

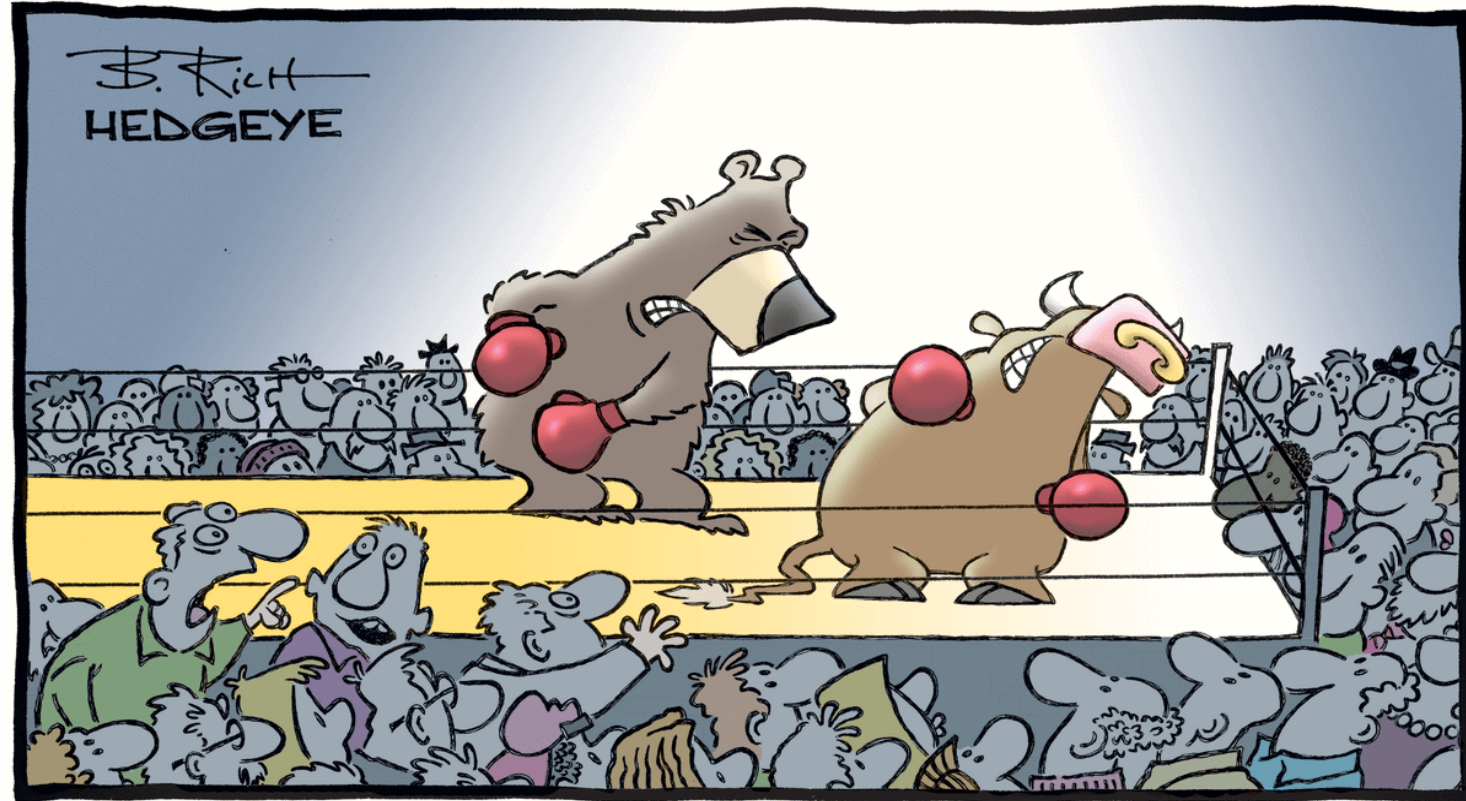
HEDGEYE



HEDGEYE'S CURRENT MARKET OUTLOOK

STAGFLATION

December 5, 2023



MACRO THEMES

USA #Quad3 Stagflation

The Big (G): Deficits & Debt

Long India vs. Short Japan & Europe

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Q4 2023 Macro Themes

1 USA #Quad3 Stagflation

Easy CPI comps are fully rearview, Headline & Supercore Inflation are reaccelerating, Demand growth is back to Trend deceleration following the countertrend bounce in July and the inimical margin-negative Quad 3 duo of Demand ↓, Prices ↑ has now defined the prevailing reality domestically since late July. Meanwhile, the global/local industrial-mfg recession remains entrenched, the consumer retrench continues to intensify and the list of income/discretionary consumption shocks in queue continues to layer as “the Convergence” thesis we promulgated in 2Q remains on time and on script. We’ll detail where we are on that Convergence timeline, how long we expect the Stagflationary mojo to persist and how we’ll risk manage & allocate inside the current, idiosyncratic version of Quad3.

2 The Big (G): Deficits & Debt

Federal spending saved Headline GDP in 1H with government sponsored reindustrialization initiatives supporting some of the highest nonresi investment contributions to GDP in 40 years. We’ll outline the probable trajectory of the fiscal impulse and the attendant growth/inflation/rates implications, discuss whether we’ve transitioned to a new secular regime of fiscal dominance and detail the multi-duration risks and allocation considerations associated with the vertical ascent in deficits/debt/interest expense nested within the secular evolution of Fourth Turning dynamics.

Long India vs. Short Japan & Europe:

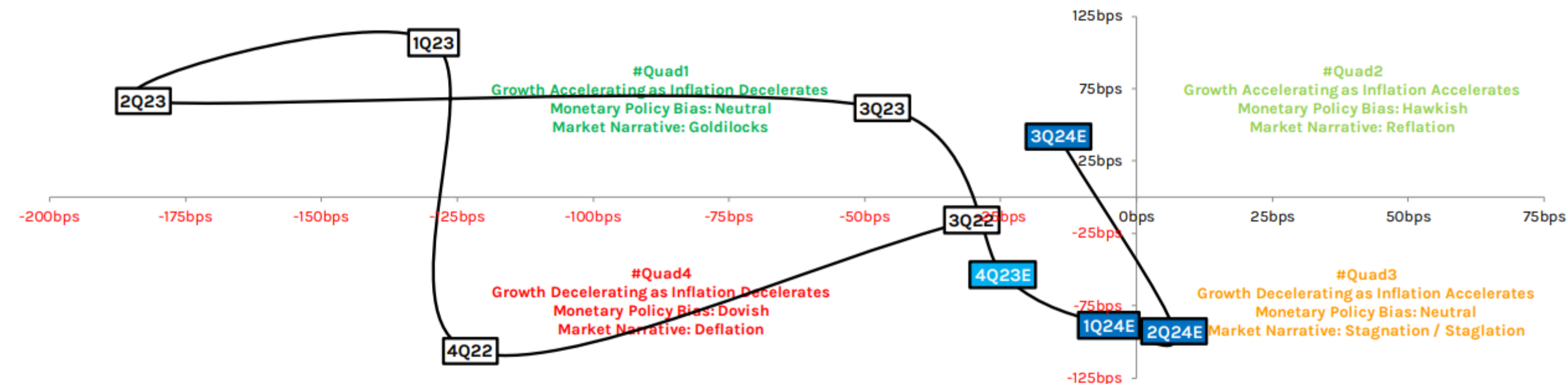
3 With both the signal and Quad outlook having deteriorated since the start of the quarter, we’re changing our view on Japan to bearish, while maintaining our favorable view on India. Japanese ISM and Services prints have recently turned down and the Quad outlook now suggests Quad 4 beginning in Q1 and running through Q3 2024. Importantly, the signal confirms the outlook. Meanwhile, India is enjoying a comparatively strong fundamental setup with buoyant domestic demand fueled by government spending, moderated commodity prices (excluding Oil), and strong credit growth. Lastly, real growth on the European continent is poised to remain slow through at least 4Q23 as economic gravity imposes itself through the dual vectors of sticky-high inflation (worsened by recent dollar strengthening and energy reinflation) and credit tightening as the global industrial recession continues to focus much of its impact in Europe with manufacturing activity hurting from weakened global goods demand and the new cost-of-capital reality terrorizing Capex plans worldwide.

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	4Q20	1Q21	2Q21	3Q21	4Q21	1Q22	2Q22	3Q22	4Q22	1Q23	2Q23	3Q23	← Actuals Estimates →	4Q23E	1Q24E	2Q24E	3Q24E
Real GDP QoQ SAAR	4.20%	5.20%	6.20%	3.30%	7.00%	-2.00%	-0.60%	2.70%	2.60%	2.20%	2.10%	5.20%	Real GDP QoQ SAAR	0.45%	-1.24%	-1.61%	6.92%
Real GDP YoY	-1.08%	1.57%	11.95%	4.74%	5.42%	3.57%	1.87%	1.71%	0.65%	1.72%	2.38%	3.00%	Real GDP YoY	2.46%	1.58%	0.65%	1.07%
2yr Comparative Base Effects	2.65%	1.54%	-2.69%	0.60%	1.05%	1.40%	2.21%	1.63%	2.17%	2.57%	6.91%	3.22%	2yr Comparative Base Effects	3.04%	2.64%	2.13%	2.36%
Headline CPI YoY	1.24%	1.90%	4.85%	5.34%	6.69%	7.96%	8.63%	8.33%	7.10%	5.81%	3.98%	3.51%	Headline CPI YoY	3.27%	3.22%	3.29%	3.14%
2yr Comparative Base Effects	2.12%	1.88%	1.09%	1.49%	1.64%	2.01%	2.61%	3.28%	3.96%	4.93%	6.74%	6.83%	2yr Comparative Base Effects	6.90%	6.89%	6.31%	5.92%

United States



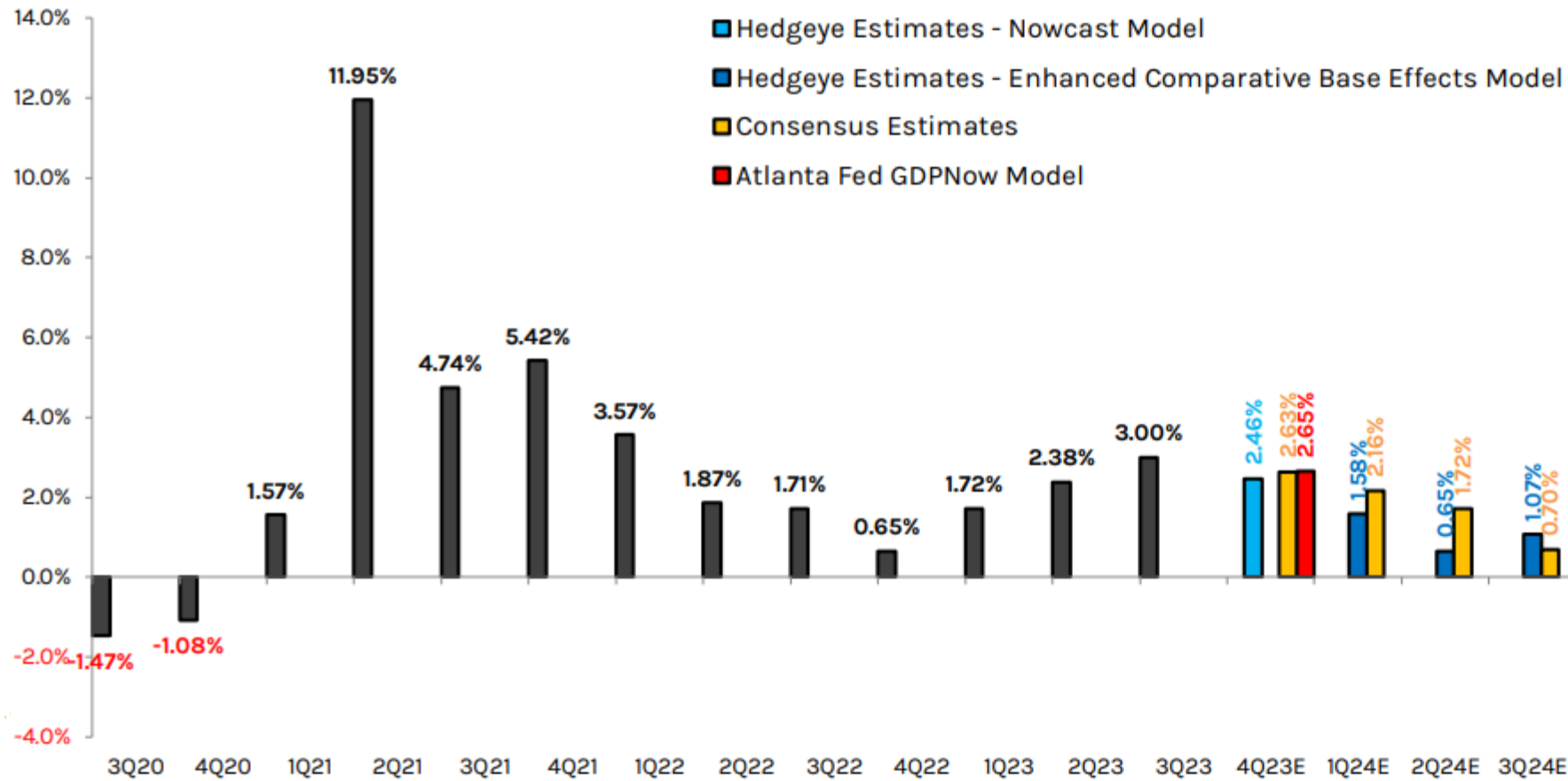
◆ x-axis: First Difference of YoY Headline CPI;
 ◆ y-axis: First Difference of YoY Real GDP

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

US Real GDP YoY Projections

United States

- Real GDP YoY
- Hedgeye Estimates - Nowcast Model
- Hedgeye Estimates - Enhanced Comparative Base Effects Model
- Consensus Estimates
- Atlanta Fed GDPNow Model



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.

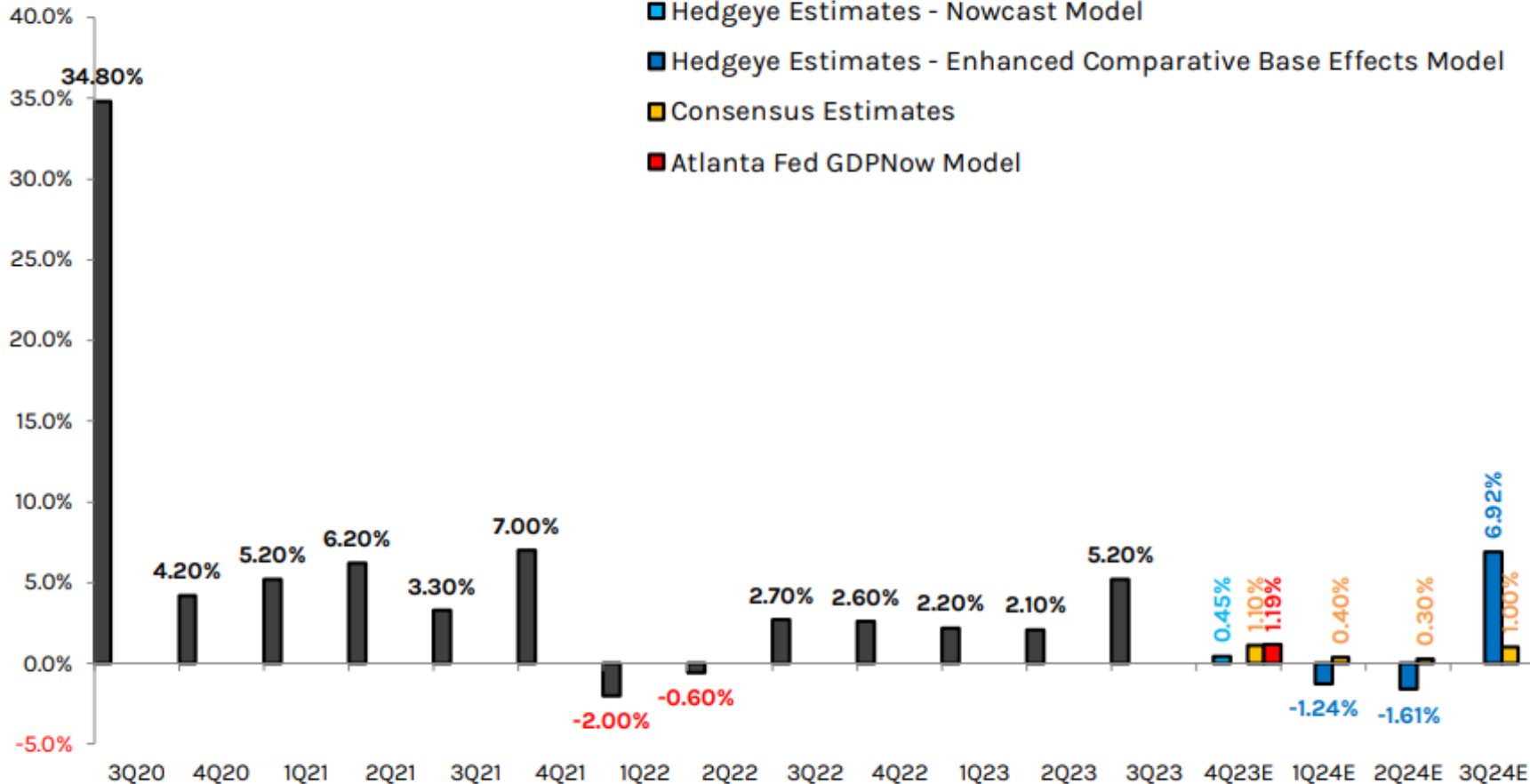
Data Source: BLS, BEA, Atlanta Fed, FactSet

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US Real GDP QoQ SAAR Projections

United States

- Real GDP QoQ SAAR
- Hedgeye Estimates - Nowcast Model
- Hedgeye Estimates - Enhanced Comparative Base Effects Model
- Consensus Estimates
- Atlanta Fed GDPNow Model



Data Source: BLS, BEA, Atlanta Fed, FactSet

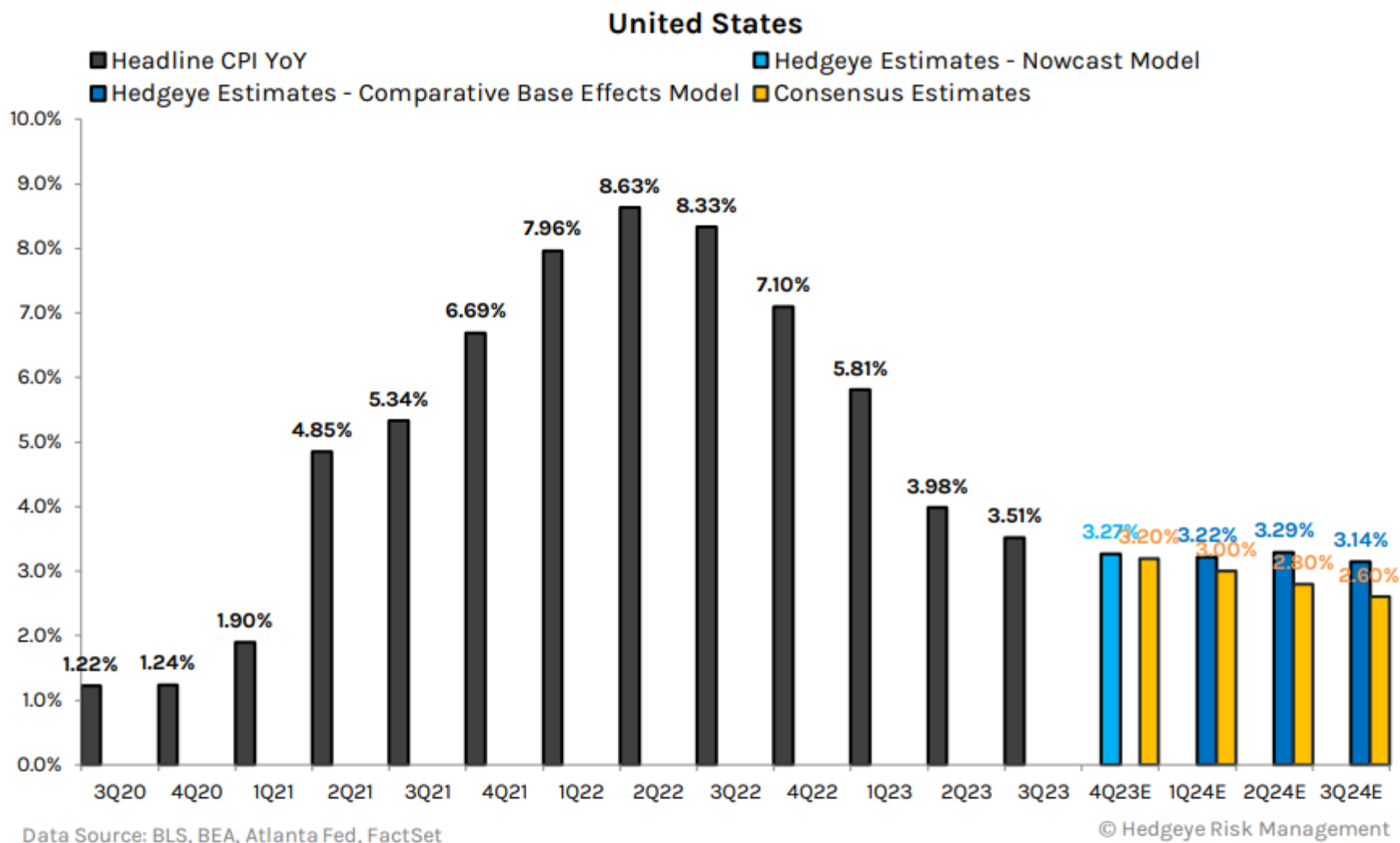
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One differentiating factor of our forecasting process is that we aim to solve for where the economy is trending on a **Full Investing Cycle** basis, rather than trying to identify super short-term economic momentum.

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.

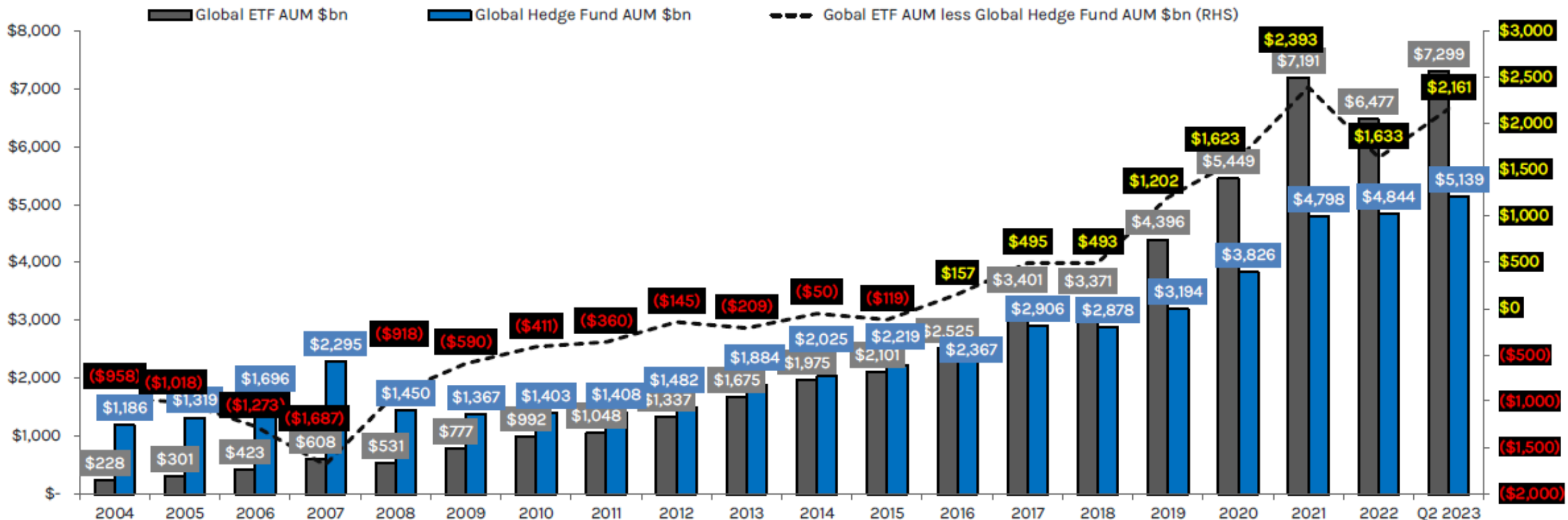
All told, our US CPI nowcast model has an average absolute forecast error of 36bps and an 85% success rate in terms of accurately projecting the rate of change of INFLATION.

OUR MACRO PROCESS



The Investment Landscape Has Evolved Tremendously

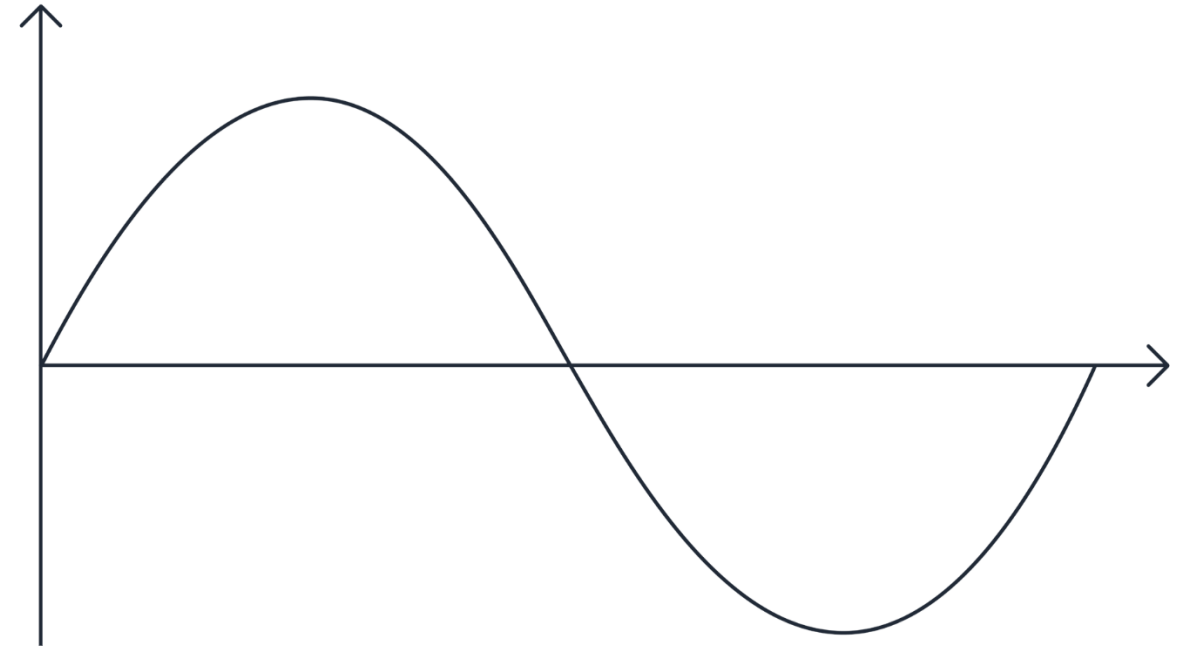
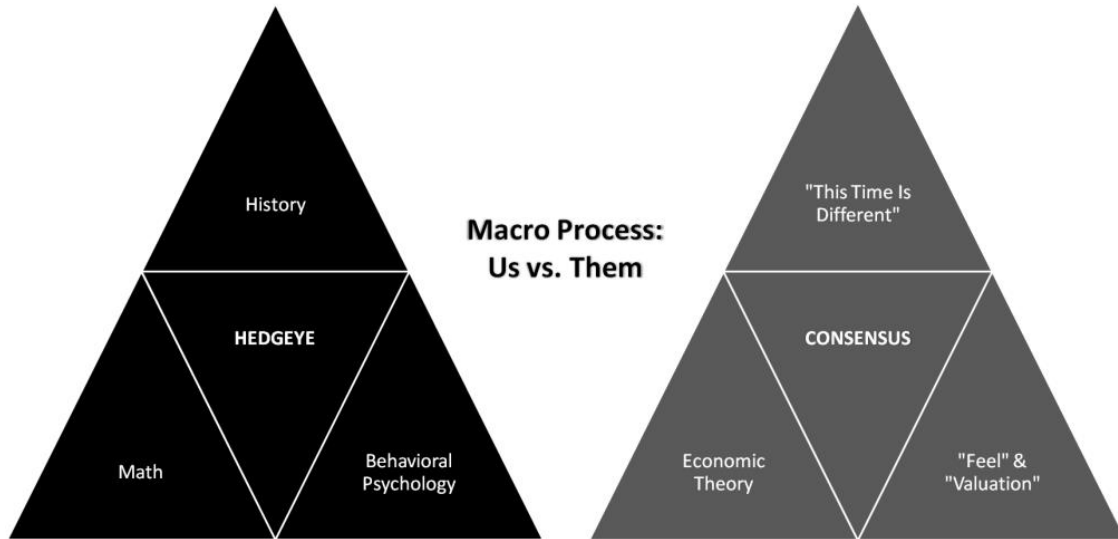
Stock-picking has given way to factor-picking and it's our job as investors to embrace this sea change, rather than fight it.



Skate To Where The Puck Is Going Within Asset Management

AUM in listed ETFs surpassed \$7.3 trillion globally as of Q2 2023, topping global hedge fund assets by over \$2.1 trillion. Moreover, since 2015 ETF AUM has increased 247% with net assets from Hedge funds to ETFs increasing 1,276% since 2016. 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 **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

Hedgeye Macro US GIP Model Backtest Exposure	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			
	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)	6.0%	4.4%	-0.1%	-1.8%	1.6%	4.1%	2.0%	5.2%	0.0%	3.4%	-4.8%	-11.4%	8.6%	7.7%	0.8%	-6.7%	3.4%	1.5%	-2.8%	-0.8%	5.0%	2.9%	3.8%	1.8%	10.0%	6.1%	0.4%	1.2%	2.9%	6.7%	2.0%	-5.9%	3.1%	0.6%	-3.2%	-3.6%	8.6%	3.9%	5.7%	-0.6%	3.2%	4.3%	-1.7%	1.6%
Communication Services (XLC)	6.2%	0.7%	-1.1%	-0.3%	4.3%	1.6%	3.4%	8.2%	6.4%	-1.5%	-7.0%	-10.5%	9.3%	4.9%	1.2%	-5.0%	2.4%	2.6%	5.0%	3.2%	5.0%	-1.8%	3.2%	2.1%	11.4%	3.1%	-1.8%	4.5%	4.0%	4.2%	1.9%	-3.5%	3.0%	6.0%	-3.2%	0.6%	7.5%	-5.8%	3.9%	-1.0%	2.5%	2.8%	-1.5%	0.9%
Consumer Cyclical (XCV)	7.3%	4.5%	-0.5%	-0.6%	0.4%	0.5%	1.1%	5.8%	13.5%	3.7%	-5.8%	-10.6%	10.1%	7.4%	-1.0%	-3.7%	5.4%	0.7%	-1.6%	-0.7%	5.0%	4.6%	2.5%	2.1%	-11.7%	6.6%	1.0%	1.7%	7.9%	1.5%	-5.6%	1.7%	-2.4%	-3.1%	-3.8%	12.3%	2.9%	6.0%	2.1%	4.2%	4.6%	-1.8%	2.4%	
Consumer Non-Cyclical (XLP)	4.7%	2.1%	0.4%	0.8%	0.7%	0.5%	1.5%	6.7%	7.1%	4.9%	-0.3%	-2.3%	6.9%	4.9%	0.8%	-3.3%	3.7%	0.9%	0.2%	8.6%	3.7%	1.3%	0.2%	0.8%	8.9%	3.3%	0.4%	3.5%	3.1%	2.0%	-1.5%	-3.5%	1.4%	1.9%	0.3%	2.3%	5.9%	-2.6%	4.9%	0.0%	1.7%	3.1%	0.9%	1.9%
Energy (XLE)	5.7%	5.2%	2.4%	4.7%	2.5%	3.2%	5.5%	2.4%	6.8%	3.3%	-2.1%	-18.1%	6.3%	11.0%	8.2%	-13.1%	3.1%	2.6%	4.3%	1.2%	8.9%	-1.6%	6.7%	0.2%	4.5%	0.7%	3.3%	4.0%	2.4%	10.2%	8.1%	-24.0%	3.9%	2.8%	2.3%	-1.0%	10.4%	2.3%	6.7%	-2.3%	7.7%	4.6%	-3.7%	1.1%
Financials (XLF)	5.6%	4.3%	-0.7%	-2.3%	-0.4%	0.9%	0.7%	3.1%	10.2%	2.8%	-1.5%	-14.4%	8.1%	8.4%	-1.9%	-9.9%	3.6%	4.1%	1.6%	1.4%	4.0%	-1.5%	3.1%	2.5%	12.1%	4.0%	0.5%	1.6%	1.4%	10.3%	6.2%	-13.8%	0.6%	-4.4%	7.2%	-2.7%	8.6%	4.6%	5.5%	-0.6%	1.7%	5.0%	-3.9%	1.8%
Health Care (XLV)	5.4%	4.0%	0.0%	0.7%	3.1%	1.9%	0.5%	7.3%	6.2%	5.7%	-2.1%	-4.6%	7.6%	7.7%	1.3%	-4.1%	3.5%	0.7%	-1.1%	7.3%	4.0%	3.8%	0.1%	1.7%	7.2%	5.9%	0.5%	4.5%	2.7%	2.7%	2.0%	0.9%	4.8%	4.4%	2.1%	1.9%	6.9%	0.9%	2.7%	-1.6%	1.6%	3.7%	-0.7%	3.5%
Industrials (XLI)	6.2%	4.8%	-0.2%	-2.0%	1.1%	1.6%	2.1%	6.4%	8.6%	4.5%	-4.4%	-11.5%	9.0%	8.6%	0.4%	-6.5%	2.9%	2.6%	-3.2%	-0.7%	5.5%	1.8%	5.1%	1.2%	9.1%	6.9%	0.4%	0.0%	4.2%	8.9%	1.9%	-8.5%	3.1%	-0.2%	-3.1%	-3.0%	8.3%	4.1%	5.3%	-0.4%	2.8%	5.7%	-1.9%	0.6%
Information Technology (XLK)	7.6%	7.5%	0.5%	-2.7%	2.7%	12.4%	4.4%	4.9%	12.4%	3.8%	-6.9%	-15.2%	12.0%	0.1%	1.1%	-6.4%	2.9%	3.9%	-2.8%	-8.6%	5.0%	9.0%	6.3%	3.5%	13.9%	10.5%	-0.5%	0.1%	5.0%	9.3%	4.6%	-1.6%	3.3%	0.7%	2.6%	10.4%	10.0%	12.9%	8.5%	1.7%	4.1%	5.2%	-0.7%	3.1%
Materials (XLB)	6.3%	4.0%	-0.2%	-0.7%	1.0%	2.2%	5.0%	1.7%	10.2%	2.7%	-7.9%	-7.2%	6.9%	8.5%	3.3%	-7.6%	5.5%	1.7%	-5.1%	5.4%	7.2%	-0.2%	3.9%	2.2%	5.7%	8.3%	2.8%	-5.2%	4.7%	5.8%	-1.5%	12.9%	2.0%	-3.0%	-4.0%	1.6%	11.8%	3.7%	5.6%	2.2%	6.8%	4.7%	-2.2%	-0.2%
REITs (XLRE)	5.1%	3.2%	-2.3%	-2.1%	2.6%	0.0%	2.3%	7.2%	12.7%	8.6%	-5.8%	-9.1%	8.6%	8.3%	-3.2%	-24.9%	1.4%	1.0%	-2.3%	5.9%	-	0.2%	0.8%	2.8%	-	0.2%	-8.9%	-	3.5%	-1.5%	-12.7%	2.6%	14.9%	1.5%	5.8%	12.7%	-1.8%	0.8%	4.4%	5.4%	2.6%	-4.8%	0.7%	0.7%
Utilities (XLU)	3.9%	0.5%	3.0%	0.1%	4.6%	1.0%	4.2%	8.0%	15.1%	1.6%	4.0%	-5.0%	5.5%	3.8%	3.1%	-6.5%	3.1%	3.7%	1.1%	5.9%	2.2%	0.4%	6.6%	3.1%	3.1%	2.8%	-0.1%	9.7%	1.0%	0.1%	0.7%	-5.6%	8.1%	-0.2%	1.3%	1.2%	2.5%	5.9%	7.6%	-2.8%	3.2%	3.3%	-1.2%	0.2%
Growth (IWF)	6.4%	5.8%	-0.4%	-2.5%	1.5%	7.5%	1.9%	5.3%	10.4%	4.2%	-6.4%	-13.1%	9.5%	8.0%	0.7%	-7.0%	3.3%	2.2%	-3.4%	-5.2%	4.8%	6.5%	3.8%	2.7%	11.5%	8.3%	0.2%	1.1%	3.0%	7.8%	1.7%	-2.5%	2.6%	0.4%	-3.6%	7.0%	9.2%	4.6%	5.9%	-0.5%	2.9%	4.8%	-1.5%	1.6%
Value (IWD)	5.9%	3.2%	0.2%	-1.4%	1.7%	0.8%	2.1%	5.0%	8.3%	2.5%	-3.1%	-10.4%	7.9%	7.5%	0.8%	-6.9%	3.8%	1.0%	-2.5%	3.1%	5.6%	-0.9%	4.5%	1.3%	8.9%	4.4%	0.5%	1.5%	2.5%	6.1%	3.2%	-10.5%	2.8%	-2.6%	-3.1%	0.9%	8.5%	3.5%	6.0%	-0.6%	3.6%	4.2%	-2.4%	1.4%
Cyclicals (RSP)	7.0%	5.4%	-0.2%	-3.4%	1.6%	6.0%	2.4%	4.1%	12.1%	2.9%	-6.4%	-18.4%	10.0%	9.1%	1.5%	-9.1%	3.6%	2.3%	-4.3%	-4.8%	6.1%	3.4%	5.2%	2.4%	12.2%	7.3%	0.8%	0.5%	2.7%	9.1%	3.7%	-8.6%	2.9%	-2.6%	-4.9%	7.1%	10.7%	7.8%	7.0%	-0.7%	4.1%	5.2%	-3.2%	1.4%
Defensives (DEF)	5.4%	3.7%	0.0%	-0.5%	2.3%	2.7%	1.5%	6.1%	7.1%	3.8%	-3.4%	-7.6%	7.6%	6.4%	0.1%	-4.7%	3.4%	0.8%	-1.7%	2.1%	4.5%	2.9%	3.1%	1.9%	8.4%	5.4%	0.0%	1.9%	2.7%	4.9%	1.1%	-4.2%	3.7%	0.7%	-1.9%	-1.1%	7.2%	0.6%	5.0%	0.0%	2.6%	3.8%	-0.5%	1.7%
High Beta (SPHB)	6.5%	7.9%	-0.9%	-4.6%	1.5%	7.8%	2.2%	3.3%	14.1%	4.2%	-7.2%	-20.3%	12.7%	13.6%	1.6%	-10.7%	2.7%	3.6%	-6.0%	9.2%	4.5%	4.3%	6.9%	2.9%	13.0%	7.2%	-0.8%	-2.1%	2.9%	15.2%	7.0%	-15.6%	3.8%	-3.2%	-6.1%	0.5%	13.3%	12.2%	11.3%	2.4%	4.2%	6.8%	-4.4%	1.8%
Low Beta (SPLV)	4.6%	2.2%	1.0%	1.5%	3.1%	1.0%	2.1%	7.7%	5.3%	4.4%	0.4%	-4.0%	5.6%	5.3%	0.5%	-2.7%	4.4%	-0.3%	0.1%	7.2%	3.1%	0.6%	3.6%	2.3%	5.9%	4.2%	-0.5%	4.8%	2.2%	2.4%	2.2%	-7.0%	4.2%	0.8%	0.8%	2.2%	5.6%	-2.5%	4.9%	1.8%	3.6%	3.3%	0.4%	1.6%
Momentum (MTUM)	7.0%	5.0%	0.7%	-3.7%	2.8%	7.7%	3.2%	6.2%	10.5%	3.6%	-5.5%	-14.3%	9.0%	6.2%	0.9%	-8.1%	5.3%	1.3%	-2.0%	-5.2%	7.1%	7.6%	5.5%	1.0%	13.3%	6.3%	1.8%	1.2%	3.6%	8.1%	1.7%	-2.0%	3.7%	-0.7%	-2.7%	7.3%	9.0%	3.5%	7.9%	-3.2%	3.7%	4.2%	-1.3%	2.3%
Quality (QUAL)	6.4%	4.6%	0.2%	-0.3%	3.1%	2.8%	2.3%	6.3%	9.1%	4.9%	-4.1%	-8.2%	9.0%	7.5%	1.2%	-4.7%	3.9%	1.7%	-2.3%	2.5%	5.7%	3.7%	3.6%	2.2%	8.6%	6.0%	0.8%	1.4%	3.8%	5.9%	1.8%	-3.9%	4.7%	1.8%	-2.5%	-1.6%	8.2%	1.8%	5.8%	0.9%	3.3%	4.8%	-0.3%	1.9%
Dividend Yield (SDY)	6.2%	3.1%	0.1%	1.2%	1.8%	0.1%	1.5%	6.8%	9.2%	3.7%	-1.8%	-5.1%	8.2%	7.4%	0.0%	-2.9%	4.6%	0.6%	-1.0%	6.6%	5.4%	-0.5%	2.4%	2.1%	9.0%	5.2%	-0.2%	2.8%	2.4%	4.8%	0.2%	-7.7%	3.8%	-1.2%	-0.8%	2.2%	9.2%	0.5%	4.3%	2.2%	3.8%	4.0%	-0.3%	2.1%
Size (DEF)	6.0%	4.6%	-0.2%	-2.0%	1.2%	5.2%	1.9%	5.1%	8.6%	3.4%	-5.0%	-10.6%	8.8%	7.4%	0.2%	-6.5%	3.0%	1.8%	-2.5%	-0.4%	5.1%	3.8%	3.8%	1.1%	10.0%	6.2%	0.4%	0.5%	3.2%	6.8%	1.9%	-4.2%	2.7%	0.0%	-3.0%	-3.6%	8.4%	3.9%	4.8%	1.2%	2.8%	4.2%	-1.4%	1.8%
Secular Growth (QQQ)	6.3%	7.8%	3.0%	-2.9%	3.1%	14.7%	3.1%	4.9%	9.2%	3.2%	-6.4%	-13.8%	10.9%	9.2%	1.0%	-6.7%	0.7%	3.0%	-4.5%	-8.6%	5.1%	11.3%	7.5%	3.4%	9.5%	10.0%	-2.2%	0.3%	5.5%	11.5%	6.0%	-0.8%	2.8%	-0.4%	2.8%	9.7%	8.4%	10.7%	8.8%	0.8%	3.9%	5.3%	-0.4%	1.5%
Mid-Caps (MDY)	7.0%	5.2%	0.5%	-1.8%	2.1%	3.8%	2.5%	4.8%	12.7%	3.6%	-3.7%	-12.6%	8.9%	9.2%	2.0%	-6.4%	5.1%	2.4%	-3.6%	-1.5%	6.5%	2.3%	6.4%	2.1%	12.2%	5.8%	0.2%	1.9%	1.4%	8.4%	4.7%	-12.9%	3.3%	-1.7%	-2.8%	-4.2%	10.9%	4.1%	6.7%	1.4%	5.5%	6.0%	-2.3%	0.9%
Small-Caps (IWM)	6.2%	5.7%	-0.7%	-2.0%	1.7%	5.9%	1.6%	5.6%	10.8%	2.3%	-5.6%	-13.9%	7.6%	9.5%	0.5%	-5.6%	5.1%	2.7%	-4.8%	-1.5%	5.4%	3.5%	5.6%	0.8%	9.9%	7.3%	-0.5%	3.5%	0.6%	10.6%	0.8%	-13.5%	2.1%	-3.8%	-3.5%	5.1%	11.4%	9.0%	7.0%	1.0%	6.0%	4.6%	-2.9%	0.8%
BARCLAYS AGG (AGG)	1.2%	0.4%	0.6%	2.3%	1.4%	0.0%	0.8%	1.8%	1.8%	0.9%	0.1%	2.8%	1.5%	0.4%	0.3%	2.5%	1.6%	0.4%	0.9%	3.1%	0.4%	0.2%	0.3%	1.7%	0.7%	0.4%	0.6%	2.3%	1.3%	0.4%	0.3%	1.6%	1.3%	1.4%	0.6%	3.1%	1.5%	0.5%	1.3%	1.8%	0.9%	1.0%	1.2%	1.0%
Leveraged Loans (BKLN)	2.1%	1.8%	0.4%	0.5%	1.4%	1.1%	1.5%	1.8%	3.7%	2.0%	-1.0%	-7.5%	2.6%	2.3%	0.9%	-4.6%	1.3%	1.4%	-0.5%	1.5%	2.3%	1.6%	1.5%	4.4%	1.9%	2.3%	1.2%	0.3%	0.2%	2.1%	0.9%	-5.6%	1.5%	0.7%	-0.9%	-2.6%	4.3%	3.1%	1.7%	4.4%	2.3%	1.7%	-0.6%	1.0%
BDCs (BIZD)	5.7%	6.5%	-1.5%	-0.8%	4.3%	1.3%	2.2%	5.1%	12.8%	10.5%	-3.1%	-22.4%	7.5%	10.6%	-1.8%	-29.4%	1.3%	1.7%	-2.5%	5.4%	6.6%	2.4%	2.3%	1.8%	8.7%	3.9%	-0.5%	4.1%	-3.6%	9.7%	4.3%	-20.2%	2.7%	2.0%	-5.2%	-5.9%	13.9%	8.5%	4.2%	10.3%	7.0%	5.4%	-6.9%	2.9%
Preferreds (PFF)	1.8%	3.0%	-0.5%	-0.8%	1.5%	1.6%	-0.3%	1.5%	3.5%	4.2%	-2.1%	-14.8%	2.8%	3.3%	0.6%	-11.1%	0.9%	2.0%	1.8%	2.2%	1.3%	4.0%	-0.3%	1.7%	1.7%	3.4%	-0.4%	1.3%	0.6%	3.6%	2.4%	-10.6%	1.5%	0.0%	2.0%	-0.5%	3.4%	4.7%	0.7%	1.7%	5.7%	0.9%	-1.9%	0.1%
IG Credit (LQD)	1.9%	0.6%	0.2%	2.5%	1.7%	0.0%	0.8%	2.7%	3.0%	1.2%	-0.9%	1.1%	2.4%	1.1%	0.3%	1.8%	1.8%	0.6%	0.3%	3.5%	1.1%	0.0%	0.1%	2.6%	1.4%	0.9%	0.4%	2.6%	1.3%	0.1%	0.2%	-1.1%	1.7%	1.4%	-1.2%	3.3%	2.9%	1.2%	1.5%	2.7%	1.5%	1.3%	0.9%	1.1%
HY Credit (HYG)	3.1%	2.0%	0.1%	1.2%	1.2%	0.8%	1.3%	3.2%	5.2%	2.3%	-2.4%	-8.5%	3.6%	3.2%	1.3%	-3.7%	2.8%	1.4%	-1.3%	1.5%	2.7%	1.0%	0.8%	5.3%	3.0%	3.4%	0.6%	1.2%	1.6%	2.1%	0.6%	-5.1%	1.7%	0.0%	-1.4%	-1.3%	5.4%	5.6%	2.7%	2.7%	2.4%	2.7%	-1.1%	1.4%
Convertibles (CWB)	5.1%	5.6%	-0.9%	-0.2%	3.8%	4.4%	1.8%	3.0%	8.6%	4.9%	-5.3%	-14.1%	7.1%	6.6%	0.7%	-10.7%	3.1%	3.6%	-4.6%	1.0%	3.9%	6.6%	2.6%	3.2%	6.5%	7.1%	1.9%	-0.6																

Highest/Lowest Expected Values By Quad Regime

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

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, insomuch 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	ID	IW	1M	3M	6M	YTD
	% Chg	% Chg	% Chg	% Chg	% Chg	% Chg
Debt						
High Debt/EV	2.4%	3.9%	12.4%	0.5%	7.7%	1.2%
Low Debt/EV	1.2%	1.6%	11.4%	0.4%	6.5%	19.4%
SI						
High Short Interest	2.7%	4.2%	14.2%	-2.4%	5.3%	6.5%
Low Short Interest	0.7%	1.3%	8.8%	1.9%	11.0%	13.8%
BETA						
High Beta	2.4%	3.8%	16.6%	-0.8%	8.6%	22.6%
Low Beta	0.8%	0.8%	5.3%	1.9%	4.2%	-2.3%
YIELD						
High Yield	2.1%	3.4%	9.8%	-1.1%	2.7%	-8.8%
Low Yield	1.7%	2.4%	14.1%	-0.7%	7.0%	22.9%
MKT CAP						
MCAP Bottom 25%	2.5%	3.8%	11.6%	-4.3%	3.5%	-3.4%
MCAP Top 25%	0.7%	1.2%	9.4%	2.6%	10.8%	20.4%
Sales						
Top 25% Sales Growth	1.1%	1.8%	12.5%	2.8%	12.2%	28.9%
Bottom 25% Sales Growth	2.1%	3.4%	10.8%	-2.5%	4.8%	-5.7%
EPS						
Top 25% EPS Growth	1.5%	2.4%	12.0%	0.8%	10.6%	19.7%
Bottom 25% EPS Growth	1.9%	3.5%	11.6%	-1.0%	6.2%	-0.5%

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

CFTC NON-COMMERCIAL NET LONG POSITIONING

METRIC	Latest	W/W Chg	3MAve	6MAve	1Y Ave	3Y		Z-Score	
						Max	Min	1Y	3Y
EQUITIES									
SPX (Index + E-mini)	(101,744)	15,544	(81,453)	(150,411)	(194,508)	248,601	(447,046)	0.88X	-0.23X
VIX	(47,536)	(105)	(34,004)	(40,585)	(51,742)	(13,979)	(163,238)	0.25X	0.77X
Russell 2000 (mini)	(55,394)	1,649	(59,410)	(63,177)	(60,768)	33,092	(120,386)	0.60X	-0.13X
Dow Jones (mini)	(24,603)	9,701	(28,533)	(19,373)	(17,751)	9,207	(37,076)	-0.67X	-1.24X
Nasdaq (mini)	8,615	2,820	9,455	10,445	4,275	43,383	(24,622)	0.31X	0.07X
Nikkei Index	(2,360)	(121)	(1,408)	(2,477)	(2,824)	2,324	(9,401)	0.24X	0.23X
RATES									
10Y UST	(708,593)	(32,660)	(683,232)	(718,072)	(629,621)	238,882	(870,838)	-0.50X	-1.40X
2Y UST	(1,290,051)	97,609	(1,331,351)	(1,213,354)	(908,072)	86,786	(1,461,623)	-1.13X	-2.09X
5Y UST	(1,410,438)	96,500	(1,251,150)	(1,192,527)	(973,525)	148,962	(1,506,938)	-1.65X	-2.28X
UST Bonds	(106,549)	(14,415)	(161,139)	(157,372)	(146,700)	49,853	(229,064)	0.91X	-0.08X
30D Fed Funds	(203,490)	(54,208)	(189,970)	(183,995)	(142,669)	147,168	(320,917)	-0.89X	-1.19X
Eurodollar	47,762	(6,488)	(195,197)	(504,715)	(698,808)	1,039,687	(1,411,302)	1.85X	0.82X
CURRENCIES									
USD	19,080	(1,605)	16,656	12,842	13,522	44,971	(15,000)	1.04X	0.02X
JPY	(108,075)	(4,498)	(109,335)	(105,914)	(80,267)	52,239	(129,984)	-0.89X	-1.07X
EUR	149,787	13,361	101,715	133,552	152,308	198,934	(47,358)	-0.07X	0.95X
GBP	(5,503)	20,569	(3,571)	21,260	3,790	66,045	(79,646)	-0.30X	0.14X
AUD	(70,175)	5,831	(79,324)	(65,596)	(51,605)	11,168	(98,824)	-0.97X	-0.88X
CAD	(63,406)	3,671	(51,084)	(31,371)	(35,481)	50,344	(72,137)	-1.42X	-2.06X
MXN	65,432	6,452	53,494	70,278	40,961	99,697	(64,080)	0.49X	1.34X
NZD	(19,609)	(2,755)	(13,601)	(7,882)	(3,412)	17,126	(21,272)	-2.02X	-2.02X
CHF	(20,263)	(1,145)	(14,546)	(9,860)	(7,766)	14,410	(20,263)	-2.37X	-1.67X
COMMODITIES									
CRUDE OIL	215,397	(21,480)	317,967	275,842	263,525	594,465	170,119	-0.92X	-1.37X
GOLD	144,410	29,516	68,978	78,561	86,658	175,694	(41,300)	1.47X	1.40X
COPPER	(2,966)	314	(15,583)	(12,652)	(9,376)	80,564	(35,712)	0.48X	-0.43X
Natural Gas	(109,230)	13,649	(87,923)	(97,045)	(125,473)	37,997	(182,100)	0.45X	0.05X
RBOB Gasoline	66,143	3,839	47,298	50,750	51,895	87,991	27,945	1.61X	1.36X
ULSD Heating Oil	37,224	7,447	35,843	31,515	22,617	43,514	(14,002)	1.31X	1.57X
Silver	36,485	8,570	19,200	20,012	20,558	58,462	(12,811)	1.46X	0.63X
Platinum	11,529	3,154	6,030	9,248	14,346	36,198	(8,246)	-0.28X	-0.21X
Corn	(171,272)	(17,839)	(119,419)	(48,506)	29,777	557,581	(171,272)	-1.49X	-2.18X
Soybeans	59,692	(19,597)	42,778	63,366	95,224	250,381	(6,254)	-0.65X	-0.99X
Wheat	(101,967)	(12,127)	(76,829)	(65,553)	(65,035)	42,229	(107,489)	-1.68X	-2.12X
Live Cattle	55,568	(1,939)	93,883	112,287	110,858	144,819	32,625	-2.23X	-1.24X
Lean Hogs	(3,949)	(13,531)	18,894	19,783	8,720	101,947	(29,164)	-0.53X	-1.41X
Sugar	180,414	(21,366)	207,152	192,845	209,341	301,889	(9,197)	-1.04X	-0.19X
Cotton	9,672	429	39,101	34,531	19,525	127,919	(13,367)	-0.44X	-1.28X
Coffee	30,148	617	2,927	668	3,407	72,005	(37,467)	1.29X	-0.01X
Cocoa	70,844	(730)	73,254	74,114	54,156	86,695	(32,129)	0.65X	1.48X
Orange Juice	3,022	(234)	3,292	3,412	4,133	6,673	(2,109)	-1.11X	-0.07X

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 PERFORMANCE	IVOL PREMIUM/DISCOUNT				REALIZED VOLATILITY TRENDS			IMPLIED VOLATILITY TRENDS		
VOLATILITY_30D		PERFORMANCE	IVOL PREM %	IVOL RVOL			PERCENTILE			PERCENTILE		
PUT_IMP_VOL_30D	TICKER	YTD %	IVOL / RVOL	Yesterday	1W Ago	1M Ago	TTM Z-Score	3Yr Z-Score	MM %	10YR	MM %	10YR
US EQUITIES												
			CURRENT									
SPDR S&P 500 ETF Trust	SPY	20.05%	14%	14%	-4%	13%	-0.9	-0.7	-11%	55%	-10%	23%
Power Shares QQQ Trust ETF	QQQ	46.44%	5%	6%	-7%	7%	-0.9	-0.6	-9%	54%	-11%	33%
I-Shares Russell 2000 ETF	IWM	6.05%	-19%	-18%	-27%	0%	-1.9	-1.8	17%	82%	-6%	40%
Materials Sector SPDR ETF	XLB	7.30%	6%	7%	48%	22%	-0.7	-0.7	-14%	44%	-26%	42%
Communication Services SPDR ETF	XLC	45.68%	-28%	-28%	-25%	-23%	-1.4	-1.3	-11%	50%	-16%	6%
Energy Sector SPDR ETF	XLE	-2.80%	15%	17%	8%	-7%	0.0	0.2	-22%	37%	-4%	41%
Financials Sector SPDR ETF	XLF	5.76%	12%	10%	-2%	4%	-0.8	-0.6	-16%	35%	-10%	14%
Industrials Sector SPDR ETF	XLI	10.72%	63%	75%	38%	29%	1.3	1.4	-24%	33%	-3%	71%
Technology Sector SPDR ETF	XLK	49.13%	0%	-2%	-13%	-11%	-0.2	-0.3	-15%	44%	-4%	39%
Consumer Staples Sector SPDR ETF	XLP	-4.83%	91%	33%	-13%	-7%	1.5	1.1	-18%	48%	69%	88%
Real Estate Sector SPDR ETF	XLRE	2.92%	-24%	-26%	33%	-16%	-1.5	-1.6	0%	84%	-10%	61%
Utilities Sector SPDR ETF	XLU	-9.89%	3%	-16%	71%	-34%	-0.2	-0.5	-28%	79%	11%	77%
Health Care Sector SPDR ETF	XLV	-2.96%	-10%	60%	-20%	1%	-1.2	-1.2	4%	44%	-7%	16%
Consumer Discretionary Sector SPDR ETF	XLY	32.46%	3%	-17%	-27%	-15%	-0.1	-0.2	-19%	64%	-2%	63%
Retail SPDR ETF	XRT	10.92%	33%	6%	-10%	12%	-0.2	0.2	26%	79%	50%	82%
INTERNATIONAL EQUITIES												
I-Shares MSCI Emerging Markets ETF	EEM	4.83%	3%	-5%	-28%	-8%	-0.2	-0.3	-5%	28%	6%	23%
Euro Stoxx 50 Index	SX5E Index	16.47%	14%	17%	-9%	-3%	0.3	0.2	-28%	12%	-15%	12%
I-Shares China Large-Cap ETF	FXI	-12.05%	20%	10%	8%	26%	1.2	0.9	12%	65%	7%	87%
I-Shares MSCI Japan ETF	EWJ	16.11%	-12%	-9%	-12%	-8%	-0.9	-1.0	-13%	54%	-16%	31%
CURRENCIES												
PowerShares US Dollar Index ETF	UUP	5.00%	94%	109%	139%	65%	0.7	1.1	14%	74%	35%	93%
Currency Shares Euro Trust ETF	FXE	1.58%	-12%	-15%	-7%	-7%	-1.4	-1.2	6%	67%	0%	43%
Currency Shares British Pound ETF	FXB	5.14%	-17%	-18%	-23%	-18%	-1.0	-1.1	11%	69%	12%	38%
Currency Shares Japanese Yen ETF	FXJ	-11.10%	-5%	-9%	-9%	5%	-0.3	-0.6	32%	73%	20%	65%
COMMODITIES												
SPDR Gold Shares ETF	GLD	13.19%	29%	18%	-13%	-12%	1.0	0.8	-24%	34%	12%	42%
United States Oil Fund ETF	USO	-1.24%	5%	9%	18%	5%	-0.7	-0.6	-1%	59%	-1%	31%
United States Natural Gas Fund ETF	UNG	-61.35%	19%	26%	28%	28%	0.3	0.2	5%	61%	-2%	53%
Teucrium Corn ETF	CORN	-18.16%	28%	19%	22%	14%	0.5	0.1	-10%	27%	1%	32%
TEUCRIUM SOYBEAN FUND	SOYB	-1.82%	14%	11%	11%	28%	-0.3	-0.3	16%	57%	3%	29%
VANECK STEEL ETF	SLX	23.15%	69%	48%	-13%	33%	2.3	2.8	-18%	10%	4%	44%
FIXED INCOME												
I-Shares 20+ Year Treasury Bond ETF	TLT	-6.60%	-10%	-18%	-22%	-19%	-0.8	-1.1	-18%	90%	-9%	83%
I-Shares 7-10 Year Treasury Bond ETF	IEF	-1.82%	1%	-6%	-19%	-3%	-0.3	-0.6	-10%	87%	-5%	81%
I-Shares IBOX IG Corporate Bond ETF	LQD	1.65%	15%	-2%	-	-1%	0.1	-0.5	-15%	86%	-1%	76%
I-Shares J.P. Morgan USD EM Bond ETF	EMB	2.67%	-	-3%	-3%	-10%	#VALUE!	#VALUE!	-2%	80%	#VALUE!	#VALUE!
I-Shares IBOX HY Corporate Bond ETF	HYG	3.21%	-16%	-17%	-17%	-31%	-1.0	-1.0	-20%	66%	-2%	37%
MEGA-CAP												
Apple	AAPL	11.70%	24%	27%	19%	31%	-0.2	0.1	-6%	15%	-10%	8%
Amazon	AMZN	75.04%	-20%	-20%	-24%	-25%	-1.2	-1.0	-12%	65%	-7%	31%
Alphabet	GOOGL	49.45%	-33%	-32%	-36%	-33%	-1.6	-1.5	-4%	84%	-5%	42%
Facebook	META	169.92%	7%	7%	-6%	4%	-0.3	0.0	-12%	45%	-10%	37%
Microsoft	MSFT	9.98%	-1%	3%	-3%	3%	-0.5	-0.6	-2%	53%	-6%	38%
Tesla	TSLA	93.89%	0%	-14%	-18%	-3%	-0.2	-0.4	-6%	47%	-4%	31%

Data Source: CBOE, CME

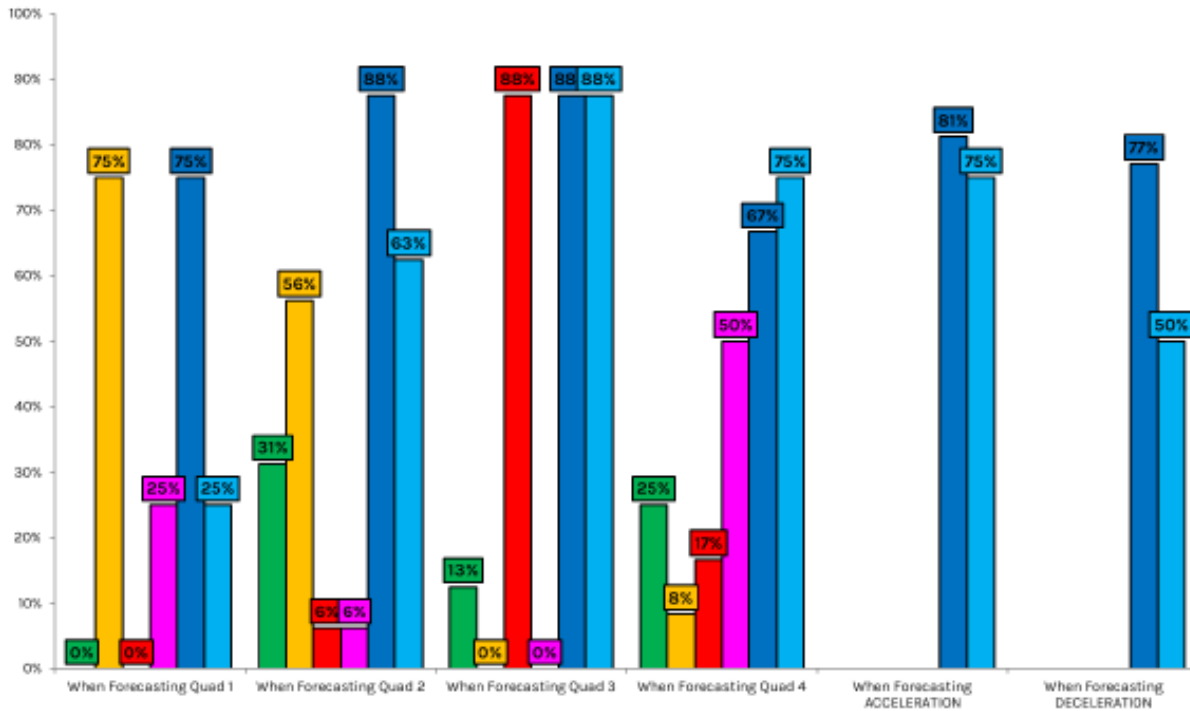
Measuring And Mapping The Quads With Precision Ex Ante Matters To Driving Ex Post Returns

US Comparative Base Effects Model Backtest

US Nowcast Model Backtest

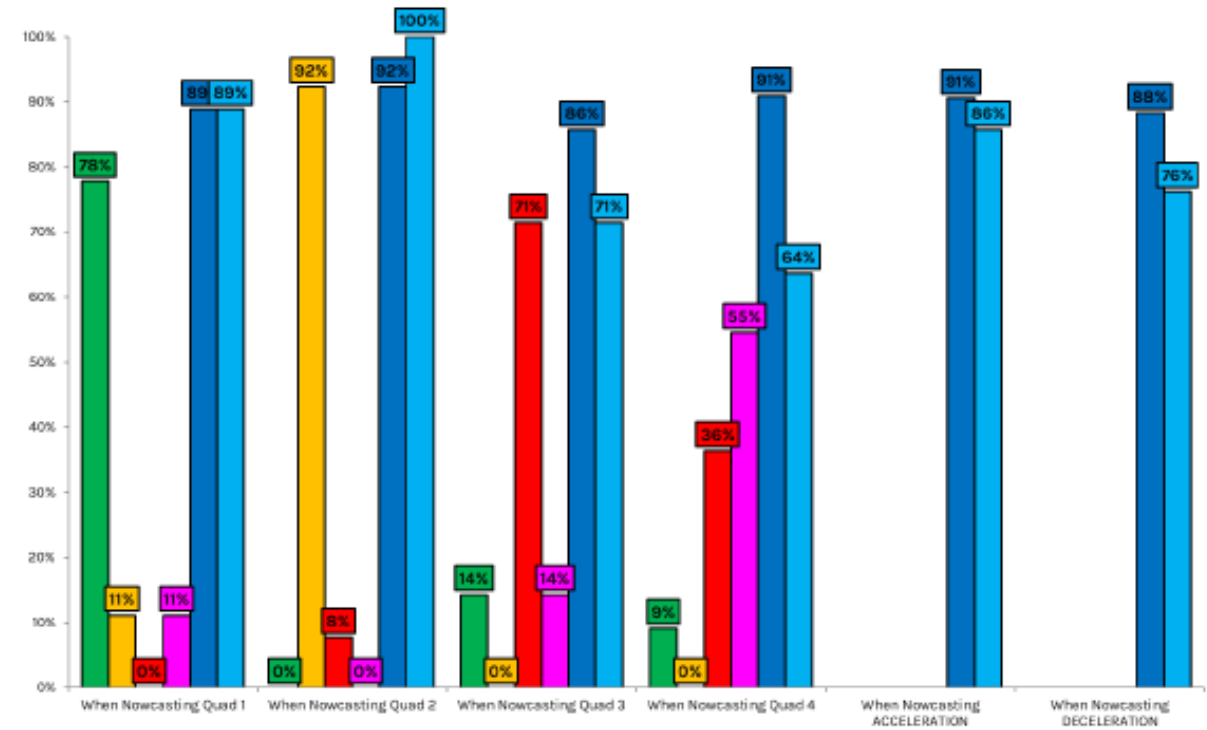
Hedgeye Comparative Base Effects Model Quad Projection Accuracy: United States

■ 1 ■ 2 ■ 3 ■ 4 ■ GDP Δ Accuracy ■ CPI Δ Accuracy



Hedgeye Nowcast Model Quad Projection Accuracy: United States

■ 1 ■ 2 ■ 3 ■ 4 ■ GDP Δ Accuracy ■ CPI Δ Accuracy



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