | 0.38 | -13.50 | -11.66 | -8.55 | -7.52 | -6.59 | -6.25 | -5.93 | -5.90 | -6.20 | -6.24 | -6.07 | -4.50 | 10.88 | 8.98 | 5.85 | 5.29 | 4.28 | - | 8.57 | 4.79 | -3.78 |
| Aggregate Hours Worked YoY (2) | | 1.01 | 1.10 | 0.75 | 0.80 | 1.62 | -0.78 | -14.01 | -10.89 | -8.01 | -6.71 | -5.78 | -5.16 | -4.83 | -4.53 | -5.10 | -4.33 | -5.52 | -2.26 | 13.15 | 9.30 | 6.15 | 5.60 | 4.28 | - | 9.53 | 4.94 | -4.60 |
| Aggregate Labor Income YoY (4) | | 4.26 | 4.42 | 3.72 | 3.87 | 4.66 | 2.72 | -6.99 | -4.94 | -3.44 | -2.29 | -1.39 | -0.62 | -0.52 | -0.21 | 0.08 | 0.69 | -0.58 | 1.93 | 13.53 | 11.39 | 10.10 | 9.88 | 8.74 | - | 11.67 | 9.31 | -2.36 |
| Monthly Initial Jobless Claims YoY (3) | | -0.82 | -5.95 | 4.62 | -7.27 | -7.33 | 1070.82 | 2217.69 | 1010.90 | 571.73 | 507.64 | 368.48 | 368.23 | 289.58 | 225.08 | 199.08 | 227.45 | 276.33 | -69.47 | -86.89 | -79.22 | -73.95 | -71.29 | -63.50 | -65.63 | -80.02 | -66.81 | 13.21 |
| Bloomberg Consumer Comfort Index (12) | | 62.7 | 59.2 | 62.2 | 66.1 | 65.3 | 60.9 | 43.8 | 36.0 | 40.9 | 44.1 | 44.3 | 48.7 | 47.3 | 48.8 | 47.3 | 44.3 | 46.7 | 49.3 | 53.8 | 54.7 | 55.9 | 52.6 | 56.0 | 57.8 | 54.8 | 55.4 | 0.6 |
| Industrial Production YoY (8) | | -2.43 | -1.85 | -2.17 | -2.14 | -1.37 | -5.27 | -17.65 | -16.21 | -10.96 | -7.02 | -6.62 | -6.56 | | -4.75 | -3.28 | -1.67 | -4.86 | 1.76 | 17.85 | 16.32 | 10.07 | 6.64 | 5.95 | - | 14.74 | 6.29 | -8.45 |
| Capacity Utilization (5) | | 76.5 | 76.8 | 76.5 | 76.1 | 76.3 | 73.4 | 63.4 | 64.7 | 68.7 | 71.5 | 72.3 | 72.1 | 72.9 | 73.3 | 74.1 | 75.0 | 72.7 | 74.8 | 74.8 | 75.2 | 75.6 | 76.2 | 76.4 | - | 75.2 | 76.3 | 1.1 |
| Durable Goods New Orders YoY (22) | | 4.67 | 2.07 | -0.84 | -9.29 | -5.07 | -28.49 | -35.95 | -25.38 | -18.59 | -12.41 | -9.18 | -7.60 | -8.71 | -0.14 | -1.21 | 6.24 | 6.65 | 36.31 | 53.02 | 42.78 | 29.33 | 17.67 | - | - | 41.71 | 17.67 | -24.04 |
| Core Capital Goods New Orders YoY (28) | | -2.18 | 1.40 | 0.23 | -0.12 | -0.52 | -3.54 | -8.92 | -6.09 | -2.78 | 0.56 | 3.35 | 5.31 | 6.07 | 8.24 | 10.11 | 10.07 | 11.20 | 14.38 | 25.79 | 23.57 | 19.02 | 15.72 | - | - | 22.79 | 15.72 | -7.08 |
| Factory Orders YoY (18) | | -0.92 | -0.58 | -0.66 | -5.36 | -4.28 | -18.61 | -26.48 | -20.48 | -13.85 | -9.95 | -7.74 | -6.69 | -6.83 | -2.11 | -2.03 | 3.17 | 3.96 | 21.19 | 34.69 | 31.16 | 22.35 | 15.93 | - | - | 29.40 | 15.93 | -13.48 |
| Manufacturing & Trade Inventories YoY (26) | | 3.31 | 3.25 | 2.43 | 1.31 | 0.26 | -0.15 | -2.02 | -4.64 | -5.78 | -6.00 | -5.43 | -4.65 | -3.85 | -3.16 | -2.55 | -1.62 | -0.44 | 0.06 | 1.54 | 4.60 | 6.67 | 7.21 | - | - | 4.27 | 7.21 | 2.94 |
| Nonresidential Construction Spending YoY (30) | | 12.58 | 15.91 | 13.86 | 13.71 | 10.95 | 8.99 | 1.97 | 1.79 | -0.19 | -3.42 | -4.97 | -6.86 | -7.22 | -8.82 | -9.05 | -8.65 | -9.94 | -9.77 | -6.40 | -6.19 | -5.96 | -4.23 | - | - | -6.18 | -4.23 | 1.95 |
| Residential Construction Spending YoY (29) | | 5.54 | 7.26 | 12.97 | 14.30 | 17.59 | 18.70 | 13.59 | 10.04 | 9.37 | 10.67 | 13.87 | 15.94 | 18.30 | 19.60 | 21.09 | 23.32 | 19.29 | 20.36 | 25.61 | 30.13 | 29.73 | 26.52 | - | - | 28.49 | 26.52 | -1.96 |
| ISM Manufacturing PMI (23) | | 48.3 | 48.2 | 47.7 | 51.1 | 50.3 | 49.7 | 41.7 | 43.1 | 52.2 | 53.7 | 55.6 | 55.7 | 58.8 | 57.7 | 60.5 | 58.7 | 60.8 | 64.7 | 60.7 | 61.2 | 60.6 | 59.5 | 59.9 | - | 60.8 | 59.7 | -1.1 |
| ISM Non-Manufacturing PMI (15) | | 54.6 | 53.9 | 55.6 | 55.9 | 56.7 | 53.6 | 41.6 | 45.4 | 56.5 | 56.6 | 57.2 | 57.2 | 56.2 | 56.8 | 57.7 | 58.7 | 55.3 | 63.7 | 62.7 | 64.0 | 60.1 | 64.1 | 61.7 | - | 62.3 | 62.9 | 0.6 |
| NFIB Small Business Optimism Index (19) | | 102.4 | 104.7 | 102.7 | 104.3 | 104.5 | 96.4 | 90.9 | 94.4 | 100.6 | 98.8 | 100.2 | 104.0 | 104.0 | 101.4 | 95.9 | 95.0 | 95.8 | 98.2 | 99.8 | 99.6 | 102.5 | 99.7 | 100.1 | - | 100.6 | 99.9 | -0.7 |
| Exports YoY (11) | | -1.73 | -0.31 | 1.01 | -1.91 | -2.53 | -12.31 | -28.63 | -31.72 | -24.59 | -19.18 | -17.19 | -14.71 | -13.05 | -11.71 | -9.06 | -5.21 | -7.02 | 9.32 | 37.83 | 42.87 | 32.29 | 24.53 | - | - | 37.66 | 24.53 | -13.13 |
| Imports YoY (16) | | -5.01 | -4.06 | -3.10 | -2.85 | -4.53 | -10.98 | -22.02 | -24.39 | -19.73 | -11.39 | -8.76 | -6.36 | -2.56 | 0.86 | 0.54 | 3.81 | 4.93 | 18.13 | 34.71 | 37.93 | 35.24 | 22.11 | - | - | 35.96 | 22.11 | -13.85 |
| Rail Traffic YoY (17) | | -7.91 | -7.71 | -9.38 | -6.22 | -6.74 | -10.10 | -20.89 | -20.62 | -14.29 | -8.21 | -5.96 | -1.43 | 1.71 | 2.45 | 4.92 | 4.76 | -4.40 | 12.87 | 27.34 | 27.81 | 13.89 | 6.26 | -0.04 | -3.29 | 23.01 | 0.98 | -22.04 |
| Headline CPI YoY (25) | | 1.76 | 2.05 | 2.29 | 2.49 | 2.33 | 1.54 | 0.33 | 0.12 | 0.65 | 0.99 | 1.31 | 1.37 | 1.18 | 1.17 | 1.36 | 1.40 | 1.68 | 2.62 | 4.16 | 4.99 | 5.39 | 5.37 | 5.25 | - | 4.85 | 5.31 | 0.46 |
| PCE Deflator YoY (27) | | 1.41 | 1.42 | 1.65 | 1.90 | 1.87 | 1.34 | 0.41 | 0.51 | 0.91 | 1.04 | 1.30 | 1.38 | 1.17 | 1.11 | 1.29 | 1.41 | 1.63 | 2.45 | 3.59 | 3.98 | 4.03 | 4.17 | - | - | 3.86 | 4.17 | 0.31 |
| Core PCE Deflator YoY (21) | | 1.72 | 1.57 | 1.64 | 1.78 | 1.91 | 1.70 | 0.91 | 1.00 | 1.13 | 1.30 | 1.50 | 1.57 | 1.42 | 1.38 | 1.48 | 1.51 | 1.49 | 1.97 | 3.09 | 3.47 | 3.58 | 3.62 | - | - | 3.38 | 3.62 | 0.24 |
| M2 Money Supply YoY (20) | | 6.44 | 6.99 | 6.62 | 6.67 | 6.79 | 10.17 | 16.96 | 21.96 | 22.92 | 23.28 | 23.05 | 23.79 | 23.72 | 24.31 | 24.82 | 25.87 | 27.12 | 24.37 | 18.10 | 13.88 | 12.17 | 12.11 | - | - | 14.72 | 12.11 | -2.61 |

Data Source: Bloomberg. Intellectual Property of Hedgeye Risk Management. Nowcast feature rank shown in parenthesis.

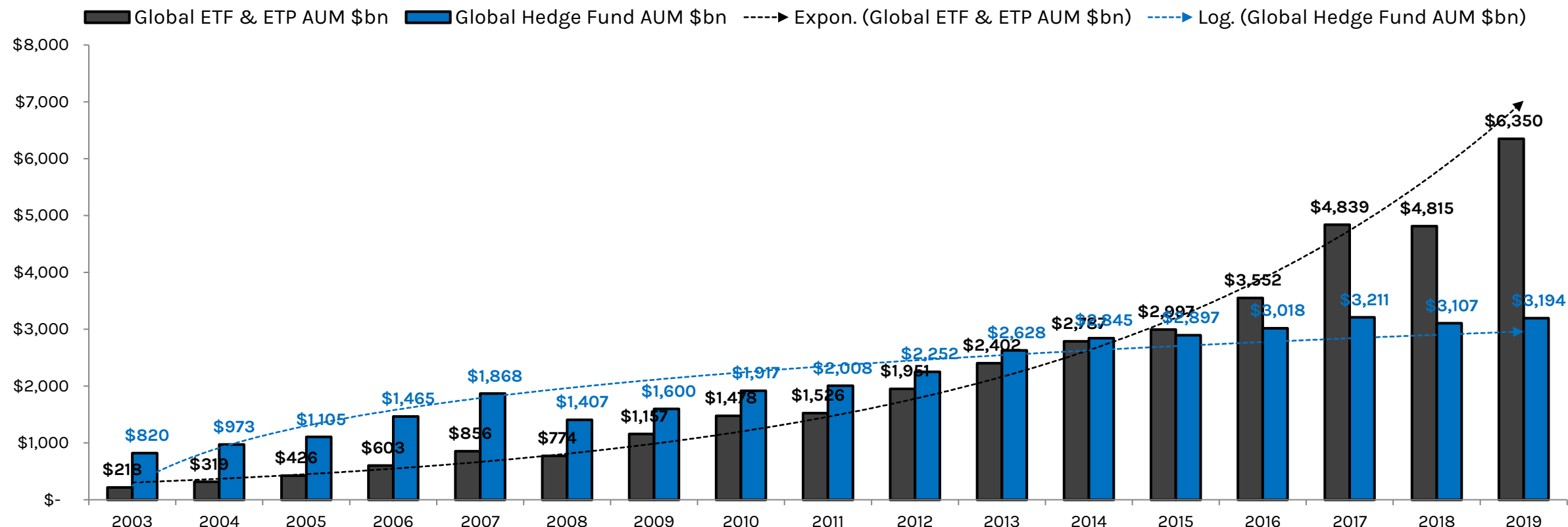
OUR MACRO PROCESS



The Investment Landscape Has Evolved Tremendously

HEDGEYE

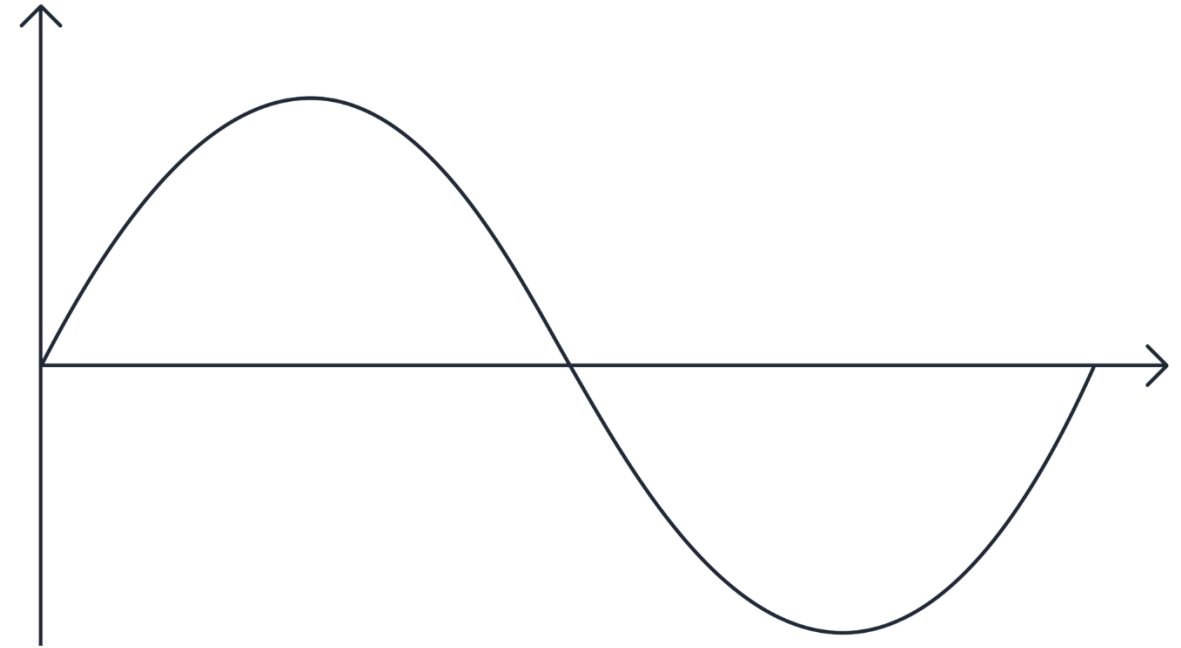
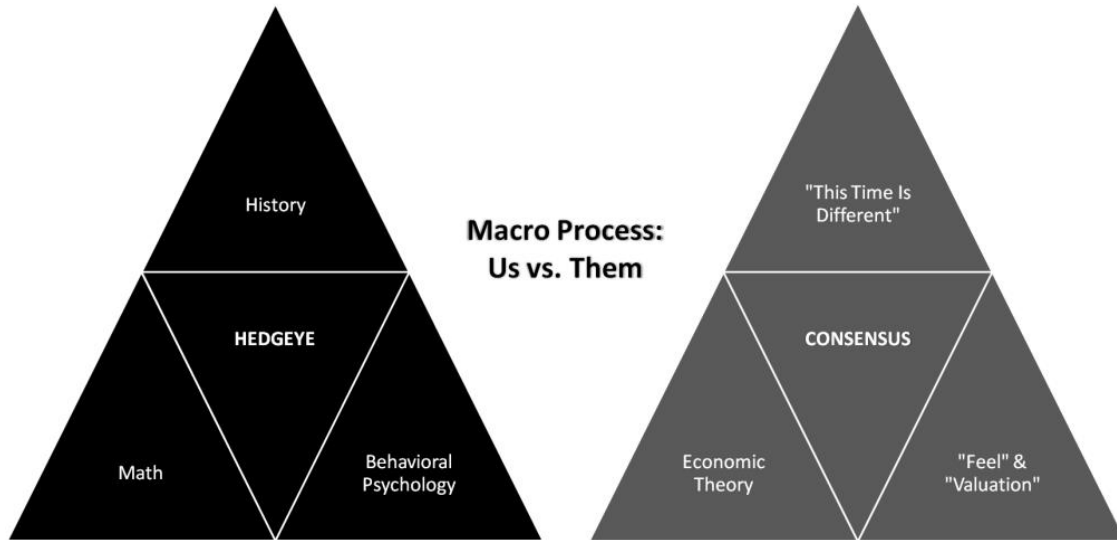
Stock-picking has given way to factor-picking and it's our job as investors to embrace this sea change, rather than fight it.



Skate To Where The Puck Is Going Within Asset Management

AUM in listed ETFs and ETPs surpassed \$6 trillion globally as of YE 2019, topping global hedge fund assets by over \$3 trillion. Moreover, BlackRock anticipates ETF/ETP AUM to double to \$12 trillion over the next 5 years. Regardless of whether you agree with this projection, you must agree that the proliferation of factor-based index investing and the concentration of hedge fund AUM at market-neutral platforms has made financial markets more sensitive to Macro risks than ever before. For example, JPM estimates systematic trading accounts for over 90% of US equity trading volume. Are your research and risk management processes equipped to compete for alpha in this new regime?

... So We Evolved Alongside It



WE ARE DIFFERENTIATED FROM THE HERD

Macroeconomic Research and **Global Macro Risk Management** are two very different fields. We specialize in the latter, incorporating key lessons from behavioral finance such as Prospect Theory and Bayesian Inference into our analysis. **We don't "feel" anything with regards to the markets or the economy; if we can't contextualize it with math, we don't have a view on it.**

...BECAUSE WE FOCUS ON THE FACTS

Rate of change accelerations and decelerations are facts, not opinions, and our process is focused on contextualizing these facts, rather opining on the validity of **absolute levels** of growth, inflation, and/or policy. **This focus helps us consistently spot inflections in the performance of key factor exposures, across asset classes, 3-6 months ahead of investor consensus.**

Quarterly Expected Values By GIP Model Quad Regime

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| Hedgeye Macro US GIP Model Backtest | EV by Quadrant | | | | Shallow GDP Δ | | | | Deep GDP Δ | | | | Fed Easing | | | | Fed On Hold | | | | Fed Tightening | | | | Quad 1 Prior | | | | Quad 2 Prior | | | | Quad 3 Prior | | | | Quad 4 Prior | | | | China Quad | | | |
|-------------------------------------|----------------|-------|------|-------|---------------|-------|-------|------|------------|-------|-------|--------|------------|-------|-------|-------|-------------|-------|-------|-------|----------------|--------|------|-------|--------------|-------|-------|-------|--------------|-------|-------|--------|--------------|-------|-------|-------|--------------|-------|------|-------|------------|------|-------|-------|
| Exposure | 1 | 2 | 3 | 4 | 1 | 2 | 3 | 4 | 1 | 2 | 3 | 4 | 1 | 2 | 3 | 4 | 1 | 2 | 3 | 4 | 1 | 2 | 3 | 4 | 1 | 2 | 3 | 4 | 1 | 2 | 3 | 4 | 1 | 2 | 3 | 4 | 1 | 2 | 3 | 4 | | | | |
| S&P 500 INDEX (SPY) | 6.8% | 3.0% | 1.0% | -1.4% | 4.8% | 2.3% | 3.1% | 5.0% | 9.0% | 1.8% | -3.7% | -6.6% | 9.1% | 7.0% | 1.2% | -3.8% | 3.7% | -0.4% | -0.8% | -0.2% | 6.7% | 2.9% | 3.8% | 0.9% | 15.1% | 2.3% | 1.8% | -1.7% | 3.7% | 3.8% | 4.0% | -19.6% | 3.6% | 0.7% | -2.0% | -1.1% | 7.9% | 6.5% | 4.7% | 1.2% | 3.2% | 4.1% | -1.0% | 1.9% |
| Communication Services (XLC) | 7.0% | -0.9% | 0.7% | 0.1% | 8.7% | -1.7% | 4.5% | 6.8% | 6.4% | -3.2% | -6.2% | -3.7% | 10.0% | 4.8% | 2.6% | -2.6% | 2.0% | -5.2% | -2.2% | 3.5% | 7.9% | -1.8% | 3.2% | 1.0% | 17.1% | -2.3% | 0.5% | 1.1% | 5.0% | 0.1% | 5.4% | -17.0% | 4.0% | -2.4% | -1.6% | 1.9% | 6.8% | 1.7% | 2.7% | -0.3% | 2.5% | 2.9% | -0.6% | 1.3% |
| Consumer Cyclical (XLY) | 8.4% | 3.2% | 1.1% | -0.3% | 4.8% | 2.1% | 2.1% | 6.0% | 13.5% | 2.2% | -2.0% | -5.4% | 10.8% | 6.6% | -0.2% | -1.5% | 5.9% | -0.9% | 1.3% | -0.3% | 7.3% | 4.6% | 2.5% | 1.2% | 20.2% | 3.9% | 2.6% | -2.0% | 2.7% | 5.2% | 0.4% | -19.3% | 2.4% | -2.5% | -1.1% | -1.3% | 11.7% | 3.7% | 4.4% | 4.8% | 4.2% | 4.4% | -0.3% | 3.0% |
| Consumer Non-Cyclical (XLP) | 4.9% | 1.2% | 0.8% | 1.8% | 1.4% | -1.8% | 1.6% | 8.2% | 7.1% | 3.9% | 0.4% | -1.0% | 6.2% | 3.9% | 1.1% | -0.3% | 3.4% | -1.1% | 0.9% | 8.0% | 4.7% | 1.3% | 0.2% | 0.0% | 12.8% | 2.2% | 0.7% | 2.2% | 3.5% | 0.4% | -1.9% | -12.7% | 1.2% | 2.1% | 0.7% | 4.3% | 5.3% | 0.4% | 3.8% | 0.8% | 1.7% | 2.8% | 1.5% | 2.1% |
| Energy (XLE) | 6.3% | 4.4% | 1.8% | -3.8% | 3.9% | 3.3% | 6.4% | 1.5% | 6.8% | 1.7% | -6.9% | -9.6% | 7.1% | 12.5% | 5.9% | -9.8% | 2.8% | 1.7% | -4.2% | 2.0% | 9.0% | -16.7% | 6.7% | -0.4% | 5.9% | -0.9% | 3.7% | -6.7% | 2.1% | 6.7% | 2.8% | -50.5% | 6.4% | 7.2% | -2.0% | -0.3% | 9.2% | 3.9% | 6.9% | 0.8% | 7.7% | 4.5% | -3.9% | -0.3% |
| Financials (XLF) | 6.2% | 3.6% | 0.1% | -1.4% | 3.3% | 0.5% | -0.9% | 4.5% | 10.2% | 1.9% | -1.1% | -8.4% | 8.3% | 9.0% | -2.4% | -6.2% | 3.4% | 2.7% | 0.3% | 2.1% | 5.8% | -1.5% | 3.1% | 2.2% | 16.2% | 1.0% | 1.7% | -0.7% | 1.9% | 7.5% | 9.0% | -31.9% | 1.1% | -3.4% | -5.7% | -0.3% | 8.4% | 7.5% | 3.6% | 1.2% | 1.7% | 5.0% | -3.2% | 1.9% |
| Health Care (XLV) | 6.3% | 2.4% | 0.8% | 0.6% | 5.7% | -0.4% | 2.0% | 4.8% | 6.2% | 4.7% | -1.9% | -1.6% | 7.8% | 7.1% | 1.7% | -1.7% | 4.0% | -2.7% | 0.6% | 5.8% | 6.5% | 3.8% | 0.1% | -0.2% | 10.9% | 0.7% | 2.1% | 0.8% | 4.6% | 1.0% | 3.3% | -12.7% | 5.2% | 5.7% | -1.8% | 3.1% | 6.5% | 7.7% | 2.7% | -0.6% | 1.8% | 3.5% | -0.6% | 3.8% |
| Industrials (XLI) | 7.2% | 3.8% | 1.1% | -1.8% | 4.7% | 0.1% | 2.9% | 5.2% | 8.6% | 4.0% | -3.3% | -6.8% | 9.6% | 9.1% | 1.2% | -3.8% | 3.5% | 0.5% | -1.3% | -0.8% | 7.4% | 1.8% | 5.1% | -0.1% | 14.6% | 3.5% | 1.2% | -3.7% | 5.2% | 4.5% | 4.5% | -27.0% | 4.2% | 1.9% | -2.0% | -0.8% | 7.7% | 4.8% | 6.1% | 2.0% | 2.8% | 5.6% | -1.1% | 0.9% |
| Information Technology (XLK) | 9.0% | 5.2% | 2.5% | -2.6% | 6.8% | 8.3% | 6.6% | 4.0% | 12.4% | 1.2% | -5.4% | -10.0% | 13.6% | 7.7% | 2.1% | -4.1% | 3.7% | 0.2% | 0.6% | -7.4% | 7.7% | 9.0% | 6.3% | 2.8% | 23.2% | 3.8% | 1.9% | -3.9% | 5.6% | 5.2% | 8.6% | -11.9% | 4.5% | 3.2% | -1.0% | -6.8% | 9.1% | 13.6% | 7.1% | 4.5% | 4.1% | 4.9% | 0.4% | 3.6% |
| Materials (XLB) | 7.3% | 3.1% | 0.6% | -0.5% | 3.7% | 2.9% | 5.2% | 1.2% | 10.2% | 0.8% | -7.0% | -3.5% | 7.9% | 8.0% | 4.7% | -5.4% | 6.5% | 1.2% | -4.4% | 3.9% | 7.3% | -0.2% | 3.9% | 2.5% | 10.8% | 6.9% | 3.4% | -5.9% | 4.0% | 2.7% | -0.3% | -26.1% | 3.8% | -2.6% | -2.9% | 1.8% | 10.3% | 5.0% | 4.8% | 4.3% | 6.8% | 4.4% | -1.3% | 0.0% |
| REITS (XLRE) | 4.0% | 0.6% | 0.2% | 0.9% | 3.0% | -1.1% | -1.1% | 9.1% | 7.8% | 4.7% | 0.4% | -6.3% | 4.6% | 4.8% | 0.3% | -3.8% | 2.9% | -2.1% | -1.0% | 6.0% | 4.4% | -0.8% | 2.1% | 3.4% | 5.9% | 2.5% | -2.2% | 6.3% | -0.6% | 0.7% | 1.9% | -24.6% | 1.5% | -1.5% | 0.7% | -0.4% | 7.9% | -1.6% | 2.3% | 2.2% | 3.6% | 2.3% | -2.0% | 1.0% |
| Utilities (XLU) | 3.5% | -0.9% | 4.0% | 1.3% | 5.5% | -3.7% | 5.3% | 9.7% | 1.5% | 0.4% | 3.3% | -2.2% | 4.4% | 3.1% | 3.1% | -2.5% | 2.8% | -5.3% | -3.1% | 5.7% | 2.8% | 0.4% | 6.6% | 3.2% | 4.4% | -0.2% | 1.8% | 7.1% | 1.2% | -2.3% | 12.9% | -13.5% | 8.4% | 2.0% | 1.9% | 3.7% | 1.9% | -2.6% | 5.4% | -3.4% | 3.2% | 3.0% | 2.0% | 0.5% |
| Growth (IWF) | 7.4% | 4.0% | 1.2% | -2.2% | 4.9% | 4.2% | 3.5% | 4.8% | 10.4% | 2.3% | -4.5% | -8.5% | 10.3% | 7.0% | 1.8% | -4.2% | 3.7% | -0.4% | -0.7% | -4.0% | 7.0% | 6.5% | 3.8% | 1.8% | 18.1% | 3.4% | 2.1% | -2.4% | 4.0% | 4.8% | 4.5% | -14.1% | 3.3% | 1.4% | -2.0% | -3.9% | 8.4% | 7.6% | 4.9% | 1.7% | 2.9% | 4.6% | -0.5% | 2.1% |
| Value (IWD) | 6.4% | 2.3% | 1.0% | -0.7% | 4.7% | 0.3% | 2.7% | 5.2% | 8.3% | 1.4% | -2.8% | -5.4% | 8.1% | 7.9% | 1.2% | -3.9% | 3.9% | -0.2% | -1.2% | 3.0% | 6.6% | -0.9% | 4.5% | 0.7% | 12.6% | 1.7% | 1.5% | -0.8% | 3.1% | 3.5% | 5.2% | -26.7% | 4.0% | -1.1% | -2.3% | 1.1% | 7.9% | 5.4% | 4.7% | 1.0% | 3.8% | 4.0% | -1.7% | 1.5% |
| Cyclical (RSP) | 8.0% | 4.0% | 1.2% | -2.8% | 5.3% | 3.8% | 4.1% | 4.1% | 12.1% | 1.6% | -5.3% | -10.6% | 10.0% | 9.3% | 2.3% | -6.0% | 3.9% | -0.1% | -1.9% | -3.3% | 7.7% | 3.4% | 5.2% | 1.8% | 18.8% | 2.5% | 2.9% | -3.0% | 3.3% | 6.0% | 6.6% | -23.4% | 3.9% | -1.1% | -3.5% | -4.1% | 9.8% | 9.7% | 5.2% | 1.9% | 4.1% | 5.2% | -2.3% | 1.7% |
| Defensives (DEF) | 6.0% | 2.4% | 1.0% | -0.1% | 4.4% | 1.1% | 2.2% | 5.9% | 7.1% | 2.2% | -2.3% | -3.7% | 7.7% | 5.3% | 0.7% | -2.0% | 3.6% | -0.6% | 0.0% | 2.1% | 6.0% | 2.9% | 3.1% | 0.9% | 12.6% | 2.6% | 0.8% | -0.3% | 3.7% | 2.3% | 3.0% | -17.0% | 3.6% | 1.8% | -0.9% | 1.1% | 6.7% | 3.4% | 4.5% | 1.3% | 2.6% | 3.6% | 0.0% | 2.0% |
| High Beta (SPHB) | 9.6% | 5.8% | 1.2% | -4.0% | 8.2% | 3.6% | 4.9% | 2.8% | 14.1% | 3.0% | -6.9% | -15.6% | 15.8% | 15.0% | 2.7% | -7.6% | 2.8% | -1.1% | -3.3% | -6.9% | 7.1% | 4.3% | 6.9% | 2.6% | 19.8% | -0.6% | 2.8% | -5.2% | 3.2% | 10.8% | 12.1% | -36.2% | 6.3% | 0.9% | -6.7% | -7.8% | 12.3% | 12.8% | 8.3% | 5.7% | 4.2% | 6.8% | -3.5% | 2.1% |
| Low Beta (SPLV) | 4.5% | 1.3% | 1.6% | 2.2% | 3.8% | -1.6% | 2.3% | 8.4% | 5.3% | 3.1% | 0.3% | -1.1% | 4.8% | 4.1% | 0.7% | 0.0% | 4.4% | -0.8% | 1.1% | 6.8% | 4.2% | 0.6% | 3.6% | 1.9% | 8.0% | 3.4% | -0.4% | 2.8% | 2.7% | 0.4% | 3.7% | -19.0% | 3.6% | 0.9% | 1.5% | 4.0% | 5.1% | -0.5% | 4.2% | 2.8% | 3.6% | 3.0% | 0.9% | 1.8% |
| Momentum (MTUM) | 8.1% | 3.9% | 1.7% | -3.0% | 5.2% | 5.4% | 4.3% | 5.8% | 10.5% | 2.1% | -4.1% | -10.0% | 9.7% | 5.1% | 1.5% | -5.1% | 5.3% | 0.1% | -0.4% | -3.2% | 8.7% | 7.6% | 5.5% | -0.3% | 19.5% | 4.2% | 3.0% | -1.5% | 4.6% | 5.4% | 3.4% | -13.8% | 5.0% | 0.4% | -1.7% | -4.2% | 8.4% | 3.7% | 6.3% | -1.3% | 3.7% | 4.1% | -0.8% | 2.6% |
| Quality (QUAL) | 7.3% | 3.4% | 1.4% | 0.0% | 6.0% | 1.3% | 3.7% | 6.0% | 9.1% | 3.7% | -2.8% | -4.1% | 9.3% | 6.8% | 2.0% | -2.0% | 4.3% | 0.2% | -0.5% | 2.2% | 7.3% | 3.7% | 3.6% | 1.1% | 14.9% | 2.6% | 1.7% | -1.9% | 4.8% | 3.2% | 4.1% | -17.6% | 5.3% | 3.7% | -1.3% | 0.7% | 7.5% | 5.7% | 5.2% | 3.2% | 3.3% | 4.6% | 0.4% | 2.3% |
| Dividend Yield (SDY) | 6.8% | 2.1% | 0.8% | 1.7% | 4.5% | -0.3% | 1.7% | 6.9% | 9.2% | 2.4% | -1.1% | -2.0% | 8.2% | 7.0% | 0.5% | -0.4% | 4.7% | -0.2% | 0.1% | 5.9% | 6.8% | -0.5% | 2.4% | 1.3% | 13.3% | 3.2% | 0.1% | 0.6% | 3.4% | 2.5% | 1.5% | -23.3% | 4.0% | -1.0% | 0.0% | 3.7% | 8.4% | 3.4% | 4.0% | 3.7% | 3.8% | 3.7% | 0.3% | 2.5% |
| Size (OEF) | 6.9% | 3.2% | 1.1% | -1.7% | 4.8% | 3.1% | 3.1% | 4.4% | 8.6% | 1.7% | -3.8% | -5.8% | 9.4% | 6.6% | 0.7% | -3.8% | 3.3% | -0.3% | -0.2% | -0.2% | 6.9% | 3.8% | 3.8% | 0.0% | 15.5% | 2.0% | 2.0% | -2.3% | 4.1% | 3.9% | 3.8% | -17.2% | 3.4% | 1.3% | -1.7% | -1.3% | 7.8% | 7.0% | 3.8% | 0.6% | 2.8% | 3.9% | -0.6% | 2.0% |
| Secular Growth (QQQ) | 7.8% | 5.8% | 2.6% | -2.7% | 8.0% | 9.8% | 6.2% | 3.8% | 9.2% | 1.1% | -6.0% | -9.0% | 12.6% | 8.6% | 2.2% | -4.4% | 1.2% | -0.8% | -0.4% | -7.4% | 7.9% | 11.3% | 7.5% | 2.7% | 18.2% | 3.2% | 0.3% | -3.6% | 6.0% | 7.9% | 11.0% | -10.3% | 5.1% | 1.8% | -1.0% | -6.3% | 7.8% | 11.8% | 8.0% | 3.0% | 3.9% | 5.1% | 0.8% | 1.9% |
| Mid-Caps (MDY) | 7.5% | 4.4% | 1.7% | -0.9% | 4.1% | 2.6% | 3.1% | 5.7% | 12.7% | 3.0% | -2.8% | -8.2% | 9.3% | 10.2% | 3.2% | -3.5% | 5.1% | 1.0% | -2.1% | -0.2% | 7.2% | 2.3% | 6.4% | 1.8% | 18.3% | 3.1% | 1.2% | -1.3% | 1.8% | 7.2% | 8.7% | -29.7% | 3.5% | -0.4% | -1.6% | -1.5% | 9.8% | 5.6% | 5.3% | 4.1% | 5.5% | 5.9% | -1.5% | 1.2% |
| Small-Caps (IWM) | 6.8% | 5.3% | 0.5% | -1.2% | 5.3% | 5.2% | 2.5% | 6.2% | 10.8% | 2.0% | -4.8% | -8.6% | 8.1% | 11.3% | 2.0% | -3.2% | 4.9% | 1.3% | -3.5% | 0.0% | 6.9% | 3.5% | 5.6% | 0.4% | 13.3% | 4.2% | 0.2% | -0.7% | 1.1% | 7.8% | | | | | | | | | | | | | | |

Highest/Lowest Expected Values By Quad Regime

HEDGEYE

Quad 1: Goldilocks

Best Asset Classes:

Equities, Credit, Commodities, FX

Worst Asset Classes:

Fixed Income, USD

Best Equity Sectors:

Tech, Consumer Discretionary, Materials, Industrials, Telecom

Worst Equity Sectors:

Utilities, REITS, Consumer Staples, Financials, Energy

Best Equity Style Factors:

High Beta, Momentum, Leverage, Secular Growth, Mid Caps

Worst Equity Style Factors:

Low Beta, Defensives, Value, Dividend Yield, Small Caps

Best Fixed Income Sectors:

BDCs, Convertibles, HY Credit, EM \$ Debt, Leveraged Loans

Worst Fixed Income Sectors:

TIPS, Short Duration Treasuries, MBS, Treasury Belly, Long Bond

Quad 2: Reflation

Best Asset Classes:

Commodities, Equities, Credit, FX

Worst Asset Classes:

Fixed Income, USD

Best Equity Sectors:

Tech, Consumer Discretionary, Industrials, Energy, Financials

Worst Equity Sectors:

Telecom, Utilities, REITS, Consumer Staples, Health Care

Best Equity Style Factors:

Secular Growth, High Beta, Small Caps, Cyclical Growth, Momentum

Worst Equity Style Factors:

Low Beta, Dividend Yield, Value, Defensives, Size

Best Fixed Income Sectors:

Convertibles, BDCs, Preferreds, Leveraged Loans, HY Credit

Worst Fixed Income Sectors:

Long Bond, Treasury Belly, Munis, MBS, IG Credit

Quad 3: Stagflation

Best Asset Classes:

Gold, Commodities, Fixed Income

Worst Asset Classes:

Credit

Best Equity Sectors:

Utilities, Tech, Energy, Industrials, Consumer Discretionary

Worst Equity Sectors:

Financials, REITS, Materials, Telecom, Consumer Staples

Best Equity Style Factors:

Secular Growth, Momentum, Mid Caps, Low Beta, Quality

Worst Equity Style Factors:

Small Caps, Dividend Yield, Value, Defensives, Size

Best Fixed Income Sectors:

Munis, EM \$ Debt, Long Bond, TIPS, Treasury Belly

Worst Fixed Income Sectors:

BDCs, Preferreds, Convertibles, Leveraged Loans, HY Credit

Quad 4: Deflation

Best Asset Classes:

Fixed Income, Gold, USD

Worst Asset Classes:

Commodities, Equities, Credit, FX

Best Equity Sectors:

Consumer Staples, Utilities, REITS, Health Care, Telecom

Worst Equity Sectors:

Energy, Tech, Industrials, Financials, Materials

Best Equity Style Factors:

Low Beta, Dividend Yield, Quality, Defensives, Value

Worst Equity Style Factors:

High Beta, Momentum, Leverage, Secular Growth, Cyclical Growth

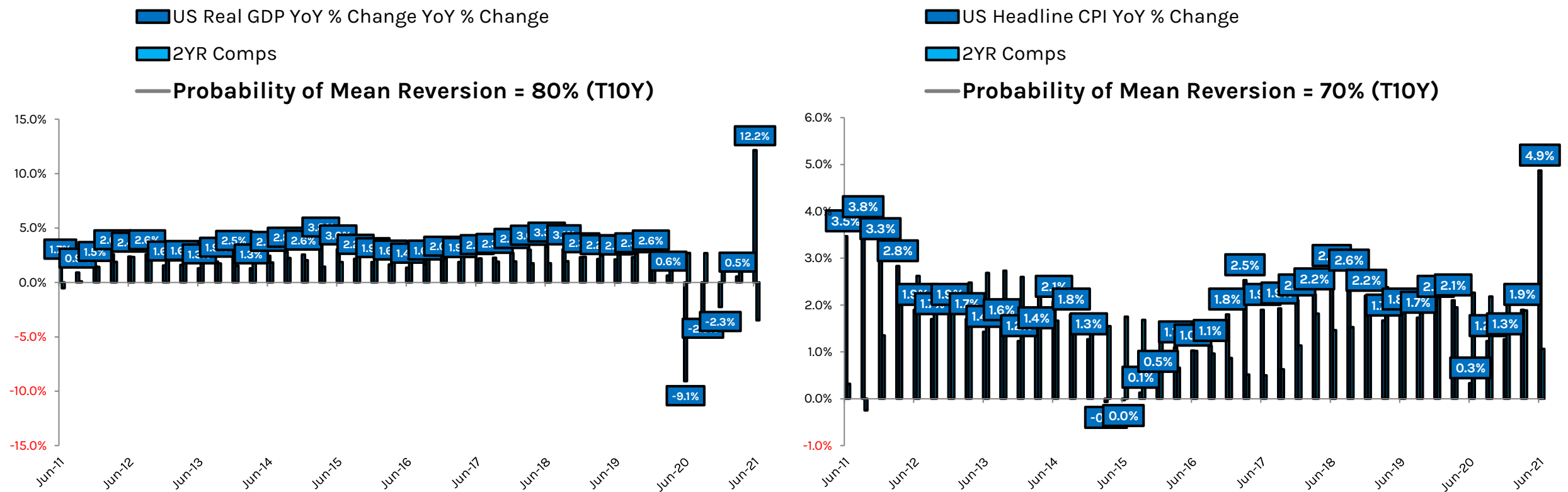
Best Fixed Income Sectors:

Long Bond, Treasury Belly, IG Credit, Munis, MBS

Worst Fixed Income Sectors:

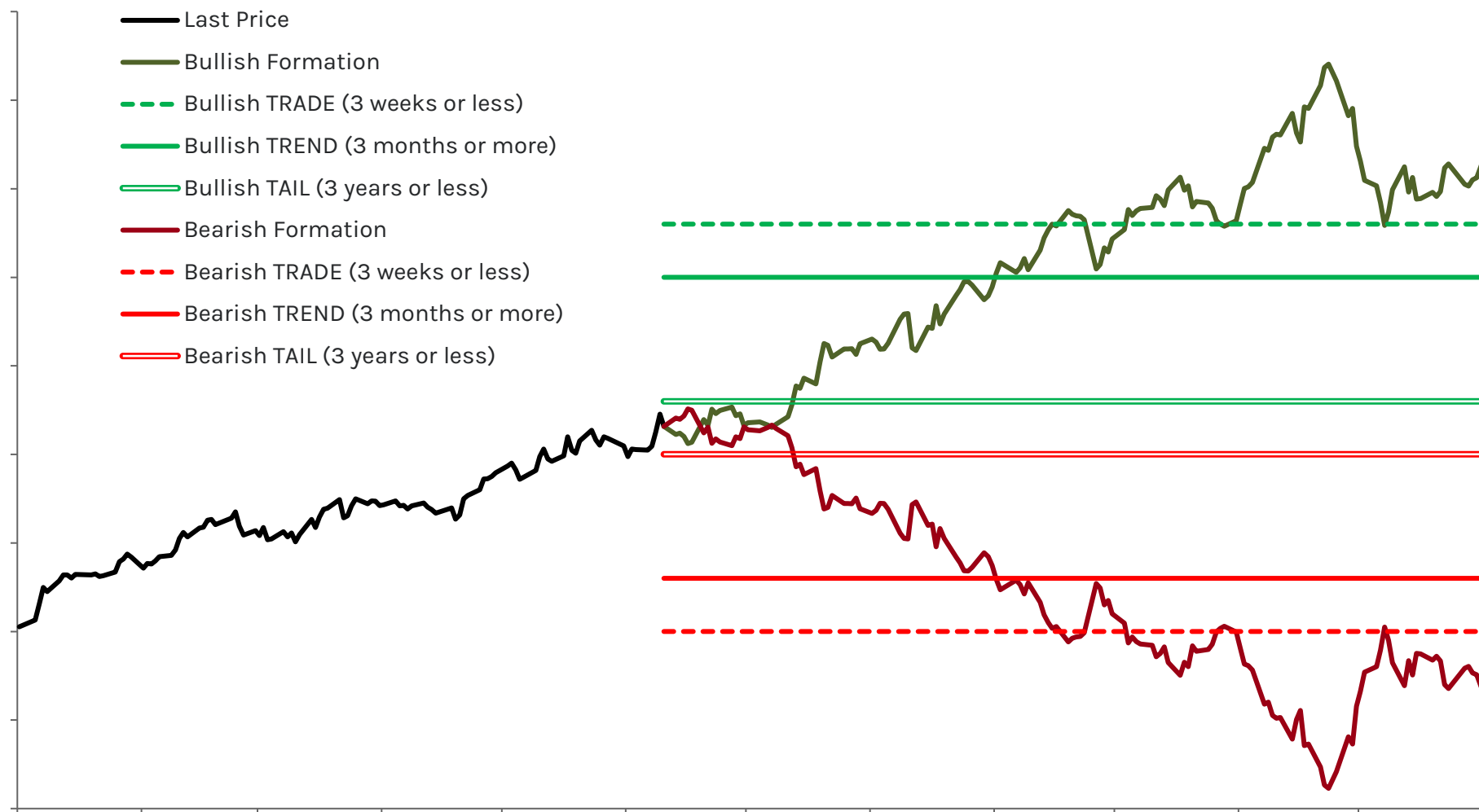
Preferreds, EM Local Currency, BDCs, Leveraged Loans, TIPS

Base Effects Matter Because GDP and CPI Are More Or Less Stationary Processes When Analyzed On A YoY Rate Of Change Basis



Using the US economy as an example, the sign of the first difference of 2yr base effects explains INFLECTIONS in GROWTH and INFLATION 80% and 70% of the time, respectively. Moreover, easing or steepening base effects perpetuate MOMENTUM in GROWTH and INFLATION 80% and 76% of the time, respectively. These figures are near the modal outcomes of the GROWTH and INFLATION backtests across the near-50 economies we maintain detailed GIP Models for – which means base effects matter a lot to projecting the probable path forward for any economy.

The Quads Provide A Reliable Starting Point For Asset Allocation And Keith's Quantitative Signaling Overlay Confirms Market Direction And Helps Risk Manage Core Exposures



Core to the process of selecting our core exposures is determining whether the ticker screens well from the perspective of Keith's proprietary risk management process, which employs PRICE, VOLUME and VOLATILITY as discrete factors in the calculus of levels that backtest well as critical momentum thresholds.

Assets where last price is greater than all three (in ascending order) are said to be in a "Bullish Formation" and all dips should be bought, inasmuch that assets in the converse "Bearish Formation" should be repeatedly shorted on strength.

A | B Testing Process: Quantify Investor Consensus

Monitoring Sector and Style factor Performance allows us to quantitatively track the evolution of our Macro Themes. Additionally, MEASURING and MAPPING key data sets within the CFTC COT report removes the qualitative guesswork from the process of tracking and ultimately FADING crowded positioning.

STYLE FACTOR PERFORMANCE*

| | FACTOR | 1D % Chg | 1W % Chg | 1M % Chg | 3M % Chg | 6M % Chg | YTD % Chg |
|---------|-------------------------|-------------|-------------|-------------|-------------|-------------|--------------|
| Debt | High Debt/EV | 1.6% | -1.8% | -1.2% | -3.8% | 2.9% | 18.9% |
| | Low Debt/EV | 0.7% | -1.8% | -1.8% | 7.6% | 19.6% | 21.0% |
| SI | High Short Interest | 1.4% | -1.5% | -0.8% | -0.1% | 5.9% | 19.2% |
| | Low Short Interest | 0.9% | -2.0% | -3.1% | 2.9% | 11.7% | 15.3% |
| BETA | High Beta | 2.1% | -1.1% | 0.0% | -1.1% | 7.2% | 24.1% |
| | Low Beta | 0.3% | -1.8% | -2.8% | 2.8% | 11.1% | 13.5% |
| YIELD | High Yield | 1.0% | -2.2% | -2.9% | -2.3% | 3.3% | 13.9% |
| | Low Yield | 1.4% | -1.0% | -0.4% | 4.0% | 14.3% | 21.7% |
| MKT CAP | MCAP Bottom 25% | 1.2% | -2.3% | -2.5% | -4.0% | 2.3% | 13.7% |
| | MCAP Top 25% | 1.0% | -1.4% | -2.0% | 4.1% | 14.1% | 20.5% |
| Sales | Top 25% Sales Growth | 1.5% | -1.3% | -0.1% | 1.7% | 11.2% | 18.0% |
| | Bottom 25% Sales Growth | 1.0% | -2.1% | -2.5% | 1.3% | 8.4% | 20.9% |
| EPS | Top 25% EPS Growth | 1.4% | -1.6% | -1.1% | 0.3% | 7.3% | 15.1% |
| | Bottom 25% EPS Growth | 1.5% | -1.1% | -0.5% | 1.6% | 9.8% | 25.1% |

*Mean Performance of Top Quartile vs. Bottom Quartile, S&P500 Companies

CFTC NON-COMMERCIAL NET LONG POSITIONING

| | METRIC | Latest | W/W Chg | 3M Ave | 6M Ave | 1Y Ave | 3Y | | Z-Score | |
|-------------|----------------------|-----------|----------|-----------|-----------|-----------|-----------|-------------|---------|--------|
| | | | | | | | Max | Min | 1Y | 3Y |
| EQUITIES | SPX (Index + E-mini) | (22,035) | 787 | 26,140 | 5,277 | 5,310 | 245,514 | (318,850) | -0.65X | -0.22X |
| | VIX | (83,690) | 6,365 | (70,692) | (75,640) | (94,088) | 44,245 | (218,362) | 0.40X | 0.13X |
| | Russell 2000 (mini) | (62,933) | (6,612) | (55,633) | (42,121) | (12,943) | 58,474 | (88,708) | -1.44X | -1.48X |
| | Dow Jones (mini) | (11,975) | (1,753) | (875) | (5,800) | (7,769) | 54,635 | (28,732) | -0.57X | -0.96X |
| | Nasdaq (mini) | 9,833 | 3,634 | (1,605) | (5,594) | 1,190 | 47,085 | (133,005) | 0.30X | 0.10X |
| | Nikkei Index | (9,401) | (907) | (5,756) | (5,052) | (2,793) | 4,738 | (16,298) | -2.04X | -0.63X |
| RATES | 10Y UST | 189,002 | 144,535 | 137,776 | 120,269 | 87,926 | 238,882 | (758,490) | 1.30X | 1.32X |
| | 2Y UST | (23,140) | 40,425 | (55,567) | (136,950) | (192,701) | 34,641 | (421,551) | 1.49X | 1.92X |
| | 5Y UST | 5,553 | 56,791 | (49,383) | (55,803) | (117,862) | 148,962 | (866,140) | 0.77X | 0.93X |
| | UST Bonds | (70,918) | 12,377 | (89,643) | (98,707) | (146,977) | 2,332 | (241,003) | 1.35X | 0.38X |
| | 30D Fed Funds | (78,328) | 9,611 | (122,824) | (175,049) | (73,763) | 488,558 | (320,917) | -0.03X | -0.63X |
| | Eurodollar | (241,081) | (78,075) | (301,050) | (13,662) | 294,764 | 2,134,274 | (2,406,992) | -1.15X | -0.46X |
| CURRENCIES | USD | 24,244 | 2,786 | 15,945 | 9,020 | 868 | 43,033 | (15,000) | 2.08X | 0.57X |
| | JPY | (61,304) | 3,728 | (63,469) | (57,382) | (15,583) | 52,239 | (117,731) | -0.97X | -0.88X |
| | EUR | 27,710 | 81 | 44,090 | 67,107 | 102,205 | 212,535 | (123,765) | -1.56X | 0.02X |
| | GBP | 6,377 | 29,322 | (1,000) | 13,123 | 11,012 | 40,671 | (107,406) | -0.27X | 0.62X |
| | AUD | (82,746) | (13,510) | (47,901) | (24,637) | (13,286) | 15,665 | (82,746) | -3.06X | -2.09X |
| | CAD | (5,910) | (2,994) | 11,682 | 20,551 | 9,508 | 53,332 | (67,121) | -0.72X | -0.01X |
| | MXN | (15,903) | 1,604 | (22,312) | (16,224) | (5,281) | 170,379 | (29,510) | -0.60X | -1.07X |
| | NZD | 6,202 | 2,343 | 1,488 | 3,673 | 7,303 | 17,126 | (42,544) | -0.22X | 0.81X |
| | CHF | (6,645) | (6,103) | 4,841 | 3,091 | 7,413 | 17,848 | (40,715) | -2.26X | -0.18X |
| COMMODITIES | CRUDE OIL | 430,383 | 11,750 | 496,421 | 523,632 | 532,552 | 594,465 | 332,714 | -2.49X | -0.81X |
| | GOLD | 87,395 | 3,855 | 90,238 | 90,039 | 97,986 | 292,066 | (103,009) | -0.38X | -0.52X |
| | COPPER | 28,915 | 5,367 | 22,638 | 28,593 | 47,637 | 80,564 | (60,135) | -0.84X | 0.51X |
| | Natural Gas | (147,396) | (27,113) | (133,663) | (100,582) | (39,620) | 71,340 | (262,534) | -1.48X | -0.85X |
| | RBOB Gasoline | 41,015 | 2,151 | 42,272 | 47,649 | 54,647 | 129,000 | 29,497 | -1.02X | -1.41X |
| | ULSD Heating Oil | 30,185 | (7,222) | 29,828 | 21,891 | 17,060 | 48,330 | (27,674) | 1.32X | 1.66X |
| | Silver | 25,480 | (2,523) | 30,106 | 37,616 | 42,712 | 80,646 | (26,016) | -1.65X | -0.55X |
| | Platinum | (1,557) | (7,680) | 9,535 | 17,963 | 20,888 | 69,306 | (1,557) | -2.31X | -1.71X |
| | Corn | 277,554 | (7,711) | 315,541 | 384,175 | 420,921 | 557,581 | (270,560) | -1.54X | 0.64X |
| | Soybeans | 56,861 | (2,959) | 83,971 | 129,282 | 177,171 | 270,935 | (148,817) | -1.87X | -0.06X |
| | Wheat | 2,188 | (15,144) | 21,061 | 20,583 | 27,895 | 60,302 | (69,231) | -1.82X | -0.29X |
| | Live Cattle | 66,676 | (22,721) | 92,239 | 90,263 | 84,183 | 183,134 | 20,158 | -0.91X | -0.41X |
| | Lean Hogs | 81,982 | (13,841) | 90,426 | 90,844 | 75,597 | 101,947 | 4,913 | 0.33X | 1.06X |
| | Sugar | 254,986 | (25,269) | 271,443 | 263,048 | 262,387 | 316,046 | (205,161) | -0.24X | 1.05X |
| | Cotton | 111,451 | (192) | 93,081 | 80,954 | 82,426 | 111,643 | (37,827) | 2.19X | 1.87X |
| | Coffee | 50,692 | (2,561) | 50,248 | 49,169 | 44,002 | 64,466 | (101,734) | 0.58X | 1.06X |
| | Cocoa | 22,390 | (2,198) | 12,056 | 17,101 | 25,967 | 81,269 | (31,483) | -0.25X | 0.01X |
| | Orange Juice | 4,450 | (270) | 3,685 | 1,522 | 1,077 | 4,745 | (9,416) | 1.60X | 1.76X |

A | B Testing Process: Measure & Map The Volatility of Volatility

Deliberately studying the VOLATILITY OF VOLATILITY leads to high-probability decision-making opportunities. TIMING matters.

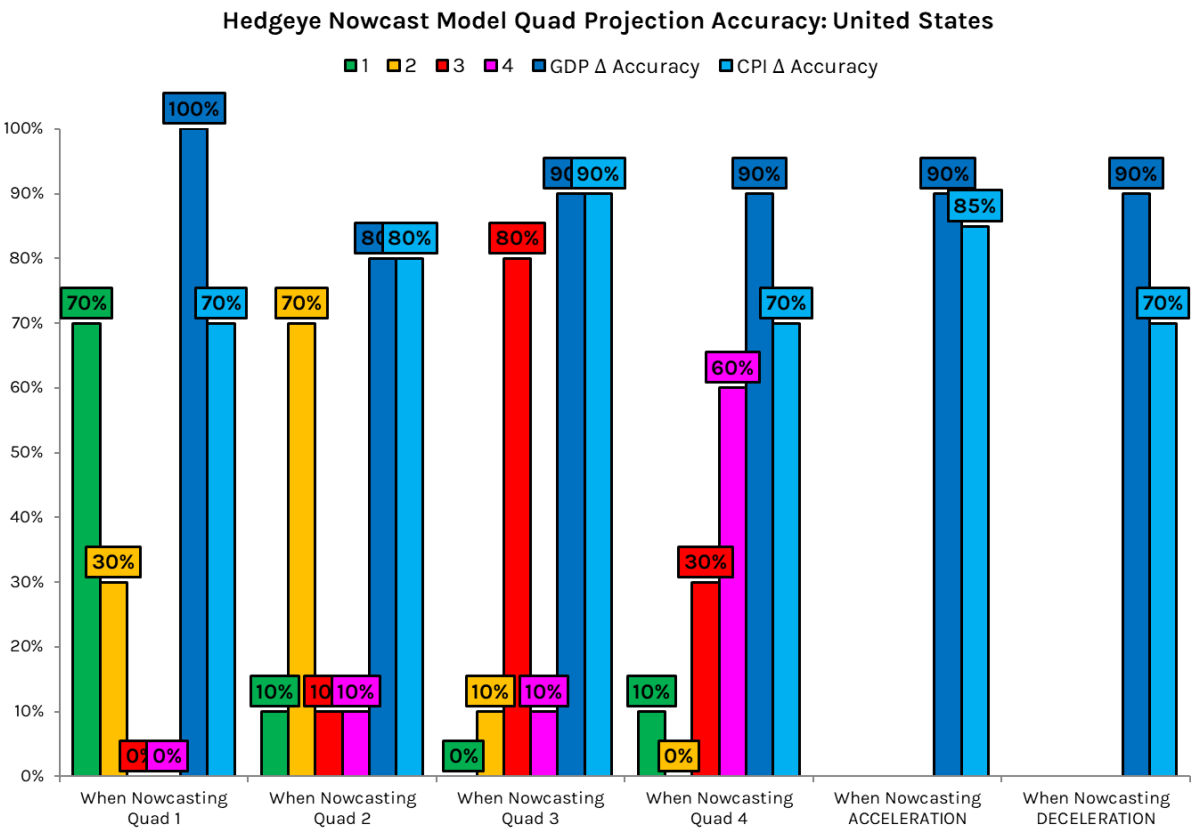
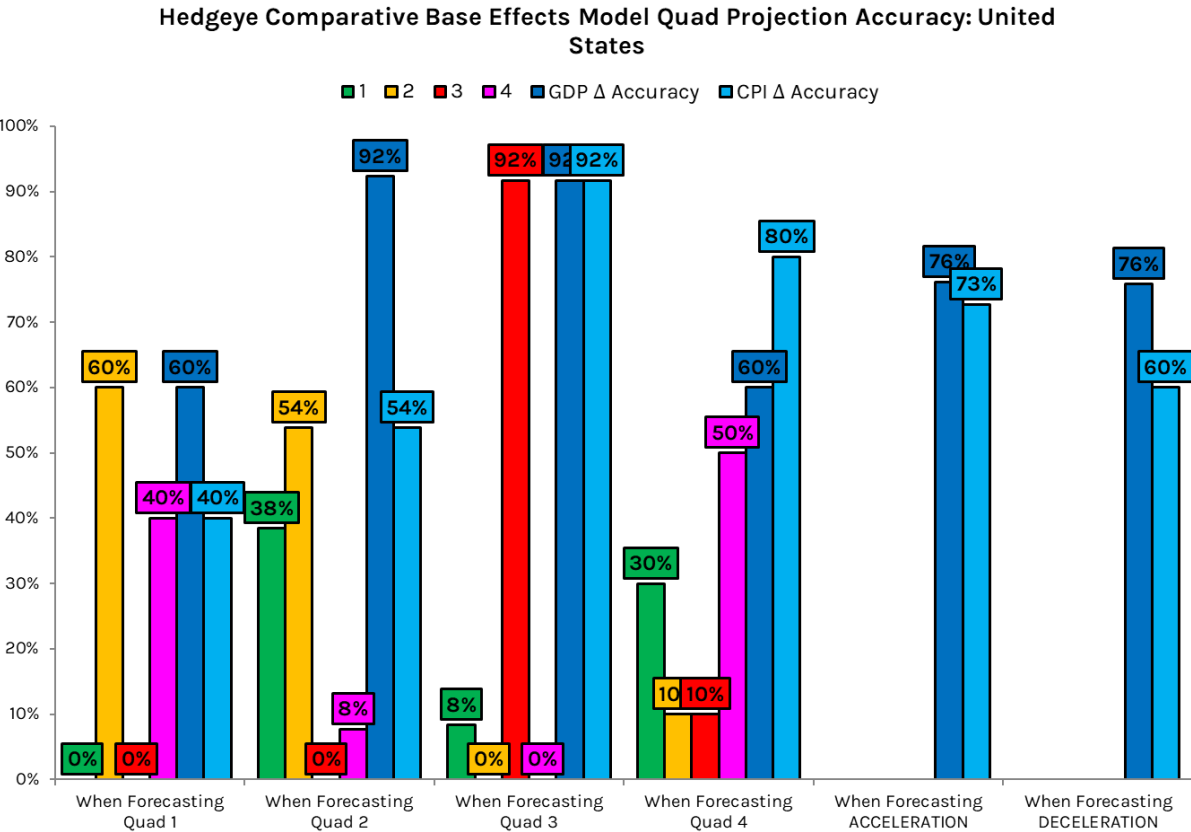
| TIME WINDOW SETTING: | | TOTAL RETURN | | IVOL PREMIUM/DISCOUNT | | | | | REALIZED VOLATILITY TRENDS | | | IMPLIED VOLATILITY TRENDS | | | | |
|--|-----------------|--------------|------|-----------------------|------|-----------|--------|--------|----------------------------|-------------|------------|---------------------------|------|------------|------|------|
| VOLATILITY_30D | | PERFORMANCE | | IVOL PREM % | | | | | RVOL | | PERCENTILE | IVOL | | PERCENTILE | | |
| PUT_IMP_VOL_30D | | YTD % | | IVOL / RVOL | | Yesterday | 1W Ago | 1M Ago | TTM Z-Score | 3Yr Z-Score | CURRENT | MM % | 10YR | CURRENT | MM % | 10YR |
| TICKER | | CURRENT | | | | | | | | | | | | | | |
| US EQUITIES | | | | | | | | | | | | | | | | |
| Energy Sector SPDR ETF | XLE US EQUITY | 33.09% | -6% | 11% | 3% | 1% | -0.5 | -0.3 | 31.8 | 11% | 82% | 30.0 | 3% | 80% | | |
| Real Estate Sector SPDR ETF | XLRE US EQUITY | 30.47% | 23% | 31% | 26% | 16% | 0.5 | 1.0 | 13.8 | 13% | 47% | 16.9 | 20% | 64% | | |
| Financials Sector SPDR ETF | XLF US EQUITY | 27.50% | 37% | 16% | 29% | 4% | 0.9 | 0.9 | 15.6 | -17% | 47% | 21.3 | 10% | 75% | | |
| Communication Services SPDR ETF | XLC US EQUITY | 20.59% | 39% | 56% | 40% | 18% | 0.6 | 0.7 | 12.3 | -6% | 16% | 17.1 | 11% | 29% | | |
| Technology Sector SPDR ETF | XLK US EQUITY | 19.53% | 39% | 67% | 43% | 40% | 0.6 | 0.8 | 14.0 | 10% | 44% | 19.4 | 9% | 72% | | |
| SPDR S&P 500 ETF Trust | SPY US EQUITY | 18.27% | 55% | 89% | 59% | 23% | 1.2 | 1.3 | 10.6 | 3% | 40% | 16.5 | 30% | 76% | | |
| Power Shares QQQ Trust ETF | QQQ US EQUITY | 18.21% | 54% | 88% | 60% | 54% | 0.8 | 1.2 | 12.5 | 20% | 33% | 19.2 | 19% | 72% | | |
| Health Care Sector SPDR ETF | XLV US EQUITY | 17.24% | 52% | 57% | 24% | 26% | 0.9 | 1.2 | 11.3 | -2% | 36% | 17.2 | 18% | 75% | | |
| Consumer Discretionary Sector SPDR ETF | XLY US EQUITY | 13.94% | 27% | 53% | 30% | 1% | 0.1 | 0.3 | 14.1 | -12% | 55% | 17.9 | 11% | 72% | | |
| I-Shares Russell 2000 ETF | IWM US EQUITY | 13.05% | 27% | 49% | 24% | 12% | 0.6 | 0.6 | 18.5 | -8% | 62% | 23.4 | 4% | 79% | | |
| Industrials Sector SPDR ETF | XLI US EQUITY | 13.00% | 46% | 76% | 31% | 15% | 0.5 | 0.9 | 12.4 | -21% | 31% | 18.1 | 0% | 68% | | |
| Materials Sector SPDR ETF | XLB US EQUITY | 12.02% | 96% | 102% | 37% | 29% | 2.4 | 2.1 | 14.5 | -8% | 36% | 28.4 | 40% | 90% | | |
| Utilities Sector SPDR ETF | XLU US EQUITY | 6.96% | 99% | 92% | 12% | 5% | 2.1 | 2.1 | 13.4 | 5% | 48% | 26.6 | 100% | 96% | | |
| Consumer Staples Sector SPDR ETF | XLP US EQUITY | 6.16% | 214% | 192% | 39% | 92% | 3.6 | 2.3 | 10.1 | 7% | 38% | 31.7 | 75% | 98% | | |
| INTERNATIONAL EQUITIES | | | | | | | | | | | | | | | | |
| Euro Stoxx 50 Index | SX5E INDEX | 20.20% | 35% | 57% | 67% | 5% | 0.9 | 1.2 | 13.0 | -8% | 28% | 17.6 | 19% | 55% | | |
| I-Shares MSCI Japan ETF | EWJ US EQUITY | 8.08% | 20% | 15% | 10% | 22% | 0.3 | 0.6 | 15.2 | 25% | 53% | 18.3 | 23% | 70% | | |
| I-Shares MSCI Emerging Markets ETF | EEM US EQUITY | -0.89% | 15% | 30% | 14% | 97% | 0.2 | 0.3 | 18.3 | 8% | 52% | 21.0 | -37% | 64% | | |
| I-Shares China Large-Cap ETF | FXI US EQUITY | -14.89% | 4% | 17% | 2% | -9% | 0.3 | 0.3 | 28.5 | -13% | 79% | 29.7 | 0% | 91% | | |
| CURRENCIES | | | | | | | | | | | | | | | | |
| PowerShares US Dollar Index ETF | UUP US EQUITY | 3.47% | 14% | 16% | 27% | 24% | -0.5 | -0.2 | 4.7 | -1% | 13% | 5.4 | -9% | 6% | | |
| Currency Shares British Pound ETF | FXB US EQUITY | -0.64% | 3% | 1% | -3% | -6% | -0.2 | -0.2 | 6.5 | -3% | 22% | 6.7 | 6% | 18% | | |
| Currency Shares Euro Trust ETF | FXE US EQUITY | -4.98% | 17% | 25% | 13% | 8% | 0.9 | 0.7 | 4.2 | -15% | 6% | 4.9 | -8% | 5% | | |
| Currency Shares Japanese Yen ETF | FXJ US EQUITY | -6.36% | 14% | 20% | 20% | 4% | -0.4 | 0.0 | 5.0 | -9% | 14% | 5.7 | 0% | 9% | | |
| COMMODITIES | | | | | | | | | | | | | | | | |
| United States Natural Gas Fund ETF | UNG US EQUITY | 80.98% | 35% | 30% | 65% | 31% | 0.2 | 0.5 | 49.8 | 53% | 78% | 67.4 | 58% | 95% | | |
| United States Oil Fund ETF | USO US EQUITY | 52.92% | -3% | 3% | -6% | 4% | -0.6 | -0.5 | 29.9 | -16% | 58% | 28.9 | -22% | 45% | | |
| PowerShares DB Base Metals Fund ETF | DBB US EQUITY | 22.77% | 451% | 254% | 347% | 581% | 0.4 | 0.0 | 18.0 | 9% | 63% | 99.1 | -12% | 86% | | |
| PowerShares DB Agriculture Fund ETF | DBA US EQUITY | 15.06% | 38% | 52% | 32% | -3% | -0.2 | -0.1 | 11.3 | -31% | 49% | 15.6 | -1% | 73% | | |
| SPDR Gold Shares ETF | GLD US EQUITY | -7.25% | 3% | 1% | -14% | 3% | -0.1 | -0.1 | 13.5 | 3% | 50% | 13.9 | 3% | 44% | | |
| FIXED INCOME | | | | | | | | | | | | | | | | |
| I-Shares IBOXX HY Corporate Bond ETF | HYG US EQUITY | 3.55% | 0% | 44% | -5% | 12% | -1.0 | -0.6 | 2.9 | -30% | 6% | 2.9 | -38% | 1% | | |
| I-Shares IBOXX IG Corporate Bond ETF | LQD US EQUITY | 0.08% | 17% | 31% | -7% | 7% | 0.0 | 0.1 | 4.7 | -15% | 44% | 5.5 | -7% | 49% | | |
| I-Shares J.P. Morgan USD EM Bond ETF | EMB US EQUITY | -0.68% | 50% | 51% | 27% | 50% | 0.8 | 1.1 | 4.2 | 5% | 15% | 6.3 | 6% | 36% | | |
| I-Shares 7-10 Year Treasury Bond ETF | IEF US EQUITY | -1.85% | 28% | 26% | 26% | 13% | -0.3 | -0.2 | 4.3 | -20% | 23% | 5.5 | -10% | 37% | | |
| I-Shares 20+ Year Treasury Bond ETF | TLT US EQUITY | -2.76% | 14% | 17% | 8% | 1% | 0.0 | 0.4 | 11.3 | -18% | 42% | 12.9 | -7% | 53% | | |
| MEGA-CAP TECH | | | | | | | | | | | | | | | | |
| Alphabet | GOOGL US EQUITY | 60.08% | 45% | 57% | 30% | -1% | 1.0 | 1.2 | 16.3 | -15% | 24% | 23.7 | 25% | 52% | | |
| Microsoft | MSFT US EQUITY | 35.12% | 29% | 46% | 25% | 28% | 0.6 | 0.7 | 16.8 | 12% | 26% | 21.7 | 13% | 53% | | |
| Facebook | FB US EQUITY | 25.64% | 26% | 40% | 31% | -13% | 0.6 | 0.7 | 23.1 | -12% | 30% | 29.3 | 27% | 41% | | |
| Apple | AAPL US EQUITY | 10.43% | 4% | 17% | 11% | 13% | -0.2 | 0.0 | 22.6 | 10% | 43% | 23.6 | 1% | 36% | | |
| Amazon | AMZN US EQUITY | 3.78% | 25% | 43% | 28% | -21% | 0.3 | 0.4 | 17.8 | -34% | 13% | 22.3 | 4% | 16% | | |
| Data Source: CBOE, CME, Bloomberg | | | | | | | | | | | | | | | | |

Data Source: CBOE, CME, Bloomberg

Measuring And Mapping The Quads With Precision Ex Ante Matters To Driving Ex Post Returns

US Comparative Base Effects Model Backtest

US Nowcast Model Backtest



Data Source: Bloomberg

Data Source: Bloomberg

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