Weekly Research Insights - A Simple and Effective Tactical Allocation Strategy

Dynamic Rotation Between Equities and Defensive Assets

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JUL 17, 2025 · PAID

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Hi there. In this week's Research Insights, I replicate and discuss a recent research pap that presents a simple yet effective tactical allocation strategy rotating between equit bonds, commodities, and currencies. The approach is easy to implement and has historically delivered returns comparable to SPY, but with much lower volatility and smaller drawdowns.

For investors with a higher risk appetite, I also test a leveraged version that delivers substantially higher performance than SPY while maintaining a similar level of volati

More details below.

Background

Traditional portfolios often rely on fixed allocations between stocks and bonds, such the classic 60/40 model. However, during times of crisis, such as inflation spikes or financial panics, both asset classes can decline simultaneously, leaving investors vulnerable. The bear market of 2022 was a prime example, as bonds failed to provic their usual hedge against falling equities. This dynamic tends to occur when equity markets drop amid rising inflation, as seen during the stagflation of the 1970s and early 1980s.

Previous research has shown that momentum-based asset rotation can improve performance, particularly during periods of market stress. However, many tactical models still rely heavily on a single defensive asset (such as long-term Treasuries), which may not always provide protection. A recent [paper](#) by Thomas Carlson introduces a strategy called *Defense First*, which rotates monthly among five ETFs, e

targeting a different type of market risk. This strategy provides a systematic and adaptive way to stay defensive without relying on just one asset class.

Paper's Methodology and Results

- The strategy is tested over the period from 1986 to 2025, using ETFs when available and proxy indices for earlier years.

- Each month, the model ranks four ETFs, Treasuries (TLT), Gold (GLD), Commodit (DBC), and the U.S. Dollar (UUP), based on their returns over four lookback windows: 1, 3, 6, and 12 months. Each asset receives a momentum score equal the average return across these periods.

- Portfolio weights are fixed by rank: 40% for the top-ranked asset, then 30%, 20 and 10% for the others.

- If an asset's momentum score is lower than the 90-day Treasury bill yield (used a cash benchmark), its fixed weight is instead allocated to equities via SPY.

- The strategy delivers an annualized return of around 9.6% after costs, compared 11% for SPY. However, its risk profile is far superior, with a Sharpe ratio of 0.89 versus 0.57 for SPY, and a maximum drawdown of only 15% versus 51% for SPY

SPY essentially acts as the "fallback asset," receiving the weights of any ETF whose momentum fails to exceed the cash rate. As a result, non-equity assets can hold up 40% individually, while SPY's allocation can range from 0% to 100%, depending on market conditions.

Testing the Strategy

To replicate the paper's main results, I use ETF data from EODHD covering the perio from February 2008 to July 2025. This sample is shorter than the original paper's, which relies on proxy indices before 2008. For computing excess returns and Sharpe

ratios, and as a benchmark for comparing momentum returns, I use the 3-month T-rate (DTB3), sourced from the Federal Reserve Bank of St. Louis (FRED).

As in the paper, I assume rebalancing occurs at the end of each month. However, I base signal generation on the previous day's closing prices, making it feasible to execute trades using, for example, market-on-close orders. I apply a one-way transaction cost of 5 basis points. At each rebalance date, I calculate the average momentum return for each asset across the four lookback periods and compare it t the prevailing 3-month T-bill rate. If an asset's momentum return exceeds the T-bill rate, it receives its assigned portfolio weight; otherwise, that fixed weight is realloca to SPY.

Results

Following the procedure described above, I obtain the following performance:

	Strategy	SPY
CAGR	9.41	11.29
Ann. Volatility	10.52	20.13
Max Drawdown	-24.17	-51.48
Sharpe Ratio	0.83	0.59
Correlation with SPY	0.39	1.00

Cumulative Returns

Drawdowns: Strategy
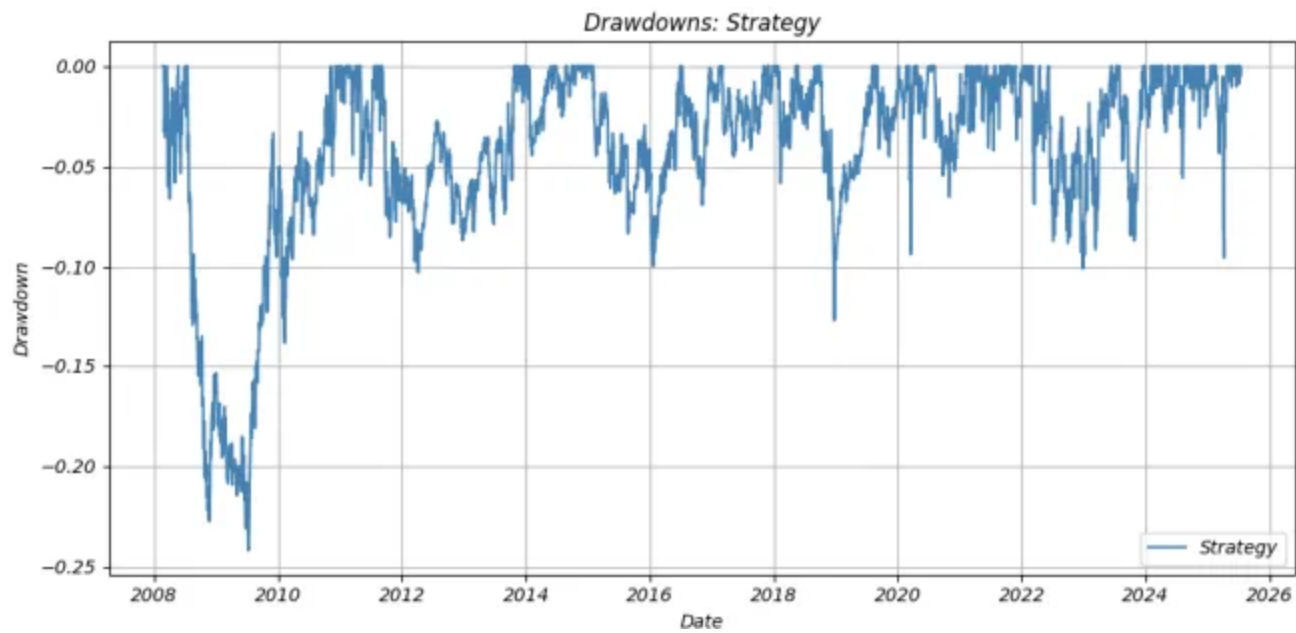
```
Annual Returns:
        Strategy    SPY
Date
2009        8.71   26.35
2010       12.88   15.06
2011       14.18    1.90
2012       -1.89   15.99
2013       15.07   32.31
2014        8.98   13.46
2015       -0.70    1.23
2016        6.99   12.00
2017        5.61   21.71
2018       -2.12   -4.57
2019       13.78   31.22
2020       17.32   18.33
2021       21.69   28.73
2022        4.86  -18.18
2023       15.07   26.18
2024       23.33   24.89
2025       15.77    6.79
```

The strategy delivers a CAGR of approximately 9.5% after costs, slightly below SPY's 11.3%. However, it achieves this with only half the volatility. The Sharpe ratio is significantly higher, 0.83 for the strategy compared to 0.59 for SPY, and the maximum drawdown is less than half of SPY's. The drawdown chart highlights this resilience, showing relatively muted declines over time, except during the 2008 financial crisis when the strategy experienced a drawdown of around 24%. In contrast, during the 2022 bear market, the strategy's drawdown peaked at only about 10%.

The annual performance table reinforces this defensiveness: The strategy gained roughly 5% in 2022, significantly outperforming SPY. In 2025 so far, it has returned about 15%, driven by allocations to both gold and equities throughout the year.

To illustrate how the portfolio adjusts over time, consider the period from 2021 to 2023, which includes the bear market of 2022.

During the bull run of 2021, the strategy maintained a 50–60% allocation to SPY. As markets turned in 2022, it quickly reduced equity exposure and reallocated most of portfolio to the U.S. Dollar (UUP) and commodities (DBC). Toward the end of 2022 a into the 2023 rebound, the model rotated back into equities, reaching a full 100% allocation to SPY at the start of 2023. This sequence highlights the strategy's adaptability and its ability to shift between risk assets and defensive positions in response to changing market conditions.

Increasing Leverage

Some investors may view the CAGR of 9.5% as too modest and be willing to accept more volatility in exchange for higher returns. One way to achieve this is by replacir SPY with a leveraged ETF, depending on individual risk preferences. For example, substituting SPY with SPXL, the triple-leveraged S&P 500 ETF, and rerunning the mc

provides a more aggressive version of the strategy. Since SPXL was listed in Novem 2008, the sample period starts from that point.

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                      Strategy    SPY
CAGR                     20.98  13.99
Ann. Volatility          20.56  17.33
Max Drawdown            -30.23 -33.72
Max DD / Ann. Vol         1.47   1.95
Sharpe Ratio              0.99   0.79
Correlation with SPY      0.69   1.00
```

```
Annual Returns:
        Strategy     SPY
Date
2010       19.76   15.06
2011       18.05    1.90
2012        2.97   15.99
2013       59.74   32.31
2014       11.90   13.46
2015       -2.97    1.23
2016       10.21   12.00
2017       22.52   21.71
2018      -12.67   -4.57
2019       26.35   31.22
2020       30.20   18.33
2021       51.87   28.73
2022       -7.35  -18.18
2023       41.64   26.18
2024       57.14   24.89
2025       23.50    6.79
```

With SPXL as the fallback asset, the strategy's CAGR rises to approximately 21%, wh its volatility becomes similar to that of SPY. The strategy's Sharpe ratio is significant higher than that of SPY, 0.99 compared to 0.79. The annual performance table show consistent outperformance across many years. So far in 2025, the strategy has retur about 23%, once again driven by substantial allocations to both gold and equities throughout the year.

Conclusions

I find results that closely mirror those in the original paper. The strategy offers an interesting alternative to static portfolios, particularly in uncertain or volatile market While the base version delivers a slightly lower raw return than SPY, it does so with

significantly less risk, resulting in superior risk-adjusted performance. During period like 2022, when both stocks and bonds struggled, the model successfully shifted exposure to the U.S. dollar and commodities, helping cushion the downside. Its des comparing momentum signals to the risk-free rate and reallocating to equities only when the alternative assets underperform, ensures the strategy remains both adapt and disciplined.

For investors willing to accept more volatility, replacing SPY with SPXL significantly boosts long-term returns while still maintaining a strong Sharpe ratio. The leverage version remained resilient in turbulent markets and delivered impressive results in many calendar years, including strong year-to-date performance in 2025.

While the current approach is simple and effective, it also provides a solid foundatic for further exploration. One could test alternative weighting schemes, add other defensive assets such as volatility ETFs, or incorporate additional filters and trend-following rules to enhance performance.

Overall, the strategy presents a robust framework for tactical asset allocation with c rules and strong historical results. It's easy to implement, adaptable to different risk preferences, and well-suited for investors seeking a systematic way to stay defensiv without sacrificing long-term return potential.

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References

Carlson, Thomas, 2025, Defense First: A Multi-Asset Tactical Model for Adaptive Downside Protection, [SSRN Working Paper 5334772](https://www.quantseeker.com/p/weekly-research-insights-a-simple).

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Flo 🟢 Jul 18

thanks for checking this interesting paper! I have one question:

"If an asset's momentum score is lower than the 90-day Treasury bill yield (used as a cash benchmark its fixed weight is instead allocated to equities via SPY."

what happens when lets say TLT's momentum is less then that of T-Bills and the SPY's momentum well less then T-Bill momentum? Does the system still switch the TLT portion to SPY?

Thanks!

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> **6 replies by QuantSeeker and others**

William ⊗ Jul 17

Are you able to outline how the momentum signals were generated and how the weighting deci were made?

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3 replies by QuantSeeker and others

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