The changing asset allocation framework

Stacy Cuffe, **Lisa Goldberg** and **Frank Nielsen** describe the move from asset-class allocation to risk-based allocation, and the problem of 'risk-grouping'

Risk Allocation **Commentary**

The burst of the dot-com bubble in 2001 alerted asset owners to gaps in the protection provided by the traditional equity/bond asset allocation. The relatively large concentration of equities generated excessive volatility and downside risk in turbulent periods. Corporate and public pension plans as well as endowments reacted by increasing their plan allocations to alternatives such as hedge funds, private equity, real estate, infrastructure, commodities and timber.

In response to a considerably louder alert in 2008, despondent institutional investors realised, once again, that their asset risk was driven largely by their equity exposure; many so-called 'alternatives' turned out to be equities in disguise. Amplified by leverage, private equity losses were often worse than losses due to public equity. Hedge funds strategies such as merger arbitrage, convertible bond arbitrage and long/short equity often failed. Corporate and highly rated agency and mortgage bonds did not provide any significant diversification effects.

As a result, many asset owners have shifted focus from traditional asset class allocations to a dynamic analysis of cross-asset class drivers of risk and return. They ask, for example, what factors drive both public and private equity; what factors differentiate them? Are corporate bonds fixed income-like or equity-like from a risk and return perspective? After currency hedging, are foreign government bonds as riskless as domestic government bonds?

Furthermore, interest in active management of assets against a liability benchmark has been revived. Pension plans worry more about their surplus (or, more often, deficit) relative to their liabilities, instead of the tracking error or risk of underperforming their asset class benchmarks.

Recently, a number of large asset owners with significant in-house investment staff have taken a novel approach to asset allocation. This new paradigm features a shift away from traditional asset classes as fundamental building blocks of a portfolio and toward a classification of assets according to their risk characteristics – hence the name: risk-based or risk-premium-based asset allocation.

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A risk-based asset allocation framework may consist, for example, of growth, income, inflation, liquidity as distinct risk groupings intended to deliver different risk and return characteristics. Examples that have been implemented by large pension plans around the world include: a large US plan that has implemented growth, income, real, Inflation and liquidity; a large European plan that uses interest rates, companies, real assets and special opportunities as its risk groupings; and a big Australian plan that categorises its assets by equities, debt, tangible assets, alternative assets and cash.

In its most abstract form, this approach would construct an asset allocation based on a number of bets that the asset owner wishes to take on several risk drivers, which may be independent of asset class categories. Simple examples of cross-asset class risk factors are liquidity and inflation. Some systematic, rule-based trading strategies, such as convertible arbitrage, may also qualify as a separate risk driver.

In the long run, bets placed on these risk drivers should earn the corresponding risk premium. In such a framework, the portfolio's risk and return characteristics are therefore determined by the magnitude of returns to the risk factors and correlations between them. No standard risk-based grouping has been established yet, and the grouping decision has the potential to materially affect the allocation of assets.

As a first step toward an asset allocation based on risk drivers, an institutional investor may reclassify its current allocation without modifying the actual investments. Figure 1 illustrates one possibility in which assets are aligned with fund objectives, such as generating income required to meet liabilities and growing the asset base.

Figure 2 shows two views of a simple allocation. The first shows the traditional classification scheme with capital distributed as 60% equity, 25% fixed income, 10% alternatives and 5% cash. (Figure 3 provides more details on the asset allocation and the mapping of assets from the traditional to the risk grouping scheme). Note that the equity concentration is more extreme when risk contributions, rather than capitalisation weights, are used. The risk contributions ►

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◄ were estimated as of 31 March 2011 with the Barra Integrated Model.

The second view shows the same allocation from the perspective of the risk grouping in figure 1. The substantial concentration in asset growth results predominantly from the reassignment of private equity from the alternatives category to asset growth.

The concentrations shown in figure 2 are risky, and a strategy for mitigating them is risk parity. This is a reallocation of capital that equalises risk contributions across risky categories. Since risk parity increases weight on securities with lower risk, it is standard practice to lever the strategy so that the volatility of the risk parity of the portfolio is equal to the risk of the original portfolio. In the portfolio shown in figure 2, the annualised volatility is 15%.

We show the capitalisation weights resulting from applying risk parity to the base strategy for both the traditional and risk grouping classifications in the first chart of figure 4.

As expected, equalising risk contributions from either perspective tends to lower the allocation to equity while raising the allocation to fixed income and alternatives. However, the results are more dramatic when the group categories are equalised, since the concentration in asset growth is so large. This effect is summarised in terms of leverage. To achieve risk parity on the traditional classification, a leverage ratio of 1.2 is required. To achieve risk parity in the grouping scheme requires a leverage ratio of 1.5. The second chart of figure 4 shows the same process from the perspective of risk groupings. To achieve risk parity, asset growth is diminished while income generation and inflation protection are increased. However, the impact is greater when we equalise along the groupings than it is when we equalise along the traditional allocation.

So while a number of pension plans have moved from a traditional asset allocation framework to a risk-based grouping scheme in response to growing awareness of unintended equity bets, no standard grouping has emerged, and plans have adopted idiosyncratic grouping schemes based on their particular situations or views of the world. An example of a grouping scheme that reflects some of the needs of a pension plan is illustrated in figure 2, highlighting a substantial concentration in asset growth, which is fuelled by the bucketing of public and private equity.

Since asset growth is a relatively risky grouping, the concentration is more worrisome from the perspective of risk contributions than from capital allocation. In principle, this concentration can be mitigated with a risk-parity strategy, which is a reweighting scheme that equalises risk contributions. However, as shown in figure 4, a risk-parity scheme depends on the grouping or classification of assets. Further, risk parity can lead to substantial leverage, which introduces a facet of risk that might not be captured by volatility.

Our results highlight the importance of carefully selecting the framework for viewing one's asset allocation. The risk contribution analysis of figure 2 highlights the insights a new asset grouping view can offer. Figure 4 highlights the importance of selecting the best risk-grouping scheme for a given plan. We show that implementing risk parity with respect to disparate views of the same allocation – traditional and risk grouping – can lead to vastly different levels of leverage. Similarly, different grouping schemes can potentially lead to very different asset allocation decisions.

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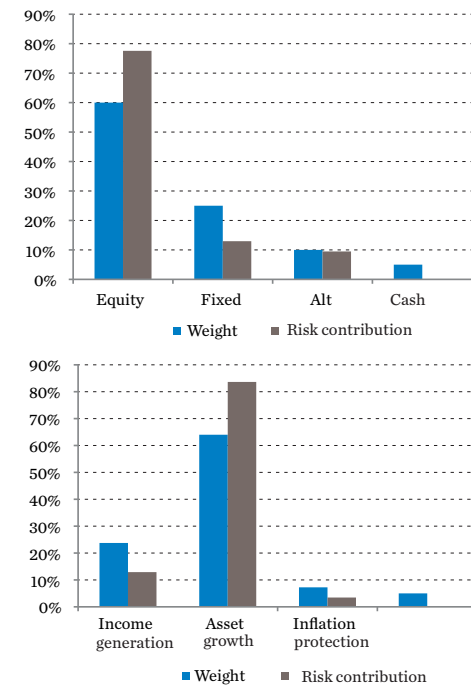
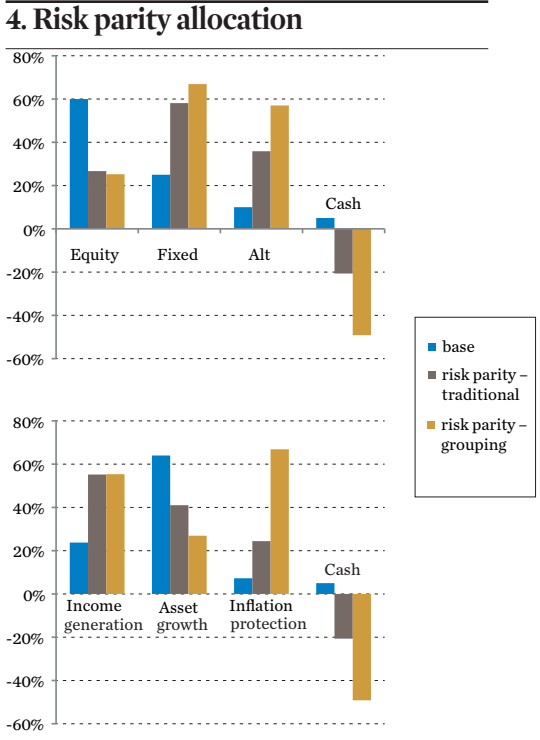
2. Asset allocation weights and risk contribution



4. Risk parity allocation



3. Asset allocation

Traditional classification	
Equities	**60.00%**
US equities	37.20%
International equities	17.40%
Emerging markets	2.40%
Global Small Cap	3.00%
Fixed income	**25.00%**
US fixed income	22.50%
TIPS	1.30%
Global Fixed Income	1.30%
Alternatives	**10.00%**
Real estate	1.50%
Absolute return	4.50%
Private equity	4.00%
Cash	**5.00%**
Cash	5.00%
Risk grouping	
Asset growth	**64.00%**
US equities	37.20%
International equities	17.40%
Emerging markets	2.40%
Global small cap	3.00%
Private equities	4.00%
Income generation	**23.80%**
US fixed income	22.50%
Global fixed income	1.30%
Inflation protection	**7.30%**
TIPS	1.30%
Real estate	1.50%
Absolute return	4.50%
Cash	**5.00%**
Cash	**5.00%**