

# MARKET PARTICIPATION STRATEGY (MPS): CAN A SOLID DEFENSE BE A GAME CHANGER?

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## What is MPS?

PGIM Quantitative Solutions' Market Participation Strategy (MPS) is a risk-mitigation strategy (RMS) designed to deliver consistent returns by providing upside market capture while limiting portfolio losses during market downturns.

## How is MPS typically used? MPS is typically used as:

1. A lower volatility equity replacement: Adding MPS to a well-diversified portfolio lowers overall standard deviation with similar returns, resulting in an improved risk/return profile
2. A component of risk mitigation: Risk, particularly the risk of large drawdowns, can be costly. MPS has limited losses during periods of market turbulence.
3. An alternative investment allocation: Similar to hedge funds, MPS can enhance diversification and risk-adjusted returns but with much more attractive fees<sup>1</sup>.

<sup>1</sup> Diversification does not protect against a loss in a particular market; however, it allows you to spread that risk across various asset classes.

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## Why is MPS relevant today?

Equity markets in the US have rebounded strongly since the COVID drawdown in Q1 2020, thanks to the government's fiscal and monetary stimulus. In 2021 we saw further reopening of the US economy facilitated largely by widespread vaccinations beginning in Q1 2021, which drove equity markets higher still.

The S&P 500 Index more than doubled since bottoming in March 2020. And while there is much to be grateful about, we saw some pullbacks and volatility during the second half of the year, centered largely around concerns about rising inflation following the biggest annual increase in consumer prices in over 30 years. The accompanying backup in interest rates is another big headwind given longstanding valuation issues. Perhaps most importantly, the latest data have also exacerbated the scrutiny on the Federal Reserve (Fed), and kept worries about a policy mistake in play. Renewed fears about COVID – both from the ongoing Delta variant and the new, more contagious Omicron strain - is another potential drag on sentiment.

MPS is a strategy for all seasons, providing increasing upside participation as markets rally, while limiting downside risk as markets fall. Given the current economic backdrop, and following years of equity markets rallies, we think market returns may be muted and volatility could remain elevated in the medium term. In the event of a market sell-off scenario, MPS is expected to perform as it has in the past. During major drawdown events, MPS' results have been compelling relative to other risk-mitigation strategies, with lower maximum drawdowns and therefore higher Sharpe ratios. We believe MPS is uniquely positioned to deliver consistent returns in both up and down markets.

## How does MPS compare to other defensive strategies?

MPS compares very favorably to other defensive strategies. Defensive strategies come in a variety of flavors - low volatility, equity hedged (or long/short), and of course all the options-based ones (protective put, buy-write, put spreads, and many variations on these).

MPS performs well compared to these strategies over various time periods, particularly during periods of significant drawdowns. Given the unique payoff profile (the convexity of exposure and returns), it's no surprise that MPS reduces volatility and prevents big drawdowns. Therefore, whether comparing Sharpe or Sortino ratios, MPS consistently matches, if not outperforms, most defensive strategies.

Additionally, and perhaps most compelling, MPS doesn't have to transact during falling markets when volatility is elevated. This is because it holds long-term options, unlike either covered-call or protective put strategies, which typically use one-month options that are rolled every month, even during a crisis. MPS automatically reduces portfolio downside during an equity markets crisis. This precludes the need to put on a defensive trade in the midst of volatility and difficult market conditions.

## How did MPS perform in 2021?

MPS performed as expected in 2021, with the MPS composite returning 18.8% (gross) and 18.4% (net), compared to the 28.7% return of the S&P 500 Index, providing 66% participation in the upside<sup>2</sup>.

## Did portfolio exposure change over the course of 2021?

We "reset" the portfolio twice during 2021, in early January and once again in August. Both resets involved selling "in-the-money" calls and rolling into new "at-the-money" calls to lock in gains as equity markets continued to rally. These resets are determined by our rules-based risk control process, which dictates that we keep equity exposure within a targeted range. We lower equity exposure to our baseline 60% once the portfolio reaches the upper bound of our equity exposure threshold. Similarly, we increase equity exposure if we hit the lower bound as markets are correcting.

We also actively managed targeted duration to be close to the benchmark throughout the past year as equity markets rallied. Actively managing targeted duration was necessary given the increasing impact on the portfolio of holding options, which partially offset the interest rate exposure of the portfolio's bond allocation. Overall, the impact from interest rates was flat over the past year as rates rose and fell, and then rose once again.

These reset thresholds are central to our disciplined process that limits emotional decision-making during times of market turbulence. A key feature of our risk-mitigation strategy, the resets provide growth by capturing market upside and help to diminish large portfolio losses through the defensive positioning of US Treasuries exposure on the downside.

<sup>2</sup> Data as of 12/31/2021.

## How did MPS do during the COVID crash?

MPS dramatically reduced the downside during the COVID crash (2/20/20 – 3/23/20), returning -11.4% (gross) and -11.7% (net) compared to the steep -33.8% decline for the S&P 500 Index, resulting in only 34% of the drawdown. MPS also participated in the subsequent market recovery and ended 2020 with a positive return of 21.4% (gross) and 21.0% (net) vs. 18.4% for the S&P 500.

## How did the portfolio's positioning limit the downside?

The MPS portfolio had an equity exposure close to 60% coming into the COVID crash. As equities started to fall on February 20, 2020, portfolio delta dropped along with the market as the call options fell in value. Meanwhile, investors' flight toward the safety of US Treasuries helped to limit the portfolio's losses. On March 9, 2020 we allowed the equity exposure to drop below the 40% lower bound as equities continued their decline.

With the ongoing market rout, the portfolio's equity exposure dropped to 25% on March 23, 2020, before gradually turning around as markets stabilized. The portfolio's US Treasuries exposure (which increased in weight from 77.1% to 82.4% over this period) returned 3.8%, helping to mitigate the equity portion's losses as options declined in weight from 17.2% to 6.4% and became increasingly "out-of-the-money".

The above dynamic speaks to the benefit of holding safe-haven assets, like US Treasuries, that benefit during times of crisis. Additionally, the advantage of being "long" options (and volatility) means that the portfolio managers don't *have* to trade during turbulent markets (unlike some other defensive strategies) as the exposure to equity decreases automatically along with the downturn. As options get more and more out-of-the-money with the decline of equities, their sensitivity to the market decreases, while the rise in volatility helps the valuation of options held in the portfolio.

## How would MPS perform if equity markets continue to rally in 2022?

In eight of the last ten calendar years (including 2021), the S&P 500 has returned above 10%. MPS has provided an average upside participation of 68% (gross) during these eight years. Over the last three years (2019-2021), MPS has returned an annualized 20.5% (gross) and 20.1% (net), providing 79% participation in the S&P 500 return of 26.1%.

MPS is designed to provide increasing upside participation when equity markets rise, while limiting the downside when they decline. With a baseline equity exposure of 60%, it's no surprise that MPS has provided significant upside participation during what has been an extended bull market over the last ten years.

As markets rally, the at-the-money calls become more and more "in-the-money," thereby providing increasing equity exposure as markets rise. This asymmetric payoff (convexity) in the market upside is thus superior to a symmetric (straight line) payoff where the equity exposure is fixed to the market.

## How do you expect MPS to perform in a rising interest rate/high inflation environment?

Given that MPS has about 80% of the portfolio invested in a US Treasury portfolio (US Treasuries and US Treasury Futures), it's natural to be concerned about a rising interest rate environment. With inflation running hot more recently (whether transitory or not), there has been much speculation about the pace of the Fed tapering. With Fed Chair Jerome Powell suggesting an earlier end to bond tapering, traders have boosted their wagers on the pace of interest-rate hikes.

But equity markets can also be sensitive to rising interest rates, which could produce a potential "double whammy" for MPS if both the equity and bond portfolios lose value. While it's natural to be concerned, let's look at the effect of rising rates over MPS' 30-year track record. During the four instances where the 5-year constant maturity yield increased more than 200 basis points over a period greater than one year, the S&P 500 posted positive returns. As expected, MPS provided upside participation in the positive returns during these four periods of rising rates.

We actively manage the portfolio's sensitivity to changes in interest rates (blending the interest rate exposure of bonds with that of options, since options have negative embedded interest rate exposure), or duration risk, to balance the need for safety of principal with the generation of income. We target the Bloomberg Barclays US Government Intermediate Bond Index as a proxy for our fixed income duration and return targets.

The objective of our US Treasury bond portfolio in MPS is to reduce risk and preserve capital. We build this portfolio based on our interest rate and asset allocation outlook, and target and manage both the bond and portfolio duration accordingly.

In the rising interest rate environment during 2021 (5-yr interest rates rose from a low of 0.36% in early January to a high of 1.34% in late November), our shorter duration management strategy helped to mitigate the effects of rising interest rates in the portfolio. This active duration management strategy has led MPS to participate in 66% of the upside of the S&P 500 for the year.

## **Is MPS available only with 60% market exposure to the S&P 500 Index?**

MPS has a 30-year track record using the S&P 500 Index as the underlying vehicle for equity exposure, with 60% being the targeted portfolio delta (equity exposure).

Approximately a decade ago, we created another version of MPS with 50% equity exposure (using the S&P 500) based on client preferences and needs. And just recently we launched another S&P 500-based MPS portfolio with 55% equity exposure.

We can provide the MPS return profile (the upside participation/downside protection) at different levels of base equity exposure, tailored to each client's unique requirements. We have considered, based on client requests, equity exposure targets as low as 35% and as high as 75%. No matter the equity exposure, our active management process can deliver similar return profiles seen with 60% equity exposure, meeting the objective of equity-like returns over the long term with reduced volatility and reduced downside risk, as measured by both standard deviation and maximum drawdowns.

## **Is MPS available only for US equity market exposure?**

No. In the past several years, we've witnessed a significant improvement in the availability and liquidity of global long-dated options. This has allowed us to launch a global MPS mandate which capitalizes on the same competitive advantages as US MPS to meet the needs of investors seeking global equity market exposures. We launched Global MPS at the end of 2021, using three underlying indexes – the S&P 500 (representing US large-cap stocks), the Russell 2000 (representing US small-cap stocks), and an EAFE ETF (representing non-US developed market stocks in the MSCI EAFE Index) – as part of an overlay strategy with a custom global benchmark (61.33% US large cap, 5.33% US small cap, 33.33% EAFE). This can also be customized to include emerging markets exposure via the MSCI Emerging Market Index.

This new global MPS offering is completely customizable and can be used in different combinations with different underlying indexes or ETFs (such as the NASDAQ 100 and Dow Jones Industrial Average, in addition to those mentioned above), or individually like the S&P 500 for the US MPS.

## **Are there other ways to customize MPS?**

Yes. We are actively researching leveraged MPS. Given the potential for higher volatility and more muted equity returns going forward, a higher delta version of MPS makes sense. We believe this is a natural extension of the standard MPS model (60% equity exposure) to provide leveraged returns, whether targeting Delta 1 (100% equity exposure) or higher, given the attractive return profile of MPS. Leveraging is the most efficient way to generate much higher returns on the upside, limit the downside/large drawdowns, while still reducing overall volatility and maintaining high Sharpe ratios.

We are happy to discuss a customized MPS solution, whether aimed at delivering a “safer” more attractive equity alternative, a timely defensive strategy, or as a form of ongoing risk mitigation.

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