WHITEPAPER

Buffer strategies for downside protection? A short-term and long-term perspective

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1. Introduction

The past few years have seen the proliferation of outcome ETFs. While this is an overarching term encompassing different investment goals and underlying strategies, the current paper follows the nomenclature used by BlackRock (BlackRock, "Outcome ETFs: A powerful tool for a changing world", 2025) and focuses on the targeted protection category (which it refers to as the "buffer" category). This comprises ETFs that are positioned to provide investors with a targeted level of protection over an outcome horizon plus upside participation up to a certain cap.

According to Morningstar, assets in the buffer ETF category have grown from USD 5 billion as of the end of 2020 to nearly USD 50 billion (Morningstar, 2025). This growth is often attributed to a combination of ETF product innovation and volatile market environments.

Figure 1: The growth of buffer ETFs

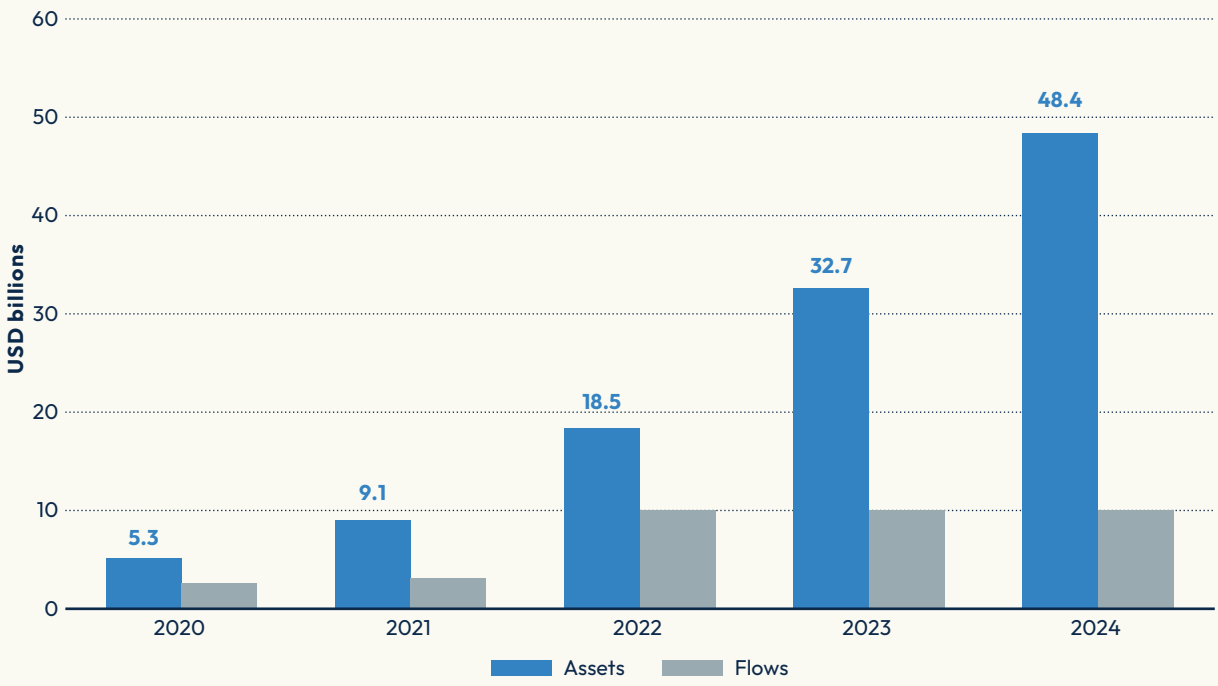


Chart: Gabe Alpert. Source: Morningstar Direct.

According to (Johnson, 2024) some investors consider these funds to be alternatives to conventional defensive equity factors, such as low volatility, due to their risk characteristics. This is also suggested as a viable use case by their issuers (Innovator, 2022). In the same vein, their downside protection ability during market declines is often contrasted with that of other defensive solutions; this is discussed, for example, in (Poirier, 2021), (Hill, 2023) and (Liu, 2023). However, many of these discussions center around US market applications, with only limited exploration of European contexts.

In view of these developments, this paper uses a European buffer index to discuss potential key considerations for investors seeking to adopt buffer strategies in their portfolios from both a short- and a long-term perspective.

2. Buffer strategy

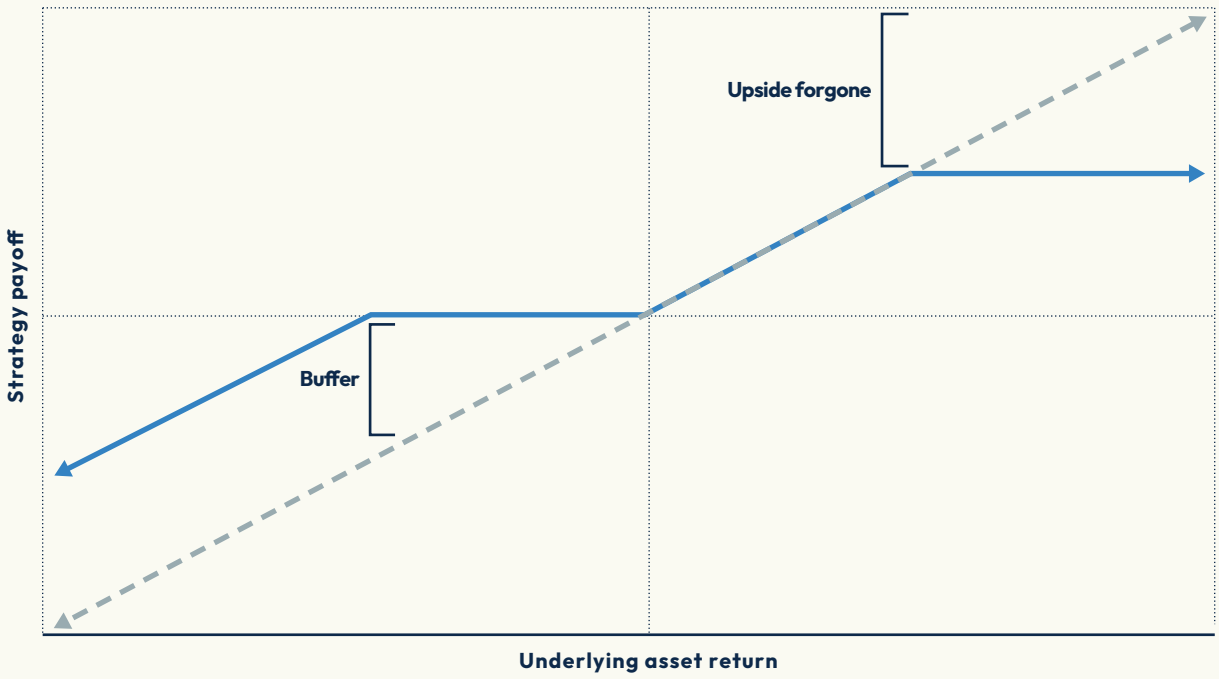
This section takes an under-the-hood look at buffer ETFs. Following an initial overview, we will discuss their potential uses before finally delving into the core methodology behind them.

2.1 Overview

Buffer ETFs are designed to target downside protection over an outcome horizon while still participating in potential market gains up to a certain cap.

The "target" of a buffer strategy refers only to the downside and not to the upside, since the latter can vary across different outcome periods depending on prevailing market conditions. At the end of an outcome period, the payoff profile adopted for a generic buffer strategy can be illustrated as follows in Figure 2.

Figure 2: Payoff profile of a buffer strategy



Source: STOXX.

These strategies use European-style[1] put and call options to target a return outcome. This approach has been used for decades by institutional investors to reduce equity downside risk while remaining invested in their equity allocations.

[1] The name given to an options contract that can only be exercised when the option series concerned expires.

Historically, similar targeted outcome profiles have also been accessible to institutional and high net-worth investors in particular through capital-protected equity-linked structured products. Recently, however, these strategies have been increasingly implemented in ETF formats. This structure avoids the credit risk associated with structured product issuers, and offers additional benefits such as better liquidity and greater transparency - all of which have fueled their expansion amid volatile markets.

Unlike structured products, buffer ETFs do not have product maturities but are instead structured in such a way that the outcome conditions are reset for the predetermined horizon. This means that, from an ETF investor's perspective, point of entry into the product affects their ability to achieve the intended outcome. For this reason, investors who enter after the start of the outcome period must refer to the remaining cap/buffer based on the ETF current price to understand the potential maximum return/downside protection that would be provided by the ETF if held to the end of the outcome period.

2.2 Use cases

Buffer ETFs package risk mitigation into a single fund structure, offering a one-ticker solution that enables investors seeking downside protection to stay invested without having to manage complex derivative positions or multiple trades.

Given the variety of outcome profiles they offer, buffer ETFs can be versatile additions to investor portfolios. Broadly speaking, their use cases[2] can be categorized as follows:

- Tactical trades for investors with a specific short-term market view and
- Strategic allocations for downside reduction, cash equitization or complimentary diversification

Investors with specific risk limits may find buffer ETFs useful in helping to manage their objectives. However, despite their ease of access and built-in risk management features, they – like all investment products – are not free from inherent trade-offs.

Also, to the extent that investment decisions depend on investors' unique goals, constraints and circumstances, buffer ETFs are certainly not the only tool available for investors pursuing such use cases. So how do they stack up against other alternatives?

This paper approaches this question from both a short- and a long-term perspective. Specifically, we are interested in the following:

- To what kind of short-term market outlooks could buffer strategies be adapted?
- What could be the implications of buffer strategies in the case of long-term horizons?

[2] See (BlackRock, 2025), for example, for further details.

2.3 Index methodology

Buffer strategies generally, though not invariably, involve taking a long position on the underlying asset in combination with two layers of option overlays:

- The protection layer: A put or bear put spread structure which provides protection on the underlying asset[3]
- The financing layer: A short call position that collects the premiums from the sale of the calls, thus imposing a cap on the upside potential[4]

Regular put buyers have to pay premiums up front for the protection they obtain. In a zero-cost structure, the call premiums collected in the financing layer fully offset the cost of the protection layer, allowing investors to achieve the targeted protection.

In the following, we have focused on the rule-based index implementation of a buffer strategy with a quarterly outcome horizon that targets a protection range of –5% to –20%. Table 1 summarizes the steps in the methodology and key design elements used for the simulated buffer strategy index.

Table 1: Overview of buffer strategy components

Design element	Description	
Objective	To track the performance of a strategy aimed at protecting against 15% of the losses after the first 5% over a quarterly outcome	
Option selection universe	All quarterly EURO STOXX 50® options[5] traded on Eurex that expire on the next expiration Friday in the March/June/September/December cycle	
Outcome horizon	A quarterly outcome horizon is used to mitigate potential timing risks associated with a longer outcome horizon	
Instrument position (equal notional)	Long: EURO STOXX 50	Dividends tracked by the net return index might affect the protection level, since the option contracts reference the price return index
	Long: 95 put	The first 5% loss is accepted so as to preserve more upside potential. Exchange-traded puts may not correspond to the exact strike price needed to meet the target level[6]
	Short: 80 put	A bear put spread structure achieved by shorting the lower strike put helps mitigate the cost, preserving more upside potential
	Short: Call with TBD strike	Used in place of flexible option contracts to create a net credit spread in which the call with the highest possible strike price that covers the put spread cost is assumed

Source: STOXX.

[3] Put options give the holder the right, but not the obligation, to sell the underlying asset at a predetermined exercise price (strike price), hence creating a floor for the underlying asset value. Bear put spreads involve buying a higher strike put and writing a lower strike put with the same expiry to partially mitigate the cost.

[4] Call options give the holder the right, but not the obligation, to buy the underlying asset at a predetermined price. However, the seller is obliged to sell the underlying asset at the agreed price if the buyer exercises the option, hence forgoing further upside gain.

[5] https://www.eurex.com/ex-en/markets/idx/stx/euro-stoxx-50-derivatives/products/EURO-STOXX-50-Index-Options-46548

[6] Approximated using the highest strike price below or equal to the EURO STOXX 50 settlement price multiplied by the target level on the rebalancing day; same approximation applies to the short put.

Where the strategy is implemented as an index, portfolio rebalancing follows a predetermined schedule that falls on the quarterly expiration Fridays so as to target the outcome profile. The expiring options are rolled into the new ones on each rebalancing day, at which point the outcome conditions are also reset and a new outcome period starts.

3. Defensive alternatives

As mentioned previously, other alternatives exist for investors seeking a more conservative positioning within their portfolio.

For the purposes of this paper, we have used the examples below to contrast the potential strengths and limitations of a buffer strategy. The list is not meant to be exhaustive and we recognize that each category is broad and includes nuances in their methodologies.

Table 2: Comparison of strategies

Strategy	Category	Protection parameters		Upside participation
		Target level	Horizon	
Buffer strategy (–5% to –20%)	Option-based	95%–80%	Quarterly	Capped
Put spread	Option-based	95%–80%	Quarterly	n.a.
Protective put	Option-based	95%	Quarterly	n.a.
EURO STOXX 50® Low Risk Weighted 30	Low risk	n.a.	n.a.	n.a.
60/40 equity/bond	Equity/bond	n.a.	n.a.	n.a.

Source: STOXX.

The following sections provide brief overviews of the alternative defensive strategies given in the table above at category level.

3.1 Equity / bond allocation

One of the most frequently heard arguments in favor of buffer strategies is concern about equity and bond co-movements. As a classic diversification strategy, equity/bond mix portfolios rely on the assumed correlation between the two assets to achieve diversification.

However, certain market environments such as sell-offs due to inflation accompanied by interest rate increases reduce the diversification benefits of these portfolios. By comparison, buffer strategies might be considered to be less sensitive to rising interest rates, since they are free from correlation assumptions between bonds and equities.

We used the EURO STOXX 50 and ICE BofA Euro Corporate indices with the same quarterly rebalancing schedule to simulate a 60/40 equity/bond portfolio.

3.2 Option-based defensive strategies

Perhaps some of the most common strategies in this category are protective puts and bear put spreads. As mentioned previously, these are essentially the bare-bones protection layer in a buffer strategy structure without the financing layer. Therefore, their inclusion serves to highlight the trade-offs between cost and upside potential that are inherent in buffer strategies.

Generally speaking, option-based solutions such as buffer strategies offer the benefit of allowing investors more targeted levels of protection that are independent of the statistical relationships underlying diversification strategies.

However, the option holding period must coincide with the drawdowns for the downside protection to be as effective as possible. As timing market drawdowns is difficult, any systematic implementation of these strategies over the long term needs to consider their costs and efficacy.

For consistency, both the protective put and the put spread strategies[7] are rolled with the quarterly schedule (March, June, September, December) in the same way as for the buffer strategy.

3.3 Low risk (or low vol)

Generally described as the set of investment strategies designed to exploit the low risk anomaly, this category has been a popular investment style for the past two decades and is often compared with buffer strategies – see (Innovator, 2022), for example.

Initially introduced in empirical studies relating to the capital asset pricing model (CAPM), the inverse relationship between equity returns and risks[8] has since been studied beyond beta to include different risk measures, such as total volatility. This has resulted in a wide variety of investment products aimed at capturing different low-risk effects. We acknowledge that there are several ways to construct low risk strategies[9]; for the sake of brevity, we used the EURO STOXX 50 Low Risk Weighted 30 as an example.

This index selects the 30 least volatile blue chips from the EURO STOXX 50, based on their 12-month historical volatility, and weights the constituents by the inverse of their 12-month historical volatility on a quarterly basis.

[7] Selection of the strike price is based on the highest strike price of options trading on Eurex below or equal to the EURO STOXX 50 settlement price, multiplied by the targeted level at the time of construction.

[8] For a comprehensive review of the low-risk effect, see (Blitz, van Vliet, and Baltussen, 2020), among others.

[9] For other low-risk solutions from STOXX, see e.g., the STOXX® Minimum Variance indices.

4. Comparison

Before comparing the alternative defensive strategies, we will start with a brief historical overview of the underlying equity market benchmark – the EURO STOXX 50 – to provide better context for the analysis that follows.

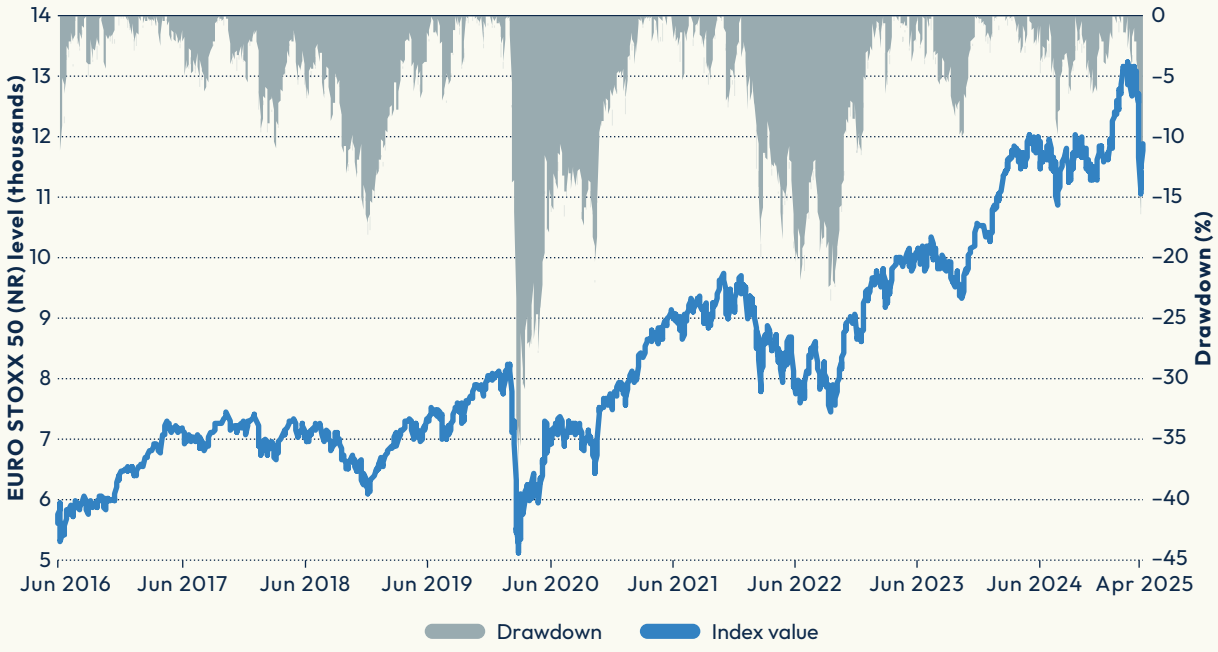
4.1 EURO STOXX 50

As a representative blue-chip equity index for the eurozone, the benchmark captures the largest super-sector leaders in the market and uses additional criteria to ensure liquidity and reduce concentration.

The index, which comprises a complete ecosystem including ETFs, listed derivatives and structured products, serves as the basis for several strategies. It is associated with substantial assets under management (AUM) in passive investable products that offer investors opportunities for core exposure to the market. What is more, options and futures on the index are the most actively traded equity index derivatives on Eurex, making it useful in analyzing options-based strategies.

Figure 3 shows the EURO STOXX 50 (NR) levels for the period from June 17, 2016, to April 16, 2025. This period covers several market events and the market was below its previous peak for approximately 90% of the time. Indeed, it is worth remembering that stocks don't often hit new highs and the market is in fact "underwater" most of the time. This fact also underscores the relevance of effective downside protection, since it could otherwise take a considerable time for the portfolio to recover from some of these risk-off events.

Figure 3: EURO STOXX 50 historical and subperiod drawdowns and recoveries



Source: STOXX. Data for the period from June 17, 2016, to April 16, 2025.

The COVID-19 pandemic was the largest drawdown[10] event in the simulation period, with a size of roughly –38.2% and an intensity of approximately 1.9%.[11] It was sharp but short, and was followed by a recovery phase that lasted for almost one year and featured several other smaller, interim drawdowns.

The simulation period also covers 2022, a year marked by global inflation concerns and the start of the Russia/Ukraine war, which saw another severe drawdown. Unlike COVID-19, however, 2022 represented a long and protracted drawdown that lasted 223 days and had an intensity of approximately 0.11%.

4.2 Short-term perspective

We can see from the above that, given the many different factors that can catalyze volatile markets, drawdowns differ greatly in the time they take to reach their troughs and to recover.

A strategy designed to buffer against a sharp drawdown followed by a swift recovery might be ineffective in a long, protracted drawdown characterized by several interim drawdowns and modest recoveries. This insight provides a basis for assessing the drawdown mitigation effectiveness offered by different strategies.

4.2.1 Drawdowns and recoveries

To explore the environments in which buffer strategies might outperform, we first identified the interim drawdowns and recoveries and then classified their stage. We did this by applying the recursive algorithm from (Liu, 2023) over the simulation period – for details, see the Appendix.

The resulting classification and details are summarized in Table 3.

Table 3: Drawdown and recovery stages

	Drawdown		Recovery	
	Early stage	**Late stage**	**Early stage**	**Late stage**
EURO STOXX 50 (NR) average return	–7.4%	–10.9%	8.7%	11.1%
Count	19	7	18	14
Average # of trading days	33.32	53.43	28.67	52.57
Total # of trading days	633	374	516	736

Source: STOXX. Data for the period from June 17, 2016, to April 16, 2025.

Over the period, there were 19 drawdowns and 18 recoveries in between these. By definition, the average return for the EURO STOXX 50 (NR) is smaller in magnitude for both the drawdown and the recovery phase in the early stage than in the late stage.

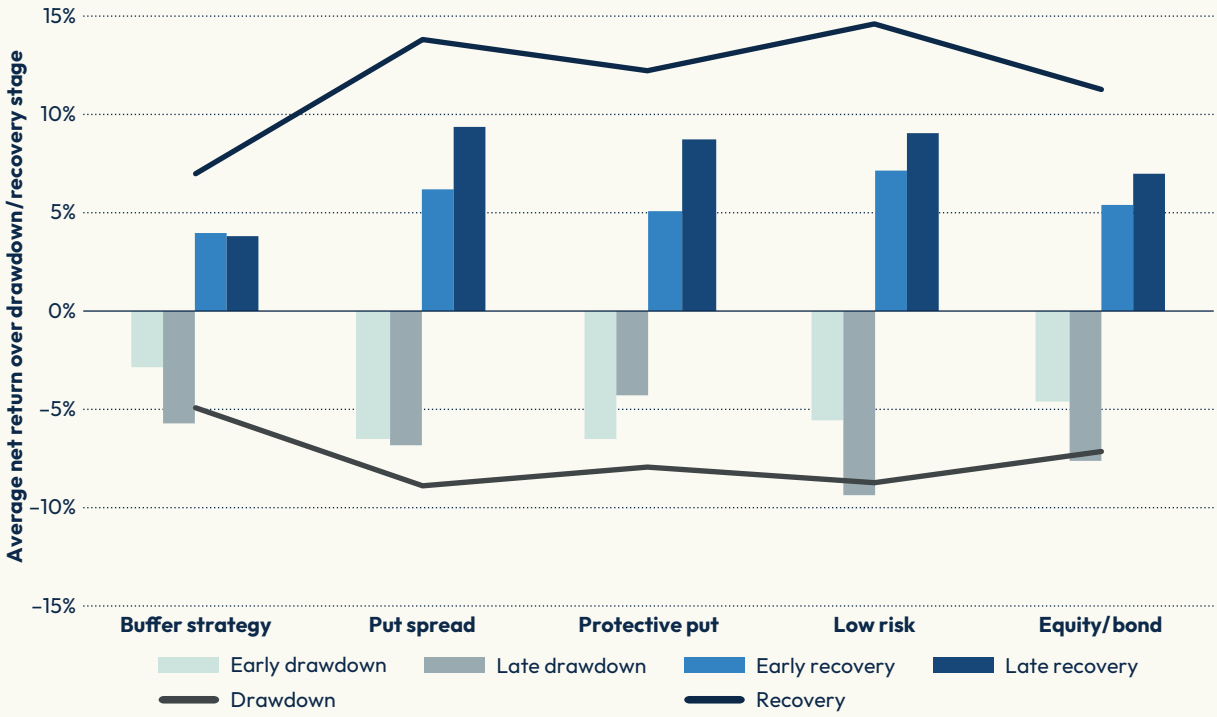
The table also suggests that, of the drawdowns identified, only seven evolved into late stage drawdowns, whereas more than half of the recoveries evolved into late stage recoveries. Late stages lasted longer on average than early stages for both drawdowns and recoveries.

[10] See the STOXX Statistical Calculation Guide for the definition of drawdown.

[11] We define intensity as the drawdown for the period divided by the number of days.

We then compared the select strategies from Table 2 based on their net returns over these four types of market environments,[12] as illustrated in Figure 4.

Figure 4: Downside protection and recovery by strategy



Sources: STOXX, Eurex, Refinitiv. Data for the period from June 17, 2016, to April 16, 2025. The option prices are based on Eurex end-of-day settlement prices. Pre-launch index data has been simulated for informational purposes only and does not include expenses, fees or transaction costs. The last-quarter return is calculated up to the last available value. Net returns are assumed.

As can be seen, while the option-based category generally provided better downside protection compared to the low-risk and 60/40 equity/bond strategies during late-stage drawdowns, the buffer strategy offered the most effective overall downside protection, especially during early-stage drawdowns.

In terms of the trade-off between cost and upside potential, the zero-cost structure of the buffer strategy was a double-edged sword: It enabled more effective drawdown mitigation but resulted in underperformance during recoveries. By contrast, upfront costs reduced drawdown protection for the put spread and protective put alternatives but did not cap further market participation. With regards to the put spread and protective put alternatives, selling the lower strike put lowered upfront costs but also exposed investors to further losses, resulting in the slight outperformance during recovery and lesser downside protection of the put spread alternative compared to the protective put.

[12] To measure the index performance of a strategy, we assume that an initial EUR 1,000 at the start of the simulation history is continuously invested, even though buffer strategies outcomes are specific to the outcome period concerned.

If one focuses solely on short-term downside risk mitigation, the buffer strategy showed its efficacy during early-stage drawdowns in particular. However, this might be at the expense of subsequent market rebounds.

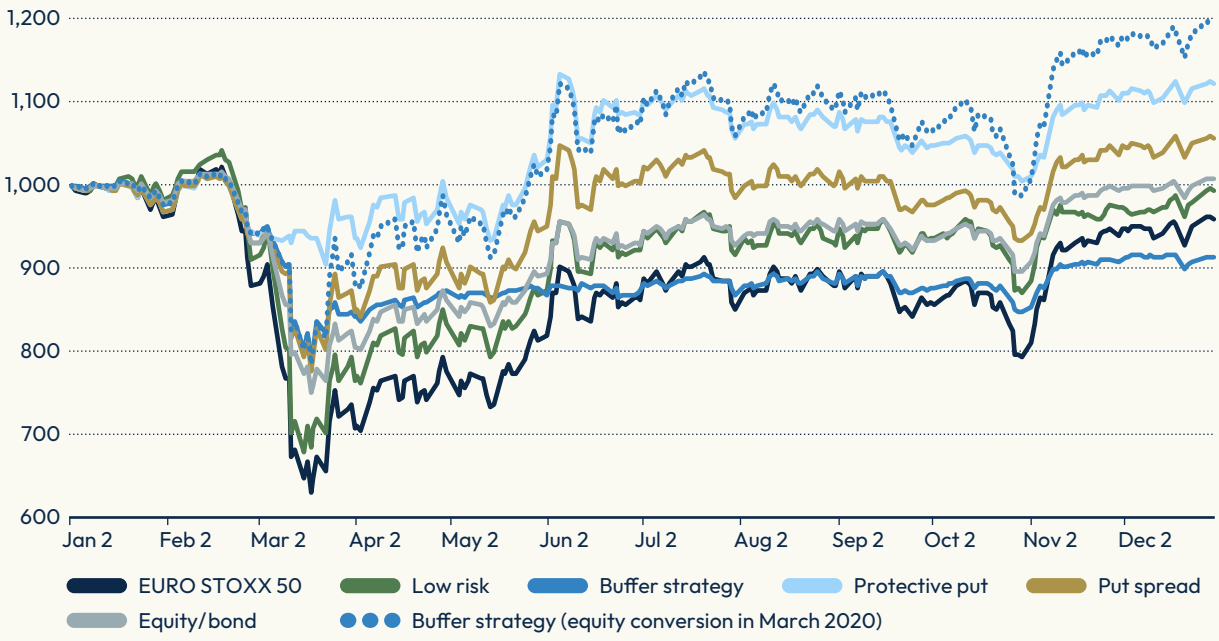
4.2.2 A closer look

Given the benefits of the buffer strategy that have been observed, a question that naturally follows is: What if the investor were to employ the strategy to manage a specific expected drawdown but then switch to the underlying equities to participate in the market recovery?

We attempted to answer this question by taking a closer look at 2020 and 2022, which saw the two largest drawdown events in the simulation period.

Figure 5 shows the simulated performance of a strategy in 2020 where an investor initially followed the buffer strategy and then switched to the EURO STOXX 50 index at the end of March 2020 outcome period (indicated by the dotted line). Since the market trough during COVID-19 roughly coincided with the end of this period, the investor was shielded from early losses and then fully captured the subsequent rebound. In this example, this approach outperformed the continuous implementation of the buffer strategy as well as other defensive alternatives.

Figure 5: Simulated total return performance in 2020



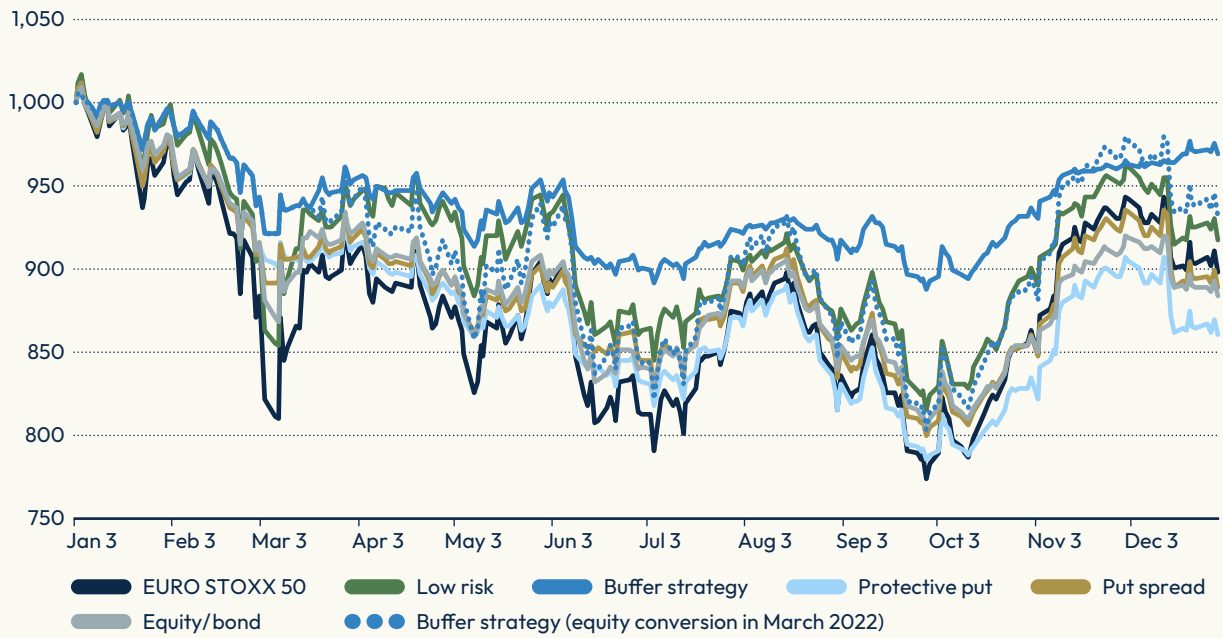
Sources: STOXX, Eurex, Refinitiv. Data from 2020. The option prices are based on Eurex end-of-day settlement prices. Pre-launch index data has been simulated for informational purposes only and does not include expenses, fees or transaction costs. The last-quarter return is calculated up to the last available value. Net returns are assumed.

However, successful market timing is difficult to achieve consistently, and prematurely exiting the buffer strategy could defeat the purpose of employing it in the first place.

2022 was one of the severest drawdowns in the simulation period, presenting a macro environment in which concern about inflation and rising interest rates diminished the diversification benefits of conventional equity/bond balanced allocations. This environment suggested that there was potential for buffer strategies as a viable alternative for investors looking to diversify equity risk.

Figure 6 shows the cumulative performance across strategies in 2022, with the buffer strategy being the most effective at mitigating the drawdown at a much lower volatility level. Indeed, switching from the buffer strategy to the underlying equities in March 2022 would have exposed the investor to further drawdowns and would have almost doubled the volatility.[13]

Figure 6: Simulated total net return performance in 2022



Sources: STOXX, Eurex, Refinitiv. Data from 2022. The option prices are based on Eurex end-of-day settlement prices. Pre-launch index data has been simulated for informational purposes only and does not include expenses, fees or transaction costs. The last-quarter return is calculated up to the last available value. Net returns are assumed.

4.3 Long-term perspective

For those who believe that consistent discipline is the key to successful long-term investing, strategically implementing buffer strategies may yield benefits by reducing panic selling during volatile periods and allowing investors to stay invested to capture any eventual gains, even if partial.

However, as shown previously, buffer strategies can underperform the market during strong market rallies. In this context, it is important to understand their long-term implications.

[13] The annualized volatility for the buffer strategy in 2022 was approximately 10% and would have been approximately 19% if the strategy had switched to the EURO STOXX 50 in March 2022.

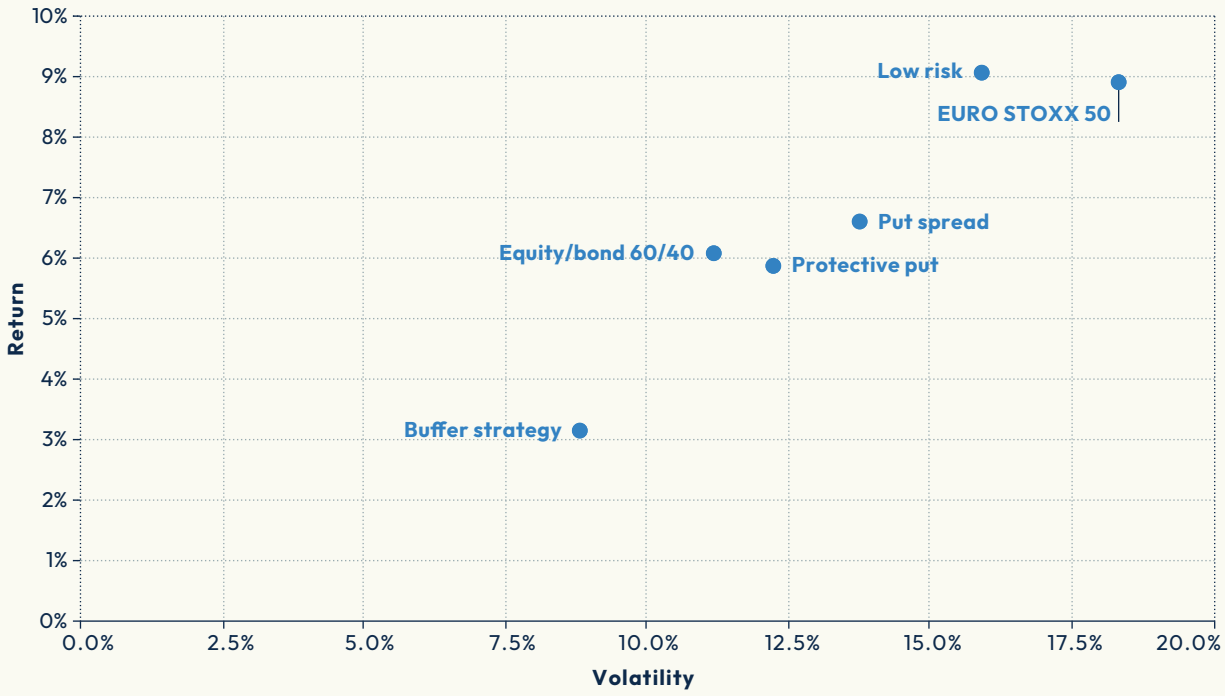
This section focuses on the long-term risk/return trade-offs and historical drawdowns across different defensive alternatives as a way to explore this topic.

4.3.1 Risk/return trade-offs

While wealth accumulation and wealth preservation might be mutually exclusive objectives for some investors, they need not always be so. With more flexible risk tolerance, we would ideally want a defensive strategy that balances providing protection in declining markets with preserving the ability to participate in rising markets.[14] This seems ultimately to boil down to a single question: How do we best strike this balance?

One way to conceptualize the balance is through the lens of risk/return trade-offs. The table below compares the overall risk and return by strategy.

Figure 7: Risk-return characteristics by strategy



Sources: STOXX, Eurex, Refinitiv. Data for the period from June 17, 2016, to April 16, 2025. The option prices are based on Eurex end-of-day settlement prices. Pre-launch index data has been simulated for informational purposes only and does not include expenses, fees or transaction costs. Returns and volatilities are annualized. The last-quarter return is calculated up to the last available value. Net returns are assumed.

Despite the higher protection costs, both put spread and protective put strategies still delivered better returns than the buffer strategy over the long term, suggesting that the latter might not strike the optimal balance between cost and upside potential.

[14] See (Frazzini, Friedman, & Kim, 2012) and (Villalon, Truax, & Mones, 2016).

What is more, from a conventional risk/return standpoint, all alternatives exhibited both more favorable results and higher returns. It is perhaps also worth noting that the low volatility level achieved by the buffer strategy might be a consequence not just of downside mitigation but also of its limited upside potential, since the standard definition of volatility includes both upside and downside variability.

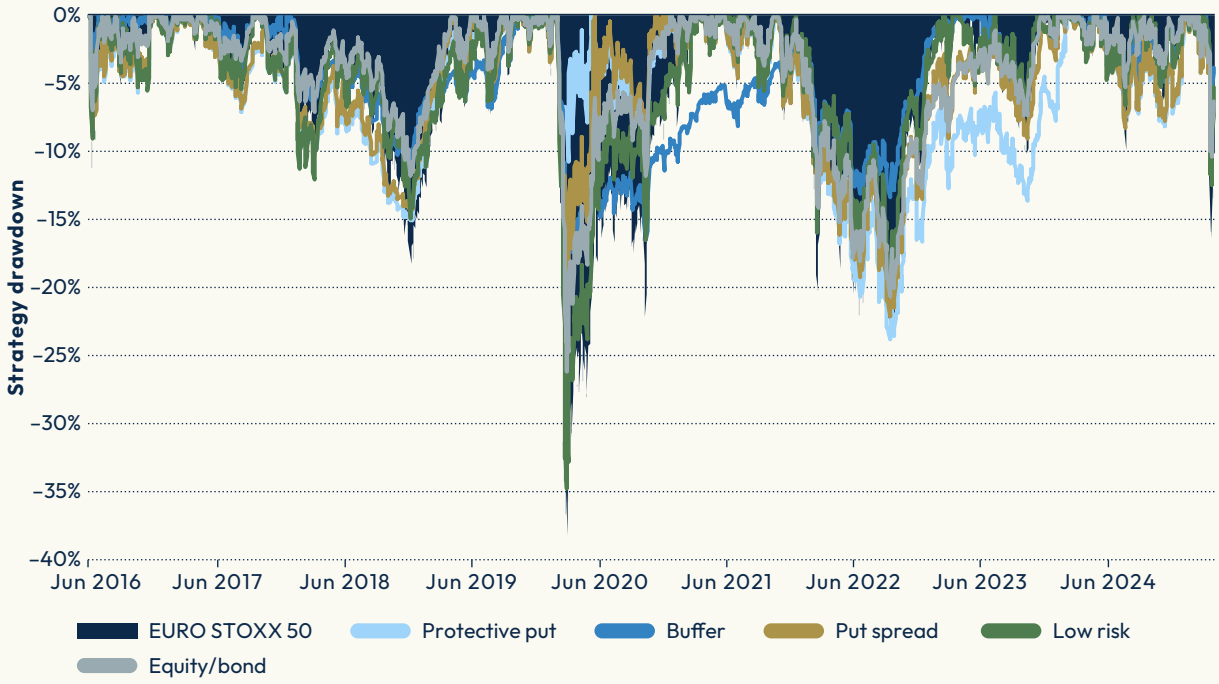
4.3.2 Time to recover

With a long-term horizon, drawdown duration also matters in addition to drawdown depth. It can affect the flexibility with which investors can meet their liquidity needs and pursue other opportunities, and can also induce psychological stress, potentially impacting investment decisions.

In particular, a lower drawdown level does not necessarily mean a shorter recovery time. In fact, lower upside participation for a strategy can also translate into a longer time until recovery from a previous loss.

To illustrate this point, Figure 8 shows the historical drawdowns by strategy. The chart demonstrates that the buffer strategy (–5% to –20%) had a lower COVID-19 drawdown compared to the alternatives, but also took longer for the portfolio to recover to its previous level.

Figure 8: Historical drawdowns by strategy



Sources: STOXX, Eurex, Refinitiv. Data for the period from June 17, 2016, to April 16, 2025. The option prices are based on Eurex end-of-day settlement prices. Pre-launch index data has been simulated for informational purposes only and does not include expenses, fees or transaction costs. The last-quarter return is calculated up to the last available value. Net returns are assumed.

5. Conclusion

This paper illustrates the downside protection offered by buffer strategies in different short-term market environments and their overall long-term performance implications compared with other common defensive strategies.

What is often overlooked in the discussions is perhaps the most difficult thing of all to measure: The strongest appeal of buffer strategies may be investors' perceived sense of certainty, especially in uncertain times.

It is clear that such apparent predictability comes at a cost. Whether or not it justifies the upside potential that investors forgo in the long term, is a trade-off that investors should make consciously, as with any other investment decision.

Transparency is paramount as financial markets and regulatory frameworks evolve, and in a world in which innovation allows a broader and broader range of investors to access complex investment products. This is the precondition for investors making informed decisions.

With this paper, we hope to provide a more balanced overview, allowing investors to gain a clearer insight into the investment tools at their disposal. In addition, while there are several articles evaluating buffer strategies, the vast majority of them focus on the US market. As a European index provider, we have looked at the discussion through the lens of the European market space.

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7. Appendix

7.1 Classifying drawdowns and recoveries

In the first step of the recursive process, the peak-to-trough maximum drawdown over the entire simulation period was identified. This corresponds to the COVID-19 market drawdown event. In the second step, we split the simulation period into two periods based on the identified market drawdown.

The first subperiod covered the history from June 17, 2016, to February 19, 2020, and the second subperiod covered the history from March 19, 2020, to April 16, 2025. The calculation then repeated the step above recursively until the maximum market drawdown was less than 5%.

On this basis, we identified 19 drawdowns over the simulation period. The periods in between these drawdowns are recoveries.

We distinguished between an early and late stage for each drawdown (or recovery) by assigning a cutoff threshold for the date on which the cumulative return was beyond –10% (or above 10%) for the first time.[15] If the cumulative return of the drawdown (recovery) was less than –10% (10%), the entire period was considered to be early stage. It is therefore possible for an entire drawdown (or recovery) to be considered only as an early stage and not to evolve into a late stage.

[15] The cutoff date is considered to be the first day in the late stage.

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