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A Hole in Strategic Asset Allocation

Introduction

Strategic asset allocation (SAA) – the bedrock of institutional portfolios – has a hole; we all know it, but only a few are looking for alternative approaches. While asset allocation may vary from one plan to the next, most institutional portfolios are still anchored on strategic asset allocation based on capital market forecasts of long-term averages: average return, average volatility and average correlations. This is true despite the fact that many chief investment officers acknowledge that forecasting returns is incredibly difficult – if not impossible – to do, volatility is not the same as investment risk, and correlation estimates are highly unreliable due to their time-varying nature. Given the deficiencies of the SAA, we know the future outcome of most institutional portfolios when extreme negative tail events materialize: they can lose in excess of 30% of the total plan value in one year.

This begs the question: if it is broken, why do we insist on building our policy portfolios based on such strategic asset allocation? Inertia. We keep it because we've codified it into our investment policy statements. We keep it because there have been no viable alternatives, until now. In what follows, we spotlight deficiencies associated with conventional strategic asset allocation and propose an adaptive asset allocation approach that is designed to maximize compound return while mitigating the acute tail risk present in most institutional portfolios.

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▶ Performance pattern of most plans is Calvinistic in nature and its investment outcome pre-determined by strategic asset allocation.

▶ Policy portfolios should convey constancy and some level of predictability; however, constancy and predictability require active, not passive, beta management.

▶ Options market-deduced measures of tail losses and gains can provide a sound foundation for a forward-looking, adaptive asset allocation approach – in our opinion, a viable and superior alternative to strategic asset allocation.

A Hole in Strategic Asset Allocation

## Strategic Asset Allocation Confers a False Sense of Security

The notion of portfolio diversification being the only "free lunch" in investing is flawed. Asset diversification is fleeting: it imparts benefits during normal times when its value is minimal, but disappears at times of market stress when its value is the highest because correlation among risk assets converges to one. Consider the performance pattern of a sample public plan shown in Exhibit 1.

It is difficult to assert portfolio diversification worked between 2008 and 2009, when this sample public plan lost 31% of its plan assets over a 12-month period ended in March 2009. For a $10 billion plan, this loss translates to $3.1 billion in one year. It is not as though this plan was not diversifed in the traditional sense of portfolio diversification. As shown in Exhibit 2, it held public and private equities, bonds, real estate, hedge funds and real assets.

For most institutional portfolios, the drawdown experienced in March 2009 was not too dissimilar from this plan. And yet, we cling

Exhibit 1: Rolling 12-Month Performance of a Sample Public Plan vs. Policy Benchmark Portfolio
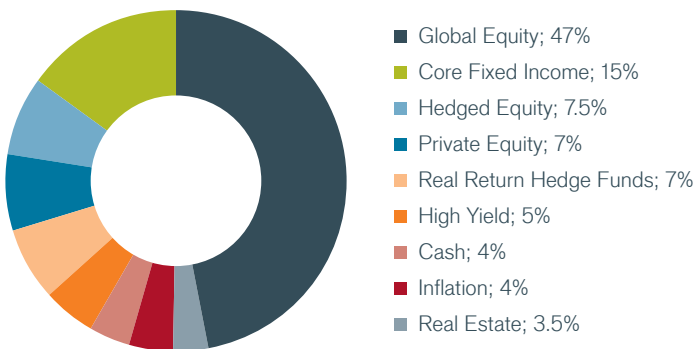November 30, 2000 - December 31, 2017
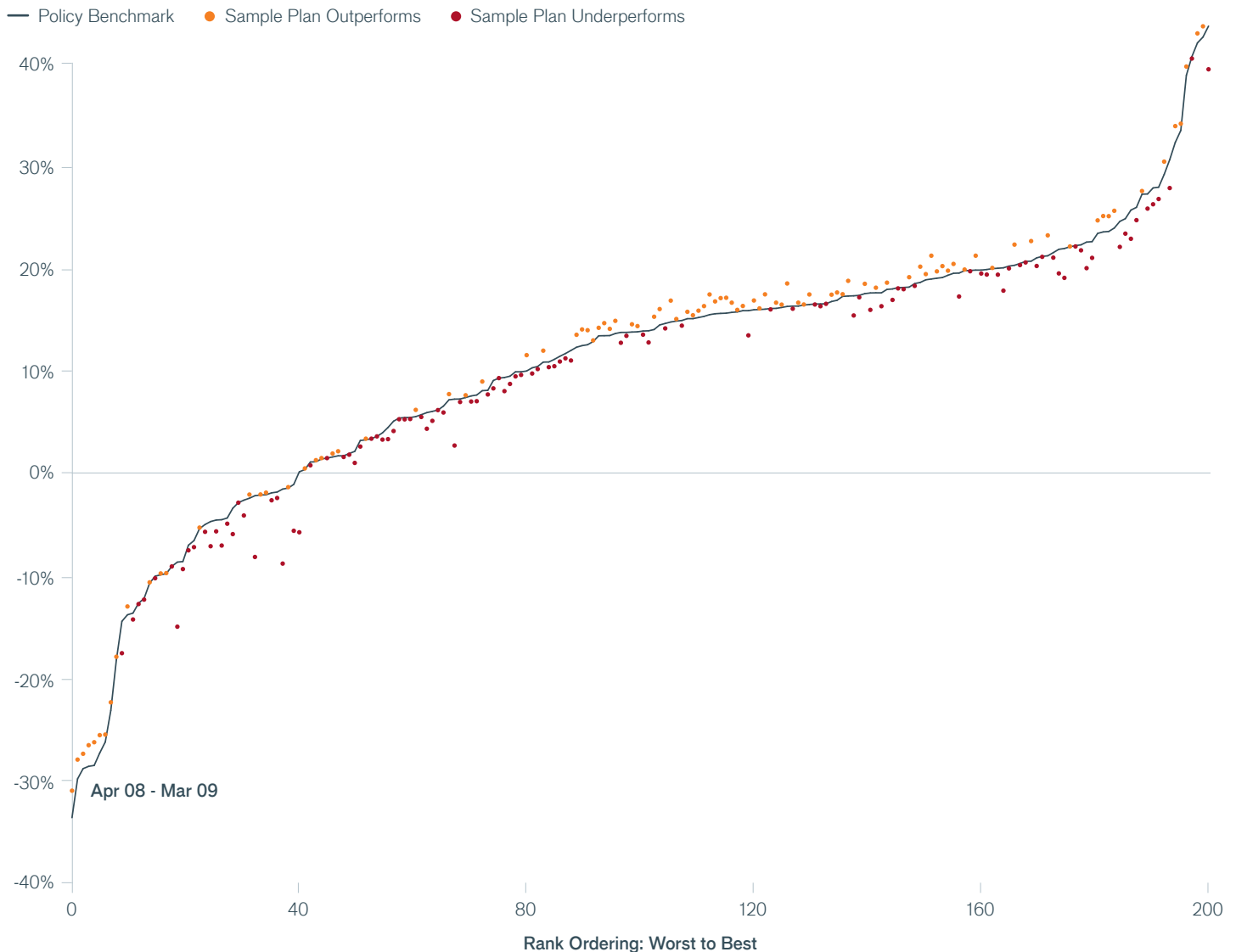
Source: Sample Public Plan. Data from 11/30/00 to 12/31/17. See Exhibit 2 for strategic asset allocation.

onto the strategic asset allocation that has failed us in the past and is sure to fail us in the future, but hope for a different outcome. Policy portfolios should impart some notion of constancy and predictability; unfortunately, the performance of most policy portfolios (as demonstrated in Exhibit 1) is highly unpredictable from one year to the next and rarely delivers the long-term average return. Somehow, policy portfolios became synonymous with strategic asset allocation and passive beta management. However, constancy and predictability require a degree of active asset allocation and active beta management – something that most plans do not engage in currently.

Exhibit 2: Sample Plan's Strategic Asset Allocation

- ■ Global Equity; 47%
- ■ Core Fixed Income; 15%
- ■ Hedged Equity; 7.5%
- ■ Private Equity; 7%
- ■ Real Return Hedge Funds; 7%
- ■ High Yield; 5%
- ■ Cash; 4%
- ■ Inflation; 4%
- ■ Real Estate; 3.5%

Source: Sample Public Plan.

Majoring in the Minors

Among the plan sponsor community, there is a near-unanimous view on the expected plan level return for the next 10 years: it will be meaningfully lower than the average 7.5% assumed or targeted by most institutional investors. How much lower? Anecdotally, the long-term plan level of expected returns among plan sponsors range from 3.0% to 6.0%. As a result, many have turned to alpha-seeking alternatives, concentrated equity, private debt and private equity to close the return gap. Certainly, positive alpha from active management can help in closing the return shortfall, but many are still missing the big picture. For most institutional portfolios, the success of their investment program will largely be determined by beta returns, not alphas. Refer back to Exhibit 1 – the sample plan's actual returns closely follow the policy benchmark returns; the outperformance helped and the underperformance hurt a little, but the actual performance pattern of this sample portfolio is Calvinistic in nature and its outcome predetermined by the strategic asset allocation.

Given the SAA in Exhibit 2, it is not too difficult to estimate the calendar year 2015 return for this sample plan. By our estimation, based on the strategic asset allocation as of March 31, 2015, this sample public plan made no money in 2015. No amount of alpha from the active managers and private investments would have closed the return shortfall between the required rate of return (~7.5%) and the actual return of the plan. Simply put, there is just too much emphasis on alpha and too little emphasis on beta, or more precisely, beta management.

We assert plan sponsors can improve the compound return of their plans by actively managing their beta exposures, with a goal of minimizing the impact of capital losses (left tail events) and participating in capital gains (right tail events).

Active Beta Management via Adaptive Asset Allocation

Active beta management may sound like anathema to most institutional investors. After all, it is foolhardy to make interest rate and equity market-timing calls. We wholeheartedly agree. No one is clairvoyant enough to consistently time interest rates and equity markets. Therefore, in active beta management, we advocate for neither market-timing, nor forecasting asset class returns.

What we advocate for is a fundamentally different approach to asset allocation: adaptive, as opposed to, static asset allocation based on forward-looking measures of risk (both downside and upside) not dependent on valuation levels, factor timing or market-timing calls. We are careful to distinguish between risk (how much money one can lose) and volatility (the variability of returns)[1]. In conventional strategic asset allocation, one takes long-term capital market forecasts of returns, volatilities and ordinary correlations as inputs to derive passive dollar allocations to each of the strategic assets. In the adaptive asset allocation approach we propose herein, one targets a level of portfolio risk (for example, maximum loss of 25% over a 12-month period), and estimates short-term, forward-looking measures of risks and tail-risk correlations[2] as inputs to determine asset allocation that adapts to the changes in the beta risk environment. It adapts to maintain the downside risk of the portfolio consistent with the maximum loss target.

However, active beta management based on short-term changes in downside risk represents only one side of the equation. To maximize compound return from active beta management, it is not enough to dynamically change asset allocation based solely on downside risk; one must also dynamically adapt the asset allocation to capture the upside or the right tail risk.

Options markets offer a forward-looking measure of risk (both downside and upside) that is not dependent on valuation levels, factor timing or market-timing calls. Further, such a risk measure dynamically adapts to the changes in the risk environment: when the probability of loss for the underlying asset increases, the price of the put option increases; similarly, when the probability of gain for the underlying asset increases, the price of the call option increases.

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[1] Oftentimes, risk and volatility are used interchangeably. We distinguish between risk (how much money one can lose) and volatility (the variability of returns) because what investors ultimately care about is the permanent impairment of capital, not the variability of returns.

[2] We contrast tail-risk correlation from ordinary correlation. The former represents correlation among assets during stress or tail events, the latter is the correlation among assets across all time periods.

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Therefore, we believe options market-implied, forward-looking measures of downside and upside risk are an ideal way to actively manage beta exposures: increasing allocation to assets with low expected losses and high expected gain-to-loss ratios, and decreasing allocation to assets with high expected losses and low gain-to-loss ratios.

To be clear, we are not advocating for the buying and selling of options to manage beta exposures; rather, deducing forward-looking measures of downside and upside risk from the price of options on equities, credit, global sovereign bonds and inflation-sensitive assets.

Implementation of Active Beta Management

In options-based active beta management, plan sponsors are faced with three generalized implementation choices:

1. At the policy level, across all strategic assets

2. Within an asset class such as equities, global bonds or inflation-sensitive assets

3. As a discrete investment strategy within "GTAA/Risk Parity," or Absolute Return categories within the broader strategic asset allocation

Given this flexibility, active beta management can be tailored to specific investment objectives, but the implementation will generally fall under one of the foregoing three choices.

Policy-Level Implementation

Without stating the obvious, active beta management will have the greatest impact at the overall policy level if it can be correctly implemented, "if" being the operative word. Put bluntly, employing active beta management at the policy level is aspirational because it requires a change in mindset – a new policy benchmark and explicit definition, quantification and targeting of a risk level – much like liability-driven investing (LDI) required a change in mindset among corporate pension committees and officers. In LDI, the pension liability became the policy benchmark, risk was defined by surplus volatility, and defeasance of the pension obligation became the ultimate objective.
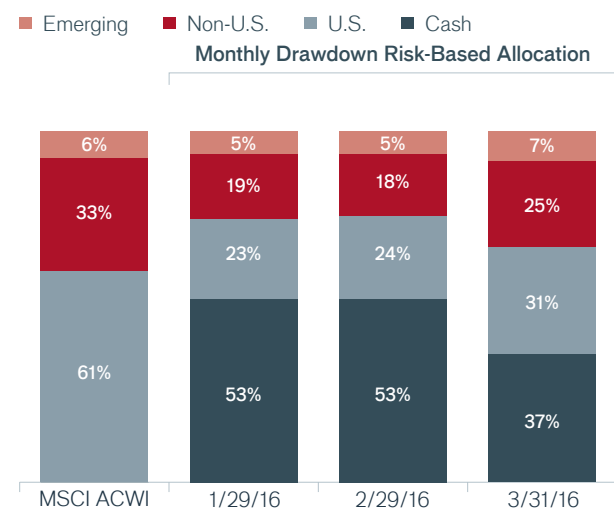
Policy-level implementation is aspirational because it requires jettisoning the strategic asset allocation and making timely asset allocation changes. Pension committees are simply not structured for a timely decision-making process. Finally, from a practicality standpoint, private or illiquid assets in institutional portfolios do not lend themselves to an adaptive asset allocation process. The two are incongruous. For all these reasons, policy-level implementation is beyond the reach of most institutional plans.

If not implementable at the policy level for institutional investors, policy-level implementation is more than viable at the individual investor level because the entire asset allocation is delegated to professional asset managers. Currently, professionally managed target date funds (asset allocation portfolios for individual investors) suffer from the same issues associated with strategic asset allocation.

Asset Class-Level Implementation

Hegemony of equity risk in institutional portfolios is widely accepted and understood by all plan sponsors. Yet, many take a passive approach to public equities. This passive approach is based on the belief that active management, after fees, adds no value. This approach only considers the return side of the equation; it gives no thought to the risk associated with equity benchmarks. Drawdown protection is most valuable when applied to the most volatile assets, such as equities, and is especially relevant when plan sponsors want to protect themselves against tail events such as those experienced in 1973-1974, 2000-2002 and 2008 when equities lost about 40% of their value.

Exhibit 3: MSCI ACWI Regional Allocation vs. Hypothetical Drawdown Risk-Based Regional Allocation

- Emerging ■ Non-U.S. ■ U.S. ■ Cash

Monthly Drawdown Risk-Based Allocation

	MSCI ACWI	1/29/16	2/29/16	3/31/16
Emerging	6%	5%	5%	7%
Non-U.S.	33%	19%	18%	25%
U.S.	61%	23%	24%	31%
Cash		53%	53%	37%

Source: MSCI data as of 12/31/2015. Risk-based allocation percentages from Janus Henderson's max 25% drawdown global equity strategy for January, February and March.

In Exhibit 3, we compare the passive regional equity allocation to the hypothetical drawdown risk-based regional equity allocation from January to March 2016[3]. The latter targets a drawdown level no greater than 25% over any rolling 12-month period, roughly 60% of the realized equity losses during the past tail events. When the risk of losing money was highly elevated as deduced from the price of options, it made no sense for investors to blindly follow the regional equity allocation of the MSCI ACWI Index. Therefore, particularly in January and February, the sensible thing to do was to decrease the allocation to equities and hold cash to keep the risk level constant; conversely, in March when equities became relatively more attractive, it made sense to increase exposure to equities and decrease the cash allocation.

In Exhibit 4, we backcast the plan level benefits of including a maximum 25% drawdown equity strategy in the global equity structure. The plan level returns remain relatively constant between 7.4% and 7.5%, while the plan level drawdown meaningfully improves from -37% (100% passive global equities) to -18% (100% in max 25% drawdown equity strategy).

[3] We chose January to March 2016 as the illustration period because global equities were extremely volatile during this period.

Exhibit 4: Drawdown Benefits of Adding the 25% Drawdown (DD) Equity Strategy in the Global Equity Structure

Portfolio	Return	Volatility	Sharpe Ratio	Maximum Drawdown
100% Global Equities	7.53%	9.76%	0.64	36.83%
75% Global Equities + 25% Max 25% DD Equity Strategy	7.53%	8.77%	0.71	32.52%
50% Global Equities + 50% Max 25% DD Equity Strategy	7.51%	7.84%	0.79	27.98%
100% Max 25% DD Equity Strategy	7.43%	6.25%	0.98	18.18%

Source: Sample Policy Portfolio as of February 2013. Janus Henderson for the max 25% drawdown equity strategy simulated return data. The simulation period is from 5/2003 to 12/2015.

The drawdown protection is substantial because, as stated previously, the loss protection is most valuable when applied to the riskiest assets – mainly equities. We chose equities to demonstrate the benefits of an adaptive equity strategy; however, the implementation is not limited to equities only. It can be implemented within global bonds, real assets or any other liquid assets with deep and active options markets.

Unlike the policy-level implementation, active beta management within broad asset classes such as global equities, global fixed income and inflation-sensitive assets is practical, implementable and impactful, especially for those who have taken a passive approach to beta management.

Discrete Allocation within the Global Tactical Asset Allocation/Risk Parity Bucket

In practice, the most likely implementation of active beta management approaches for most plans will be through a discrete investment strategy – hereafter referred to as the adaptive multi-asset strategy, or "AMA." When investing in newer vehicles that cannot be neatly categorized into one of the strategic assets that institutional investors currently invest in, invariably the following two questions come up:

1. Where does it belong?

2. How much should we allocate to it?

Fortunately, many investors already have a separate category for absolute return or multi-asset strategies such as Risk Parity or Global Tactical Asset Allocation (GTAA).

For the sample public plan in Exhibit 5, the adaptive multi-asset strategy belongs within the Opportunistic bucket, and within the Opportunistic bucket, it belongs in the Risk Parity/GTAA sub-category. Nomenclature may differ from one plan to the next, but most institutional investors will place the adaptive multi-asset strategy next to Risk Parity or GTAA strategies, and the percent allocation will rarely deviate too far from the 10% we observe for this sample public plan. Ideally, though, to have a meaningful impact at

Exhibit 5: Sample Public Plan Allocation to Opportunistic Bucket

Asset Class	Target Allocation %
Total Global Equity	**40%**
Global Public Equity	31%
Private Equity	9%
Diversified Credit	**19%**
Mixed Credit (HY | Bank Loans | Structured Credit)	6%
EMD	6%
Private Debt	7%
Real Assets	**8%**
Broad Real Estate	5%
Commodities	3%
Opportunistic	18%
Hedge Funds	8%
GTAA | Risk Parity	10%
Conservative Fixed Income	**13%**
Core U.S. Fixed Income	7%
Global Fixed Income (Hedged)	3%
Short-Term Fixed Income	3%
Cash & Cash Equivalents	**2%**
Total	**100%**

Source: Sample Policy Portfolio as of February 2013. Note, this is a different sample plan than the one in Exhibit 2.

the overall plan level, the allocation to the AMA-type of strategies must be greater than 10%. In Exhibit 6, we quantify the plan-level impact at 10%, 20% and 30% allocation to the AMA strategy.

While plan-level statistics improve for all allocation levels, at 10% allocation, improvements appear modest, especially for the maximum drawdown, where the plan-level drawdown improves from -37% to -32%. On the other hand, at 30% allocation, while the maximum drawdown significantly improves to -24%, a 30% allocation is probably too high for plan trustees. A 10% to 20% allocation strikes the right balance between too much and too little.

Exhibit 6: Illustration of the Plan Level Impact

Portfolio	Return	Volatility	Sharpe Ratio	Maximum Drawdown
Policy Portfolio	6.7%	10.0%	0.45	-36.8%
Policy Portfolio + 10% AMA - 10% Global Equities	7.4%	9.0%	0.58	-32.4%
Policy Portfolio + 20% AMA - 20% Global Equities	8.1%	8.2%	0.72	-27.6%
Policy Portfolio + 30% AMA - 30% Global Equities	8.7%	7.5%	0.87	-23.8%

Source: Janus Henderson. Sample Policy Portfolio as of February 2013. Estimation of plan level portfolio statistics and adaptive multi-asset strategy simulated return data, 5/2003 to 12/2015.

A Hole in Strategic Asset Allocation

There are good reasons why the adaptive multi-asset strategy belongs in the Risk Parity or GTAA category. Both AMA and Risk Parity strategies are considered constant-risk approaches in that they target constant portfolio-level risk throughout the multi-period investment horizon. However, that is where the similarities end.

1. In AMA, risk is defined by how much money one can lose; in Risk Parity, risk is often defined by standard deviation. The two are not the same and, in our opinion, the permanent impairment of capital is what investors ultimately care about – therefore, it is a better definition of risk.

2. The Risk Parity approach is singularly focused on equal contribution of risk among the four broad assets it invests in (equities, bonds, commodities and currencies); there is no room to deviate from the risk parity allocation. In AMA, the portfolio does not rest on the risk parity allocation; instead, it moves away from assets with high tail risk and low gain-to-tail loss ratio and toward assets with low tail risk and high gain-to-tail loss ratio. Therefore, where Risk Parity is concerned only with the left side of the return distribution, AMA deals with both the left and right sides of the return distribution. AMA is much more holistic in its approach.

Both AMA and GTAA can be classified as tactical asset allocation strategies; they strive to dynamically tilt the asset allocation to maximize compound returns, but the derivation of key insights and implementation of tactical asset allocation sets them miles apart.

1. In GTAA, the portfolio manager forms views on the relative attractiveness of the underlying assets, often based on valuation measures, estimates of volatility and cross-sectional asset correlations. We have already highlighted the near-impossibility of forecasting returns and major deficiencies associated with standard deviation as a measure of risk and ordinary correlation estimates.

2. In contrast, AMA relies on forward-looking measures of tail losses and gains deduced from market prices of options and tail-risk correlation. In our opinion, the options market-implied view of tail losses and gains is much more timely and forward-looking than the foundational assumptions that buttress the GTAA strategies.

AMA draws on the best qualities while avoiding what we believe to be the major shortcomings of Risk Parity and GTAA strategies.

Conclusion

"There is no place to invest," is a recurring chorus among plan sponsors. In these uncertain times, upside gains appear limited and downside risks magnified for both risk and safe-haven assets. In such an asymmetrical environment, we assert preserving capital should be at the forefront of investors' minds. Generating returns is necessary, but limiting permanent impairment of capital is equally important when one's objective is to maximize compound return of a portfolio.

Policy portfolios should convey constancy and some level of predictability to plan sponsors; however, we believe constancy and predictability require active, not passive, beta management. Strategic asset allocation along with passive beta management is flawed: it cannot address the acute tail risk inherent in most institutional portfolios because asset diversification fails during times of market stress when correlation among risk assets converges to one. Further, beta returns, not individual manager alphas, will determine whether a plan achieves the long-term return objective of 7.5%. Therefore, we encourage plan sponsors to plug this hole with an adaptive asset allocation approach, instead of persisting with strategic asset allocation. The latter has failed time and time again, lowering realized compound returns by subjecting institutional portfolios to large periodic capital losses.

Options market-deduced measures of tail losses and gains can provide a sound foundation for a forward-looking, adaptive asset allocation approach – in our opinion, a viable and superior alternative to static asset allocation. We challenge institutional investors to be iconoclastic in both plan-level asset allocation and multi-asset investing, in pursuit of maximizing their portfolios' long-term compound returns, while simultaneously limiting the material loss of capital that can leave a lasting imprint on a portfolio's terminal value.

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Ashwin Alankar is Head of Global Asset Allocation & Risk Management for Janus Henderson Investors. In this role, he is responsible for leading and advising on risk management issues across the platform and defines short- and long-term approaches to asset allocation. He is also a Portfolio Manager of the Adaptive Multi-Asset strategy.

Prior to joining Janus in August 2014, Mr. Alankar served from 2010 to 2014 as co-chief investment officer of AllianceBernstein's tail risk parity and senior hedge fund portfolio manager of the firm's multi-asset class market neutral systematic hedge fund. Prior to that, he was a partner and capital allocation committee member for Platinum Grove Asset Management from 2003 to 2010. Mr. Alankar's experience also includes serving as a consultant in the financial litigation division of the Law and Economics Consulting Group from 2001 to 2002.

Mr. Alankar holds a bachelor of science degree in chemical engineering and mathematics and a master of science degree in chemical engineering, both from Massachusetts Institute of Technology. He also holds a Ph.D. in finance from the University of California at Berkeley Haas School of Business. Mr. Alankar has 17 years of financial industry experience.

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Soonyong Park is Vice President, Senior Managing Director and Chief Institutional Client Strategist at Janus Henderson Investors. In this role, Mr. Park is responsible for providing thought leadership on key issues to institutional investors.

Prior to joining Janus in 2012, Mr. Park served as the Head of Global Portfolio Solutions and co-head of Investment Research for Rogerscasey in Darien, Connecticut. Past experiences also include international equity research for Northern Trust Global Advisors, business acquisition and distressed loan investing for GE Capital Services, pricing of weather derivatives for Koch Industries, and public accounting for Deloitte & Touche.

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