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Managing Downside Equity Risk as an Asset Allocation Strategy: A Look Back at Early Institutional Applications

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EXECUTIVE SUMMARY

- Institutions such as pension funds, endowments and foundations have a long history of using derivatives to manage equity downside risk.
- One such downside protection strategy employed by institutional investors to hedge equity volatility is the put spread collar. This involves the simultaneous purchase and sale of put options to provide downside protection for a range, and sale of a call option to help fund the cost of the downside risk management.
- To reduce the impact of timing risk in a dynamic equity market, institutions frequently implement a downside hedge in a staggered manner so the put spread strike prices can be partially reset or "rolled" every few months to evolve with current market conditions.
- Today, these derivative solutions are packaged in vehicles such as exchange-traded funds (ETFs), often with laddered and programmatic reset of the hedge, making risk management strategies accessible to both retail and institutional investors.
- It is important that investors use the appropriate benchmark when incorporating equity risk reduction strategies into an overall portfolio, selecting a risk-equivalent benchmark that is constructed with equities and cash equivalents or fixed income as opposed to comparing to a benchmark with unhedged equity exposure.

INTRODUCTION

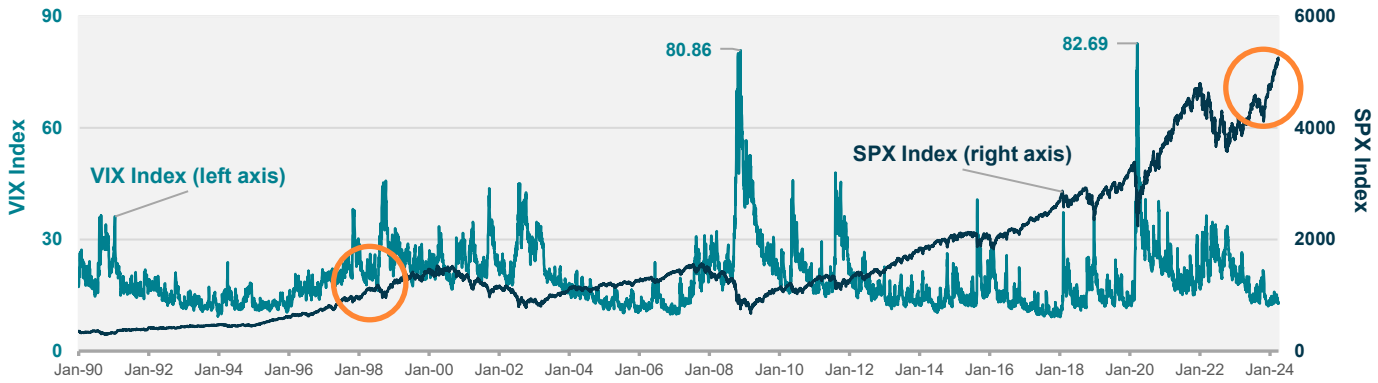
We are again seeing sizable gains for U.S. equities so far in 2024, bolstered by economic growth and falling inflation. Although investors have turned to short-term, fixed income investments to take advantage of the rise in interest rates associated with Federal Reserve tightening, many are now considering shifting back to high levels of equity exposure. Others have seen the weights of their equity allocation increase to levels above target weights. It is noteworthy that downside protection strategies were first considered and implemented by institutional investors in the late 1990s after several years of strong equity returns, but with the prospect of more equity upside potential as the economy expanded and profits grew.

The situation today has some parallels to that of the 1997-1998 period (prior to the burst of the technology bubble in early 2000), when we also had an enduring bull market for most of the prior decade with the prospect of more downside risk in the period ahead. Today, investors are excited by the potential of efficiency and earnings gains from the implementation of artificial intelligence. In the late 1990s, bullishness centered around the power of the recently developed internet and what that could mean for company earnings. Like that period 25 years ago, we see broadening interest in downside risk management strategies for equities. Today, these strategies are packaged in ETFs, making them accessible to both large and small investors, as well as easier to employ as a fund manager handles the design and operational aspects of the strategy in exchange for a management fee.

INSTITUTIONAL DOWNSIDE EQUITY RISK MANAGEMENT: EARLY APPLICATIONS

In the 1990s, institutional investors, such as pension funds, endowments and foundations, were looking to reduce equity downside risk with direct investments in index put option strategies after several years of very favorable equity returns. (The S&P 500 delivered an annualized return of over 30% over the three-year period ending December 1997.) Concerned about how severe a correction could be, corporations with defined benefit pension plans with cyclical earnings and cash flows were early adopters of downside hedging as a means to maintain high equity allocations with less risk of jeopardizing the funded status of their plans.

FIGURE 1: VIX INDEX V. S&P 500 (SPX) INDEX (JAN. 2, 1990 – JAN. 19, 2024)



Daily closing values. Source: Cboe Global Indices

Downside risk management strategies today are known as "buffer" strategies because they buffer or reduce the impact of equity market declines on portfolio values. When these strategies were first implemented on a large scale by institutions some 25 years ago, they were referred to as equity hedges using an index option strategy called "put spread collars." The range of equity returns was "collared" to a future horizon (usually a year or less) with a cap on upside

returns. The sale of an index call option combined with an index exposure provided a premium that was used to purchase a put option that placed a floor representing the bottom of the collar. The goal was to raise enough funds from the sale of the call option to pay for the put hedge. However, because of the high cost of the put option to protect all downside returns, the upside strike level of the call sold was viewed as too low relative to upside return preferences of investors.

In looking at index return distributions, investors found that they could acquire protection for a range of negative returns (e.g., -5% to -20% or 0% to -15%) at a much more cost-effective price, rather than protecting the downside for all potential index levels below a put strike price. This downside protection for a range still provided significant risk reduction (for instance, 15% outperformance to the downside) but allowed for higher upside caps for the covered call component of the collar strategy. The sale of a far out-of-the-money put generated some premium that helped pay for the long put, enabling the call option sold to have a higher strike price and more investor upside participation. This approach also allowed investors to benefit from the fact that the expected index volatility priced into downside put options that were struck far below current index levels was higher than expected index volatility priced into call options struck above the index level. Option market participants correctly observed that equities became more volatile in periods of falling prices, and this was reflected in the cost of buying puts for downside protection. Therefore, setting hedges for a range rather than for the full scope of potential downside moves proved significantly less costly, but still gave investors a meaningful reduction in downside risk.

RATIONALE AND METHODOLOGY FOR DOWNSIDE BUFFER STRATEGIES

As with investors today, in the late 1990s some large institutional investors found themselves at or above their target U.S. equity allocation but were reluctant to reduce equities and shift into fixed income. Instead, they elected to implement equity risk management programs using index put option hedging strategies. Generally, the hedging strategies were applied to 25%-50% of an institution's equity allocation. This meant investors needed to accept somewhat lower expected returns on the equity component being hedged, because the implicit beta was less than 1.0. However, this lower risk/return equity strategy was still a preferred alternative to shifting the funds into fixed income or cash, where the expected returns were significantly lower.

The benefits of reducing downside risk for a portion of equity exposure were several:

1. Potentially participating in further equity market gains while having a cushion against losses.

2. Avoiding the duration risk of adding to fixed income exposure in a period of rising yields.

3. Taking the opportunity to benefit from equities' resilience to inflationary pressures compared to the negative effects on cash and fixed income of rising inflation.

4. Maintaining higher levels of portfolio exposure to equities than would have been feasible, with the ability to carry some of the equity allocation at a lower downside risk profile.

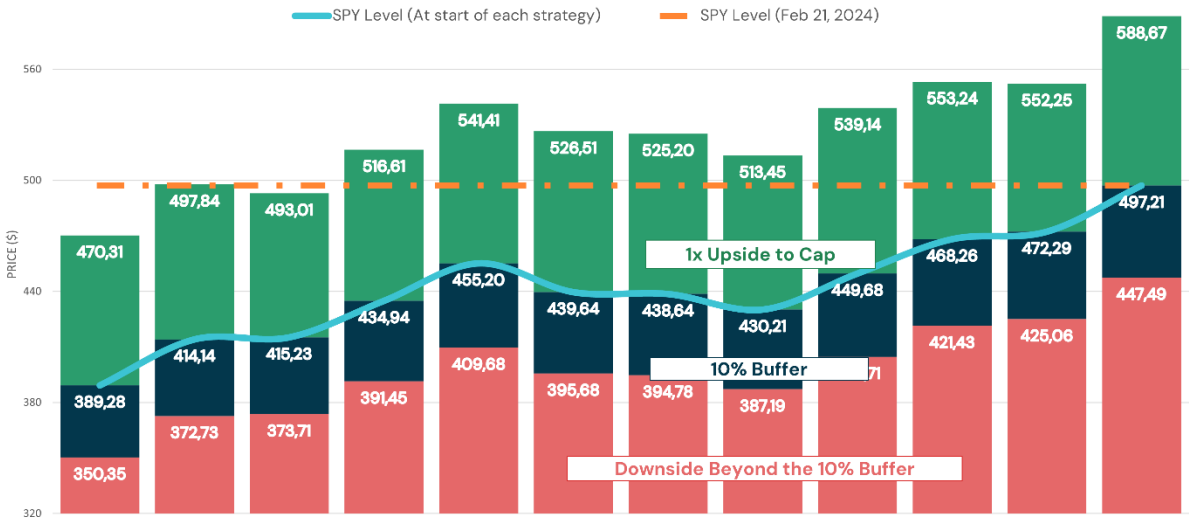
In implementing the equity exposure hedge, institutional investors had a very long-term investment horizon and were unsure whether to choose options with a specific term (such as 12 months), given their horizons tended to be as long as three years. They also understood that, with a three-year put strategy, the reduction in downside risk would be dependent on the timing of equity market decline within the extended three-year period. If the decline occurred in the first six-12 months, the risk reduction would be much less than if the decline occurred when the put options were closer to expiration. To maintain a more consistent downside participation level over time, these investors found a strategy that engaged in a rolling hedge of one-year downside protection strategies most appropriate.

The portion of equity exposure hedged utilized a laddered (tranched) series of put spread collars expiring each quarter over the next 12 months, which could be rolled as time passed. The strategy was set up with 25% of the notional amount

hedged allocated to put spread collars that expired each quarter. This meant that the investor had a laddered risk management strategy with an approximate average term of six months. As 25% of the hedged exposure options approached their expiration date each quarter, a new 12-month strategy would be put in place around where the index was at that point. The new 12-month put spread collar was set with strike prices based on the current S&P 500 Index levels to the target downside buffer range (e.g., 0%-10%, 5%-15%). This gave the option hedging strategy the advantage of having the range of protection adapt to upward or downward moves in the index over time.

Some ETFs available today use this laddered approach, but more commonly with one-twelfth of the exposure replaced on a monthly basis. As an example, the chart below illustrates how a single ETF can incorporate 12 monthly underlying 10% buffer strategies based on the SPDR® S&P 500® ETF (SPY) as of March 2024.

FIGURE 2: BUFFER AND CAP LEVELS FOR LADDERED PORTFOLIO OF TWELVE 10% BUFFER STRATEGIES (AS OF MARCH 2024)



	Strategy Start Date	3.15.2023	4.19.2023	5.17.2023	6.21.2023	7.19.2023	8.16.2023	9.20.2023	10.18.2023	11.15.2023	12.20.2023	1.17.2024	2.21.2024
	Months to Maturity	1	2	3	4	5	6	7	8	9	10	11	12
(Established at start of each strategy)	Cap %	20,82%	20,21%	18,73%	18,78%	18,94%	19,76%	19,73%	19,35%	19,89%	18,15%	16,93%	18,39%
	Cap Level	470,31	497,84	493,01	516,61	541,41	526,51	525,20	513,45	539,14	553,24	552,25	588,67
	SPY Level	389,28	414,14	415,23	434,94	455,20	439,64	438,64	430,21	449,68	468,26	472,29	497,21
	10% Buffer Begins	389,28	414,14	415,23	434,94	455,20	439,64	438,64	430,21	449,68	468,26	472,29	497,21
	10% Buffer Ends	350,35	372,73	373,71	391,45	409,68	395,68	394,78	387,19	404,71	421,43	425,06	447,49

Institutional investors who successfully used equity downside risk strategies as a portfolio risk reduction tool over 20 years ago recognized the importance of having an appropriate benchmark to assess the value of the equity hedging decision. Such a benchmark should be based on the asset allocation that would have been implemented as an alternative to the hedge of overweight equity exposure. For example, if an investor has a 70%/30% equity/fixed income mix, he or she may decide to hedge half of the equity exposure rather than shift 10% into fixed income and move to a 60%/40% mix. Therefore, the benchmark for the 70%/30% position with 35% (one-half) of the equity exposure hedged should be the returns of the portfolio with a 60%/40% equity/fixed income mix—the position that would have been held in the absence of equity hedging. The main point here is that the benefits or costs of downside risk management strategies should not be compared to a fully invested equity position, but rather to a risk-equivalent alternative that would be constructed with equities and cash equivalents or fixed income.

DISCLOSURE

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