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# Managed risk investment solutions: A case study on evaluating managed risk fund performance

Understanding investment performance in managed risk funds

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Managed risk funds seek to provide investors with a balance between growth potential and downside protection. These funds are common investment options found in retirement products such as variable annuities in the U.S. Managed risk investing solutions emerged following the tech bubble and global financial crisis in the 2000s. To this day, the strategies continue to offer investors strong risk-adjusted returns and downside protection as originally proposed at their inception. This paper introduces a framework for evaluating the performance of managed risk investment strategies.

## Background

Managed risk strategies are prevalent throughout the U.S. variable annuity market. Annuity policyholders who elect a living benefit rider (e.g., guaranteed lifetime withdrawal benefit) are frequently required to select from a set of predefined investment options, including 1) managed risk funds, 2) asset allocation funds, (e.g., 60/40), or 3) maintain a minimum (e.g., 30%–40%) allocation to high-quality fixed income funds. While these investment strategies are implemented very differently from one another, each seeks to manage portfolio volatility and drawdown risk. The implementation and management of these investment options often leads to different return profiles and outcomes for investors.

### How are managed risk strategies implemented?

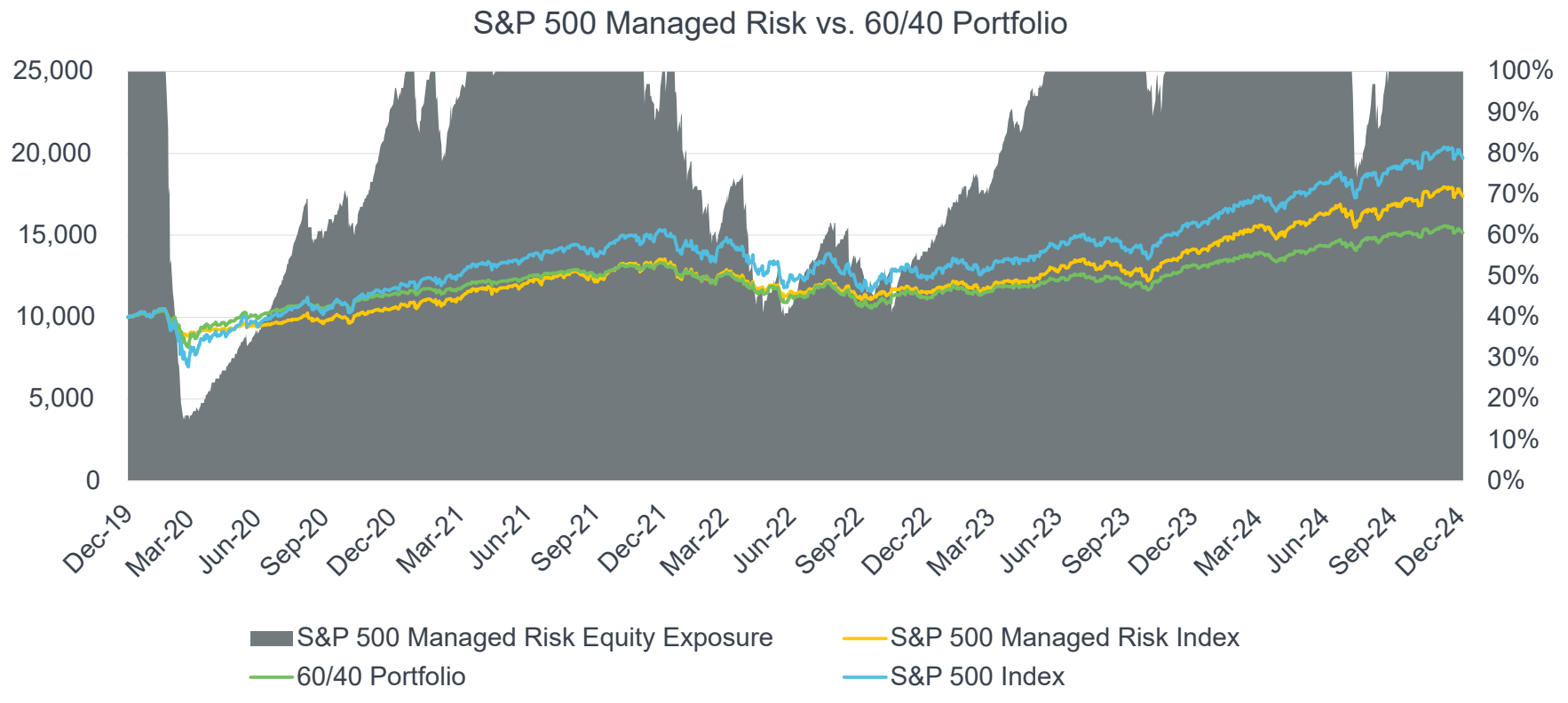
Managed risk investing solutions enable investors to access multiple investment mandates through a single fund by accessing market exposures, while also incorporating an explicit risk management strategy intended to reduce portfolio volatility and/or drawdowns. This dual investment mandate seeks to reshape the fund's overall risk profile.

Generally, risk management strategies are systematic investment programs implemented in one of two ways:

1. Through a derivatives overlay program, commonly using index futures and/or index options
2. Integrating a risk management program directly into the fund's underlying asset mix through dynamic asset allocation

The specific implementation approach can significantly affect both the fund's agility and effectiveness in terms of achieving its investment objective. Moreover, the market signals or strategy parameters that trigger changes in a fund's risk management program can have a substantial impact on overall fund performance. To evaluate a managed risk fund's performance, it is important to measure against an appropriate fund peer group and relevant index benchmarks, given the fund's fundamental characteristics and the type of managed risk strategy it employs.

**Figure 1: 5-Year cumulative return and equity allocation**



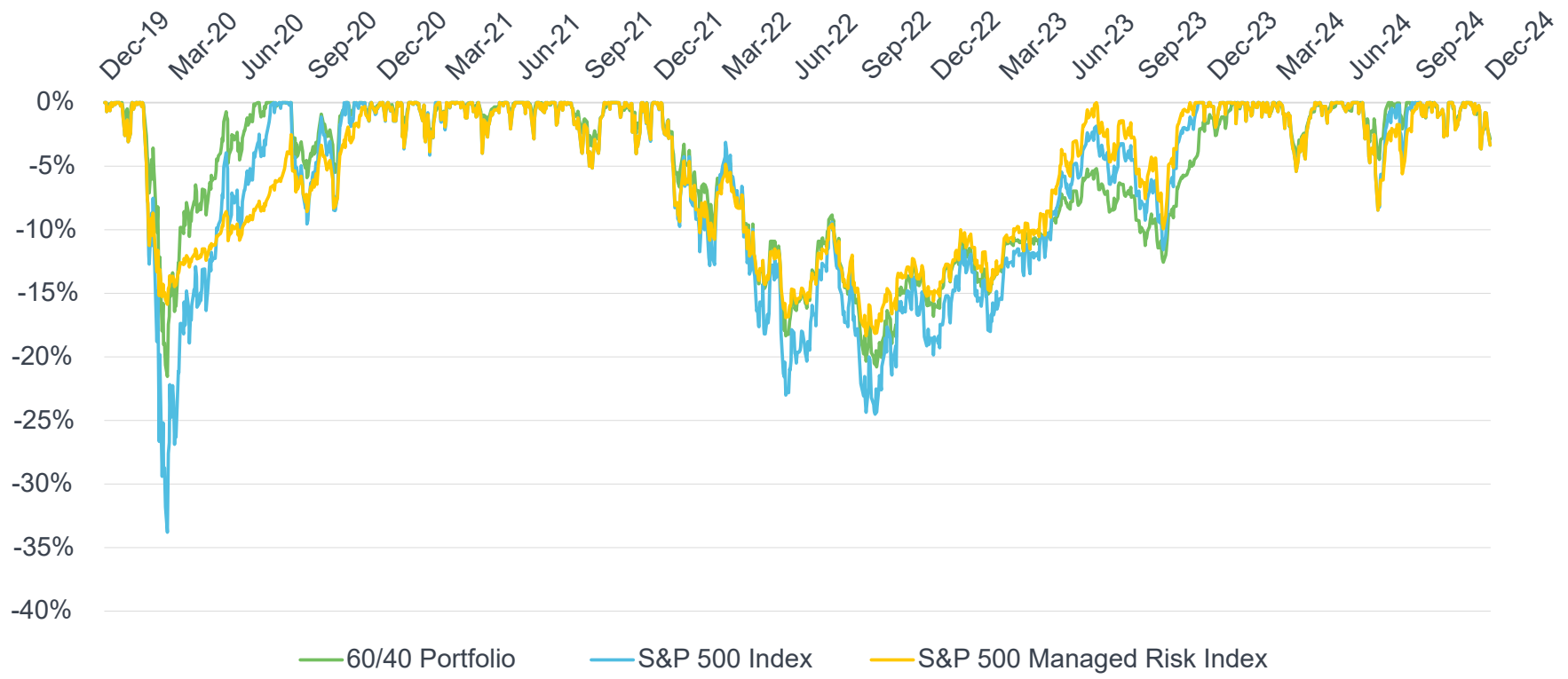

*Source: Milliman Financial Risk Management LLC, Bloomberg L.P.*

*The results shown in Figures 1 and 2 are historical, for informational purposes only, not reflective of any investment, and do not guarantee future results. Any reference to a market index is included for illustrative purposes only, as it is not possible to directly invest in an index. Indices are unmanaged, hypothetical vehicles that serve as market indicators and do not account for the deduction of management fees or transaction costs generally associated with investable products, which otherwise have the effect of reducing the results of an actual investment portfolio.*

## Managed Risk Index vs. 60/40 Portfolio

Figure 1 highlights the adaptive nature of a managed risk investment strategy over a five-year period ending on December 31, 2024. During this period, the S&P 500 Managed Risk Index[1] generated a cumulative return of 73.6%, materially ahead of the 51.5% delivered by a hypothetical 60/40 (equity/bond) portfolio. The S&P 500 Managed Risk Index dynamic asset allocation framework works to reduce equity exposure during market drawdowns and increase it during recoveries. The S&P 500 Managed Risk Index maintained an average equity exposure of 80.3%, substantially higher than the fixed 60% equity weight in the hypothetical portfolio, and was able to generate an excess return while exhibiting an annualized volatility of 12.6%, in line with the 60/40 portfolio, 12.8%.

**Figure 2: Maximum drawdown**




*Source: Milliman Financial Risk Management LLC, Bloomberg L.P.*

The S&P 500 Managed Risk Index's defensive characteristics are apparent in Figure 2. Its maximum drawdown reached -18.3%, compared with -21.5% for the 60/40 portfolio, highlighting stronger downside protection in periods of sustained market stress. When the return and risk attributes are combined, the S&P 500 Managed Risk Index delivered a higher

risk-adjusted performance, with a return-to-volatility ratio of 0.93 versus 0.68 for the 60/40 benchmark. The higher risk-adjusted return is a core attribute of managed risk funds.

The balance of this paper will use the American Funds Managed Risk Growth and Income Portfolio as a case study to evaluate three dimensions central to managed risk funds: 1) performance measurement, 2) risk-mitigation effectiveness, and 3) embedded cost considerations.

# Case study—fund analysis

### Performance measurement: Benchmark and fund peer group selection

The American Funds Managed Risk Growth and Income Portfolio (the Fund) is available exclusively as an underlying investment option in U.S. variable annuity contracts. The Fund's stated investment objective seeks to grow assets and provide income while preserving principal and managing volatility. With those objectives in mind, to construct a meaningful peer group universe, we began with variable annuity guarantee-eligible managed risk funds available in the U.S. A quantitative screen was applied to isolate funds with 1) comparable net equity weights, 2) similar realized volatility profiles, and 3) investment styles as of the peer-group formation date. This methodology resulted in a cohort of 15 distinct managed risk funds that will serve as the primary peer group in the following analysis for performance benchmarking. To supplement the peer group, three common rules-based benchmarks are referenced (i.e., the S&P 500 Managed Risk Index, Cboe S&P 500 Buffer Protect Index,[2] and the S&P Risk Parity 12% Target Volatility Index[3]). These three indices were selected to present cost consideration comparison.

**Figure 3: Fund performance**

| Return | QTD | YTD | 3 Year | 5 Year |
|---|---|---|---|---|
| AF Managed Risk Growth & Income | 1.12% | 17.69% | 4.25% | 7.39% |
| Avg. Peer Group | -0.73% | 12.90% | 2.61% | 5.59% |
| **Volatility** | **QTD** | **YTD** | **3 Year** | **5 Year** |
| AF Managed Risk Growth & Income | 9.43% | 9.56% | 9.20% | 10.12% |
| Avg. Peer Group | 8.99% | 9.11% | 9.62% | 10.31% |
| **Risk adjusted return** | **QTD** | **YTD** | **3 Year** | **5 Year** |
| AF Managed Risk Growth & Income | 0.12 | 1.85 | 0.46 | 0.73 |
| Avg. Peer Group | -0.08 | 1.42 | 0.27 | 0.53 |
| **Max drawdown** | **QTD** | **YTD** | **3 Year** | **5 Year** |
| AF Managed Risk Growth & Income | -2.86% | -4.55% | -19.64% | -20.01% |
| Avg. Peer Group | -3.75% | -4.95% | -19.17% | -20.08% |

*Source: Milliman Financial Risk Management LLC*
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### Fund performance and risk analysis

Figure 3 examines a subset of key performance and risk metrics to consider when evaluating managed risk funds. This analysis focuses on the performance comparison between the Fund and its peer group funds.

The American Funds Managed Risk Growth & Income Portfolio has outperformed the Fund's peer group over the past five years. On an absolute basis, the Fund has outperformed its peer group across all four measured periods during the past five years, delivering excess returns of 180–470 basis points.

The Fund and the peer group's volatility profiles are tightly bound between 8.9% and 10.31% across all periods, indicating that the Fund and the peer group exhibit similar risk profiles and managed volatility mandates. Further

evidence of this can be seen in the Fund's maximum drawdown compared to the peer group's. On a relative basis, the maximum drawdowns were also broadly in line; the Fund experienced marginally shallower drawdowns than the peer group in every period except the three-year window, where the difference was negligible.

The Fund not only outperformed the peer group on an absolute basis, but also importantly in the context of managed risk funds, on a risk-adjusted basis. The Fund delivered the highest return-to-volatility ratios in all measurement periods. In summary, the Fund was able to meet its risk management objective while also providing excess returns over its peers.

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**Figure 4: Definition of cost and protection**

**COST**

Occurs when the quarterly return of the benchmark is greater than that of the strategy, when the benchmark return is positive.

**NEGATIVE PROTECTION**

Occurs when the quarterly return of the benchmark is higher than that of the strategy, when the benchmark return is negative.

**PROTECTION**

Occurs when the quarterly return of the strategy is greater than that of the benchmark, when the benchmark return is negative.

**NEGATIVE COST**

Occurs when the quarterly return of the strategy is greater than that of the benchmark, when the benchmark return is positive.

### Cost of protection

Quantifying the expense of a risk-mitigation program is notoriously difficult. To give investors a clearer lens on those embedded costs, we introduce the hedge cost-to-protection (HCP) ratio—a single metric that converts a strategy's risk-management cost into an easily interpreted figure. The concept was first outlined by S&P Global;[4] we extend their framework by 1) performing the calculation on rolling quarterly returns over the five-year period, and 2) redefining the HCP ratio by moving the cost and protection components around to produce more intuitive results (i.e., by avoiding negative signs that can distort ratios).

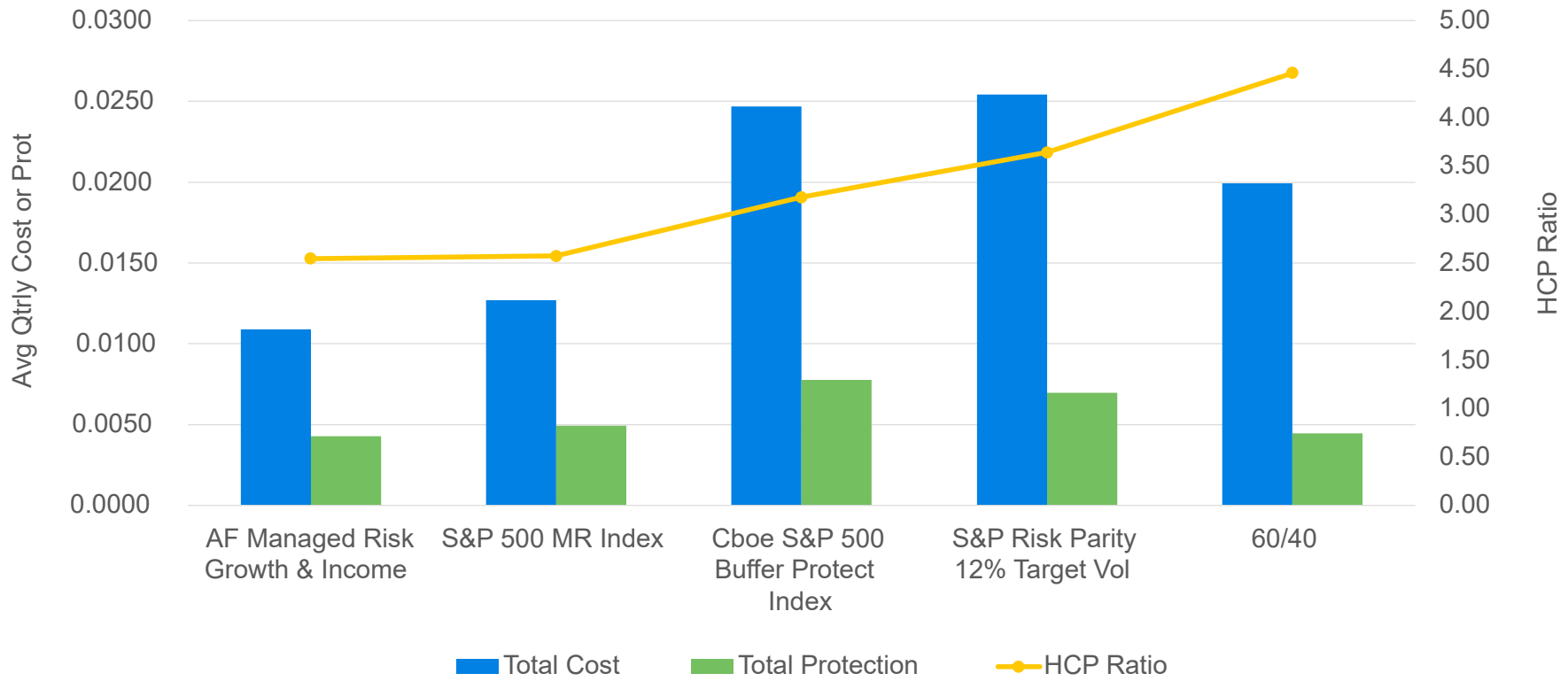
The HCP ratio comprises four components derived from rolling quarterly returns over a five-year period, described in Figure 4 and in the paper's appendix.[5]

Where:

$$\text{HCP Ratio} = \frac{(\text{Cost} + \text{Negative Protection})}{(\text{Protection} + \text{Negative Cost})}$$

The HCP ratio measures the hedging cost per unit of downside protection; the lower the ratio, the more cost-efficient the risk mitigation. We apply this metric to the American Funds Managed Risk Growth & Income Portfolio and compare it with three widely cited managed-risk benchmarks—the S&P 500 Managed Risk Index, the Cboe S&P 500 Buffer Protect Index, and the S&P Risk Parity 12% Target Volatility Index—as well as a traditional 60/40 blend of the S&P 500 Index and Bloomberg U.S. Aggregate Bond Index. This side-by-side evaluation provides an interesting comparison across investment options related to their risk management cost efficiency over the five-year window. The result of the analysis is presented in Figures 5 and 6.

**Figure 5: Hedge cost-to-protection ratio**




*Source: Milliman FInancial Risk Management LLC, Bloomberg L.P.*

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Over the five-year period ending on December 31, 2024, across various risk management techniques, there exhibits a wide range of protection levels and the associated costs. The most cost-efficient strategies were the American Funds Managed Risk Growth & Income Portfolio driven by incurring the lowest total cost, 0.0109, and producing the most favorable HCP ratio at 2.55. The Fund was closely followed by the S&P 500 Managed Risk Index, at 2.57. While the least efficient strategy was the traditional 60/40 stock-bond portfolio, with the highest HCP ratio, 4.46. This was due to the high embedded cost of holding fixed income securities during this period. Lastly, the Cboe S&P 500 10% Buffered Index offered the greatest level of protection, but at more than double the Fund's total cost, resulting in a less efficient HCP ratio of 3.18.

The HCP ratio is a useful addition to investor tool kits to evaluate investment performance and the associated cost to make informed investment decisions. The analysis shows that while each managed risk strategy is designed to target a different part of the protection spectrum, risk mitigation seems to come with its own corresponding cost. Across multiple managed risk strategies, the range of unit cost of protection appears relatively tight, indicating these strategies are delivering their respective risk management promises with broadly comparable cost efficiency (as implied from the HCP). On the other hand, it is evident that managed risk funds as a whole are more cost-efficient than the traditional fixed asset allocation program.

**Figure 6: Hedge cost-to-protection ratio**

| Past 5 years (12/31/2019–12/31/2024) | American Funds Managed Risk Growth & Income | S&P 500 Managed Risk Index | Cboe S&P 500 Buffer Protect Index | S&P Risk Parity 12% Target Vol | 60/40 |
|---|---|---|---|---|---|
| Cost | 0.0098 | 0.0125 | 0.0246 | 0.0204 | 0.0196 |
| Negative Protection | 0.0011 | 0.0002 | 0.0001 | 0.0050 | 0.0003 |
| **Total Cost** | **0.0109** | **0.0127** | **0.0247** | **0.0254** | **0.0199** |
| Protection | 0.0038 | 0.0049 | 0.0075 | 0.0044 | 0.0043 |
| Negative Cost | 0.0005 | 0.0000 | 0.0003 | 0.0026 | 0.0001 |
| **Total Protection** | **0.0043** | **0.0049** | **0.0078** | **0.0070** | **0.0045** |
| **HCP Ratio** | **2.55** | **2.57** | **3.18** | **3.64** | **4.46** |

# Conclusion

Managed risk funds, with the American Funds Managed Risk Growth & Income Portfolio being used as an example in this paper, are designed to meet investors' need to balance growth potential and risk mitigation. The evidence in this case study supports a strong case for managed risk funds that implement sophisticated and effective risk management strategies in an economically disciplined manner.

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# Appendix

[1] The S&P 500 Managed Risk Index seeks to achieve a target level of volatility of 18%, by allocating between an underlying equity index and cash, based on the realized volatilities in the underlying equity. The calculation of exposure to the underlying equity index includes a synthetic put position, which is designed to measure the cost of hedging of downside risk, implemented using a delta adjustment to the equity exposure.

[2] The Cboe S&P 500 Buffer Protect Index is designed to track a hypothetical investment that, over a period of approximately one year, seeks to "buffer protect" against the first 10% of losses due to a decline in the S&P 500 Index while providing participation up to a capped level. The capped level is determined on each annual roll date such that there is no premium or discount to enter into the hypothetical investment compared to an investment in the index.

[3] The S&P Risk Parity 12% Target Volatility Index seeks to measure the performance of a multi-asset risk parity strategy that allocates risk equally among equity, fixed income, and commodities futures contracts, while targeting a volatility level of 12%.

[4] Brzenk, P., Fouilleron, M., Gilbert, C.L., Kobayashi, N., O'Keefe, B., & Liu, B. (October 2023). Beyond volatility: A new way to look at risk managed index strategy performance. S& P Global. Retrieved July 1, 2025, from https://www.spglobal.com/spdji/en/documents/research/research-beyond-volatility-a-new-way-to-look-at-risk-managed-index-strategy-performance.pdf.

[5] Hedge cost ratio components:

1. **Negative cost:**

$$= \sum_{t=1}^{n} \frac{Max[Max[Strategy_t, 0] - Max[Benchmark_t, 0], 0]}{n}$$

2. **Protection:**

$$= \sum_{t=1}^{n} \frac{Max[Min[Strategy_t, 0] - Benchmark_t, 0]}{n}$$

3. **Cost:**

$$= \sum_{t=1}^{n} \frac{Max[Max[Benchmark_t, 0] - Max[Strategy_t, 0], 0]}{n}$$

4. **Negative protection:**

$$= \sum_{t=1}^{n} \frac{Max[Min[Benchmark_t, 0] - Strategy_t, 0]}{n}$$

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