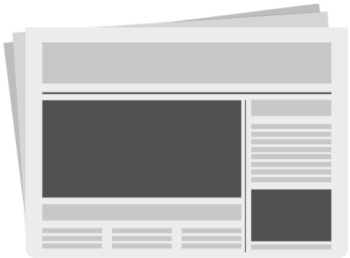
ASTORIA
Portfolio Advisors

Astoria's Quarterly Investment Committee Insights
What's The Recession Playbook?

Q2 2020

Astoria has voiced strong opinions on owning alternatives to hedge portfolio risk since 2017

Panic



- Coordinated central bank and government action typically **coincide** with **market bottoms.**

- In early March, markets were primarily driven by gamma trading, deleveraging, convexity hedging, and CTAs. **There were historic moves (both up and down) in March.** Highly unusual! **Front month implied volatility is quite high.** If you need to exit a position, consider selling near-dated calls. If you are looking to purchase stocks, consider selling puts to take advantage of front month vols.

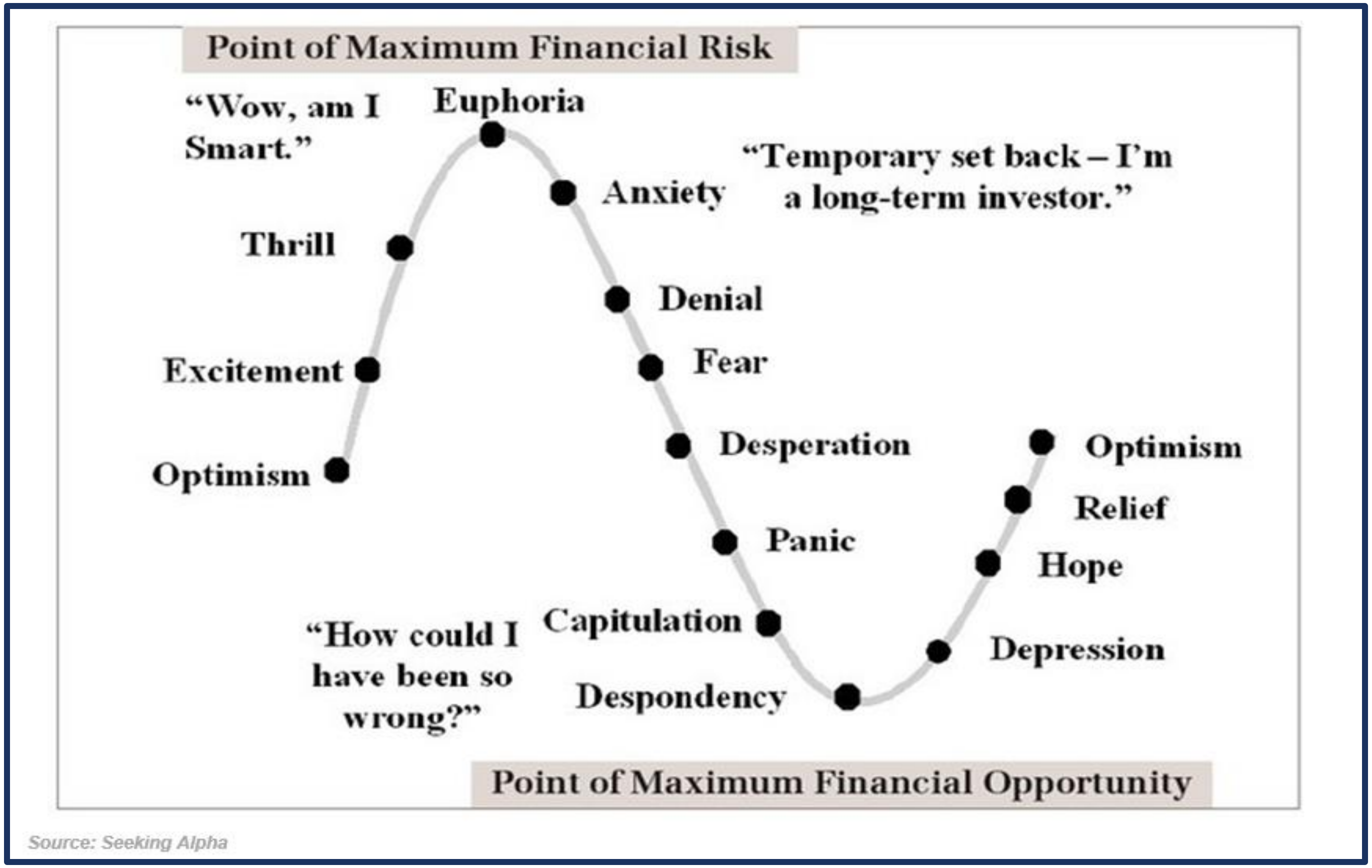
- What's the recession playbook? Take advantage of the decline in valuations to purchase **high quality stocks, dividend growers, and companies with strong balance sheets that can grow their earnings in a recessionary environment**. Most importantly, **hedge portfolio risk via alternatives** (i.e. gold, gold equities, merger arb, and long short market neutral strategies). Within fixed income, focus on high-quality bonds which are inversely correlated to stocks (treasuries have the strongest negative correlation). And **own a lot of cash!**

- The Fed did a tremendous job to provide stability to many parts of the fixed income market. **The Fed's decisive steps over the past 2 weeks** took them approximately 8 months during the 2008 financial crisis. Very impressive!

- Nobody wanted to own alternatives when the S&P 500 went up 450% in the bull market. **We believe investors will *now* start to incorporate liquid alternatives after a vicious 30% correction.**

We are in the Desperation / Panic / Capitulation Phase

The Life Cycle of Risk

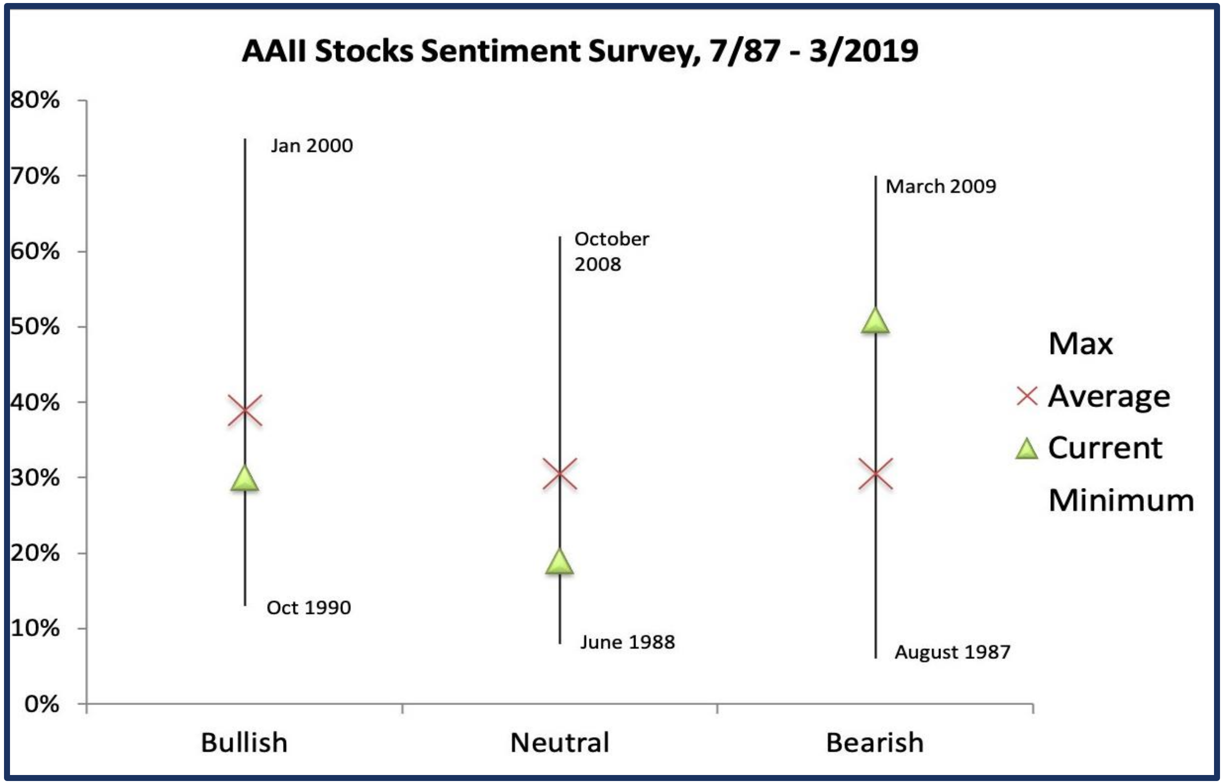


Credit spreads have now surpassed the Tech bubble although they remain below their 2008 GFC levels. The Fed's extraordinary policy action should help alleviate some concerns. Keep your eye on HYG in the interim.

Credit spreads have materially risen in the past 1 month.

Have we reached the bottom in market sentiment? No.

YTD there has been $40 bln inflows into US stock ETFs.



Source: Meb Faber. https://twitter.com/MebFaber/status/1238134986307338240?s=20.

There have been very few places to hide in 2020.

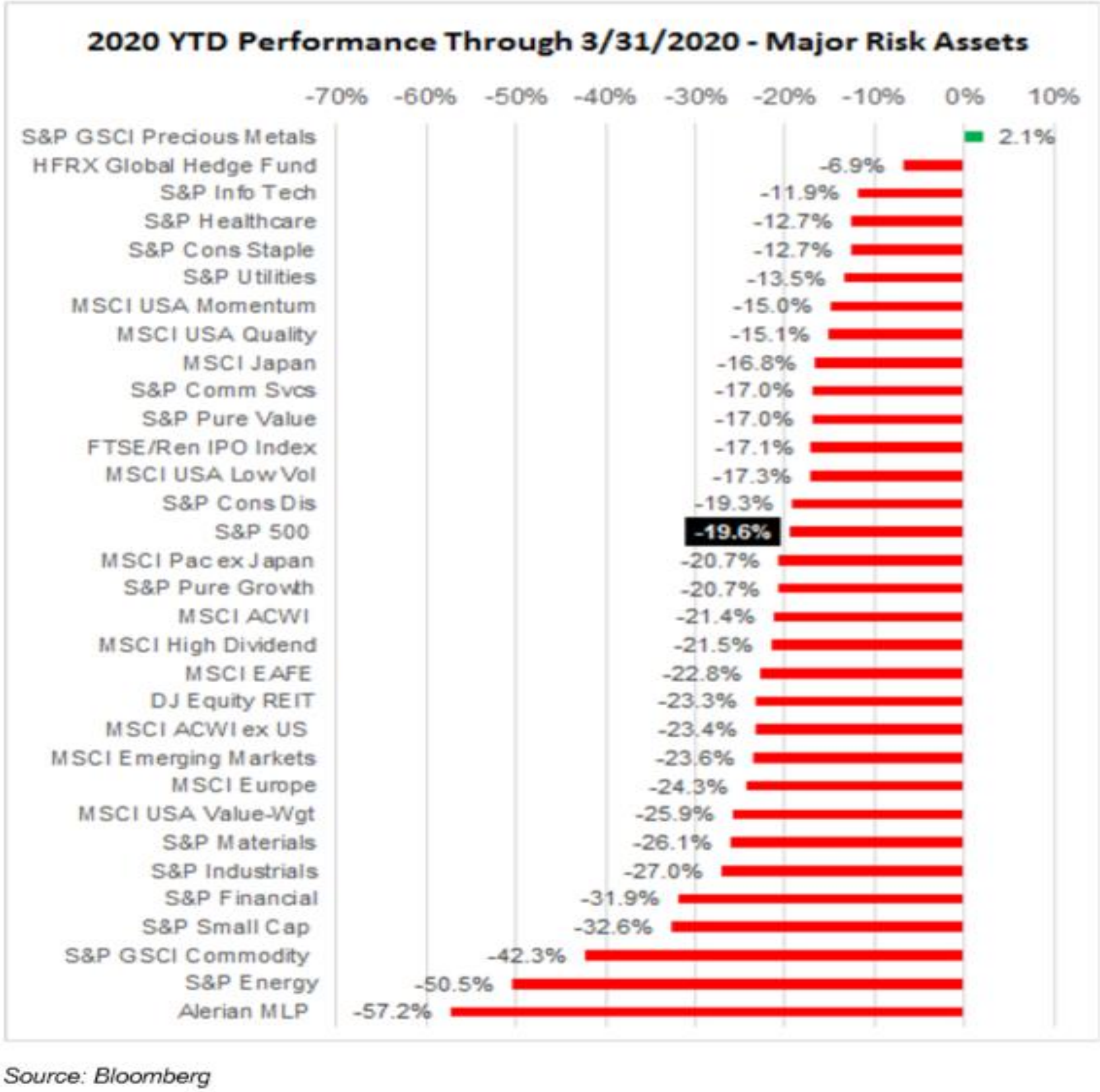


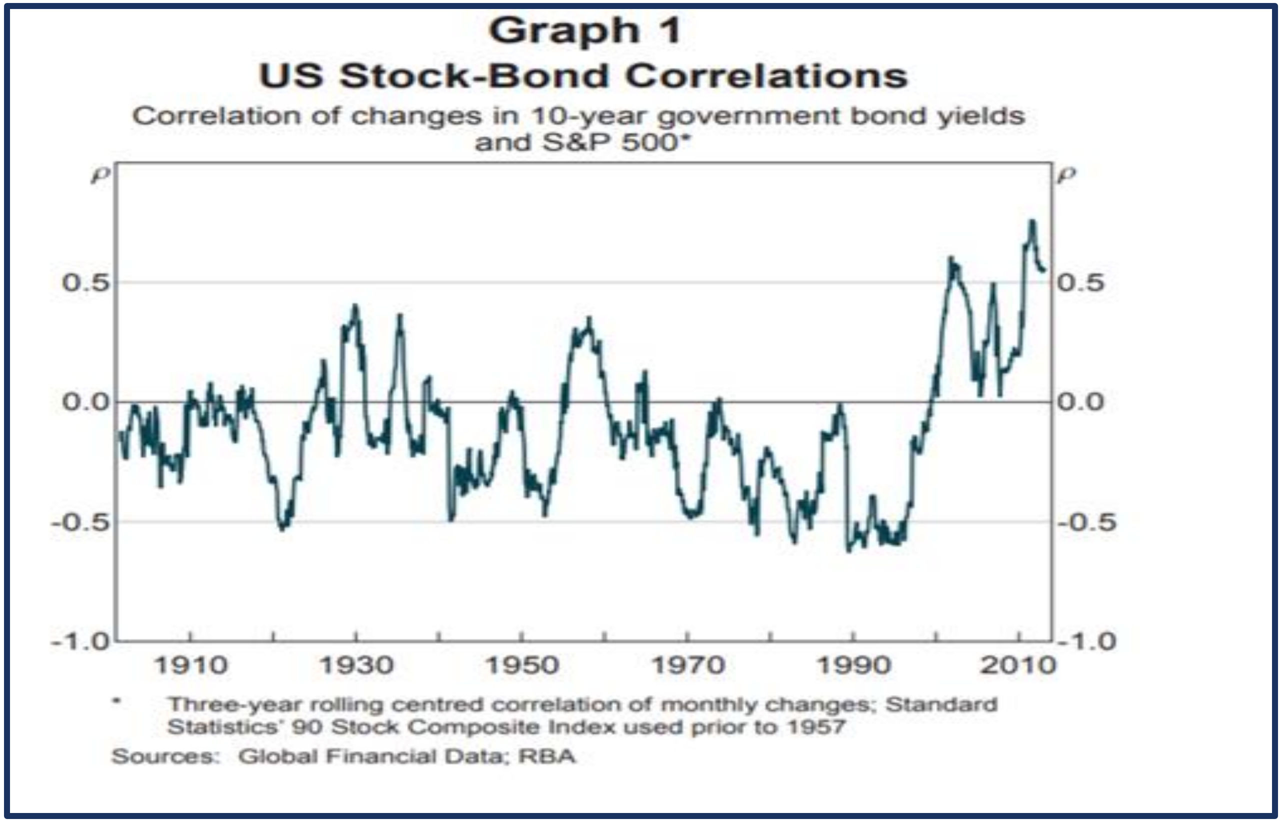
Chart Source: 3D Asset Management

Valuations are cheap. Don't try to time the market. You can't win!

The S&P 500 fell 30% in 3 weeks and then rallied 20% in 4 days. How can you time that?

Bonds won't hedge equity risk nearly as effectively in the future given their lower interest rate bound. Investors should look at alternatives to hedge stock risk.

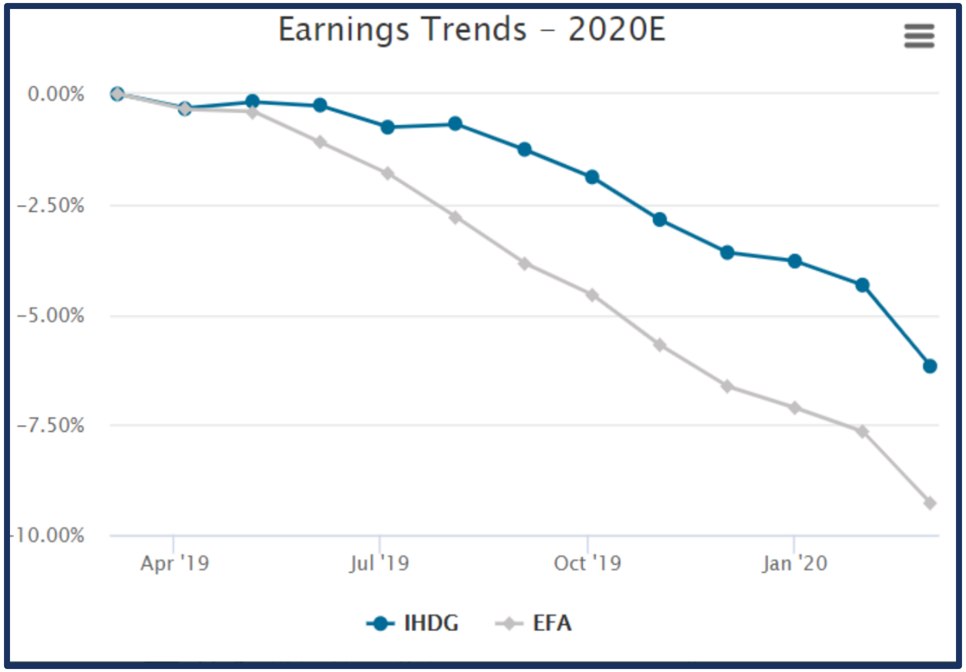
Correlation of Changes in 10-year Government Bond Yields and S&P 500

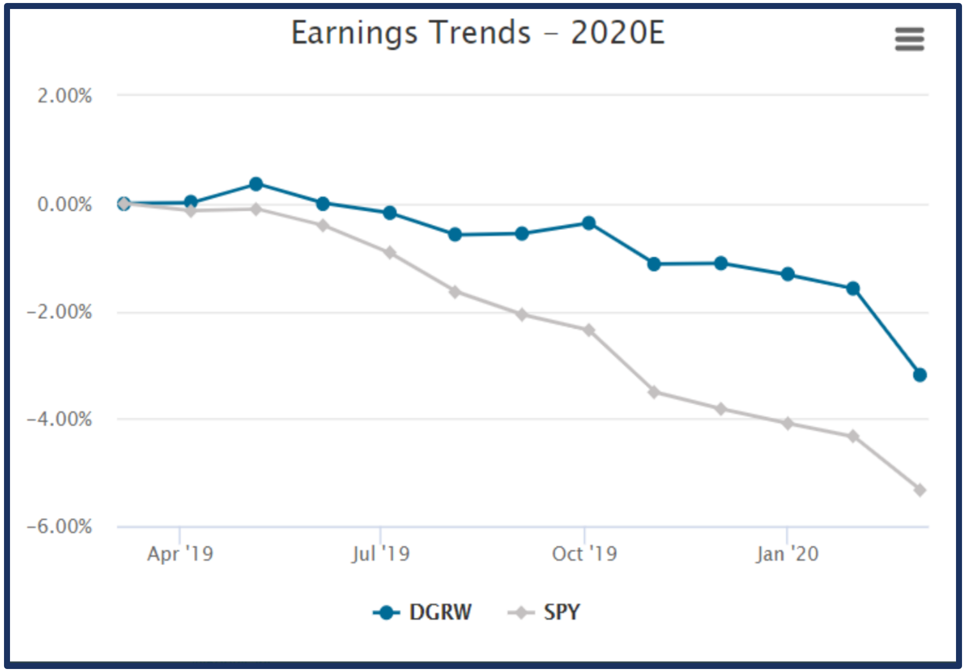


Source: https://www.rba.gov.au/publications/bulletin/2014/sep/pdf/bu-0914-8.pdf

Astoria believes companies with above average ROE, ROA, and earnings will stay bid in an environment where broad index EPS is likely to decline 20% in 2020.

Quality is one of the few factors which are persistent, pervasive, & robust.

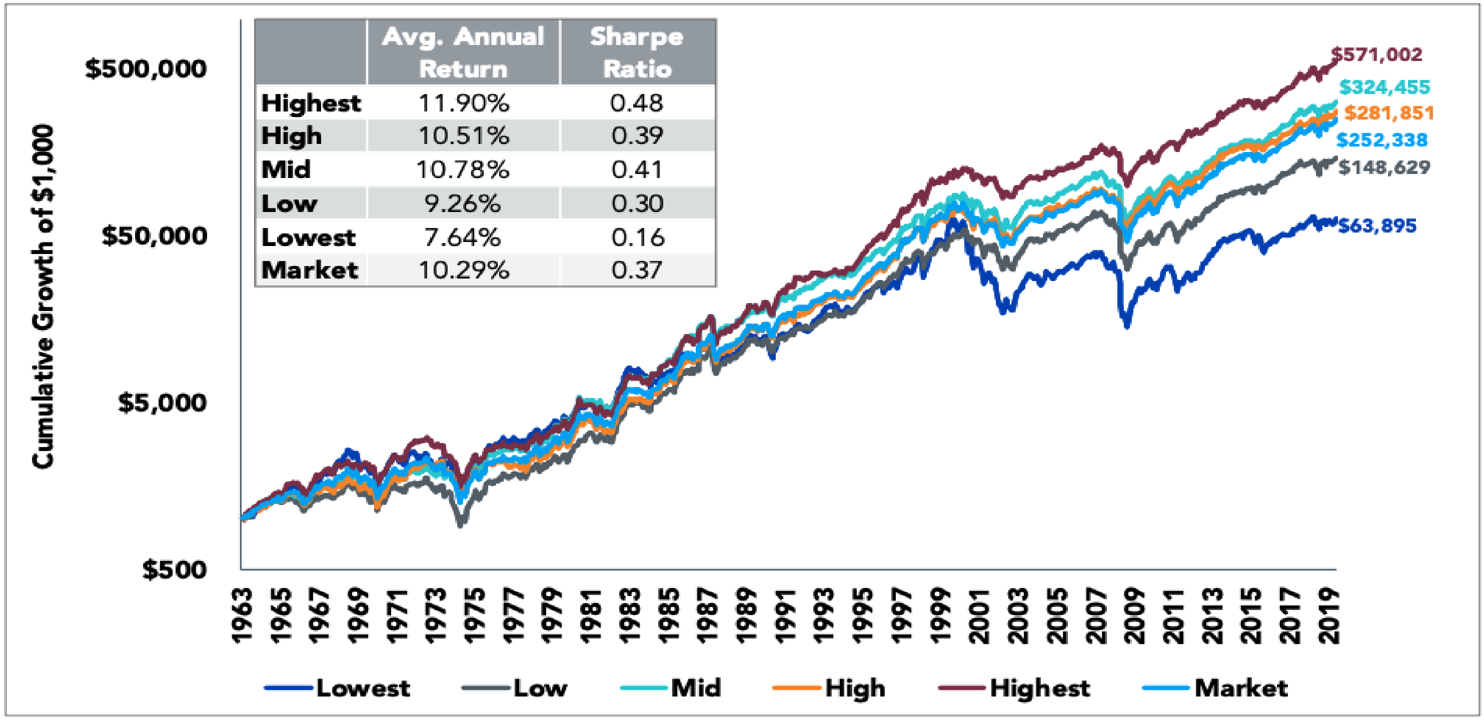




Source: ETFAction. Data accessed on March 5, 2020.

Own quality. Besides it historically "*working*," you likely won't get fired for owning a basket of high-quality stocks.

The highest quintile of high quality stocks has historically produced the highest Sharpe Ratio.



	Avg. Annual Return	Sharpe Ratio
Highest	11.90%	0.48
High	10.51%	0.39
Mid	10.78%	0.41
Low	9.26%	0.30
Lowest	7.64%	0.16
Market	10.29%	0.37

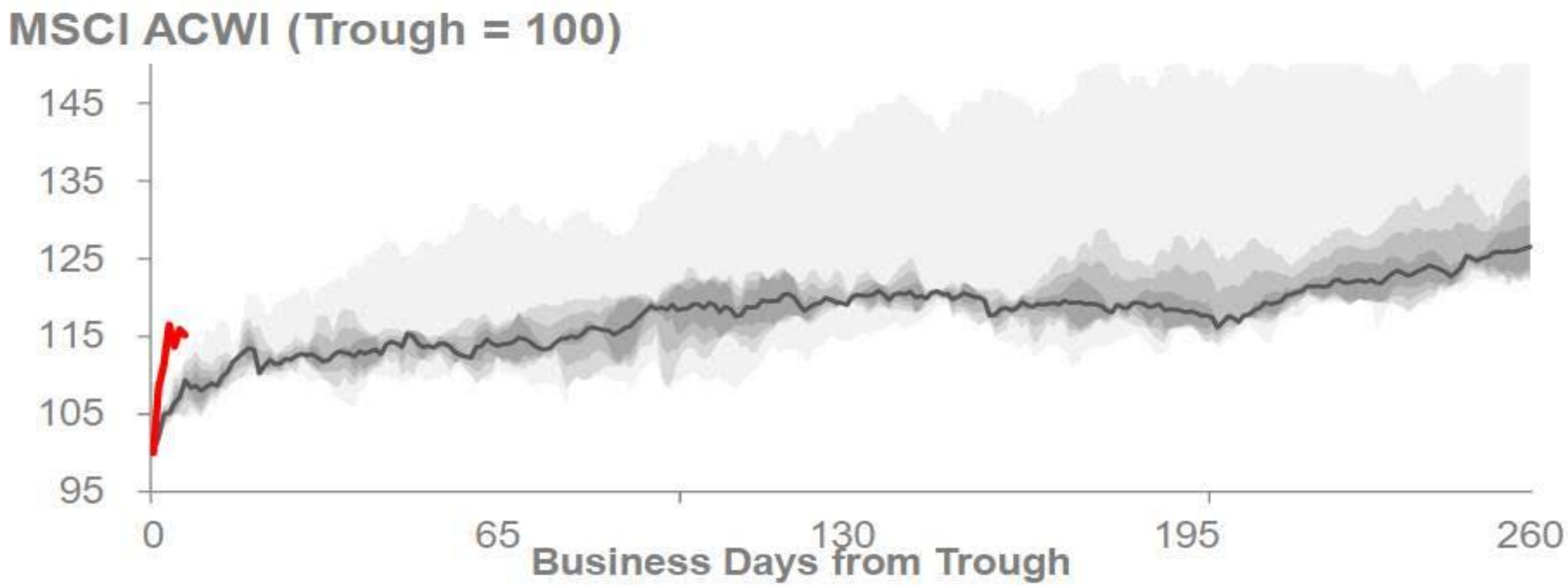
Source: Kenneth French Data Library, with data as of 11/30/2019. Data as of specified dates using latest available quarterly data. Period based on availability of Operating Profitability returns sorted into quintiles, which begins 6/30/1963. Universe is U.S. listed equities grouped on the basis of operating profitability. Market refers to Fama French's measure of return on the market, which is based on value-weight return of all CRSP firms incorporated in the U.S. and listed on the NYSE, AMEX, or NASDAQ. Past performance is not indicative of future results.

Chart Source: WisdomTree

Enormous fiscal stimulus has led to a sharp rally in stocks moreso than previous bear markets.

The current rally is a reflection of 1) the severe sell-off (reflexivity) and 2) fiscal & Fed response.

Exhibit 1: Latest ACWI rally looks stronger than the typical bear market recovery

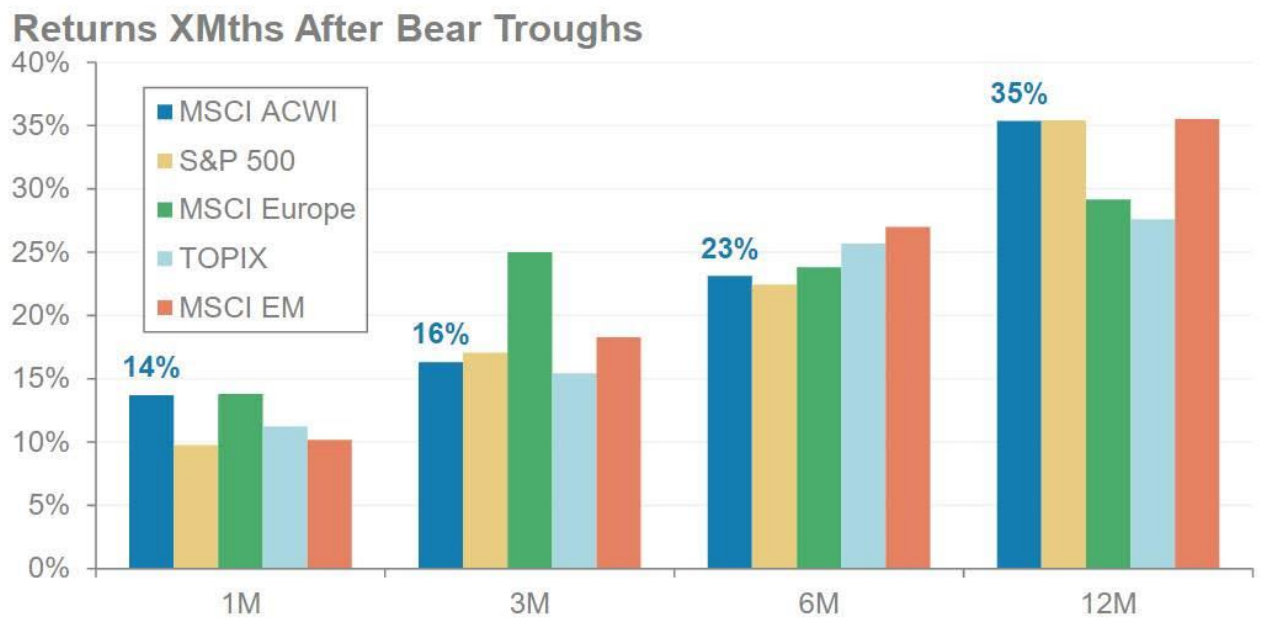


Source: Bloomberg, Morgan Stanley Research; Note: Assumes ACWI troughed on March 23, 2020. Each band represents observation decile starting at 10% to 90%, solid line is median.

Buying stocks during a recession requires mental fortitude and strength. Most don't have it but for those that do, it can be very profitable.

There has been strong outperformance when buying stocks during bear market troughs.

Exhibit 9: Performance after bear market troughs tends to be exceptionally strong



Source: Bloomberg, Morgan Stanley Research

Using Bloomberg's risk model, we show the total risk contribution from a variety of asset classes. Naturally the higher the equity allocation we hold, the greater the equity risk contribution to that specific model.

Total Risk

Model	Equity	Currency	Fixed Income	Non-Factor	Commodity	Alternative
Multi-Asset Risk Strategy	1.31	1.58	1.26	0.70	0.96	0.00
Dynamic Aggressive Model	1.91	0.60	0.53	0.88	0.95	0.00
Dynamic Growth Model	1.48	0.87	0.72	0.78	0.95	0.00
Dynamic Growth & Income Model	1.24	1.16	0.85	0.69	0.96	0.00
Dynamic Conservative Model	0.92	1.86	1.05	0.53	0.97	0.00
Risk Managed Dynamic Income Model	0.42	2.57	1.62	0.32	0.58	0.00

Source for the above tables: Bloomberg, Astoria Portfolio Advisors. Data accessed on March 31, 2020. Risk Model Source = Bloomberg Global Risk Model. Benchmark = MSCI ACWI and Bloomberg Global Aggregate Bond ETFs. Both the AGG ETF and the BNDX ETF were used proportionately to represent Bloomberg Global Aggregate Bond benchmark portion. Note that Astoria's benchmarks are a blend of MSCI ACWI, Bloomberg Global Aggregate Bond, and Wilshire Liquid Alternative. The above analysis is purely for illustrative purposes to demonstrate Astoria's factor exposure.

Below we show the equity risk contribution from Country, Style, & Industry risk.

Equity Risk

Model	Equity Risk Country	Equity Risk Style	Equity Risk Industry
Multi-Asset Risk Strategy	1.39	0.67	0.46
Dynamic Aggressive Model	1.08	0.91	0.51
Dynamic Growth Model	0.66	0.89	0.48
Dynamic Growth & Income Model	0.50	0.78	0.42
Dynamic Conservative Model	0.60	0.42	0.38
Risk Managed Dynamic Income Model	0.31	0.27	0.35

Source for the above tables: Bloomberg, Astoria Portfolio Advisors. Data accessed on March 31, 2020. Risk Model Source = Bloomberg Global Risk Model. Benchmark = MSCI ACWI and Bloomberg Global Aggregate Bond ETFs. Both the AGG ETF and the BNDX ETF were used proportionately to represent Bloomberg Global Aggregate Bond benchmark portion. Note that Astoria's benchmarks are a blend of MSCI ACWI, Bloomberg Global Aggregate Bond, and Wilshire Liquid Alternative. The above analysis is purely for illustrative purposes to demonstrate Astoria's factor exposure.

Our models are tilted towards Profit and tilted away from Size.

Style Factor Exposures

Model	GL Profit	GL Dividend Yield	GL Trade Activity	GL Earnings Variability	GL Value	GL Momentum	GL Volatility	GL Growth	GL Size	GL Leverage
	Portfolio Versus Benchmark Style Factor Exposure									
Multi-Asset Risk Strategy	0.18	0.00	0.06	0.06	-0.02	0.06	-0.02	-0.02	-0.30	-0.03
Dynamic Aggressive Model	0.24	-0.04	0.07	0.10	-0.03	0.07	-0.02	0.02	-0.39	-0.07
Dynamic Growth Model	0.24	-0.04	0.05	0.09	-0.03	0.06	-0.02	0.02	-0.33	-0.07
Dynamic Growth & Income Model	0.20	-0.03	0.04	0.08	-0.03	0.05	-0.02	0.02	-0.29	-0.06
Dynamic Conservative Model	0.09	-0.03	0.07	0.05	-0.01	0.05	-0.02	0.00	-0.24	-0.03
Risk Managed Dynamic Income Model	0.06	-0.01	0.01	0.02	-0.01	0.03	0.00	-0.01	-0.09	-0.02

Source for the above tables: Bloomberg, Astoria Portfolio Advisors. Data accessed on March 31, 2020. Risk Model Source = Bloomberg Global Risk Model. Benchmark = MSCI ACWI and Bloomberg Global Aggregate Bond ETFs. Both the AGG ETF and the BNDX ETF were used proportionately to represent Bloomberg Global Aggregate Bond benchmark portion. Note that Astoria's benchmarks are a blend of MSCI ACWI, Bloomberg Global Aggregate Bond, and Wilshire Liquid Alternative. The above analysis is purely for illustrative purposes to demonstrate Astoria's factor exposure.

All of our models have lower PE ratios, higher ROE / ROA compared to our benchmark.

Dynamic Growth & Income Model

Characteristic	Model	Benchmark	Difference
Dividend Yield	2.98	2.92	0.06
P/E	14.96	15.74	-0.78
P/B	2.65	1.87	0.78
Total D/E	102.54	138.46	-35.92
BEst P/E	14.02	14.07	-0.05
FCF Yield	4.86	4.51	0.35
BEst EV/EBITDA	10.92	9.61	1.31
ROE	17.69	11.62	6.07
BEst ROE	30.89	24.44	6.45
ROA	5.01	1.96	3.05
BEst ROA	11.30	8.49	2.81

Source: Bloomberg, Astoria Portfolio Advisors. Data accessed on March 31, 2020.

Multi-Asset Risk Strategy

Characteristic	Model	Benchmark	Difference
Dividend Yield	2.94	2.92	0.02
P/E	14.84	15.74	-0.90
P/B	2.62	1.87	0.75
Total D/E	115.22	138.46	-23.24
BEst P/E	14.00	14.07	-0.07
FCF Yield	4.93	4.51	0.42
BEst EV/EBITDA	11.05	9.61	1.44
ROE	16.89	11.62	5.27
BEst ROE	32.24	24.44	7.80
ROA	4.30	1.96	2.34
BEst ROA	11.00	8.49	2.51

Source: Bloomberg, Astoria Portfolio Advisors. Data accessed on March 31, 2020.

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