Update on Adaptive Momentum Investing: Portfolio with Non-Leveraged ETFs

Toma Hentea
Investing Group Leader

Philosophy and Strategy

My investing philosophy is to be fully invested in stocks during periods of market price uptrends (risk-on), and to switch to safe assets, namely Treasury bonds or cash, when markets are in deep price corrections (risk-off). When markets are in transition (risk-neutral), all funds are invested in defensive equity sectors.

My market strategy is simple. It's composed of two steps: (1) At a macro level, I monitor the state of the markets and decide if the market is in risk-on, risk-off, or risk-neutral and (2) I adjust the composition and weightings of portfolio assets based on which stocks or ETFs are doing best -i.e., those with the best momentum.

Investment Choices

Risk-ON: Top two non-leveraged ETFs from this list: QQQ, SPY, XLE, XLK, XRT

Risk-OFF: Top two ETFs from the following list: BIL, SHV, IEI, IEF, TLT DBC, UUP

Risk-NEUTRAL: XLP, XLV

Initially, I developed a market risk indicator with two states: risk-on and risk-off. Later, I introduced a third state, risk-neutral. In this article, I compare the performance of the two models over two periods of time: (1) 2008 to 2020 and (2) 2021 to 2023.

Simulation Results

The table shows the summary performance over the whole 2008 to 2023 period.

Py Top 2 2008-on	CAGR	stdev	maxDD	Sharpe R	Sortino R
2-state model	24.30%	16.68%	-20.03%	1.41	1.92
3-state model	24.95%	15.13%	-15.14%	1.62	2.21
SPY B&H	8.86%	19.48%	-48.86%	0.41	0.51

It can be seen that the 3-state model is better on all factors: higher CAGR, lower standard deviation, lower maximum drawdown, and higher Sharpe and Sortino ratios.

Both models are significantly better than the benchmark, buy-and-hold S&P 500.

The second table shows the results over the time period from 2008 to 2020.

Py Top 2 2008-20	CAGR	stdev	maxDD	Sharpe R	Sortino R
2-state model	20.34%	16.02%	-20.03%	1.27	1.68
3-state model	22.84%	14.30%	-15.14%	1.60	2.12
SPY B&H	9.20%	16.71%	-48.86%	0.41	0.50

For this time period, the outperformance of the 3-state model is bigger.

Finally, the third table shows the performance over the period from 2021 to 2023.

Py Top 2 2021-on	CAGR	stdev	maxDD	Sharpe Ratio	Sortino Ratio
2-state model	42.03%	20.53%	-11.16%	2.05	3.10
3-state model	32.35%	17.66%	-11.16%	1.83	2.75
SPY B&H	7.00%	16.07%	-20.76%	0.39	0.59

The surprising result is that the 2-state model achieved a much higher return, while suffering the same low maximum drawdown as the 3-state model. Obviously, in hindsight, the 2-state model has been the preferred investment choice.

For a more granular comparison, the fourth table shows the annual returns of the two models. The 2-state model had much higher returns in 2022 and 2023.

	2-state	3-state

2007	18.81%	14.81%
2008	25.76%	37.23%
2009	34.09%	29.35%
2010	29.94%	37.07%
2011	8.54%	25.23%
2012	2.77%	-0.57%
2013	19.20%	18.63%
2014	19.61%	22.61%
2015	2.38%	7.40%
2016	9.88%	7.83%
2017	22.63%	17.97%
2018	7.71%	11.10%
2019	20.16%	22.30%
2020	72.59%	72.91%
2021	56.84%	56.12%
2022	29.78%	19.70%
2023	16.78%	7.86%

Conclusions

The main conclusion is that, although overall the 3-state model is better, there may be extended time periods when the 2-state model would be the preferable choice. Since the 2-state model outperformed over the last two years, it is expected that its outperformance would continue. Therefore, my current investment strategy uses the 2-state model.

There are many other parameters that may affect the investment results. Among them is the number of assets selected for investing. In the simulations presented, I used equal weighting for two assets regardless of the state. That means, during risk-on invest equally in the top two risk-on assets; during risk-off invest in the top two risk-off assets.

Unreported simulations show that the number of assets have a significant influence over the results. If all the funds are invested in the single top asset, the return is significantly higher, but the maximum drawdown may also be much higher. Investing in the top three assets is not much different from the two asset variant.

The lists of risk-on, risk-off and risk-neutral assets may be subject to change. In fact, the currency, UUP, and the commodity fund, DBC, have not been part of the original list, but have been added later.

Disclaimer: I am not a financial advisor. I make no recommendations as to specific investments. Neither modeled performance nor past performance are any guarantee of future results.