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Decoupling from Volatility: A New Path for VA Risk Management

IN THIS PAPER

Our analysis of recent performance struggles in variable annuity (VA) risk-managed platforms reveals an overwhelming concentration in volatility-targeting solutions. But the challenge also highlights a path to enhancing diversification in risk-managed platforms—with a solution that decouples from volatility targeting.

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Executive Summary

Risk-managed solutions are a compelling proposition for VA providers' investment platforms, offering the potential to control volatility and improve policyholders' long-run wealth accumulation while also enabling insurers to better hedge long-term liabilities. Given this appeal, the dramatic growth in this category since the global financial crisis (GFC) comes as no surprise.

However, many risk-managed solutions have struggled in recent years, posting disappointing returns. To understand what happened, and how insurers might be able to further enhance risk-managed platforms, we conducted a proprietary analysis of a large sample of risk-managed solutions. It's a cohort that spans nearly 160 unique strategies with nearly $260 billion in assets under management.

Our work identified a widespread reliance on recent realized or implied volatility levels as inputs to determine the equity allocation. This has caused many risk-managed solutions to be sluggish when re-risking in a new market regime that features rapid sell-offs and fast recoveries—often with still-elevated volatility.

Identifying the source of the issue also points to a solution: designing a risk-managed solution that decouples risk management from volatility management. Incorporating underlying asset prices as an allocation input instead of volatility enables more dynamic equity-allocation responses that can capture a greater share of equity market rebounds. Cost-effective option exposure and fixed-income duration extension can also help reduce the impact of large drawdowns.

This new approach aligns with insurers' approach to hedging long-term liabilities, effectively acting as a synthetic hedge. It also happens to possess the attributes of an effective investment strategy that won't impair policyholders' wealth-accumulation plans and that demonstrates attractive risk/return characteristics. Because no risk-managed solution wins all the time, incorporating this solution can further diversify VA risk-managed platforms, improving outcomes for VA providers as well as policyholders.

Growing Popularity of Risk-Managed Solutions

The GFC and its aftermath battered many investment portfolios, and VA investment options were no different. As policyholders' account values tumbled, insurers were required to step in and backstop income guarantees. It was a painful episode that spurred a fresh look at risk management and a better formula to manage downside risk.

Risk-managed solutions were a compelling response. Though a wide variety of product designs were rolled out, many shared a central premise: a mechanism to adjust allocations to stabilize volatility levels, improve downside capture and ultimately enhance long-run wealth accumulation. The notion of smoother returns appealed to insurers, offering to reduce hedging costs and future insurance liabilities, and opening an avenue to continue offering attractive guarantees without raising the associated costs.

It's no surprise that risk-managed solutions' popularity skyrocketed, and they've become a staple of VA investment platforms. But the recent road has been bumpy, disappointing both policyholders and insurers. In the process, VA providers were left facing a problem that they thought they'd already addressed: navigating the downside and upside of volatile markets. The toolkit for managing risk in VA investment portfolios was revealed to be incomplete.

We identified nearly 160 unique risk-managed strategies, accounting for nearly $260 billion in assets under management.

Looking Under the Hood at Performance Woes

To better understand what went wrong, we conducted a proprietary analysis of a broad sample of risk-managed solutions from the platforms of major national insurance carriers. In total, we identified nearly 160 unique risk-managed strategies, accounting for nearly $260 billion in assets under management—all featuring an explicit risk-control mechanism in product design.

The vast majority of strategies in this cohort were volatility-targeting, seeking a steady volatility level or a maximum equity volatility as an upper limit. We saw few option-based solutions, which buy downside put protection in exchange for a performance drag.

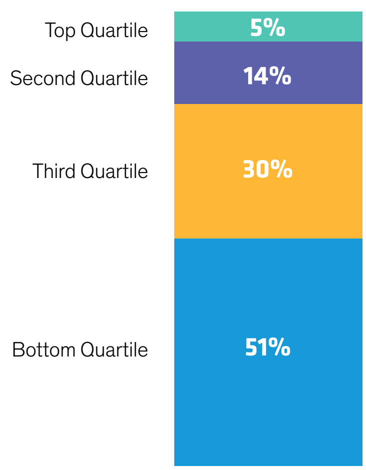
The cohort included some risk-parity solutions, which seek to balance risk across stocks and bonds; their added duration exposure can boost downside protection and improve correlation with insurers' long-tailed liabilities. However, even these approaches typically have an embedded element of volatility control, often leading to lower-than-desired equity allocations during swift equity market recoveries.

Many risk-managed solutions have struggled over the past five years (*Display 1, left)*, with more than 80% of solutions in our cohort ending up in the bottom two performance quartiles of their respective categories. Looking deeper at the cohort, we determined that volatility-targeting strategies were a substantial drag on performance (*Display 1, right)*.

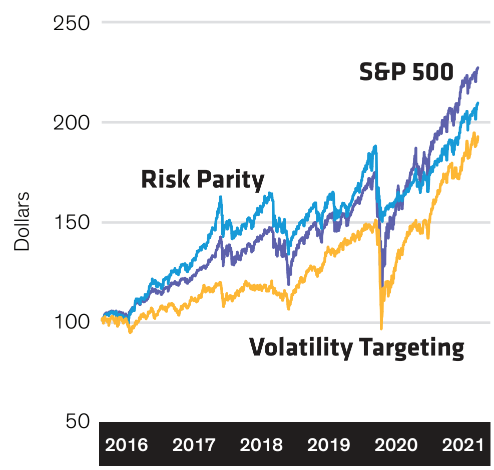
DISPLAY 1: MANY RISK-MANAGED SOLUTIONS HAVE STRUGGLED

Percent of Funds by Total-Return Quartiles: Trailing Five Years

Morningstar Category Percentiles: Trailing Five-Year Total Return



Growth of $100 Investment



Past performance does not guarantee future results.
Net of fees performance
As of June 30, 2021
Source: Morningstar, S&P and AllianceBernstein (AB)

New Market Regime Revealed Diversification Shortfall

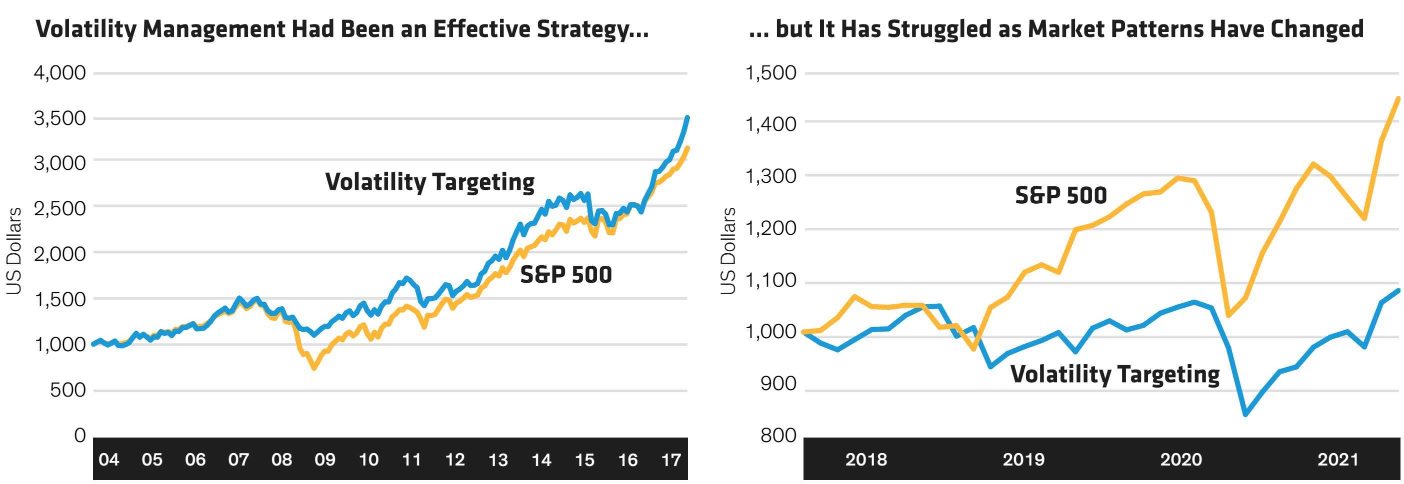
Clearly, the past few years have revealed less diversification among risk-managed solutions than originally thought. While there is a wide variety of managers and approaches to forecasting volatility, many volatility-targeting solutions adjust their allocations based on systematic formulas that reflect recent volatility levels in a relatively similar manner.

Because of their design commonality, volatility-targeting solutions effectively rely on trending equity markets. In other words, they perform well when recent volatility trends persist—a landscape that gives volatility-targeting solutions more time to respond by reducing equity allocations during sell-offs and re-risking in time to capture equity market rebounds.

In the early 2000s, this formula worked well. By 2000, rich market valuations had started a gradual decline. In fact, the market didn't fully reprice until 2003, with the Federal Reserve repeatedly cutting short-term interest rates. Volatility began to decline, and volatility-targeting risk-managed solutions started re-risking. Even strategies that didn't rebuild equity exposure until a few months after the market trough managed to capture a sizable share of a long bull market that would last until 2007.

However, today's equity patterns are different (*Display 2*). In the past three years, a risk-on/risk-off regime has brought a series of rapid sell-offs and recoveries. Markets have often collapsed too quickly for volatility-targeting solutions to de-risk. And rapid recoveries more often happen while volatility is still high, preventing volatility-targeting solutions from re-risking in time to capture the market rebound.

DISPLAY 2: VOLATILITY TARGETING: HISTORICAL APPEAL, RECENT CHALLENGES



Past performance does not guarantee future results.
Volatility Targeting is represented by the S&P 500 Daily Risk Control 15%.
As of June 30, 2021
Source: Morningstar, S&P and AB

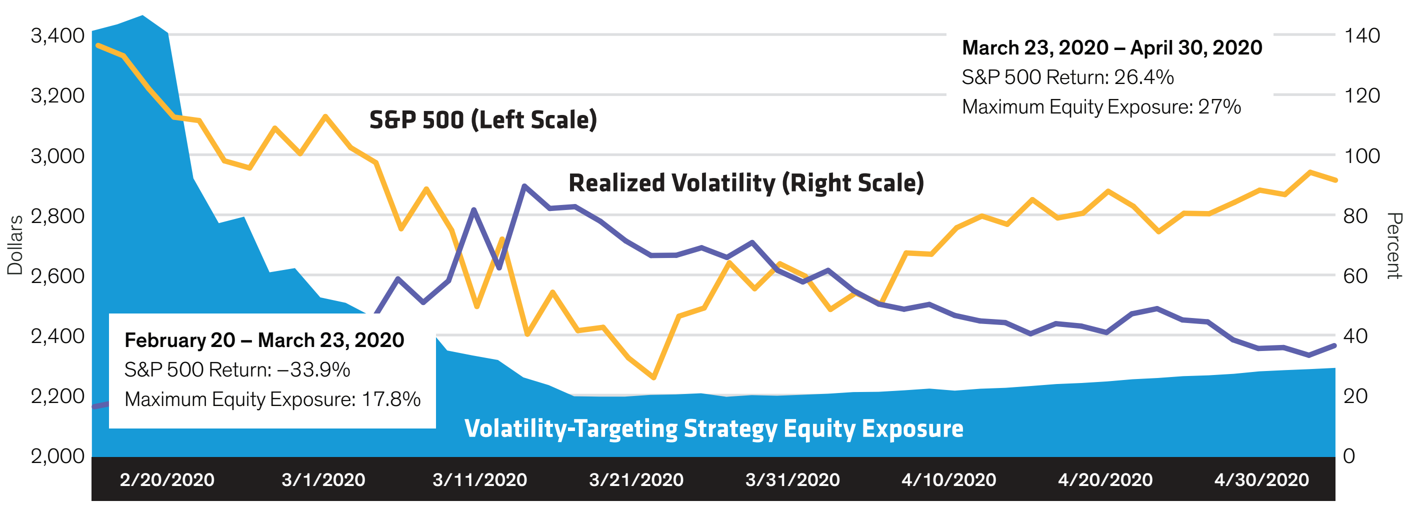
The cumulative performance drag of this delayed re-risking is clearly visible in the returns of risk-managed solutions during the pandemic-related market sell-off and rebound.

The COVID-19-related episode is a notable example (*Display 3*). Realized volatility began climbing in late February 2020, leading volatility-targeting strategies to rapidly reduce their equity exposure as the S&P 500 began to slide downward—eventually bottoming out on March 23, 2020.

We can proxy the changing equity exposure of volatility targeting with the S&P 500 Daily Risk Control 15% Index. It allocates to the S&P 500 and a cash component, dynamically adjusting that mix to target 15% volatility, with equity exposure that can exceed 100% using leverage. At its lowest point, equity exposure in the index was less than 18%. If we think of the index as the equity component of a 60/40 portfolio, investors' equity exposure would have declined to roughly 10%.

Realized volatility peaked in mid-March 2020 at 82% and stayed high through April as the market bounced back. Risk-managed solutions that used volatility even as a relatively small input to their allocation processes were sluggish in rebuilding it, and volatility caps imposed by many VA providers were added constraints. We can see this in the index: its equity exposure had recovered to only 27% (16.2% for a 60/40 investor) by the end of April, missing out on much of the S&P 500's 26% return since late March.

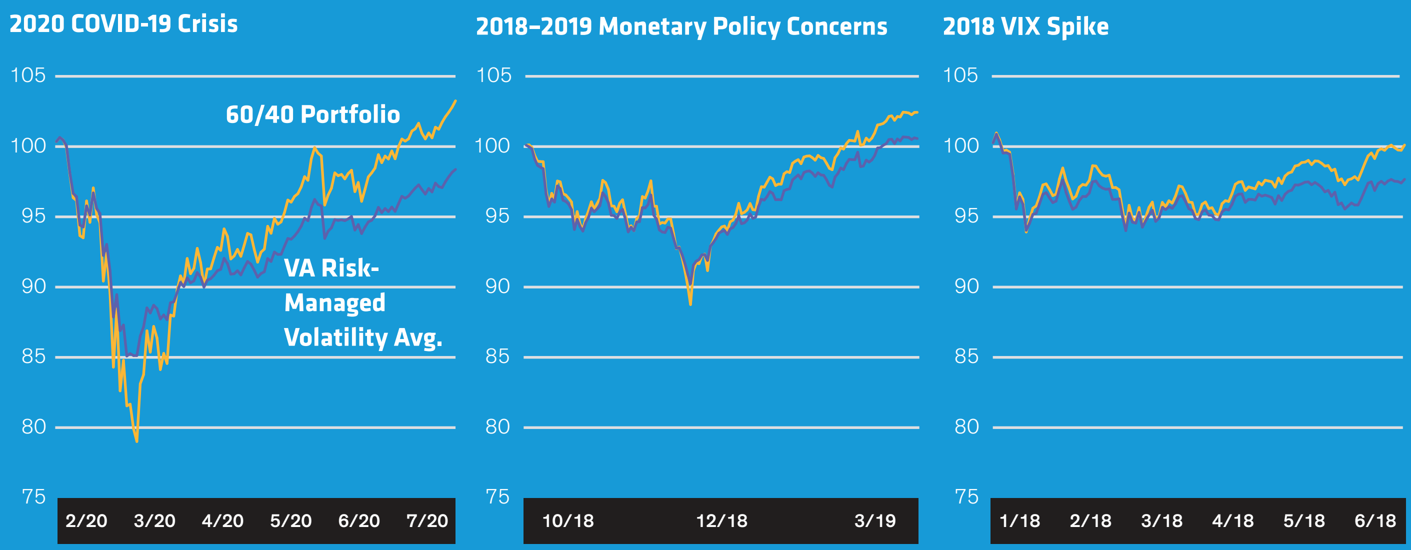
DISPLAY 3: SIMPLY TARGETING VOLATILITY CAN KEEP AN INVESTOR OUT OF THE RECOVERY



Past performance does not guarantee future results. There is no guarantee that any estimates or forecasts will be realized.
Volatility targeting strategy measured by S&P 500 Daily Risk Control 15%, which represents an allocation to the S&P 500 and a cash component, dynamically adjusted to target 15% volatility; equity exposure can exceed 100% using leverage. Realized volatility is calculated as the three-month rolling standard deviation of S&P 500 daily returns.
Period shown February 20, 2020, through April 30, 2020
Source: Morningstar, S&P and AB

DISPLAY 4: RISK-MANAGED SOLUTIONS STRUGGLED TO RE-RISK IN REBOUNDS

Returns in US Dollars



Past performance is not necessarily predictive of future results. There is no guarantee that any estimates or forecasts will be realized.

VIX: CBOE Volatility Index

2020 COVID-19 Crisis refers to February 19, 2020, through August 7, 2020; 2018–2019 Monetary Policy Concerns refers to October 2, 2018, through January 23, 2019; 2018 VIX Spike refers to January 26, 2018, through June 26, 2019. VA Risk-Managed Volatility Avg. represents a broad sample of risk-managed funds across a spectrum of insurer platforms, equally weighted and rebalanced monthly. 60/40 Portfolio represented by 60% MSCI World NR Index and 40% Bloomberg Global Aggregate Bond Index.

As of December 31, 2020

Source: Bloomberg, CBOE, Morningstar, MSCI and AB

The cumulative performance drag of this delayed re-risking is clearly visible in the returns of risk-managed solutions during the pandemic-related market sell-off and rebound (*Display 4*). Volatility-targeting solutions endured a similar scenario in 2018–2019, when the market fretted that the Federal Reserve was misstepping by hiking rates, and in 2018, when the VIX spiked early in the year.

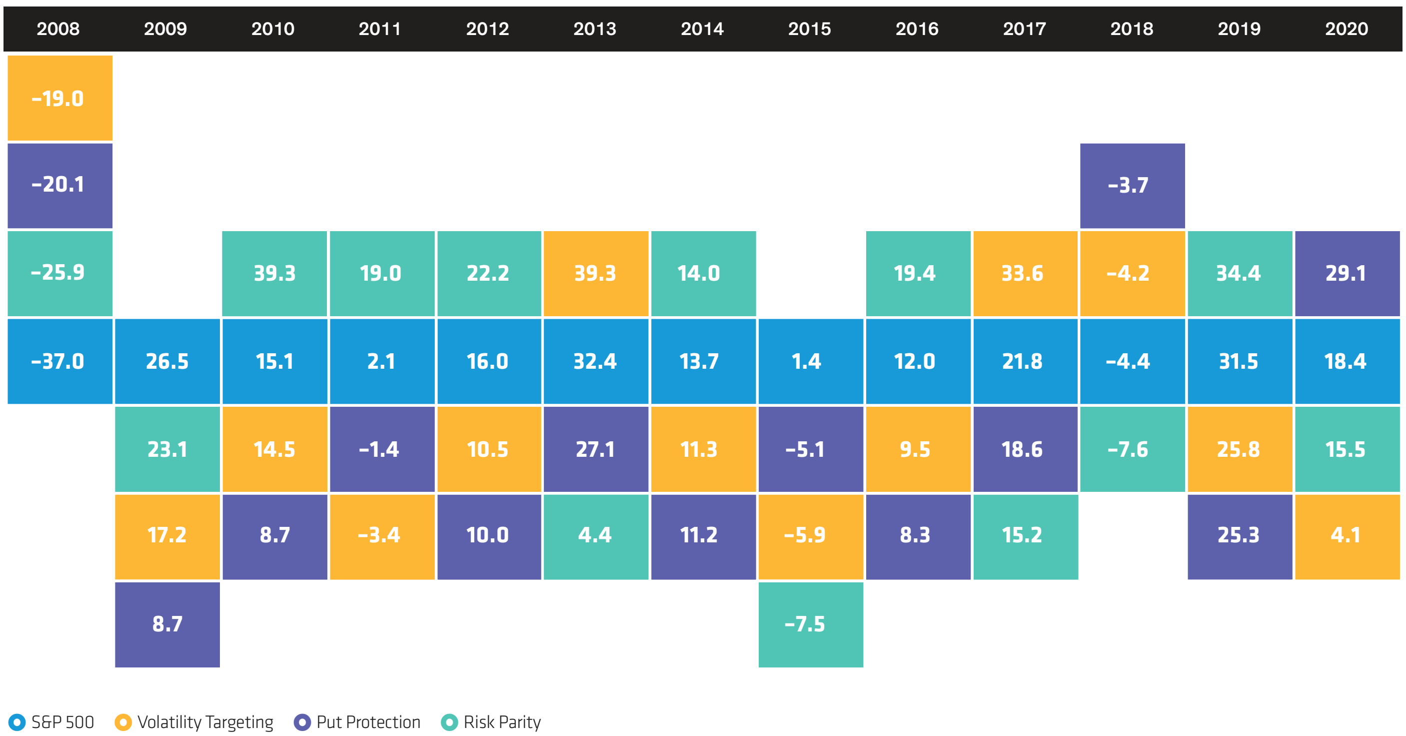
So, over the past few years, volatility-targeting strategies were effective at reducing equity risk and aiding insurers in liability management, but their delayed re-risking during the equity market's recent speedy rebounds has caused struggles in asset accumulation for policyholders. VA risk-managed platforms can benefit both the insurer and the policyholder with greater effectiveness.

VA Platforms Need to Bolster Diversification

We believe that volatility targeting's recent struggles reveal the need for more diversification in VA risk-managed platforms. Just as equity investing calls for diversifying across value and growth styles, VA platforms should diversify across risk-management approaches.

Performance leadership has changed hands frequently (*Display 5, page 6*), with no single risk-managed approach winning all the time. For example, as volatility-targeting strategies faltered recently, put-protection strategies stepped forward. Risk-parity strategies have spent time both leading the pack and lagging it.

DISPLAY 5: RISK-MANAGEMENT PERFORMANCE LEADERSHIP IS EPISODIC



Past performance is not indicative of future results. There is no guarantee that any estimates or forecasts will be realized.
As of December 31, 2020
Source: S&P, CBOE, Morningstar and AB

We see an opportunity to enhance diversification in risk-managed platforms by reducing the reliance on volatility targeting.

Checking the Boxes: A Different Risk-Management Approach

We see an opportunity to enhance diversification in risk-managed platforms by reducing the reliance on volatility targeting. The key is introducing a solution with a design that decouples the asset-allocation mechanism from volatility as a central input.

This “protect and participate” solution would integrate a diverse range of tools from across the risk-management spectrum in order to balance reliability and effectiveness in one package.

This risk-managed solution would draw on the three pillars of risk management: diversification, dynamic adjustment and insurance (*Display 6*). What attributes would be on the checklist?

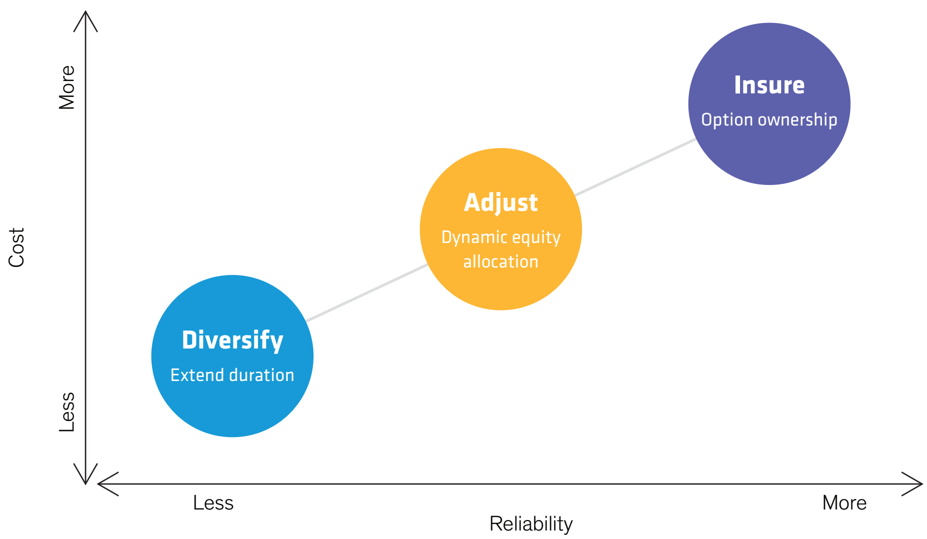
Decoupling the notion of volatility management from risk management would mean moving away from volatility as a central input and incorporating a mechanism that enables dynamic equity-allocation changes controlled by the performance of the asset portfolio.

Using options to insure against large drawdowns can counterbalance higher equity exposure—and can be deployed in a cost-effective way that reduces the return drag over time. Extending fixed-income duration—as many risk-parity strategies do—can offer an extra cushion against sharp, rapid equity drawdowns. This allows for maintaining equity allocations while simultaneously maintaining the diversification benefits of US Treasuries.

Incorporating options and duration also facilitates hedging for insurance liabilities.

This risk-managed solution would draw on the three pillars of risk management: diversification, dynamic adjustment and insurance.

DISPLAY 6: MULTIPLE APPROACHES TO RISK MANAGEMENT

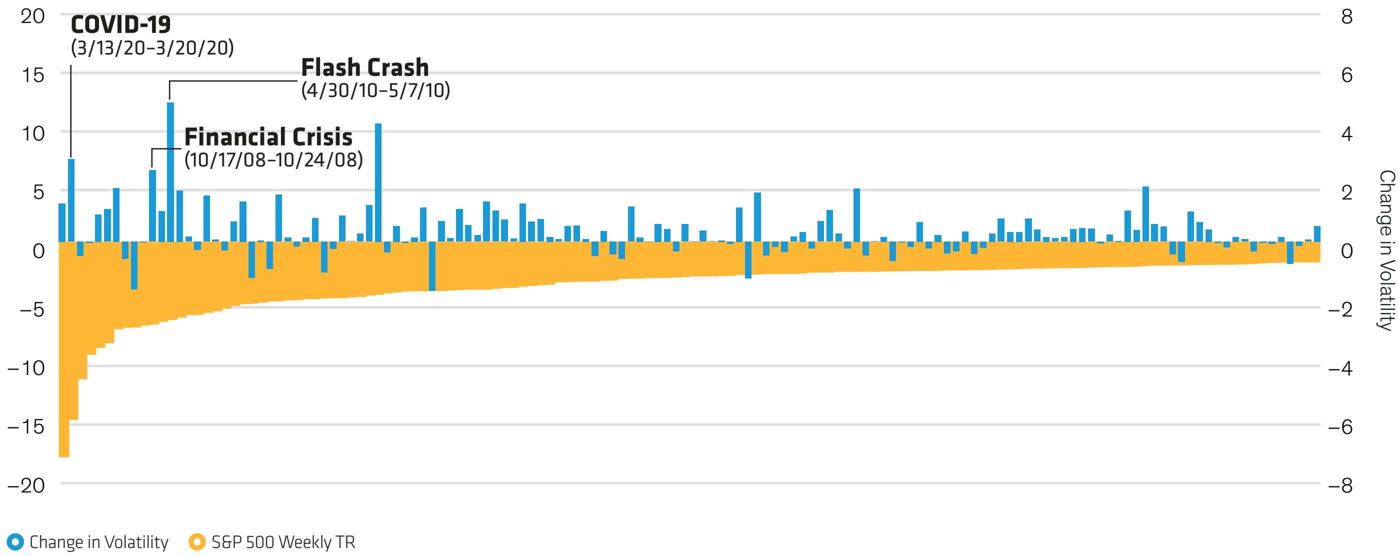


There can be no assurance that any investment objectives will be achieved.
Diversification does not insure against risk of loss.
As of December 31, 2020
Source: AB

DISPLAY 7: OPTIONS CAN HELP OFFSET MARKET DOWNTURNS

Increases in Implied Volatility Increase Option Values

S&P 500 Weekly Returns, Sorted (Percent)



Past performance is no guarantee of future results.

Chart is for illustrative purposes and reflects sorted S&P 500 Weekly returns from January 1, 2006, to December 31, 2020, when the index was down more than 1.5%. The change in implied volatility is an approximation that reflects the change of the implied volatility of a two-year, at-the-money S&P 500 option.

As of December 31, 2020

Source: Bloomberg , S&P and AB

We believe that this type of enhanced risk-managed solution, if thoughtfully designed and effectively implemented, can serve as a synthetic hedge that's aligned with insurers' long-term liability protection while also generating attractive risk/return characteristics.

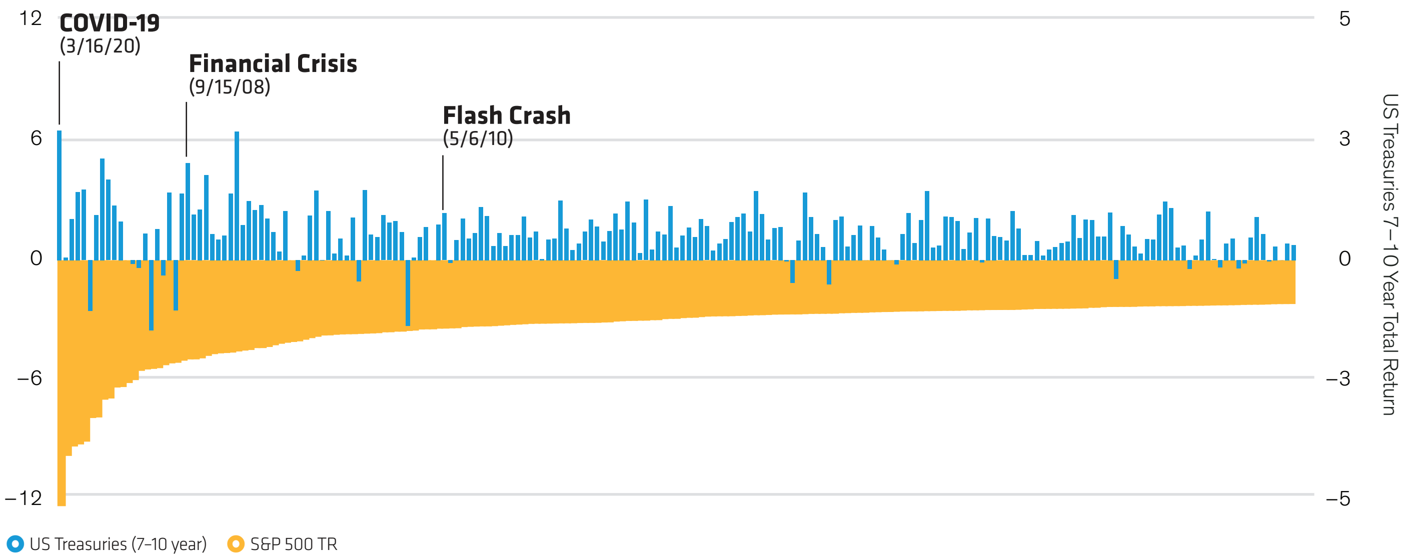
An Enhanced Risk-Management Formula

Let's take a closer look at the distinctions of this approach. Substituting underlying asset prices as the main input for equity-allocation changes can enable more dynamic reactions during market recoveries and re-risking than volatility-driven asset allocation. This enables capturing a substantial amount of fast market rebounds, even when volatility is still elevated. Volatility-targeting strategies, as we've seen in past episodes, can miss a substantial share of recoveries.

But downplaying volatility's role in allocation changes doesn't mean downplaying downside risk. It's important to balance more responsive equity exposure with strong downside risk management, a desirable attribute for both the insurer and the policyholder. A dynamic allocation mechanism (that de-risks during downturns and re-risks during recoveries) driven by the underlying asset portfolio aligns with the insurer's liability for product guarantees, given that declining account values drive guarantee claims. For policyholders, this dynamic-allocation mechanism can also protect account values.

DISPLAY 8: TREASURIES CAN HELP HEDGE EQUITY RISK AND DIVERSIFY

S&P 500 Daily Returns, Sorted (Percent)



Past performance is no guarantee of future results.

Chart is for illustrative purposes and reflects sorted S&P 500 daily returns from January 1, 2006, to December 31, 2020, when the index was down more than 2%. US Treasuries (7–10 year) Total Returns are represented by iShares 7–10 Year Treasury Bond ETF.

As of December 31, 2020

Source: BlackRock, Bloomberg, S&P and AB

Options have historically been effective in this role, but if they're not deployed efficiently, they can be a significant cost drag over time. Focusing on long-dated options—and rolling those positions periodically—can reduce the cost drag while retaining options' downside insurance. Another benefit to option exposure stems from their long-volatility exposure: implied volatility tends to rise in big downturns (*Display 7, page 8*), benefiting long option positions. The options also hedge the cost of providing downside protection via the dynamic equity-allocation mechanism.

US Treasuries can also be a source of portfolio diversification and a counterbalance to equity risk (*Display 8*), an ability demonstrated early in the COVID-19 crisis. On March 16, 2020, the S&P 500 fell by 12%; that same day, US Treasuries delivered a positive return of nearly 3%, which would have helped offset portfolio losses from the equity drawdown. This relationship also held during the GFC, the 2010 "flash crash" and other major equity market stresses.

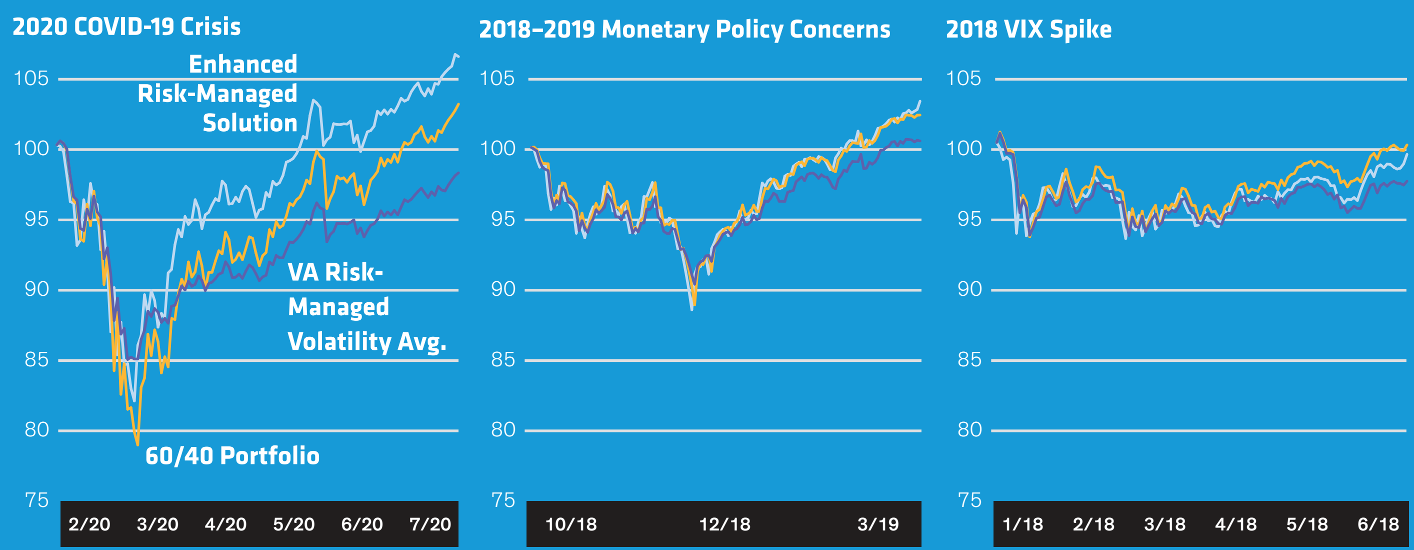
The enhanced solution strongly outperformed the risk-managed cohort in all three periods.

How would an enhanced best-practices risk-managed solution have fared in these recent episodes that have posed such a challenge for volatility-coupled solutions? Revisiting the equity market-stress periods we discussed earlier (*see* page 3)—the 2018 VIX spike, the 2018–2019 period that was stressed by monetary policy concerns and the COVID-19 crisis—we can stack up this new solution against our cohort of risk-managed solutions (*Display 9*). The enhanced solution strongly outperformed the risk-managed cohort in all three periods. It also matched or beat a traditional 60/40 strategy in all but the 2018 VIX spike, when higher equity exposure leading into the drawdown impaired performance, and the options and duration exposure didn't offset this negative contribution. However, the shortfall versus the 60/40 strategy was modest, as measured through the end of that period.

DISPLAY 9: NAVIGATING RECENT VOLATILE MARKET SWINGS

Indexed Performance (Start of Period = 100)

Returns in US Dollars



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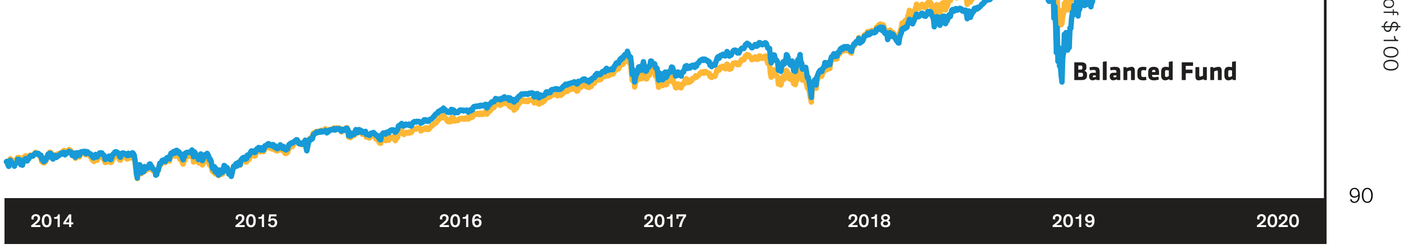
Source: Bloomberg, CBOE, Morningstar, MSCI and AB

DISPLAY 10: AUGMENTING THE DESIGN OF RISK-MANAGED SOLUTIONS

Enhanced Risk-Managed Solution vs. 60/40 Balanced Strategy

(Jan 2014–Jun 2021)	60/40 Balanced Fund	Enhanced Risk-Managed (ERM)	ERM vs. 60/40 Balanced
Return	10.2%	11.0%	+0.8
Volatility	10.8%	9.1%	−1.7
Return/Volatility	0.94	1.21	+0.27
Maximum Drawdown	−21.5%	−14.4%	+7.1



Past performance does not guarantee future results.

Enhanced Risk-Managed Solution includes exposure to long-term S&P 500 options, US Treasury futures and dynamic equity allocation. Balanced Fund represents a 60%/40% blend of the S&P 500 Total Return and Bloomberg US Aggregate Bond, rebalanced daily.

As of June 30, 2021

Source: Bloomberg, Morningstar, S&P and AB

The enhanced risk-managed solution greatly reduces the drag in re-risking during rapid rebounds, though it isn't guaranteed to be equally effective at hedging every drawdown. However, it can be effective at protecting on the downside while participating in the upside, on average, over the long run.

Over the past seven-plus years, the enhanced solution would have delivered an 11.0% annualized return, substantially higher than the 10.2% of a 60/40 balanced strategy (*Display 10*). Annualized volatility was lower, at 9.1% versus 10.8%. Those numbers produced a better return/risk ratio, 1.21 versus 0.94. The enhanced solution also fared better on the downside, with a maximum drawdown of about 14%, 7% less than the 60/40.

By removing volatility from the asset-allocation mechanism, an enhanced approach can help insurers as well as policyholders.

A Win-Win for Insurers and Policyholders

We don't believe that risk-managed solutions need to detract from insurers' liability hedging or policyholders' asset-accumulation capabilities. By removing volatility from the asset-allocation mechanism, an enhanced approach can help insurers as well as policyholders:

- Strategies offering effective risk-management and de-risking abilities can be positioned to offer higher equity allocations than non-risk-managed balanced funds during rising markets
- Extending duration by using US Treasury exposure typically yields a positive carry that can offset risk-management costs and is directly aligned with the insurer's guarantee liabilities
- Over the course of market cycles, buffering downside risk offsets potential lagged returns in flat or rising markets
- An embedded options portfolio can monetize position gains during market sell-offs
- Embedding protection mechanisms in the solution can allow insurers to offer more attractive guarantees and can improve policyholders' liquidity and access to higher account values during market downturns

Summing It All Up

The recent equity market landscape has revealed less diversification in VA risk-managed platforms than was originally thought. That creates an opportunity for VA providers to diversify their stables of solutions by integrating an enhanced approach that relies on asset levels—not volatility levels—to guide equity allocations. This approach also integrates downside protection by deploying cost-efficient option exposure and fixed-income duration extension.

Combining these elements in an enhanced risk-managed solution can create an effective hedge for insurance companies against long-term liabilities, while also delivering attractive risk-adjusted returns to policyholders. This type of solution can be a strong complement to existing VA risk-managed platforms—even for existing books of business—as a stand-alone fund, part of a fund of funds or a hedging component delivered to minimize long-term costs.

As we see it, the benefits are compelling for both insurers and VA policyholders.

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