

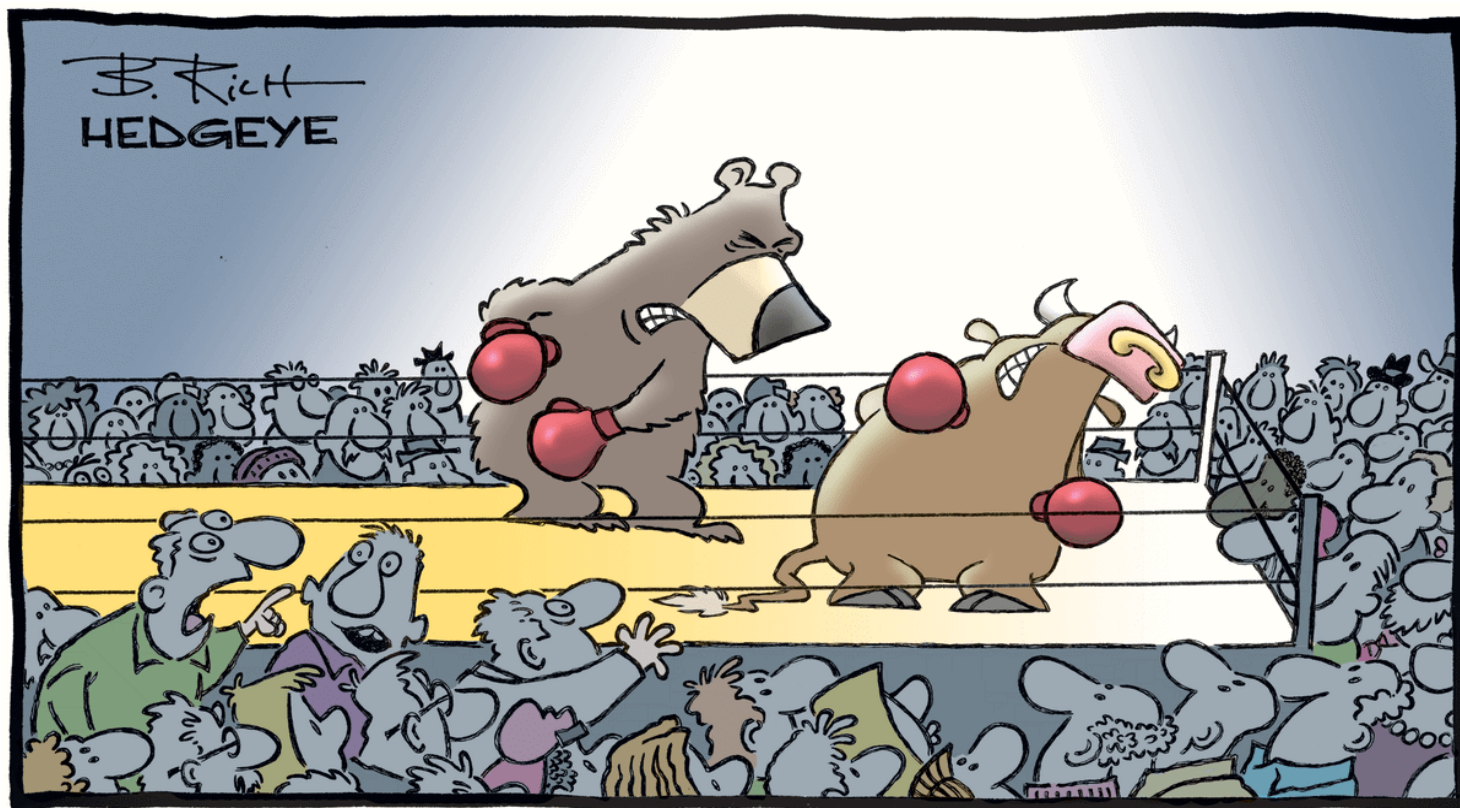
HEDGEYE



HEDGEYE'S CURRENT MARKET OUTLOOK

Reflation's Finale

Updated: December 6th, 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.

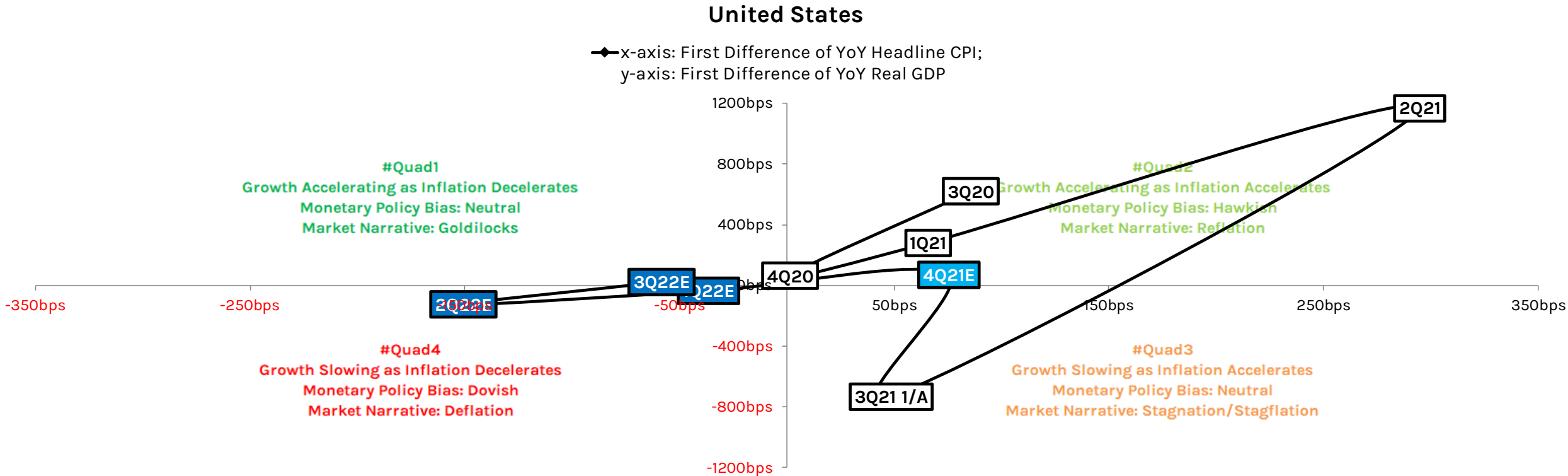
[3] Long Emerging Markets?

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.

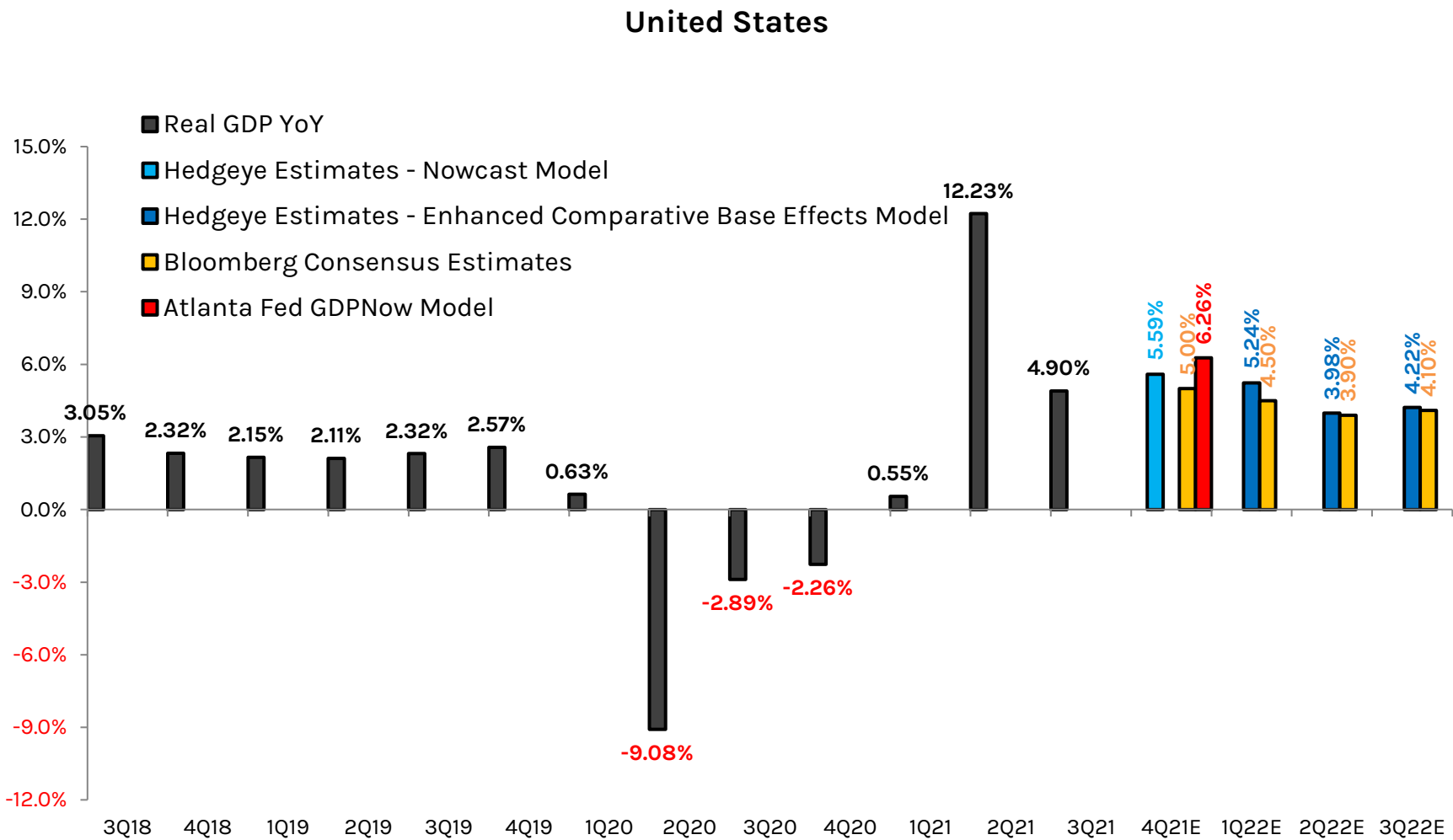
United States	4Q18	1Q19	2Q19	3Q19	4Q19	1Q20	2Q20	3Q20	4Q20	1Q21	2Q21	3Q21 1/A	← Actuals Estimates →	4Q21E	1Q22E	2Q22E	3Q22E
Real GDP QoQ SAAR	0.90%	2.40%	3.20%	2.80%	1.90%	-5.10%	-31.20%	33.80%	4.50%	6.30%	6.70%	2.10%	Real GDP QoQ SAAR	7.14%	4.77%	1.72%	3.01%
Real GDP YoY	2.32%	2.15%	2.11%	2.32%	2.57%	0.63%	-9.08%	-2.89%	-2.26%	0.55%	12.23%	4.90%	Real GDP YoY	5.59%	5.24%	3.98%	4.22%
2yr Comparative Base Effects	2.36%	2.45%	2.72%	2.66%	2.52%	2.58%	2.70%	2.69%	2.45%	1.39%	-3.49%	-0.28%	2yr Comparative Base Effects	0.15%	0.59%	1.57%	1.00%
Headline CPI YoY	2.20%	1.64%	1.81%	1.76%	2.03%	2.12%	0.36%	1.22%	1.24%	1.90%	4.85%	5.34%	Headline CPI YoY	6.09%	5.73%	4.22%	3.64%
2yr Comparative Base Effects	1.96%	2.33%	2.31%	2.30%	2.16%	1.93%	2.26%	2.20%	2.12%	1.88%	1.09%	1.49%	2yr Comparative Base Effects	1.64%	2.01%	2.61%	3.23%



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

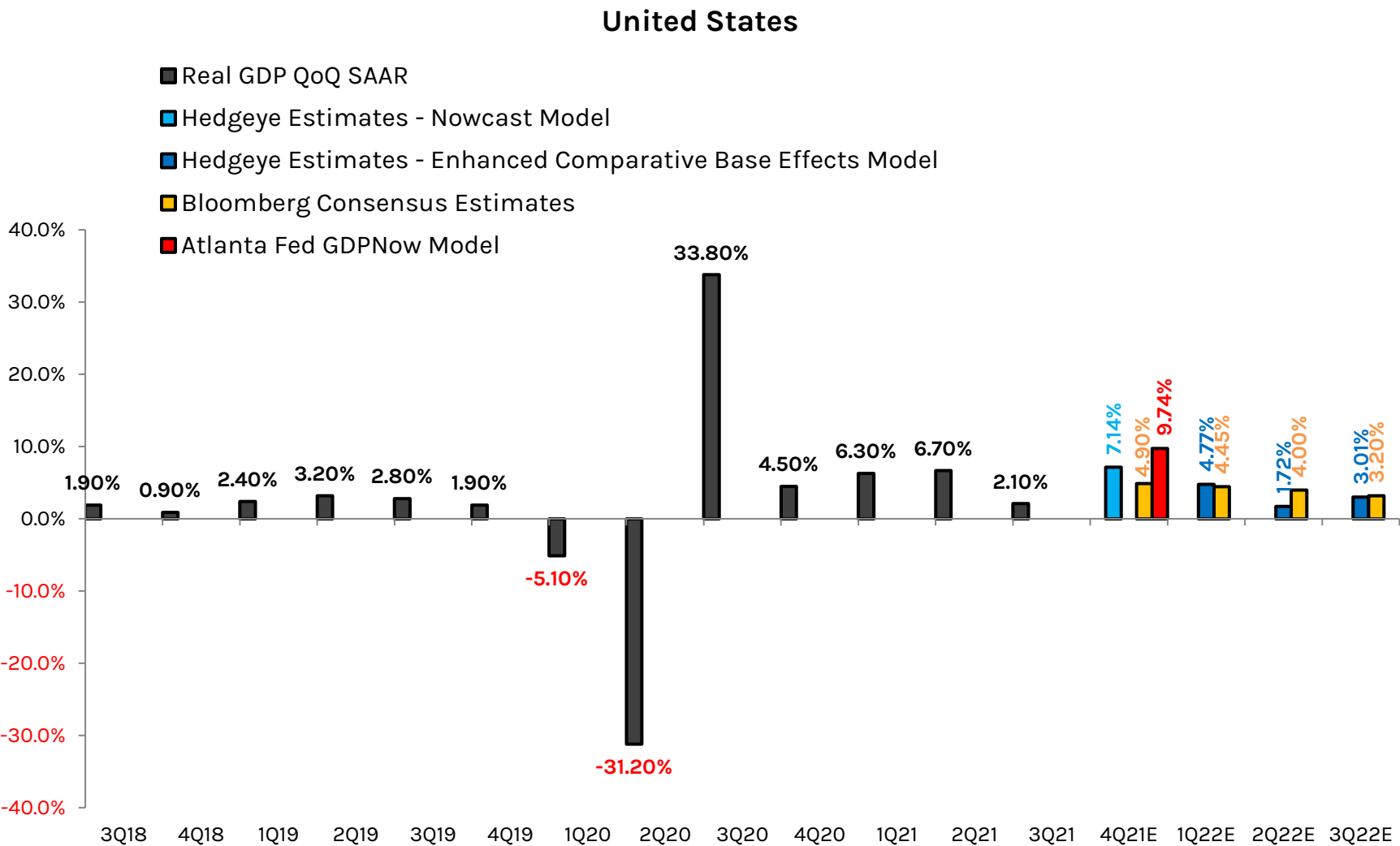


We use two distinct models to forecast the YoY growth rate of Real GDP and the combination of the two allows us to develop both a highly accurate real-time assessment of near-term economic momentum, as well as a high-probability scenario for where growth is likely to trend over the NTM.

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

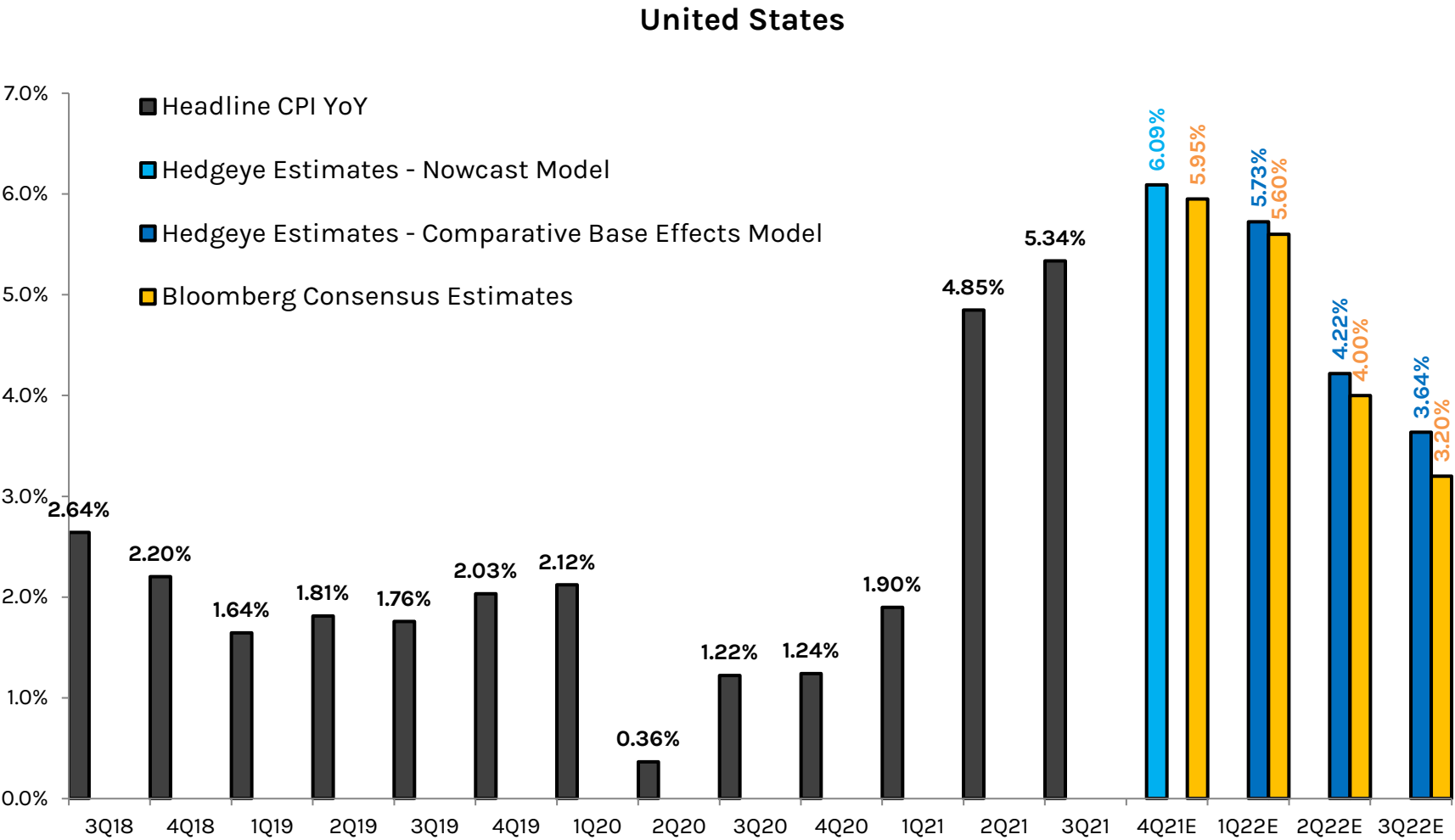


One differentiating factor of our forecasting process is that we aim to solve for where the economy is trending on a **Full Investing Cycle** basis, rather than trying to identify super short-term economic momentum.

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	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	Oct-21	Nov-21	Dec-21	3Q21	4Q21	Δ	
Real PCE YoY (1)	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	25.42	15.07	9.35	7.41	7.42	6.31	6.62	-	-	7.05	6.62	-0.43	
Real Disposable Personal Income YoY (14)	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	-5.96	-4.06	-2.83	-2.55	1.09	-1.12	-0.92	-	-	-0.86	-0.92	-0.06	
Personal Savings Rate % of DPI (6)	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	12.6	10.4	9.5	10.6	9.9	8.2	7.3	-	-	9.6	7.3	-2.3	
Headline Retail Sales YoY (9)	4.81	4.61	-5.86	-20.01	-5.76	1.99	2.71	3.09	5.90	5.29	3.78	2.31	9.40	6.50	29.71	53.42	28.05	18.86	15.32	15.69	14.26	16.31	-	-	15.09	16.31	1.22	
Retail Sales Control Group YoY (13)	3.86	4.36	6.33	-7.14	1.81	7.19	8.54	8.47	10.51	10.13	9.33	6.00	14.07	10.23	16.27	31.71	18.34	13.47	9.54	12.31	11.22	12.86	-	-	11.02	12.86	1.84	
Auto Sales YoY (10)	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	-25.46	-19.86	-17.30	-	-	-12.63	-18.58	-5.95
MBA Mortgage Purchase Index YoY (24)	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	-14.14	-11.03	-6.98	-	-	-16.32	-9.01	7.31
Total Employees On Nonfarm Payrolls YoY (7)	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	5.32	4.48	4.22	4.11	4.06	-	-	4.68	4.09	-0.59
Aggregate Hours Worked YoY (2)	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	5.63	4.18	4.22	3.81	4.06	-	-	4.68	3.94	-0.74
Aggregate Labor Income YoY (4)	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	9.87	8.42	8.96	8.84	9.05	-	-	9.08	8.95	-0.14
Monthly Initial Jobless Claims YoY (3)	-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	-63.70	-65.87	-67.57	-	-	-66.16	-66.72	-0.56
Bloomberg Consumer Comfort Index (12)	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	56.7	50.3	51.1	-	-	55.1	50.7	-4.4
Industrial Production YoY (8)	-2.14	-1.37	-5.27	-17.65	-16.21	-10.96	-7.02	-6.62	-6.56	-4.75	-4.73	-3.28	-1.67	-4.86	1.76	17.86	16.40	10.17	6.71	5.60	4.58	5.14	-	-	5.63	5.14	-0.49	
Capacity Utilization (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	75.3	75.6	76.2	76.2	75.2	76.4	-	-	75.9	76.4	0.5	
Durable Goods New Orders YoY (22)	-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	18.33	17.60	15.30	13.74	-	-	17.08	13.74	-3.33	
Core Capital Goods New Orders YoY (28)	-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	15.93	13.73	13.90	13.05	-	-	14.52	13.05	-1.47	
Factory Orders YoY (18)	-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	16.25	15.80	15.14	15.24	-	-	15.73	15.24	-0.49	
Manufacturing & Trade Inventories YoY (26)	1.31	0.26	-0.15	-2.02	-4.64	-5.78	-6.00	-5.54	-4.73	-3.85	-3.16	-2.55	-1.62	-0.44	0.06	1.54	4.60	6.67	7.27	7.51	7.46	-	-	-	7.41	-	-	
Nonresidential Construction Spending YoY (30)	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	-5.50	-3.09	-0.71	0.70	1.96	-	-	-1.03	1.96	2.99	
Residential Construction Spending YoY (29)	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	31.71	26.99	22.99	19.75	16.44	-	-	23.24	16.44	-6.80	
ISM Manufacturing PMI (23)	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	61.1	60.8	61.1	-	-	60.2	61.0	0.8
ISM Non-Manufacturing PMI (15)	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	61.9	66.7	69.1	-	-	62.6	67.9	5.3
NFIB Small Business Optimism Index (19)	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	99.1	98.2	-	-	99.6	98.2	-1.4	
Exports YoY (11)	-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	24.45	22.79	16.56	-	-	-	21.27	-	-	
Imports YoY (16)	-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	22.17	20.50	19.86	-	-	-	20.84	-	-	
Rail Traffic YoY (17)	-6.22	-6.74	-10.10	-20.89	-20.62	-14.29	-8.21	-5.96	-1.42	1.70	2.43	4.92	4.76	-4.40	12.87	27.34	27.81	13.89	6.26	-0.04	-2.20	-2.34	-4.45	-	-	1.34	-3.39	-4.73
Headline CPI YoY (25)	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	5.39	6.22	-	-	5.34	6.22	0.89	
PCE Deflator YoY (27)	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	3.58	3.97	4.03	4.14	4.22	4.42	5.05	-	-	4.26	5.05	0.79	
Core PCE Deflator YoY (21)	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	3.08	3.46	3.59	3.58	3.58	3.69	4.12	-	-	3.62	4.12	0.51	
M2 Money Supply YoY (20)	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	18.19	14.05	12.40	12.35	13.35	12.86	13.01	-	-	12.85	13.01	0.16	

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

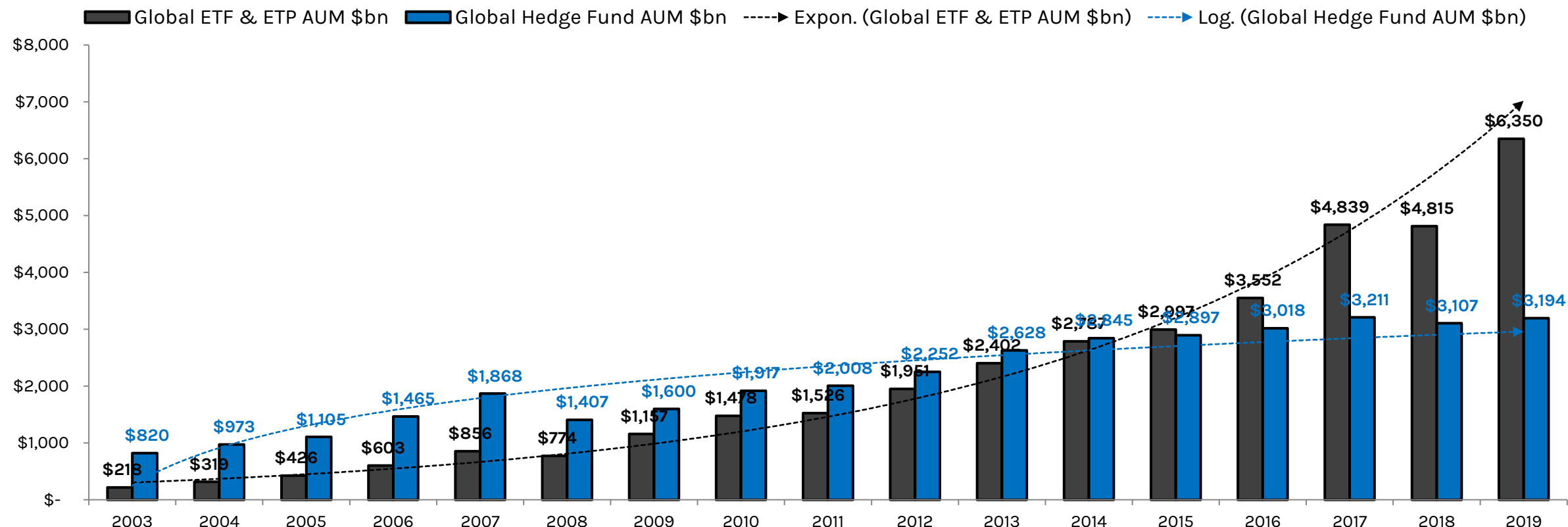
OUR MACRO PROCESS



The Investment Landscape Has Evolved Tremendously

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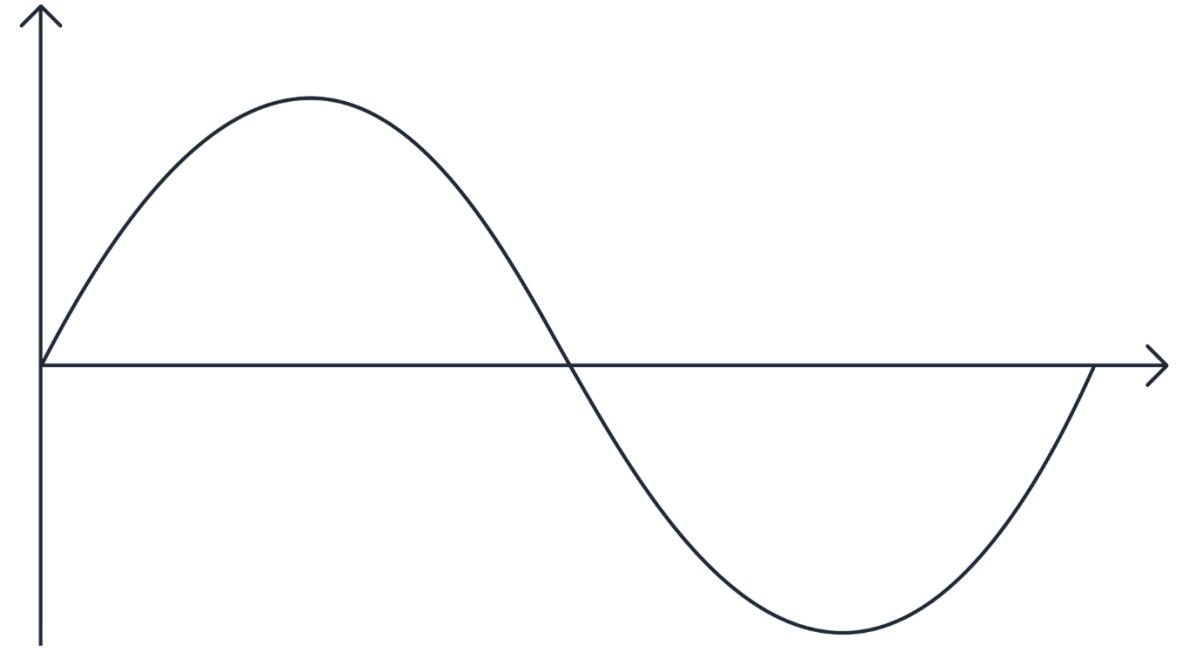
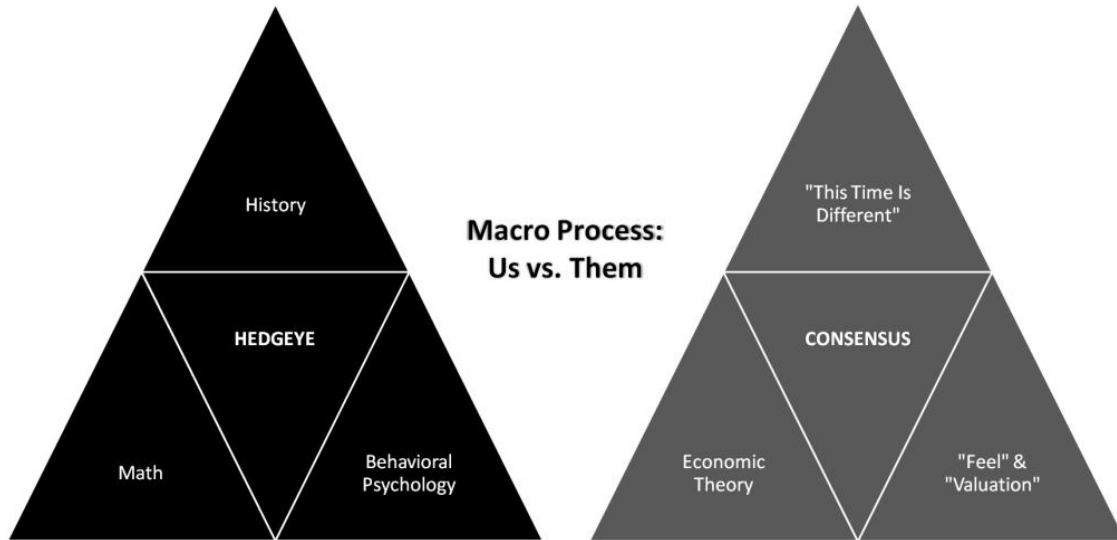
Stock-picking has given way to factor-picking and it's our job as investors to embrace this sea change, rather than fight it.



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

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

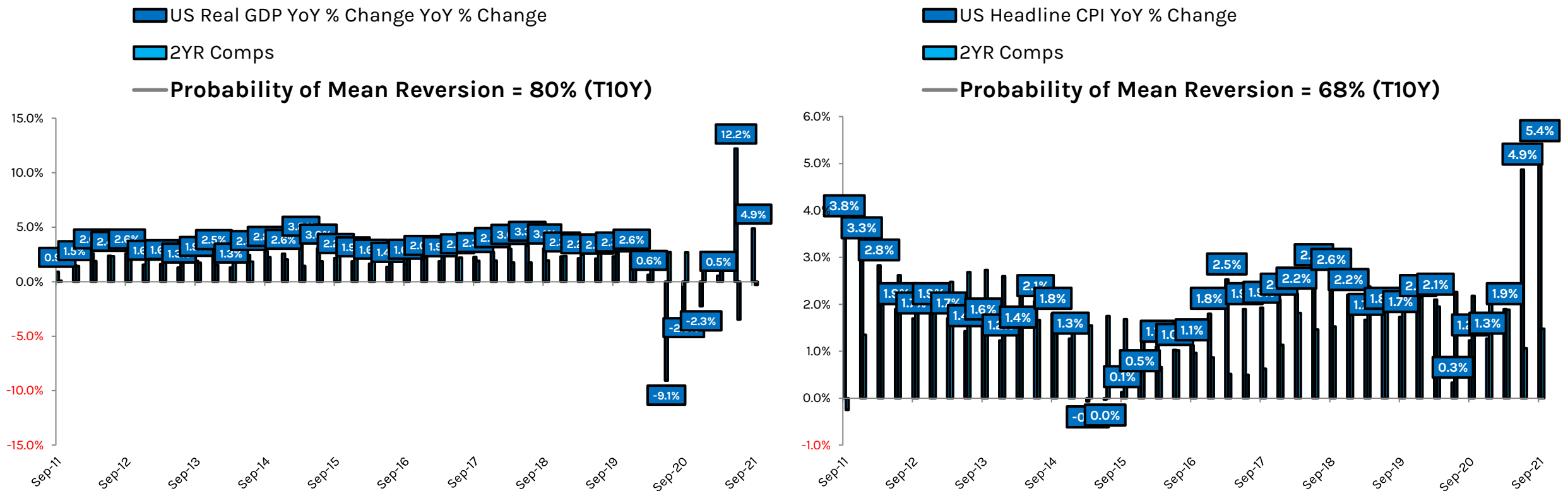
Best Fixed Income Sectors:

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

Worst Fixed Income Sectors:

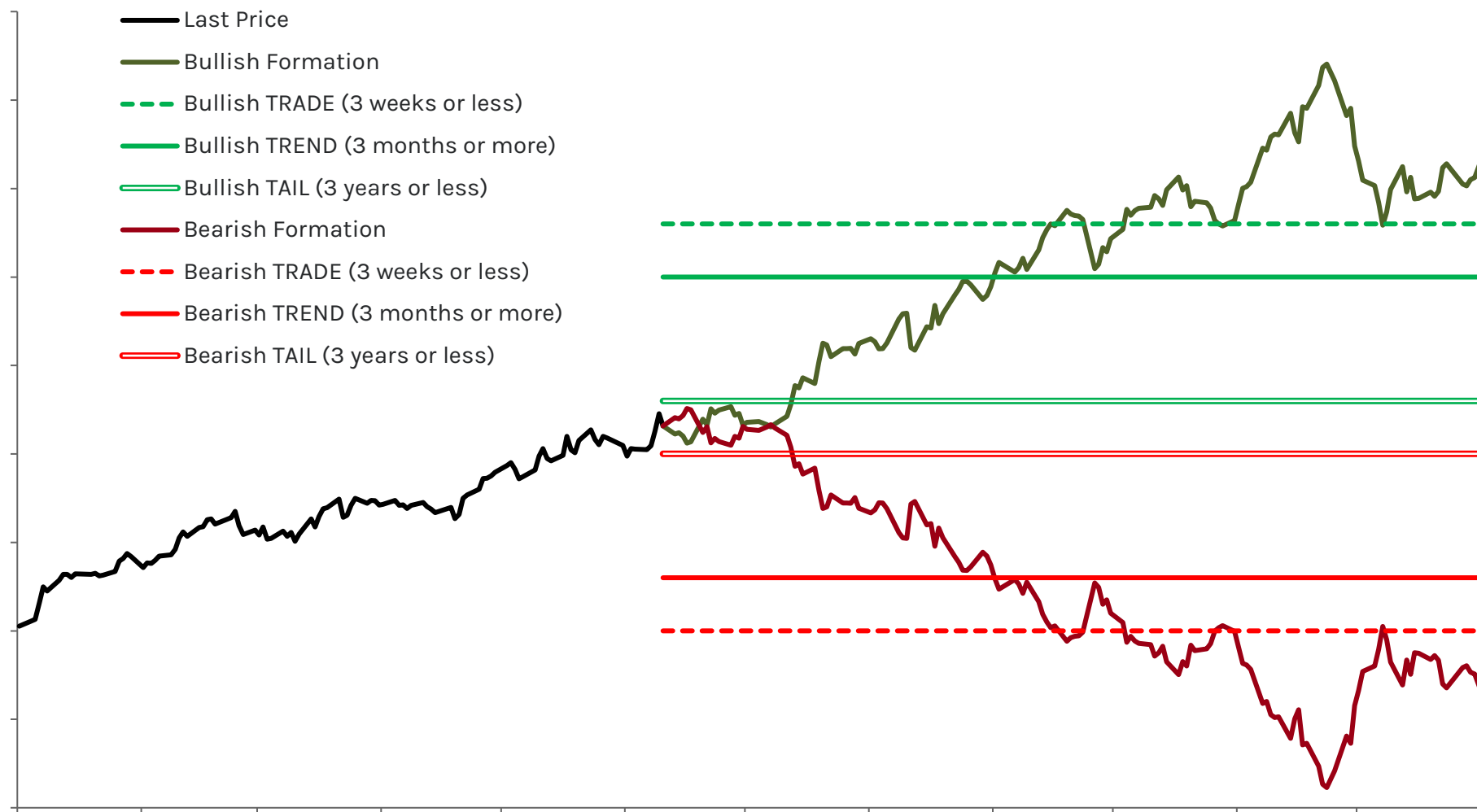
Preferreds, EM Local Currency, BDCs, Leveraged Loans, TIPS

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	-0.3%	-1.7%	-7.9%	-4.3%	-9.0%	18.4%
	Low Debt/EV	-1.0%	-1.8%	-3.8%	-1.2%	12.8%	23.1%
SI	High Short Interest	-0.7%	-2.0%	-6.0%	-3.1%	-2.1%	19.5%
	Low Short Interest	-0.4%	-1.0%	-3.3%	-1.6%	5.9%	21.9%
BETA	High Beta	-1.1%	-1.7%	-7.4%	0.3%	-1.6%	27.5%
	Low Beta	0.2%	-1.1%	-1.5%	-2.8%	3.5%	13.5%
YIELD	High Yield	0.3%	-0.8%	-3.9%	-2.9%	-5.5%	13.6%
	Low Yield	-1.5%	-2.7%	-7.5%	-4.2%	5.2%	19.3%
MKT CAP	MCAP Bottom 25%	-0.3%	-1.8%	-6.7%	-6.0%	-8.7%	12.7%
	MCAP Top 25%	-0.4%	-0.9%	-2.8%	0.1%	6.4%	23.7%
Sales	Top 25% Sales Growth	-1.6%	-2.9%	-8.2%	-0.6%	5.2%	25.3%
	Bottom 25% Sales Growth	0.1%	-1.0%	-3.4%	-3.0%	-3.2%	19.2%
EPS	Top 25% EPS Growth	-0.8%	-1.8%	-6.3%	1.2%	3.5%	23.1%
	Bottom 25% EPS Growth	-0.7%	-2.2%	-6.0%	-4.3%	-2.9%	22.7%

*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)	182,922	55,642	105,431	48,902	20,412	186,840	(333,489)	2.84X	2.07X
	VIX	(61,154)	20,782	(71,204)	(80,020)	(81,154)	44,245	(218,362)	0.72X	0.83X
	Russell 2000 (mini)	(31,921)	(9,510)	(21,889)	(53,600)	(38,498)	58,474	(88,708)	0.24X	-0.59X
	Dow Jones (mini)	(6,925)	(4,795)	(2,687)	(3,809)	(6,643)	51,359	(28,732)	-0.04X	-0.63X
	Nasdaq (mini)	32,748	5,445	13,996	1,229	(4,210)	47,085	(133,005)	2.31X	0.99X
	Nikkei Index	1,768	1,012	1,058	(3,409)	(3,983)	4,738	(16,298)	1.75X	1.61X
RATES	10Y UST	(216,665)	39,297	(238,458)	45,366	68,278	238,882	(434,970)	-2.20X	-0.93X
	2Y UST	16,340	62,079	(12,901)	(37,316)	(138,802)	34,641	(421,551)	1.34X	1.98X
	5Y UST	(299,066)	3,559	(338,046)	(175,434)	(100,349)	148,962	(448,910)	-1.39X	-1.20X
	UST Bonds	(29,377)	(27,851)	(14,121)	(75,494)	(98,642)	2,332	(241,003)	1.26X	1.13X
	30D Fed Funds	(98,478)	(16,473)	(66,578)	(74,464)	(143,039)	488,558	(320,917)	0.44X	-0.79X
	Eurodollar	(449,922)	238,977	(548,658)	(328,092)	(27,165)	2,134,274	(1,888,429)	-0.82X	-1.10X
CURRENCIES	USD	35,841	115	35,153	27,965	13,470	43,033	(15,000)	1.29X	1.40X
	JPY	(80,308)	25,384	(104,285)	(82,289)	(62,382)	52,239	(117,217)	-0.35X	-1.37X
	EUR	(29,090)	(6,418)	(1,772)	7,951	52,753	212,535	(123,765)	-1.42X	-0.67X
	GBP	(41,375)	(5,052)	(21,592)	(4,995)	11,000	40,671	(107,406)	-2.74X	-0.92X
	AUD	(86,400)	(17,313)	(65,491)	(71,918)	(34,050)	15,665	(89,923)	-1.55X	-2.08X
	CAD	(14,275)	(10,908)	8,409	(3,646)	12,920	53,332	(67,121)	-1.41X	-0.44X
	MXN	(59,380)	(10,130)	(47,976)	(30,944)	(20,838)	170,379	(59,380)	-2.23X	-1.59X
	NZD	10,401	(3,430)	13,406	6,459	5,975	17,126	(42,544)	0.84X	1.04X
COMMODITIES	CHF	(14,999)	(908)	(13,990)	(8,620)	(873)	17,848	(40,715)	-1.38X	-0.85X
	CRUDE OIL	427,130	(24,981)	479,782	465,036	518,180	594,465	332,714	-1.88X	-1.09X
	GOLD	104,992	(13,737)	155,181	87,614	86,385	292,066	(22,328)	0.63X	-0.56X
	COPPER	9,286	(4,969)	21,667	24,175	30,479	80,564	(60,135)	-0.95X	-0.08X
	Natural Gas	(134,306)	4,890	(145,124)	(142,239)	(100,675)	71,340	(262,534)	-0.51X	-0.54X
	RBOB Gasoline	45,274	(9,400)	48,451	43,553	47,175	129,000	29,497	-0.14X	-1.07X
	ULSD Heating Oil	11,480	(4,594)	19,631	31,771	22,162	40,330	(27,674)	-1.02X	0.41X
	Silver	38,641	(2,382)	42,124	25,285	34,895	80,646	(26,016)	0.30X	-0.03X
	Platinum	8,806	(4,533)	20,876	10,111	18,012	69,306	(1,557)	-0.94X	-1.06X
	Corn	381,682	(47,785)	397,598	324,925	381,781	557,581	(270,560)	-0.00X	0.97X
	Soybeans	59,109	(15,813)	45,357	59,539	116,354	270,935	(148,817)	-0.82X	-0.14X
	Wheat	11,424	(16,109)	17,040	10,164	17,214	60,302	(69,231)	-0.38X	-0.09X
	Live Cattle	99,671	11,111	68,294	73,794	83,999	183,134	20,158	0.86X	0.65X
	Lean Hogs	63,082	3,191	52,671	78,245	85,542	101,947	4,913	-1.24X	0.17X
	Sugar	200,671	(50,917)	218,407	249,084	249,363	316,046	(205,161)	-1.55X	0.56X
	Cotton	103,052	(9,493)	112,383	110,319	88,940	127,919	(37,827)	0.81X	1.36X
	Coffee	64,648	(1,415)	60,639	56,564	51,800	66,063	(70,193)	1.22X	1.16X
	Cocoa	(16,317)	(25,351)	(6,539)	17,831	19,767	81,269	(31,483)	-2.21X	-1.67X
	Orange Juice	(415)	(158)	(426)	2,590	1,290	4,745	(9,416)	-0.85X	0.35X

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.

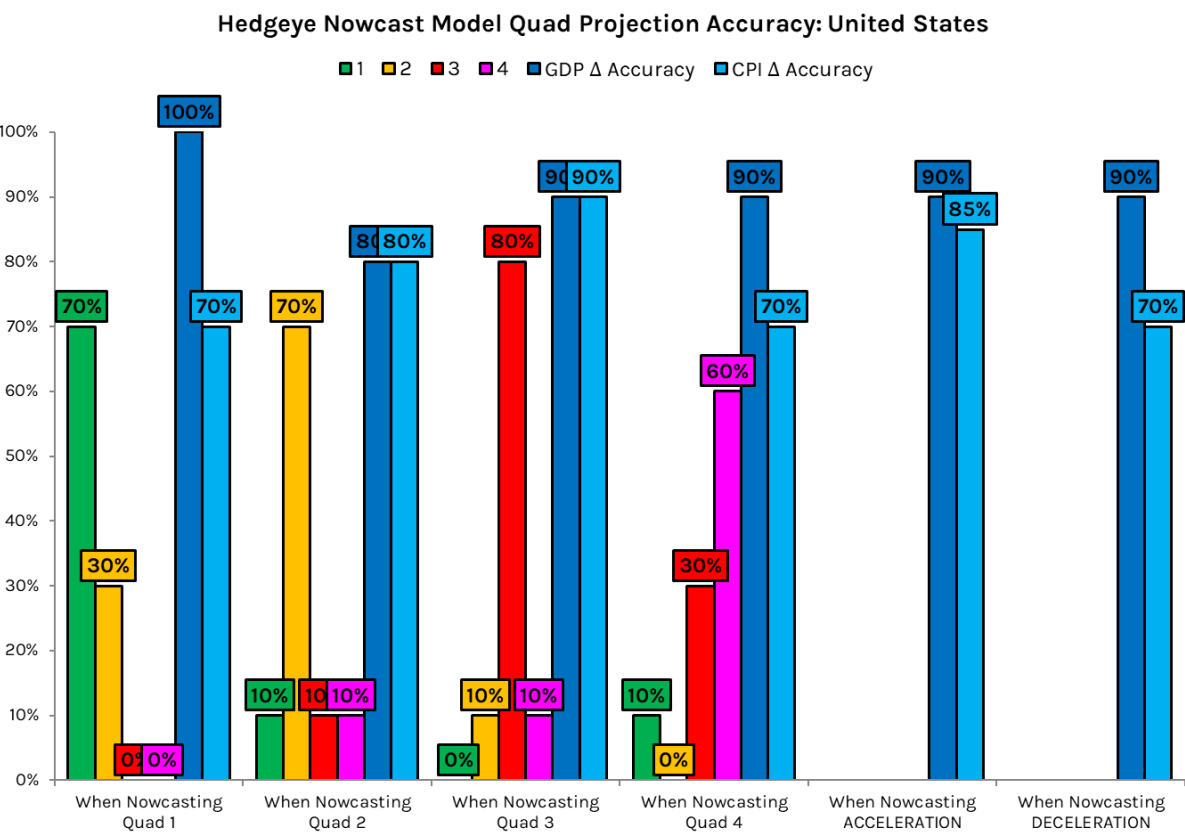
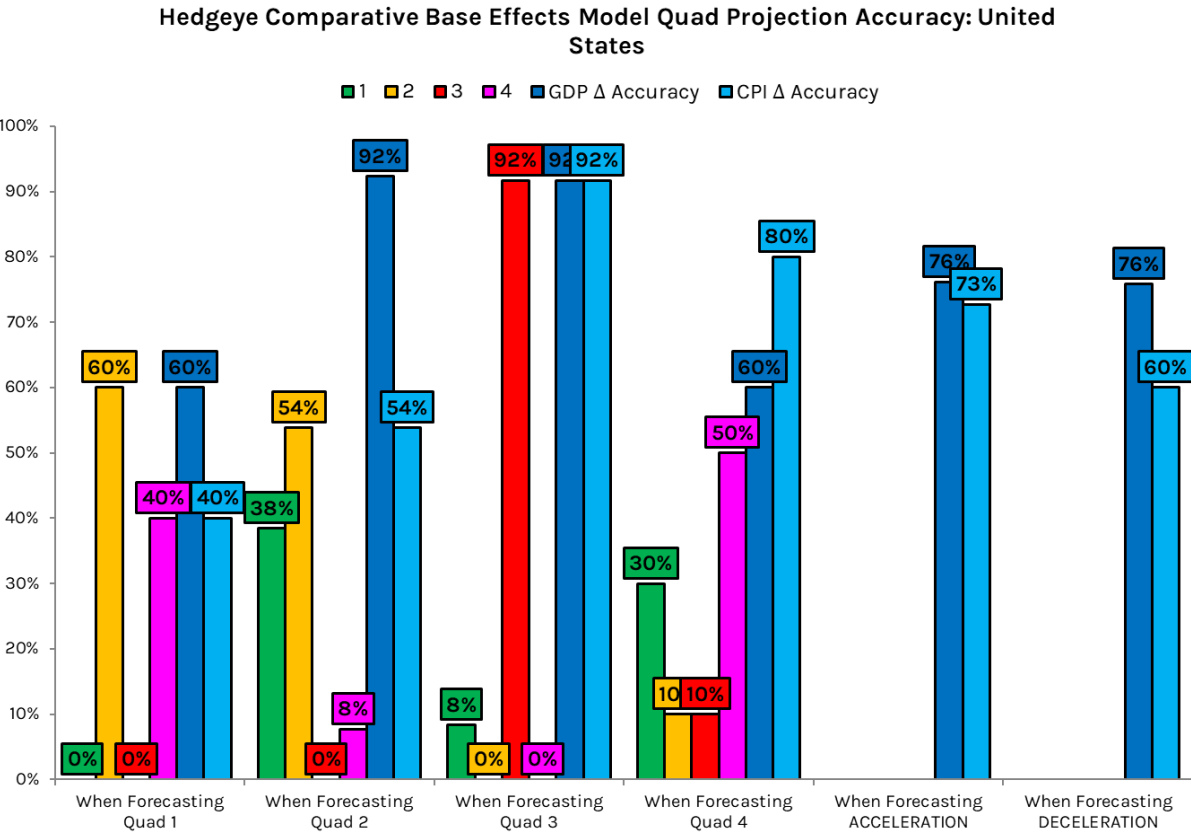
TIME WINDOW SETTING: VOLATILITY_30D		TOTAL RETURN PERFORMANCE	IVOL PREMIUM/DISCOUNT						REALIZED VOLATILITY TRENDS			IMPLIED VOLATILITY TRENDS		
PUT_IMP_VOL_30D	TICKER	YTD %	IVOL / RVOL	Yesterday	1W Ago	1M Ago	TTM Z-Score	3Yr Z-Score	RVOL CURRENT	MM %	PERCENTILE 10YR	IVOL CURRENT	MM %	PERCENTILE 10YR
US EQUITIES														
CURRENT														
Energy Sector SPDR ETF	XLE US EQUITY	50.35%	39%	48%	43%	9%	1.9	1.7	29.1	18%	78%	40.4	50%	94%
Real Estate Sector SPDR ETF	XLRE US EQUITY	33.65%	25%	11%	183%	11%	0.4	0.9	18.0	21%	71%	22.4	36%	82%
Financials Sector SPDR ETF	XLF US EQUITY	30.66%	57%	111%	286%	-2%	1.2	1.4	19.9	14%	72%	31.2	82%	95%
Technology Sector SPDR ETF	XLK US EQUITY	27.73%	60%	50%	79%	1%	1.1	1.4	17.5	-1%	66%	27.9	57%	92%
Consumer Discretionary Sector SPDR ETF	XLY US EQUITY	24.75%	35%	24%	36%	4%	0.3	0.5	21.2	32%	84%	28.5	71%	96%
Power Shares QQQ Trust ETF	QQQ US EQUITY	22.55%	69%	57%	84%	-1%	1.1	1.6	16.7	4%	64%	28.1	76%	94%
SPDR S&P 500 ETF Trust	SPY US EQUITY	22.47%	66%	58%	108%	-8%	1.3	1.6	13.3	3%	63%	22.0	84%	93%
Materials Sector SPDR ETF	XLB US EQUITY	19.38%	88%	79%	113%	78%	1.7	1.8	15.8	7%	49%	29.8	13%	94%
Industrials Sector SPDR ETF	XLI US EQUITY	16.51%	49%	40%	91%	49%	0.5	0.9	17.1	23%	70%	25.4	23%	91%
Health Care Sector SPDR ETF	XLV US EQUITY	16.18%	104%	86%	84%	2%	2.9	2.8	10.3	-29%	26%	21.1	41%	90%
Communication Services SPDR ETF	XLC US EQUITY	11.28%	52%	27%	117%	-8%	0.9	1.1	16.7	-2%	40%	25.3	62%	74%
I-Shares Russell 2000 ETF	IWM US EQUITY	10.21%	45%	42%	54%	5%	1.5	1.3	24.0	30%	87%	34.8	80%	96%
Utilities Sector SPDR ETF	XLU US EQUITY	9.96%	67%	74%	174%	4%	1.0	1.2	15.5	6%	68%	25.8	70%	95%
Consumer Staples Sector SPDR ETF	XLP US EQUITY	8.04%	36%	174%	251%	16%	-0.5	-0.1	12.4	22%	65%	16.8	43%	85%
INTERNATIONAL EQUITIES														
Euro Stoxx 50 Index	SXSE INDEX	17.80%	28%	22%	56%	-15%	0.5	0.9	19.7	25%	70%	25.2	89%	88%
I-Shares MSCI Japan ETF	EWJ US EQUITY	0.44%	43%	81%	37%	-8%	2.3	1.5	14.7	-5%	49%	21.0	48%	88%
I-Shares MSCI Emerging Markets ETF	EEM US EQUITY	-4.91%	63%	88%	209%	19%	1.9	2.0	15.5	5%	30%	25.3	44%	87%
I-Shares China Large-Cap ETF	FXI US EQUITY	-19.03%	29%	21%	9%	-7%	2.3	1.6	24.2	-4%	65%	31.3	34%	95%
CURRENCIES														
PowerShares US Dollar Index ETF	UUP US EQUITY	6.31%	14%	16%	348%	13%	-0.3	-0.2	6.6	26%	61%	7.6	28%	57%
Currency Shares British Pound ETF	FXB US EQUITY	-3.59%	8%	9%	10%	0%	0.2	0.1	7.1	-3%	32%	7.7	5%	43%
Currency Shares Euro Trust ETF	FXE US EQUITY	-8.30%	-12%	-10%	-2%	-11%	-1.2	-1.0	7.5	28%	57%	6.6	27%	30%
Currency Shares Japanese Yen ETF	FXJ US EQUITY	-8.93%	-4%	-10%	76%	14%	-0.9	-0.5	8.9	50%	68%	8.5	27%	55%
COMMODITIES														
iPath Coffee Subindex ETN	JO US EQUITY	77.09%	29%	17%	38%	4%	0.7	0.8	32.9	-17%	61%	42.6	3%	86%
United States Oil Fund ETF	USO US EQUITY	45.41%	15%	9%	33%	58%	-0.1	0.2	46.7	129%	89%	53.9	67%	94%
United States Natural Gas Fund ETF	UNG US EQUITY	44.89%	-6%	132%	36%	12%	-0.6	-0.5	81.1	-7%	98%	76.5	-22%	96%
Teucrium Corn ETF	CORN US EQUITY	37.87%	37%	38%	61%	29%	0.6	0.2	17.7	-5%	45%	24.3	1%	60%
SPDR Gold Shares ETF	GLD US EQUITY	-6.58%	21%	24%	22%	16%	1.2	0.7	12.7	4%	45%	15.3	8%	61%
iPath Cocoa Subindex ETN	NIB US EQUITY	-9.26%	-8%	-10%	-12%	-12%	-0.2	-0.4	29.3	5%	61%	26.8	10%	55%
FIXED INCOME														
I-Shares IBOX HY Corporate Bond ETF	HYG US EQUITY	2.19%	55%	60%	168%	-10%	0.7	1.0	5.2	38%	50%	8.1	136%	73%
I-Shares IBOX IG Corporate Bond ETF	LOD US EQUITY	-0.75%	13%	12%	1%	4%	0.1	0.0	8.0	17%	94%	9.1	28%	96%
I-Shares 20+ Year Treasury Bond ETF	TLT US EQUITY	-0.75%	-3%	-4%	-7%	-4%	-0.7	-0.3	17.7	16%	92%	17.1	16%	94%
I-Shares 7-10 Year Treasury Bond ETF	IEF US EQUITY	-2.28%	3%	1%	8%	21%	-0.6	-0.5	7.4	45%	92%	7.6	23%	91%
I-Shares J.P. Morgan USD EM Bond ETF	EMB US EQUITY	-2.94%	2%	-3%	1%	12%	-0.6	-0.4	8.9	54%	88%	9.0	39%	75%
MEGA-CAP TECH														
Alphabet	GOOGL US EQUITY	62.04%	18%	0%	8%	-27%	0.2	0.4	26.6	-10%	72%	31.5	47%	87%
Microsoft	MSFT US EQUITY	46.44%	48%	33%	47%	-26%	1.2	1.4	21.4	-12%	51%	31.7	75%	92%
Apple	AAPL US EQUITY	22.72%	39%	30%	54%	4%	1.1	1.2	22.8	20%	46%	31.6	61%	80%
Facebook	FB US EQUITY	12.33%	21%	4%	14%	-8%	0.4	0.5	32.7	-4%	58%	39.5	27%	75%
Amazon	AMZN US EQUITY	4.08%	19%	4%	14%	-8%	0.0	0.2	27.8	18%	55%	33.0	54%	70%

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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