

HEDGEYE



HEDGEYE'S CURRENT MARKET OUTLOOK

New Year; Same Process

Updated: January 11, 2021



MACRO THEMES

USA #Quad2

Global #Quad2

Short Deflation/Duration

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[1] USA #Quad2

Aided by easy money from the Fed and generous fiscal support from Congress, the US economy is set to enter its third consecutive quarter of #Quad2 here in 1Q21E. While sequential momentum has waned in recent weeks due to covid restrictions, we don't believe GROWTH, INFLATION, and/or PROFITS can slow fast enough in JAN-FEB to offset the massive accelerations we're going to see in all three starting in MAR. In the presentation, we'll detail how investors should setup to take advantage of these trending **Positive RoC** realities.

[2] Global #Quad2

The "cheap money + fiscal support + easy comps = #Quad2" equation is not just a US phenomenon. Indeed, #Quad2 represents the modal outcome for the 96% of the ~50 countries and economic blocs we maintain GIP Models for in 1Q21E. That setup is explicitly bearish for the US dollar and bullish for assets priced in US dollars, globally. In the presentation, we'll detail which geographies offer investors the best risk/reward setups from here.

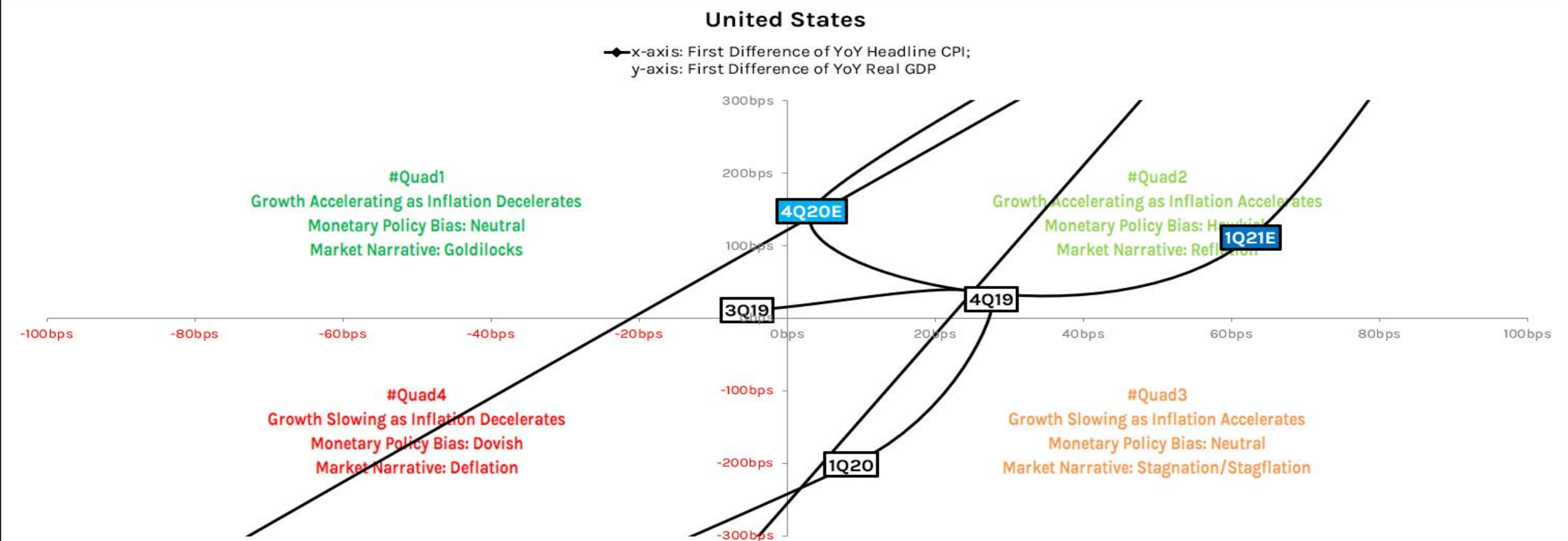
[3] Short Deflation/Duration

While the Fed has no plans to tighten monetary policy (at the margins) anytime soon, that doesn't mean #TheMachine has no plans to sell duration risk in the coming months. Indeed, Global #Quad2 means the long ends of the Bund, OAT, Gilt, JGB, etc. curves all backing up simultaneously and we don't think the Treasury curve will be immune to such selling pressure. In the presentation, we'll show the evolving POLICY mix – both domestically and globally – is likely to contribute to the ongoing breakout in INFLATION expectations we anticipated all the way back in early June.

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.

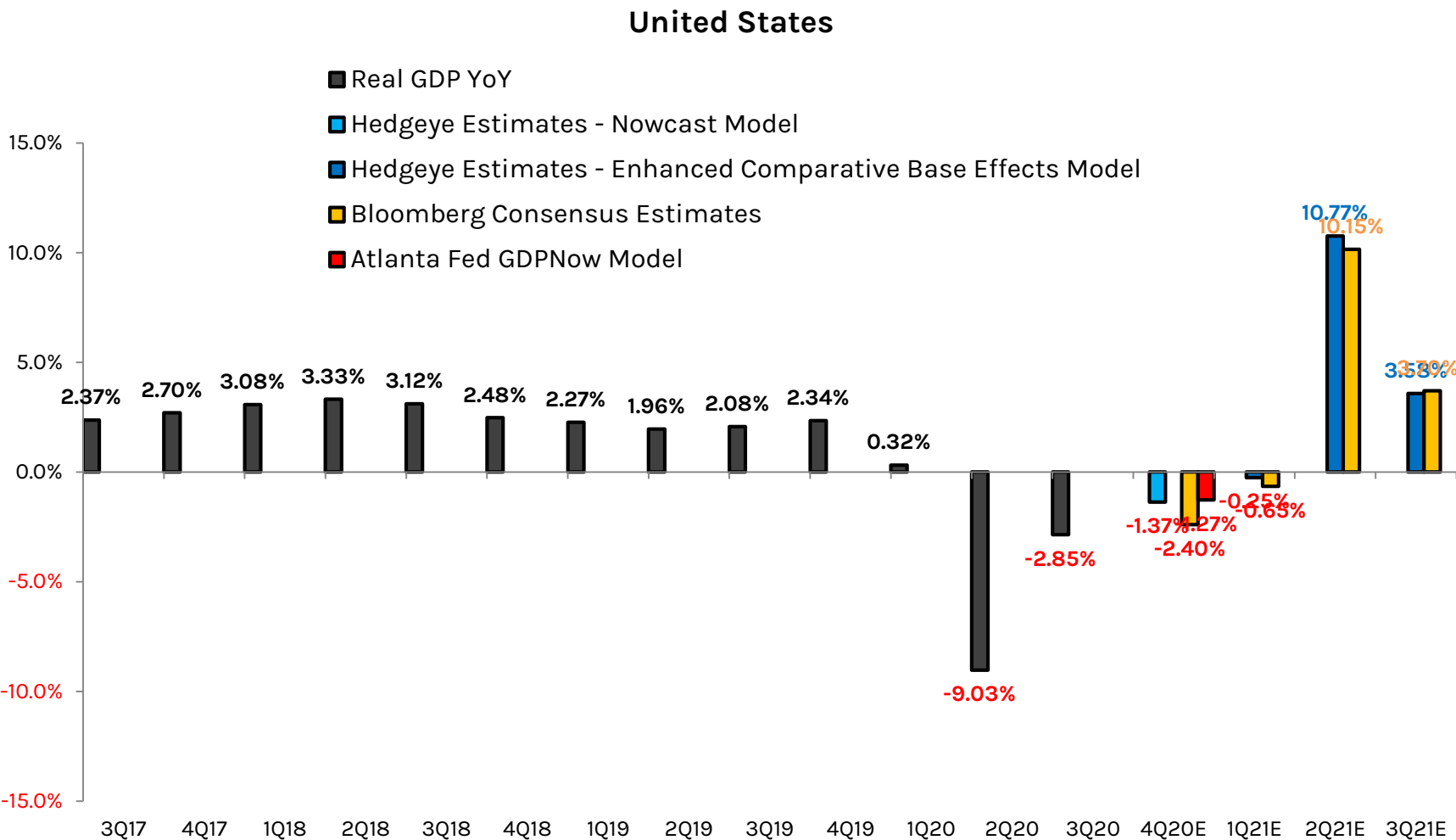
United States	4Q17	1Q18	2Q18	3Q18	4Q18	1Q19	2Q19	3Q19	4Q19	1Q20	2Q20	3Q20	← Actuals Estimates →	4Q20E	1Q21E	2Q21E	3Q21E
Real GDP QoQ SAAR	3.90%	3.80%	2.70%	2.10%	1.30%	2.90%	1.50%	2.60%	2.40%	-5.00%	-31.40%	33.40%	Real GDP QoQ SAAR	8.48%	-0.59%	4.27%	2.02%
Real GDP YoY	2.70%	3.08%	3.33%	3.12%	2.48%	2.27%	1.96%	2.08%	2.34%	0.32%	-9.03%	-2.85%	Real GDP YoY	-1.37%	-0.25%	10.77%	3.58%
2yr Comparative Base Effects	2.12%	1.93%	1.80%	1.98%	2.39%	2.57%	2.75%	2.74%	2.59%	2.67%	2.64%	2.60%	2yr Comparative Base Effects	2.41%	1.29%	-3.53%	-0.39%
Headline CPI YoY	2.12%	2.21%	2.71%	2.64%	2.20%	1.64%	1.81%	1.76%	2.03%	2.12%	0.36%	1.22%	Headline CPI YoY	1.26%	1.88%	3.08%	2.68%
2yr Comparative Base Effects	1.13%	1.81%	1.48%	1.54%	1.96%	2.38%	2.39%	2.30%	2.16%	1.93%	2.26%	2.20%	2yr Comparative Base Effects	2.12%	1.88%	1.09%	1.49%



Data Source: Bloomberg. Light Blue box= Hedgeye Predictive Tracking Algorithm nowcast. Dark Blue boxes = Hedgeye β-Adjusted Comparative Base Effects Model estimates.

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US Real GDP YoY Projections

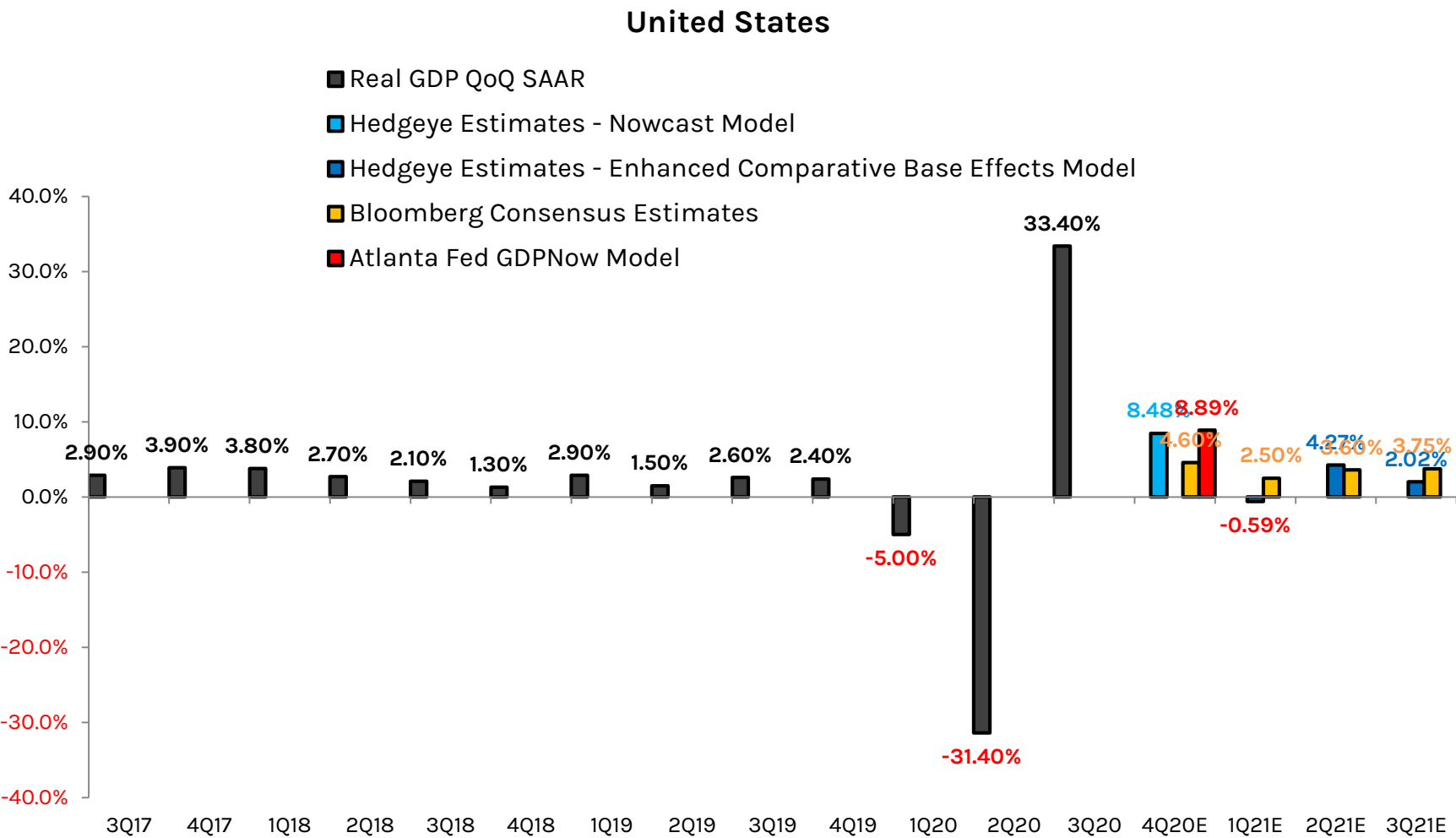


We use two distinct models to forecast the YoY growth rate of Real GDP and the combination of the two allows us to develop both a highly accurate real-time assessment of near-term economic momentum, as well as a high-probability scenario for where growth is likely to trend over the NTM.

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 25bps and an 90% success rate in terms of accurately projecting the rate of change of GROWTH.

US Real GDP QoQ SAAR Projections

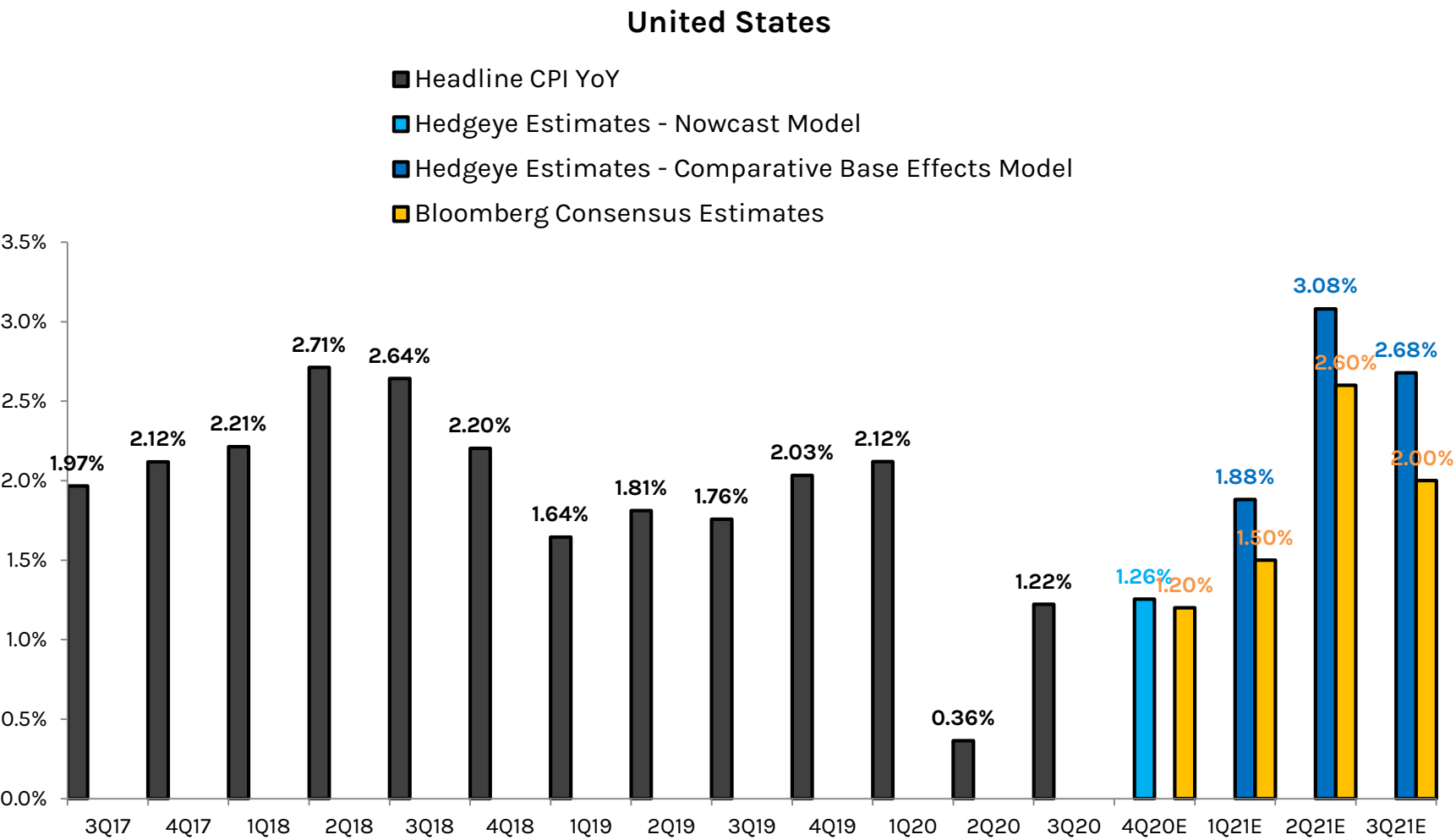


One differentiating factor of our forecasting process is that we aim to solve for where the economy is trending on a **Full Investing Cycle** basis, rather than trying to identify super short-term economic momentum.

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 22bps and an 78% 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-19	Feb-19	Mar-19	Apr-19	May-19	Jun-19	Jul-19	Aug-19	Sep-19	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	3Q20	4Q20	Δ	
Real PCE YoY (1)	2.19	2.22	2.50	2.43	2.34	2.55	2.44	2.33	2.58	2.30	2.06	3.02	2.69	2.61	-4.69	-16.53	-9.64	-4.58	-3.61	-2.94	-1.95	-1.84	-2.36	-	-2.83	-2.10	0.73	
Real Disposable Personal Income YoY (14)	3.47	3.37	2.89	2.39	2.05	1.85	1.58	1.79	2.02	1.81	2.10	0.83	1.55	2.01	0.63	16.67	11.10	8.92	9.41	5.24	5.71	4.88	3.14	-	6.78	4.01	-2.78	
Personal Savings Rate % of DPI (6)	8.5	8.6	8.0	7.5	7.3	7.1	7.0	7.3	7.3	7.2	7.5	7.2	7.6	8.3	12.9	33.7	24.7	19.0	18.5	15.0	14.4	13.6	12.9	-	16.0	13.3	-2.7	
Headline Retail Sales YoY (10)	2.52	1.99	3.61	3.86	2.90	3.44	3.57	4.30	3.71	3.09	3.25	5.61	4.87	4.48	-5.59	-19.86	-5.55	2.23	2.70	3.61	6.09	5.49	4.10	-	4.13	4.79	0.66	
Retail Sales Control Group YoY (13)	3.68	2.81	3.88	3.86	3.45	4.97	4.83	4.97	4.32	4.05	2.55	6.20	3.70	4.01	6.32	-7.46	1.50	7.01	7.76	8.66	10.29	9.72	9.54	-	8.90	9.63	0.73	
Auto Sales YoY (12)	-2.75	-2.36	0.57	-3.93	2.91	-0.46	0.84	2.23	-1.21	-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	-	-9.70	-4.55	5.16
MBA Mortgage Purchase Index YoY (24)	5.99	0.20	3.40	5.56	5.11	8.16	6.21	5.97	10.50	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	22.06	22.72	0.66	
Total Employees On Nonfarm Payrolls YoY (7)	1.67	1.39	1.37	1.42	1.28	1.26	1.29	1.27	1.35	1.34	1.42	1.42	1.38	1.55	0.54	-13.42	-11.65	-8.59	-7.54	-6.68	-6.34	-6.05	-6.05	-	-6.85	-6.05	0.80	
Aggregate Hours Worked YoY (3)	1.96	1.10	1.37	1.12	0.99	0.67	0.71	0.97	1.06	1.05	1.13	0.84	0.80	1.55	-0.63	-13.92	-10.88	-8.06	-6.73	-5.87	-5.25	-4.96	-4.68	-	-5.95	-4.82	1.13	
Aggregate Labor Income YoY (4)	5.28	4.65	4.84	4.50	4.32	4.10	4.20	4.46	4.20	4.30	4.45	3.87	3.90	4.59	2.70	-7.05	-5.03	-3.59	-2.41	-1.55	-0.84	-0.75	-0.51	-	-1.60	-0.63	0.97	
Monthly Initial Jobless Claims YoY (2)	-5.67	2.84	-2.75	-4.20	-2.23	2.48	-3.12	0.75	0.12	-0.82	-5.95	4.62	-7.12	-7.20	1075.85	2245.45	1024.38	574.43	509.26	373.87	382.26	293.17	231.63	204.02	421.79	242.94	-178.86	
Bloomberg Consumer Comfort Index (11)	57.9	59.7	60.7	60.3	60.2	62.3	64.2	62.0	62.6	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	45.7	47.8	2.1	
Industrial Production YoY (8)	3.63	2.74	2.26	0.71	1.73	1.02	0.40	0.30	-0.18	-0.81	-0.42	-0.81	-0.85	-0.24	-4.70	-16.26	-15.72	-10.50	-6.59	-6.55	-6.28	-5.00	-5.50	-	-6.47	-5.25	1.22	
Capacity Utilization (5)	79.0	78.5	78.4	77.8	77.8	77.7	77.4	77.8	77.4	77.0	77.6	77.2	76.9	76.9	73.6	64.2	64.8	68.9	71.8	72.3	72.3	73.0	73.3	-	72.1	73.2	1.0	
Durable Goods New Orders YoY (22)	8.07	0.04	2.26	-1.66	-3.96	-4.41	0.38	-3.27	-5.73	-1.61	-3.95	-3.27	-3.62	1.62	-18.64	-30.29	-18.64	-12.42	-4.50	-4.54	-1.62	0.22	3.91	-	-3.56	2.07	5.62	
Core Capital Goods New Orders YoY (27)	5.56	4.74	6.40	2.25	0.84	0.49	-3.29	0.10	-0.12	-0.74	3.43	1.67	0.56	0.97	-2.63	-7.25	-4.34	-2.34	0.55	3.52	5.68	7.17	6.76	-	3.25	6.96	3.71	
Factory Orders YoY (18)	4.41	1.22	2.45	0.84	-1.29	-2.25	0.48	-1.75	-3.28	-1.31	-1.16	0.29	-0.55	0.53	-12.43	-22.74	-16.08	-10.40	-6.01	-5.47	-3.74	-2.53	-0.39	-	-5.07	-1.46	3.61	
Manufacturing & Trade Inventories YoY (28)	5.20	5.09	5.05	5.29	5.29	5.10	4.77	4.01	3.39	2.83	2.66	1.87	0.77	-0.16	-0.48	-2.25	-4.80	-5.75	-5.88	-5.45	-4.55	-3.96	-	-	-5.29	-3.96	1.33	
Nonresidential Construction Spending YoY (30)	1.81	1.71	4.04	4.93	4.38	5.12	5.85	5.24	8.88	8.34	11.18	9.05	7.75	5.78	4.30	-0.10	0.83	1.41	-0.17	-2.11	-4.40	-3.15	-4.69	-	-2.23	-3.92	-1.69	
Residential Construction Spending YoY (29)	-8.23	-10.62	-8.94	-7.78	-7.49	-4.63	-2.27	0.99	1.66	4.00	6.33	9.80	11.72	13.40	12.15	6.10	1.81	3.34	6.24	11.67	11.94	15.24	16.18	-	9.95	15.71	5.76	
ISM Manufacturing PMI (23)	55.5	54.1	54.6	53.4	52.3	51.6	51.3	48.8	48.2	48.5	48.1	47.8	50.9	50.1	49.1	41.5	43.1	52.6	54.2	56.0	55.4	59.3	57.5	60.7	55.2	59.2	4.0	
ISM Non-Manufacturing PMI (16)	56.0	58.5	56.3	55.7	56.3	55.4	54.8	56.0	53.5	54.4	53.9	54.9	55.5	57.3	52.5	41.8	45.4	57.1	58.1	56.9	57.8	56.6	55.9	-	57.6	56.3	-1.4	
NFIB Small Business Optimism Index (20)	101.2	101.7	101.8	103.5	105.0	103.3	104.7	103.1	101.8	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	-	101.0	102.7	1.7	
Exports YoY (9)	1.50	0.41	-0.06	-1.32	-1.01	-1.55	-0.07	-0.15	-1.87	-1.83	-0.42	1.22	-0.46	-0.55	-12.44	-28.76	-32.35	-24.67	-19.19	-17.41	-14.90	-13.49	-	-	-17.17	-13.49	3.67	
Imports YoY (15)	1.92	-0.21	2.30	0.67	3.09	1.58	0.12	0.03	-2.87	-4.98	-3.63	-3.08	-2.56	-4.44	-11.19	-22.25	-24.43	-19.99	-11.48	-8.62	-6.58	-3.27	-	-	-8.89	-3.27	5.62	
Rail Traffic YoY (17)	3.89	-3.32	-4.72	-2.42	-5.54	-4.59	-5.53	-5.04	-6.38	-7.91	-7.71	-9.38	-6.22	-6.74	-10.09	-20.91	-20.61	-14.29	-8.19	-5.95	-1.44	1.71	2.45	4.92	-5.19	3.03	8.22	
Headline CPI YoY (25)	1.55	1.52	1.86	2.00	1.79	1.65	1.81	1.75	1.71	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	-	1.22	1.18	-0.04	
PCE Deflator YoY (26)	1.47	1.37	1.50	1.62	1.49	1.46	1.53	1.52	1.39	1.43	1.44	1.64	1.88	1.84	1.34	0.48	0.54	0.92	1.01	1.24	1.35	1.19	1.13	-	1.20	1.16	-0.04	
Core PCE Deflator YoY (21)	1.85	1.69	1.58	1.69	1.60	1.71	1.74	1.87	1.72	1.74	1.58	1.62	1.75	1.87	1.65	0.93	1.01	1.14	1.26	1.43	1.53	1.41	1.38	-	1.40	1.40	-0.01	
M2 Money Supply YoY (19)	4.34	4.15	3.81	4.07	4.27	4.54	5.00	5.06	5.51	6.26	6.89	6.49	6.71	7.26	10.70	17.20	21.87	22.90	23.39	23.19	24.18	23.89	24.84	25.64	23.59	24.79	1.20	

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

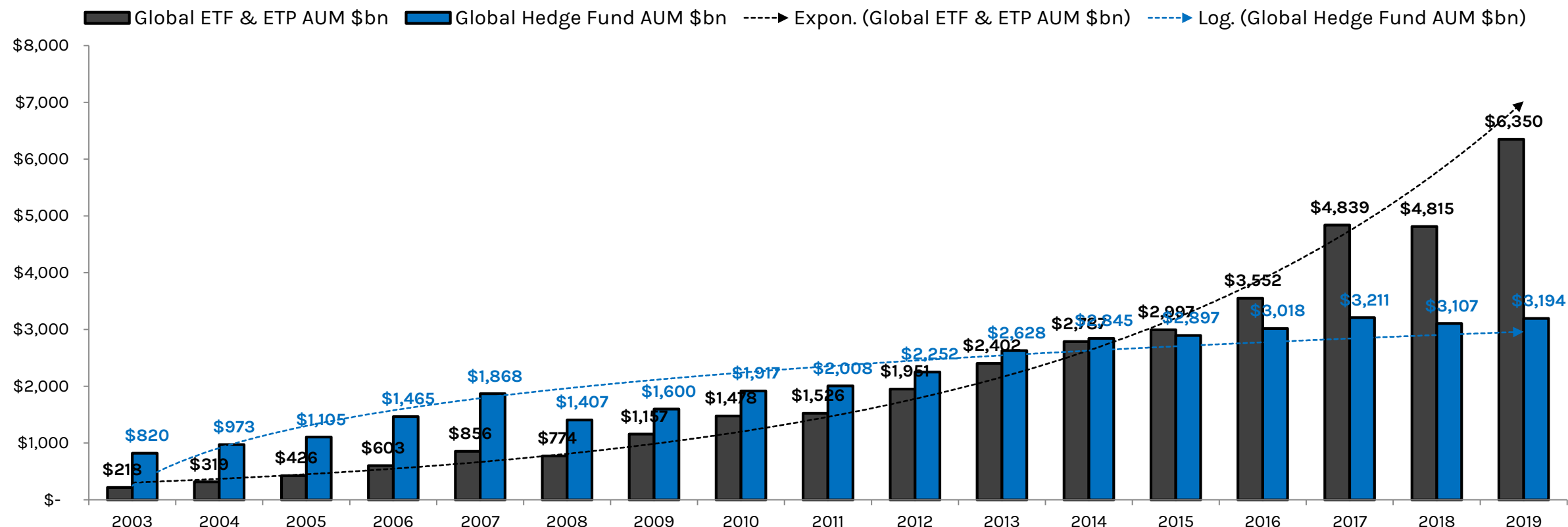
OUR MACRO PROCESS



The Investment Landscape Has Evolved Tremendously

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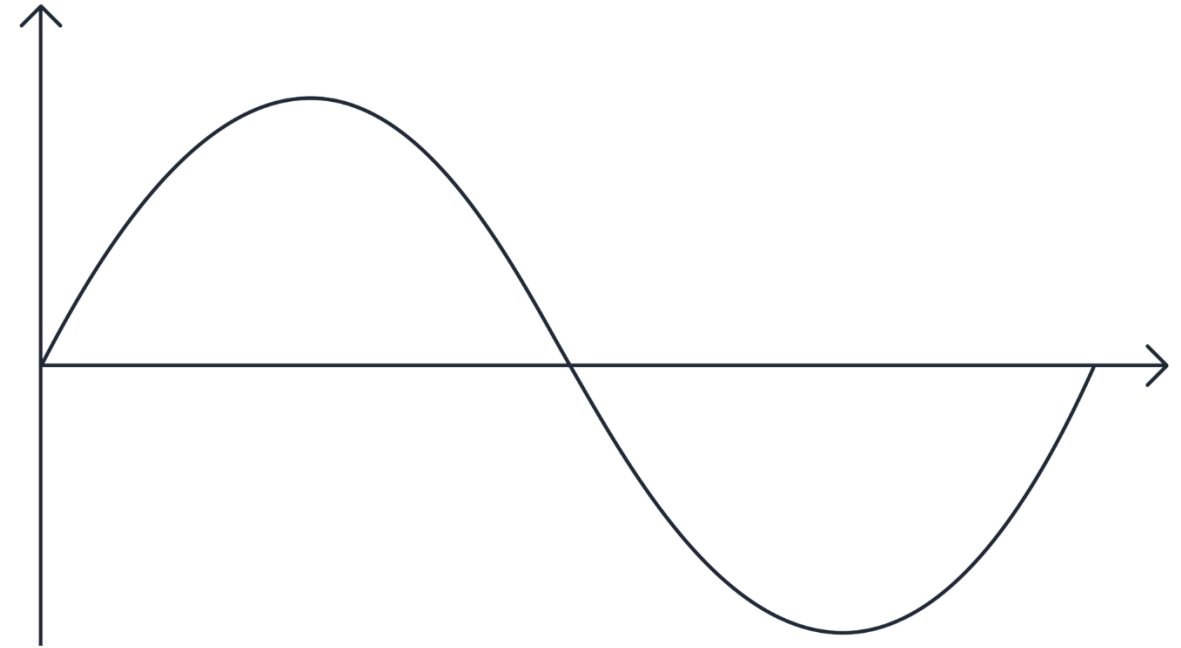
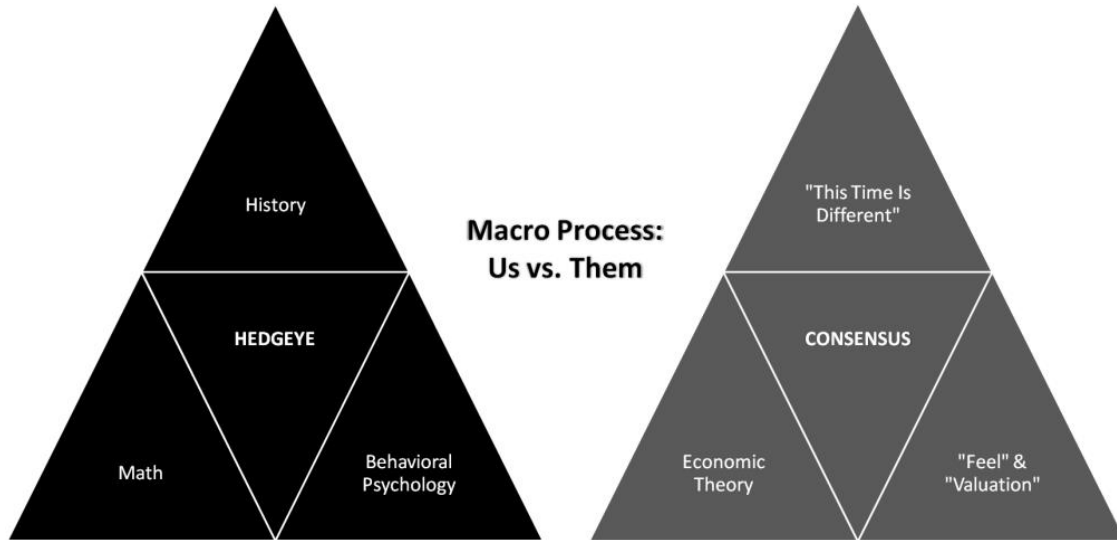
Stock-picking has given way to factor-picking and it's our job as investors to embrace this sea change, rather than fight it.



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				Global 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%	2.4%	1.0%	-1.4%	2.8%	0.7%	4.3%	6.9%	5.9%	1.2%	-2.3%	-10.9%	9.1%	6.2%	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%	2.3%	4.0%	-19.6%	3.6%	0.7%	-2.0%	-1.1%	7.9%	6.5%	4.7%	1.2%	4.6%	2.6%	3.7%	-0.9%
Communication Services (XLC)	7.0%	-2.2%	0.7%	0.1%	4.9%	-4.0%	6.1%	7.7%	2.9%	-4.8%	-5.1%	-9.8%	10.0%	2.3%	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%	-3.0%	5.4%	-17.0%	4.0%	-2.4%	-1.6%	1.9%	6.8%	1.7%	2.7%	-0.3%	1.7%	2.0%	2.5%	0.2%
Consumer Cyclical (XLY)	8.4%	2.9%	1.1%	-0.3%	2.4%	0.4%	3.7%	7.4%	9.9%	2.1%	-1.6%	-9.1%	10.8%	7.1%	-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%	5.1%	0.4%	-19.3%	2.4%	-2.5%	-1.1%	-1.3%	11.7%	3.7%	4.4%	4.8%	5.8%	2.1%	5.2%	-0.1%
Consumer Non-Cyclical (XLP)	4.9%	1.0%	0.8%	1.8%	-0.2%	-2.9%	1.2%	9.6%	3.9%	4.3%	1.3%	-1.5%	6.2%	4.0%	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%	-0.5%	-1.9%	-12.7%	1.2%	2.1%	0.7%	4.3%	5.3%	0.4%	3.8%	0.8%	2.2%	0.5%	4.3%	1.6%
Energy (XLE)	6.3%	1.7%	1.8%	-3.8%	2.2%	0.8%	6.9%	6.4%	7.2%	-2.5%	-5.5%	-16.7%	7.1%	5.8%	5.9%	-9.8%	2.8%	1.7%	-4.2%	2.0%	9.0%	-1.6%	6.7%	-0.4%	5.9%	-0.9%	3.7%	-6.7%	2.1%	0.3%	2.8%	-50.5%	6.4%	7.2%	-2.0%	-0.3%	9.2%	3.9%	6.9%	0.8%	4.7%	3.5%	4.1%	-3.1%
Financials (XLF)	6.2%	1.9%	0.1%	-1.4%	0.2%	-0.8%	0.5%	6.7%	5.7%	-0.2%	3.9%	-14.7%	8.3%	4.7%	-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%	4.1%	8.0%	-31.9%	1.1%	-3.4%	-5.7%	-0.3%	8.4%	7.5%	3.6%	1.2%	6.1%	2.1%	1.1%	-1.4%
Health Care (XLV)	6.3%	2.1%	0.8%	0.6%	5.8%	-4.0%	3.0%	4.9%	4.2%	4.9%	-0.6%	-3.6%	7.8%	7.6%	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%	-0.4%	3.3%	-12.7%	5.2%	5.7%	-1.8%	3.1%	6.5%	7.7%	2.7%	-0.6%	1.5%	2.2%	3.2%	2.6%
Industrials (XLI)	7.2%	2.7%	1.1%	-1.8%	2.0%	-0.3%	4.1%	7.0%	4.8%	2.9%	-0.3%	-10.1%	9.6%	7.4%	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%	1.9%	4.5%	-27.0%	4.2%	1.9%	-2.0%	-0.8%	7.7%	4.8%	6.1%	2.0%	4.9%	3.1%	3.8%	-1.5%
Information Technology (XLK)	9.0%	5.0%	2.5%	-2.6%	5.1%	7.3%	9.1%	6.3%	7.6%	1.1%	-5.7%	-14.7%	13.6%	8.0%	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%	4.8%	8.6%	-11.9%	4.5%	3.2%	-1.0%	-6.8%	9.1%	13.6%	7.1%	4.5%	6.8%	4.6%	5.7%	-1.5%
Materials (XLB)	7.3%	2.2%	0.6%	-0.5%	1.0%	2.2%	6.3%	3.3%	9.5%	-0.3%	-5.4%	-5.9%	7.9%	6.5%	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%	0.1%	-0.3%	-26.1%	3.8%	-2.6%	-2.9%	1.8%	10.3%	5.0%	4.8%	4.3%	6.6%	2.7%	3.3%	-1.9%
REITS (XLRE)	4.0%	-0.1%	0.2%	0.9%	-0.7%	-2.7%	0.7%	10.0%	5.8%	4.3%	4.1%	-13.4%	4.6%	3.9%	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%	-1.1%	1.9%	-24.6%	1.5%	-1.5%	0.7%	-0.4%	7.9%	-1.6%	2.3%	2.2%	5.2%	-0.1%	1.7%	-0.6%
Utilities (XLU)	3.5%	-1.5%	4.0%	1.3%	3.6%	-6.0%	5.0%	9.6%	0.6%	0.1%	6.1%	-6.5%	4.4%	2.5%	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%	-4.3%	12.9%	-13.5%	8.4%	2.0%	1.9%	3.7%	1.9%	-2.6%	5.4%	-3.4%	1.2%	1.6%	2.2%	2.9%
Growth (IWF)	7.4%	3.8%	1.2%	-2.2%	3.4%	2.7%	4.8%	7.0%	7.1%	2.4%	-3.7%	-12.5%	10.3%	7.3%	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%	4.4%	4.5%	-14.1%	3.3%	1.4%	-2.0%	-3.9%	8.4%	7.6%	4.9%	1.7%	4.9%	3.1%	4.7%	-1.5%
Value (IWD)	6.4%	1.1%	1.0%	-0.7%	2.0%	-1.3%	3.8%	7.2%	5.3%	0.0%	-0.1%	-10.1%	8.1%	5.5%	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%	0.5%	5.2%	-26.7%	4.0%	-1.1%	-2.3%	1.1%	7.9%	5.4%	4.7%	1.0%	4.3%	2.3%	2.8%	-0.5%
Cyclical (RSP)	8.0%	3.1%	1.2%	-2.8%	2.1%	2.1%	5.6%	6.7%	8.1%	0.7%	-2.9%	-15.9%	11.0%	7.8%	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%	4.0%	6.6%	-23.4%	3.9%	-1.1%	-3.5%	-4.1%	9.8%	9.7%	5.2%	1.9%	6.1%	3.4%	3.8%	-2.2%
Defensives (DEF)	6.0%	2.0%	1.0%	-0.1%	3.2%	-0.3%	3.1%	7.5%	4.7%	1.9%	-1.1%	-7.2%	7.7%	5.0%	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%	1.2%	3.0%	-17.0%	3.6%	1.8%	-0.9%	1.1%	6.7%	3.4%	4.5%	1.3%	3.4%	2.1%	3.7%	0.2%
High Beta (SPHB)	9.6%	3.3%	1.2%	-4.0%	1.3%	1.9%	7.7%	6.5%	8.5%	0.2%	-2.9%	-20.2%	15.8%	9.0%	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%	5.2%	12.1%	-36.2%	6.3%	0.9%	-6.7%	-7.8%	12.3%	12.8%	8.3%	5.7%	8.0%	4.6%	3.2%	-3.3%
Low Beta (SPLV)	4.5%	0.9%	1.6%	2.2%	2.3%	-2.8%	2.9%	9.4%	4.0%	3.0%	2.9%	-3.7%	4.8%	4.0%	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%	-0.8%	3.7%	-19.0%	3.6%	0.9%	1.5%	4.0%	5.1%	-0.5%	4.2%	2.8%	2.7%	1.6%	3.4%	1.7%
Momentum (MTUM)	8.1%	4.0%	1.7%	-3.0%	3.9%	5.7%	5.5%	8.1%	7.9%	2.4%	-3.8%	-13.8%	9.7%	5.9%	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%	5.9%	3.4%	-13.8%	5.0%	0.4%	-1.7%	-4.2%	8.4%	3.7%	6.3%	-1.3%	5.2%	3.2%	4.8%	-1.3%
Quality (QUAL)	7.3%	2.9%	1.4%	0.0%	4.2%	-0.3%	4.6%	8.0%	6.5%	3.4%	-1.9%	-6.5%	9.3%	6.5%	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%	2.0%	4.1%	-17.6%	5.3%	3.7%	-1.3%	0.7%	7.5%	5.7%	5.2%	3.2%	3.6%	3.1%	4.2%	1.1%
Dividend Yield (SDY)	6.8%	1.3%	0.8%	1.7%	2.2%	-1.9%	2.5%	8.0%	6.2%	1.6%	1.1%	-4.2%	8.2%	5.8%	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%	0.4%	1.5%	-23.3%	4.0%	-1.0%	0.0%	3.7%	8.4%	3.4%	4.0%	3.7%	4.2%	1.7%	4.2%	1.0%
Size (OEF)	6.9%	2.7%	1.1%	-1.7%	3.0%	1.5%	4.3%	6.2%	5.3%	1.2%	-2.9%	-9.9%	8.4%	6.0%	0.7%	-3.8%	3.3%	-0.3%	-0.2%	-2.8%	6.9%	3.8%	2.8%	0.0%	15.5%	2.0%	2.0%	-2.3%	4.1%	2.8%	3.8%	-17.2%	3.4%	1.3%	-1.7%	-1.3%	7.8%	7.0%	3.8%	0.6%	4.7%	2.5%	4.0%	-1.2%
Secular Growth (QQQ)	7.8%	5.6%	2.6%	-2.7%	6.6%	9.6%	8.7%	5.6%	8.0%	1.0%	-4.3%	-13.1%	12.6%	9.0%	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%	8.1%	11.0%	-10.3%	5.1%	1.8%	-1.0%	-6.3%	7.8%	11.8%	8.0%	3.0%	7.0%	4.7%	5.1%	-2.9%
Mid-Caps (MDV)	7.5%	2.9%	1.7%	-0.9%	0.8%	1.4%	4.5%	8.2%	8.9%	1.5%	0.9%	-11.5%	9.3%	6.7%	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%	3.8%	8.7%	-29.7%	3.5%	-0.4%	-1.6%	-1.5%	9.8%	5.6%	5.3%	4.1%	5.4%	3.7%	4.2%	-0.8%
Small-Caps (IWM)	6.8%	3.5%	0.5%	-1.2%	0.0%	3.7%	4.1%	7.7%	8.5%	0.5%	-1.2%	-12.3%	8.1%	7.0%	2.0%	-3.2%	4.9%	1.3%	-3.5%	0.0%	6.9%	3.5%	5.6%	0.4%	13.3%	4.2%																		

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

Worst Equity Sectors:

Utilities, REITS, Consumer Staples,
Financials

Best Equity Style Factors:

High Beta, Momentum, Cyclical,
Secular Growth

Worst Equity Style Factors:

Low Beta, Defensives, Value, Dividend
Yield

Best Fixed Income Sectors:

BDCs, Convertibles, HY Credit, EM \$
Debt

Worst Fixed Income Sectors:

TIPS, Short Duration Treasurys, MBS,
Medium Duration Treasurys

Quad 2: Reflation

Best Asset Classes:

Commodities, Equities, Credit, FX

Worst Asset Classes:

Fixed Income, USD

Best Equity Sectors:

Tech, Consumer Discretionary,
Industrials, Materials

Worst Equity Sectors:

Telecom, Utilities, REITS, Consumer
Staples

Best Equity Style Factors:

Secular Growth, Momentum, Cyclical
Growth, Small Caps

Worst Equity Style Factors:

Low Beta, Value, Dividend Yield,
Defensives

Best Fixed Income Sectors:

Convertibles, BDCs, Preferreds,
Leveraged Loans

Worst Fixed Income Sectors:

Long Duration Treasurys, Medium
Duration Treasurys, Munis, IG Credit

Quad 3: Stagflation

Best Asset Classes:

Gold, Commodities

Worst Asset Classes:

Credit

Best Equity Sectors:

Utilities, Tech, Energy, Industrials

Worst Equity Sectors:

Financials, REITS, Materials, Telecom

Best Equity Style Factors:

Secular Growth, Momentum, Mid
Caps, Low Beta

Worst Equity Style Factors:

Small Caps, Dividend Yield, Value,
Defensives

Best Fixed Income Sectors:

Munis, EM \$ Debt, Long Duration
Treasurys, TIPS

Worst Fixed Income Sectors:

BDCs, Preferreds, Convertibles,
Leveraged Loans

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

Worst Equity Sectors:

Energy, Tech, Industrials, Financials

Best Equity Style Factors:

Low Beta, Dividend Yield, Quality,
Defensives

Worst Equity Style Factors:

High Beta, Momentum, Cyclical,
Secular Growth,

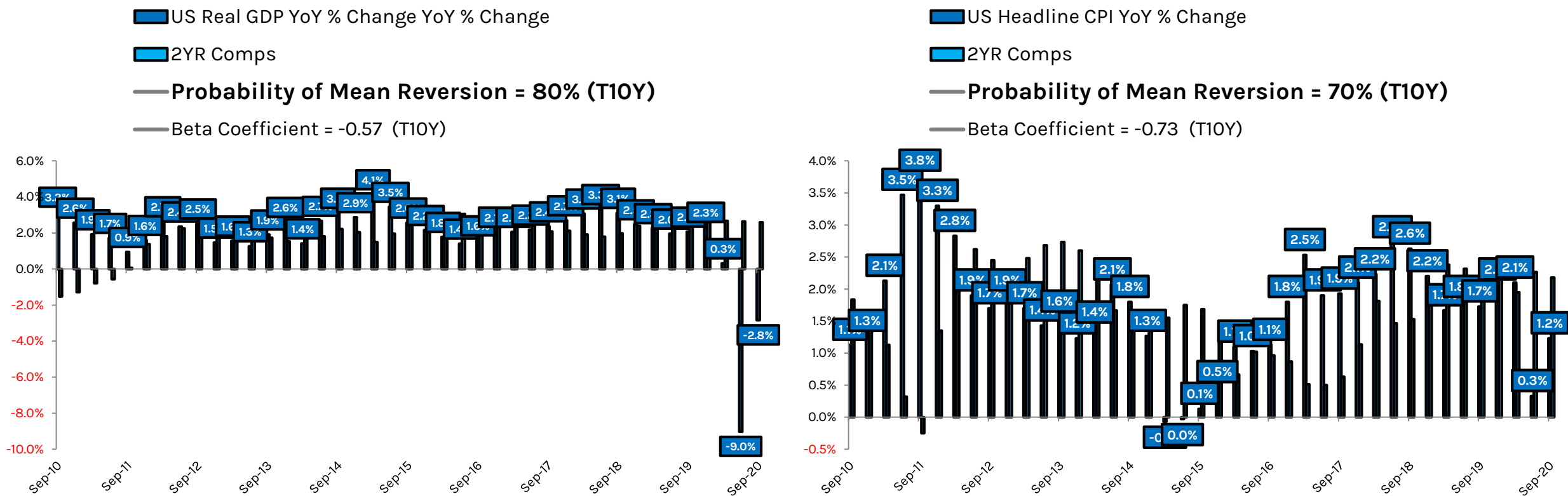
Best Fixed Income Sectors:

Long Duration Treasurys, Medium
Duration Treasurys, IG Credit, Munis

Worst Fixed Income Sectors:

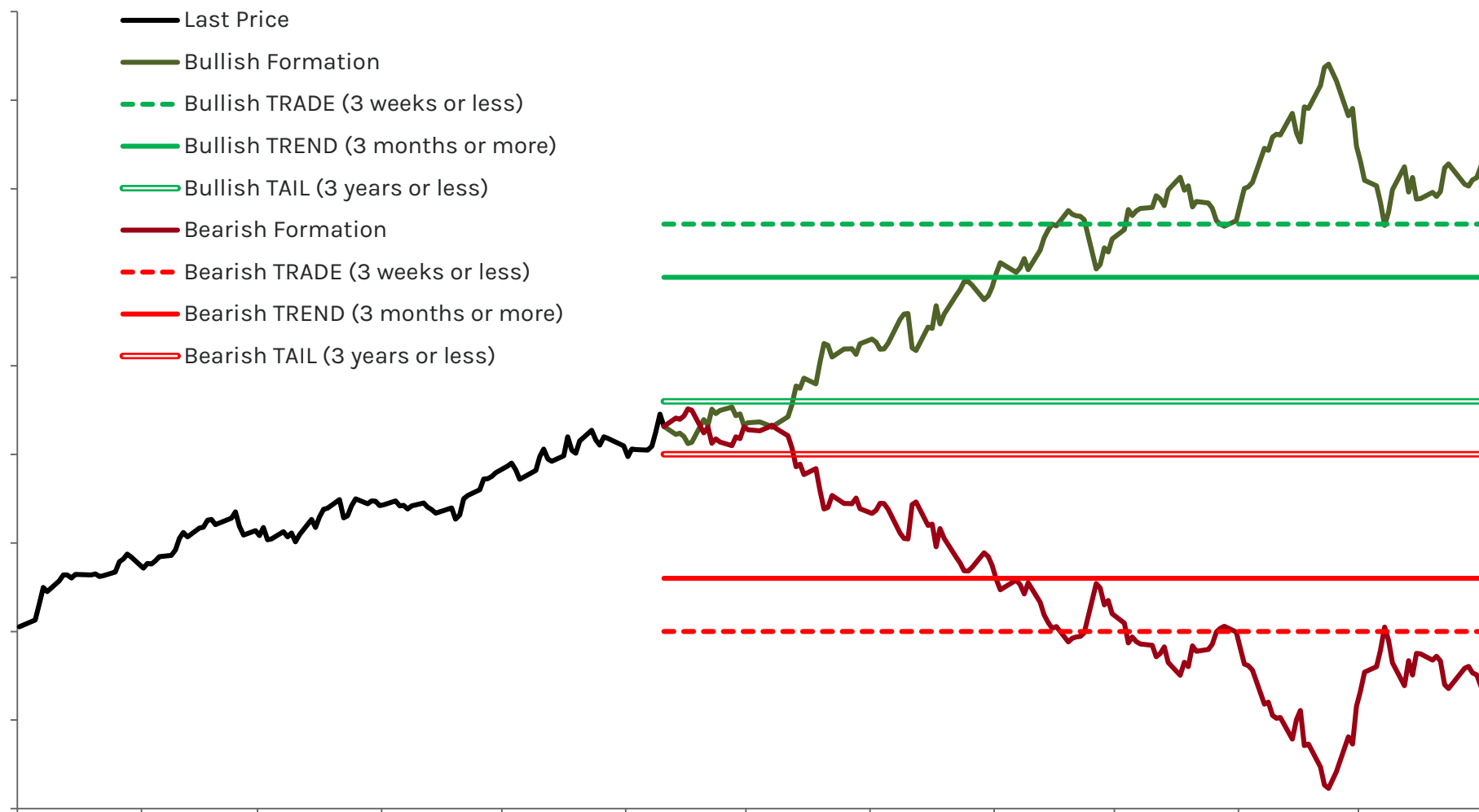
Preferreds, EM Local Currency, BDCs,
Leveraged Loans

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	3.5%	5.0%	3.2%	23.3%	36.8%	3.4%
	Low Debt/EV	0.3%	0.7%	2.8%	11.9%	20.9%	-0.4%
SI	High Short Interest	2.4%	3.7%	2.9%	22.7%	30.8%	2.5%
	Low Short Interest	1.7%	1.9%	2.1%	11.8%	22.8%	0.7%
BETA	High Beta	3.3%	4.8%	3.2%	29.8%	47.2%	3.1%
	Low Beta	0.6%	0.6%	1.6%	4.9%	11.0%	-0.3%
YIELD	High Yield	3.0%	3.6%	0.8%	15.7%	21.0%	2.1%
	Low Yield	1.2%	1.9%	4.0%	18.2%	33.5%	0.6%
MKT CAP	MCAP Bottom 25%	3.3%	4.4%	3.3%	21.4%	34.5%	2.9%
	MCAP Top 25%	1.1%	1.5%	1.7%	11.8%	22.3%	0.3%
Sales	Top 25% Sales Growth	1.1%	1.9%	2.3%	18.9%	30.9%	0.5%
	Bottom 25% Sales Growth	3.5%	4.9%	3.8%	19.0%	25.3%	3.4%
EPS	Top 25% EPS Growth	2.8%	4.3%	4.1%	21.5%	36.6%	2.5%
	Bottom 25% EPS Growth	2.5%	3.6%	2.3%	20.5%	26.4%	2.2%

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

CFTC NON-COMMERCIAL NET LONG POSITIONING

CFTC NON-COMMERCIAL NET LONG POSITIONING						3Y		Z-Score		
	Metric	Latest	W/W Chg	3M Ave	6M Ave	1Y Ave	Max	Min	1Y	3Y
EQUITIES	SPX (Index + E-mini)	(32,641)	(14,406)	25,210	6,123	(55,941)	264,585	(322,288)	0.21X	-0.63X
	VIX	(98,550)	2,905	(97,267)	(95,068)	(80,362)	92,913	(218,362)	-0.51X	-0.34X
	Russell 2000 (mini)	9,816	(7,278)	31,871	22,422	15,890	72,749	(88,708)	-0.26X	0.26X
	Dow Jones (mini)	(12,472)	525	(6,725)	(7,811)	(4,209)	68,963	(28,732)	-0.48X	-1.40X
	Nasdaq (mini)	22,225	(11,172)	3,543	(8,198)	6,871	47,085	(133,005)	0.46X	0.47X
	Nikkei Index	(2,303)	(1,190)	1,443	(546)	(4,217)	14,214	(16,298)	0.44X	0.30X
RATES	10Y UST	77,486	(5,977)	74,692	82,771	7,499	165,292	(758,490)	0.62X	1.39X
	2Y UST	(136,338)	24,063	(259,842)	(249,620)	(224,251)	67,767	(421,551)	1.18X	0.61X
	5Y UST	(209,521)	19,056	(326,035)	(232,712)	(196,791)	65,383	(866,140)	-0.11X	0.41X
	UST Bonds	(161,089)	(4,549)	(210,615)	(186,084)	(128,768)	103,461	(241,003)	-0.49X	-1.37X
	30D Fed Funds	108,259	15,009	126,289	175,796	272,707	488,558	(222,037)	-1.41X	0.02X
	Eurodollar	646,909	(12,123)	623,523	500,464	352,087	2,134,274	(3,110,209)	0.45X	0.76X
CURRENCIES	\$USD	(14,602)	316	(5,017)	(5,882)	3,144	43,033	(14,918)	-1.56X	-1.93X
	JPY	47,560	747	35,069	29,430	17,452	47,560	(126,790)	1.15X	1.51X
	EUR	144,675	(1,715)	148,162	166,275	98,134	212,535	(123,765)	0.50X	1.27X
	GBP	6,577	(1,345)	(4,530)	(5,647)	(1,773)	49,216	(107,406)	0.52X	0.79X
	AUD	(6,210)	(2,251)	(4,684)	(1,475)	(16,417)	19,398	(74,181)	0.54X	1.05X
	CAD	14,105	4,831	(14,473)	(18,153)	(15,708)	53,332	(67,121)	1.56X	1.04X
	MXN	(4,925)	3,007	16,769	14,328	34,721	170,379	(21,903)	-0.69X	-1.29X
	NZD	12,584	(1,117)	9,384	6,205	(2,204)	27,603	(42,544)	1.48X	1.41X
	CHF	12,429	677	13,975	13,440	8,761	17,848	(47,216)	0.65X	1.37X
COMMODITIES	CRUDE OIL	541,705	(15,649)	526,032	521,711	509,747	784,290	332,714	0.61X	0.17X
	GOLD	136,861	(336)	123,589	138,370	169,153	292,066	(103,009)	-0.65X	0.14X
	COPPER	71,658	(120)	69,808	59,586	21,279	80,564	(60,135)	1.23X	1.83X
	Natural Gas	7,744	(9,679)	39,268	30,779	(47,437)	71,340	(262,534)	0.54X	1.03X
	RBOB Gasoline	78,670	5,739	59,715	60,306	71,348	129,000	40,626	0.31X	-0.17X
	ULSD Heating Oil	17,906	1,180	13,094	11,504	1,367	67,696	(27,674)	1.23X	0.46X
	Silver	56,038	(2,424)	49,432	43,861	42,804	80,646	(30,158)	0.93X	1.02X
	Platinum	25,661	1,081	17,273	17,319	23,610	69,306	(11,540)	0.12X	0.26X
	Aluminum	163,475	(2,043)	159,440	161,254	162,441	168,292	153,927	0.24X	0.24X
	Nickel	42,230	(365)	42,647	44,031	41,757	47,708	29,746	0.10X	0.10X
	Corn	500,031	81,744	407,385	231,777	53,361	500,031	(270,560)	1.97X	2.42X
	Soybeans	247,622	(2,759)	248,373	204,708	110,541	270,935	(148,817)	1.27X	1.98X
	Wheat	30,316	11,186	34,652	28,922	20,685	63,219	(115,161)	0.39X	0.76X
	Live Cattle	75,869	399	60,134	65,735	54,278	183,134	19,421	0.94X	-0.00X
	Lean Hogs	44,139	1,276	50,120	45,309	37,278	97,769	(11,151)	0.56X	0.34X
	Sugar	249,475	10,332	281,285	245,419	164,177	316,046	(205,161)	0.85X	1.79X
	Cotton	85,020	(4,296)	80,195	68,188	39,033	129,851	(37,827)	1.42X	1.00X
	Coffee	41,981	2,262	31,644	34,421	20,763	60,402	(106,651)	1.03X	1.55X
	Cocoa	38,252	142	29,016	29,484	25,853	81,269	(31,483)	0.45X	0.58X
	Orange Juice	2,355	397	478	428	(564)	5,540	(9,416)	0.91X	1.23X

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

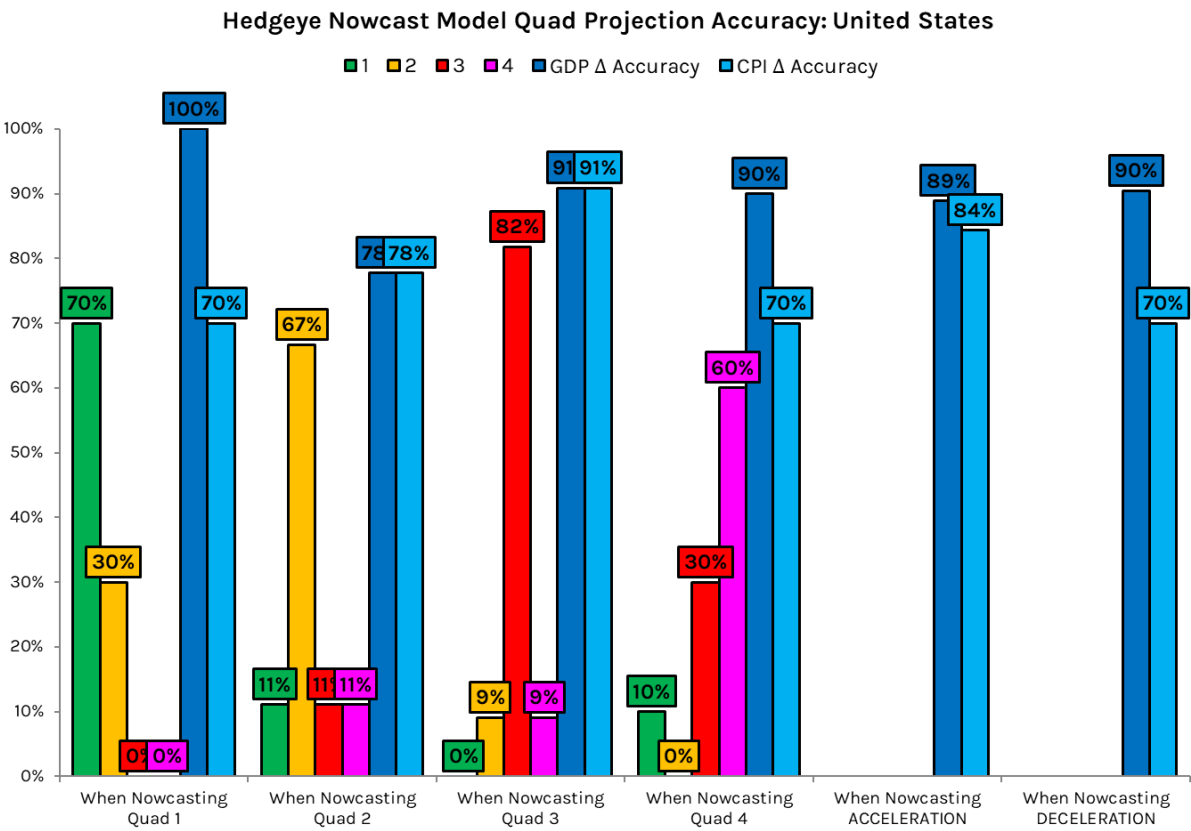
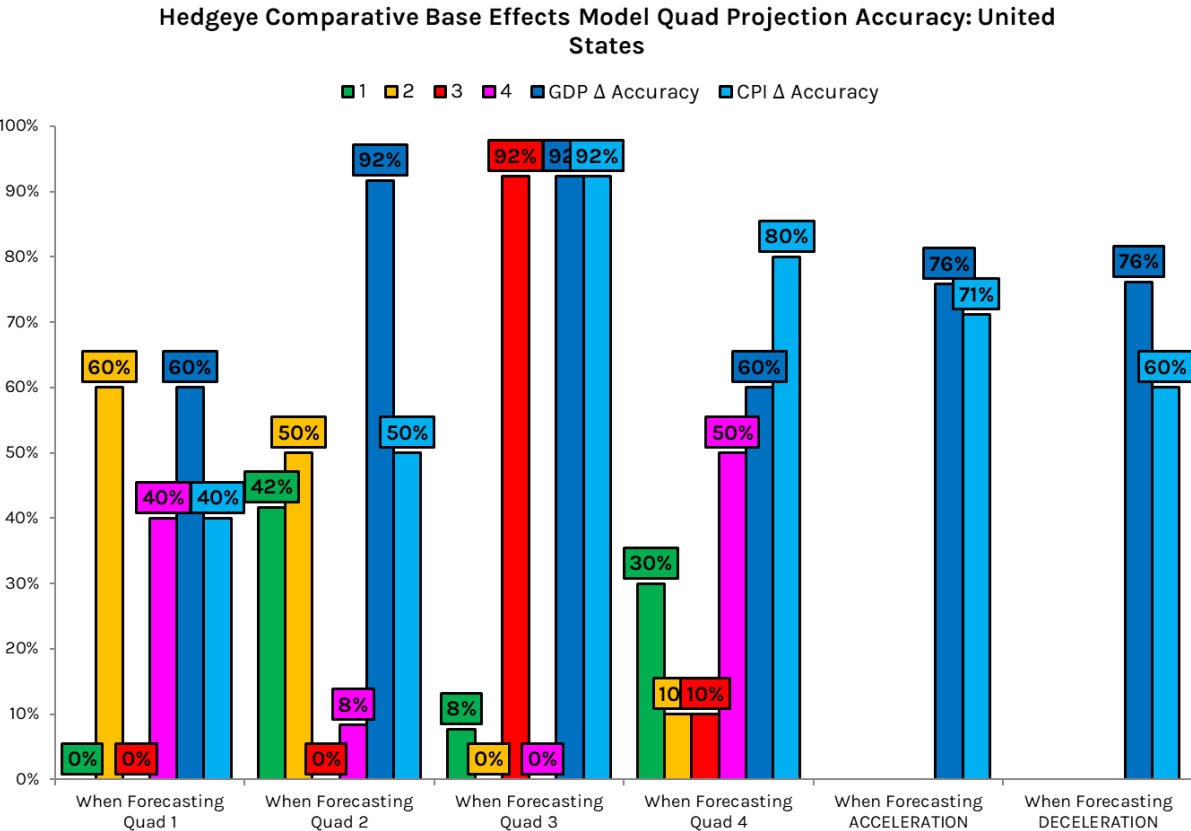
Deliberately studying the VOLATILITY OF VOLATILITY leads to high-probability decision-making opportunities. TIMING matters.

TIME WINDOW SETTING:		TOTAL RETURN PERFORMANCE	IVOL PREMIUM/DISCOUNT						REALIZED VOLATILITY TRENDS			IMPLIED VOLATILITY TRENDS			
VOLATILITY_30D			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
US EQUITIES															
CURRENT															
Power Shares QQQ Trust ETF	QQQ US EQUITY	48.62%	100%	109%	92%	-16%	2.6	2.9	13.2	-51%	37%	26.3	17%	89%	
Technology Sector SPDR ETF	XLK US EQUITY	43.61%	92%	96%	89%	-16%	2.3	2.3	14.3	-47%	47%	27.3	20%	90%	
Consumer Discretionary Sector SPDR ETF	XLV US EQUITY	29.63%	147%	123%	101%	1%	2.9	3.8	10.7	-48%	25%	26.4	27%	92%	
Communication Services SPDR ETF	XLC US EQUITY	26.91%	91%	90%	79%	-13%	2.2		13.9	-45%	25%	26.5	21%	72%	
Materials Sector SPDR ETF	XLB US EQUITY	20.52%	54%	89%	42%	-5%	1.2	1.3	21.0	-26%	74%	32.3	20%	93%	
I-Shares Russell 2000 ETF	IWM US EQUITY	20.03%	39%	59%	51%	-4%	0.7	1.1	20.8	-23%	76%	29.0	12%	90%	
SPDR S&P 500 ETF Trust	SPY US EQUITY	18.37%	86%	88%	65%	-25%	2.2	2.4	10.6	-47%	39%	19.7	32%	86%	
Health Care Sector SPDR ETF	XLV US EQUITY	13.34%	81%	99%	69%	-21%	2.0	2.3	10.8	-48%	31%	19.6	19%	85%	
Industrials Sector SPDR ETF	XLI US EQUITY	10.96%	57%	70%	71%	-20%	1.2	1.5	15.8	-42%	59%	24.7	13%	88%	
Consumer Staples Sector SPDR ETF	XLP US EQUITY	10.15%	75%	85%	46%	-14%	0.4	0.7	10.1	-38%	40%	17.7	26%	89%	
Utilities Sector SPDR ETF	XLU US EQUITY	0.57%	24%	142%	22%	11%	0.7	0.5	17.9	-13%	81%	22.2	-3%	93%	
Financials Sector SPDR ETF	XLF US EQUITY	-1.67%	15%	38%	31%	-30%	0.2	0.3	22.0	-36%	77%	25.3	6%	84%	
Vanguard Real Estate REIT ETF	VNO US EQUITY	-4.68%	23%	28%	37%	-17%	1.0	1.2	17.4	-24%	68%	21.3	12%	85%	
Energy Sector SPDR ETF	XLE US EQUITY	-32.51%	-4%	-12%	-18%	-40%	0.1	-0.1	42.2	-35%	92%	40.6	6%	94%	
INTERNATIONAL EQUITIES															
I-Shares MSCI Emerging Markets ETF	EEM US EQUITY	17.03%	22%	17%	12%	3%	0.6	0.7	18.4	-10%	49%	22.4	6%	70%	
I-Shares MSCI Japan ETF	EWJ US EQUITY	15.41%	12%	21%	12%	-20%	0.1	0.4	16.1	-22%	59%	18.0	9%	63%	
I-Shares China Large-Cap ETF	FXI US EQUITY	8.93%	7%	2%	4%	-15%	0.5	0.4	21.0	-14%	49%	22.5	9%	55%	
Euro Stoxx 50 Index	SX5E INDEX	-2.59%	28%	56%	37%	-35%	1.1	1.0	13.8	-47%	31%	17.6	4%	51%	
CURRENCIES															
Currency Shares Euro Trust ETF	FXE US EQUITY	7.94%	12%	18%	29%	4%	0.3	0.4	6.1	-11%	22%	6.8	-4%	26%	
Currency Shares Japanese Yen ETF	FXJ US EQUITY	4.61%	84%	59%	49%	-22%	1.8	2.7	4.0	-50%	1%	7.3	17%	29%	
Currency Shares British Pound ETF	FXB US EQUITY	2.87%	-7%	-3%	5%	52%	-0.2	-0.7	9.3	21%	73%	8.6	-26%	53%	
PowerShares US Dollar Index ETF	UUP US EQUITY	-6.66%	56%	61%	64%	28%	0.9	0.6	5.2	-14%	21%	8.2	5%	62%	
COMMODITIES															
SPDR Gold Shares ETF	GLD US EQUITY	24.81%	23%	22%	14%	-16%	0.4	0.7	16.1	-21%	69%	19.8	16%	85%	
PowerShares DB Agriculture Fund ETF	DBA US EQUITY	-2.54%	103%	123%	115%	60%	1.0	1.9	9.2	-17%	20%	18.7	6%	84%	
United States Natural Gas Fund ETF	UNG US EQUITY	-45.43%	-3%	5%	4%	18%	-0.6	-0.5	59.8	8%	89%	57.9	-11%	89%	
United States Oil Fund ETF	USO US EQUITY	-67.79%	27%	34%	51%	-14%	0.5	0.9	25.9	-32%	45%	33.0	0%	62%	
FIXED INCOME															
I-Shares 20+ Year Treasury Bond ETF	TLT US EQUITY	18.15%	13%	35%	22%	-17%	0.3	0.6	12.1	-25%	49%	13.7	3%	63%	
I-Shares IBOX IG Corporate Bond ETF	LQD US EQUITY	10.97%	45%	73%	44%	-6%	0.6	1.0	5.2	-29%	60%	7.5	9%	86%	
I-Shares 7-10 Year Treasury Bond ETF	IEF US EQUITY	10.01%	337%	148%	101%	-17%	3.6	4.3	3.7	-32%	11%	16.1	261%	98%	
I-Shares J.P. Morgan USD EM Bond ETF	EMB US EQUITY	5.42%	79%	109%	92%	-9%	1.3	2.0	4.2	-47%	15%	7.5	5%	56%	
I-Shares IBOX HY Corporate Bond ETF	HYG US EQUITY	4.48%	96%	108%	84%	-5%	1.8	2.2	3.3	-53%	12%	6.5	-4%	45%	
MEGA-CAP TECH															
Apple	AAPL US EQUITY	82.31%	42%	39%	39%	-16%	1.3	1.2	29.4	-19%	73%	41.8	36%	95%	
Amazon	AMZN US EQUITY	76.26%	82%	92%	82%	-22%	2.1	1.8	22.0	-44%	33%	40.0	31%	83%	
Microsoft	MSFT US EQUITY	42.53%	69%	83%	77%	-22%	2.0	2.0	18.7	-42%	37%	31.6	26%	91%	
Facebook	FB US EQUITY	33.09%	64%	69%	66%	-29%	2.1	1.9	25.8	-46%	40%	42.3	24%	80%	
Alphabet	GOOGL US EQUITY	30.85%	77%	83%	52%	-22%	2.1	2.1	19.0	-45%	37%	33.7	26%	90%	
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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