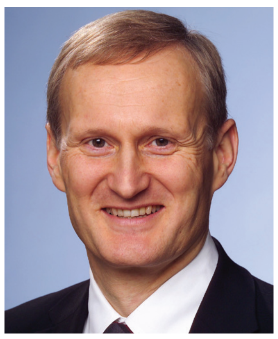
Risk Management

It's a subject that's rarely far from the top of the asset management agenda. Measuring, monitoring and managing risk is an integral part of any investment operation. In the years since the global financial crisis, some widely held industry maxims have come under scrutiny and new tools have been developed. Through this process of change, risk management practice has improved, becoming more nuanced and hopefully more effective.

The part that risk management plays in overall portfolio management can seem opaque – more of an art than a science. In truth, the two are inextricably entwined. In search of transparency, P&I sat down with three notable risk managers to pin down important definitions and to ask for explanation of concepts, both simple and complex. At this pivotal moment in investing, understanding the importance of risk management is more vital than ever for all types of investors.



Herold Rohweder
Global CIO Multi Asset
Allianz Global Investors

Jeffrey L. Knight, CFA
Global Head of Investment Solutions, Co-Head of Global Asset Allocation
Columbia Management Investment Advisers, LLC

Dr. Brian Fleming
Investment Director, Head of Multi-Asset Risk & Structuring
Standard Life Investments

P&I: ***How are risk management strategies evolving to address the changing objectives of investors?***

Brian Fleming: Some fundamental approaches to risk management have changed, even without any changes to client objectives. One issue that the regulators and the IMF have highlighted is the limitations of risk models in their over-reliance on historic correlations and focus on spurious accuracy. What we've developed instead is a more flexible, forward-looking scenario approach.

Herold Rohweder: Investors have two simple objectives. One is to achieve a certain long-term investment return and the other is to avoid short-term drawdown risk. To achieve the long-term objective, they need to expose themselves to risk. Risk in that sense is necessary and good. Then, of course, there is the bad side of risk. In the past, investors would ask us professionals to save them from the shorter-term pain of negative returns in bad years by making tactical calls on the market. Now we know that we don't get it right often enough by acting tactically to deliver on risk mitigation expectations.

So now we use what you might call a dynamic approach. It's not based on market returns, but rather on an option framework, where the optionality of return expectations is taken into account. That way we can deliver with higher confidence on investor expectations.

Jeff Knight: Risk management strategies are changing in two ways. One is that the models themselves are getting better. Early in my career, only single asset class models were available, and risk analysis across asset classes was very difficult. Now models are more granular and flexible.

The other way that risk management is changing is in the definition of risk itself. Rather than defining risk solely from the perspective of performance relative to a benchmark, investors now evaluate the consequential outcomes that matter in both absolute and relative terms. To manage risks in those terms requires not only classic risk analysis, but also a forward-looking heads up assessment of what can go wrong, and ongoing performance attribution.

Determining what could go wrong can involve using historical scenarios to assess vulnerabilities to conditions that have occurred before. But it can also mean using your imagination to anticipate entirely new events. These might relate to unique conditions present at a particular time. For example, what happens when today's extraordinary monetary policies begin to normalize? Performance attribution plays a big role in risk management because it ties your ex-post reality to your ex-ante expectations, creating a feedback loop for your risk management process.

P&I: ***If you are a plan sponsor, how do you measure success in risk management?***

> *Whenever you use risk models that do not account for fat tails well, you are exposed to possibly unpleasant surprises. Scenario analysis is one way to address that issue.*
>
> *~ Herold Rohweder, Allianz Global Investors*

Brian Fleming: Measuring risk management success requires an understanding of exactly what the client needs, but overall, I think you are aiming to leave no undesired risk unmanaged. As a simple example we can ask, "What is their benchmark?" For a pension plan, that would typically be liabilities; the value of the liabilities is important for the plan sponsor to understand their funding position. But you can value liabilities in different ways – accounting liabilities, actuarial evaluations and economic value, which you might discount using government bonds or some credit-adjusted curve. So even understanding how the plan values the liabilities, and which value is most important to them, is critical in understanding the true objective.

Jeff Knight: There are many levels of risk management from a plan sponsor perspective. At the overall plan level, the definition of success should be linked to the objectives of the portfolio. So if the plan sponsor has a goal to minimize earnings per share variability arising from the pension fund equation, then that becomes the right metric for success. Another measure of success relates to unintended outcomes. Intent matters. Your outcomes should not be out of line with your intentions, either in source or magnitude. To me that's good risk management.

Herold Rohweder: I agree the definition of risk matters. You can't measure success if you don't have a clear definition of risk to begin with. If, as Brian mentioned, you have a total balance sheet point of view, then liabilities become the benchmark. Then it is all about managing the funding ratio of the balance sheet. In that framework, the liabilities turn into the risk-free asset. So you have a volatile asset capturing the risk-free role. If you think of it that way, then the principles of measuring your success are the same as they would be with a strategic asset allocation, where the risk-free asset is the short-term money market rate that is more or less free of volatility.

In the shorter-term, in terms of drawdown risk in the liability case, it's probably a question of how far can my funding ratio deteriorate and what

> *If you can find strategies that you expect to have positive trend returns but actually have negatively correlated fluctuations, then that's ideal.*
>
> *~ Dr. Brian Fleming, Standard Life Investments*

can I do about that in terms of dynamic asset allocation. In the benchmark approach, it is how big the drawdown is in terms of total return on the asset portfolio.

P&I: ***How can risk budgeting help the investor?***

Brian Fleming: Risk budgeting does help the investor because it's important to be careful about where you allocate risk. A typical risk budgeting approach might take a standard risk model and look at how much risk is allocated against each strategy or asset class. But because of the strong bias towards historic data and correlations, it's important to include forward-looking information as well to make the budget correspond more effectively to the scenarios that you will encounter.

Herold Rohweder: When I talk to investors about risk budgeting, I find that a lot of explanation is needed. There are various important aspects to risk budgeting. First is the time horizon. A risk budget has to have a certain time period, because what has to be done depends very much on what the horizon is. Second, a good risk budget needs to be realistic and appropriate in size. If there is a certain volatility attached to your strategic asset allocation, then you can derive an appropriate risk budget from this volatility number - but they need to match. Third, diversification matters here because you want to use your risk budget at all times in an efficient way. You don't want to spend it all in one place. You want to spread your risk budget across multiple sources of return and capture the benefit of diversification as well. A final aspect is drawdown risk management. If the risk budget is tight relative to the volatility of the strategic asset allocation, to deliver on that, then you have to think about explicit ways to manage drawdown. Here fat tails come into play. Diversification helps to address this risk in part, but whenever you use risk models that do not account for fat tails well, you are exposed to possibly unpleasant surprises. Scenario analysis is one way to address that issue.

Jeff Knight: For me, the concept of risk budgeting is two-fold. How much risk do we want to take and how do we apportion risk to various activities? Risk parity is a good example of risk budgeting in practice. In a risk parity strategy, risk is deployed evenly across asset classes. If we believe textbook theories that all asset classes will offer, in the long run, the same compensation for volatility, that is, the same Sharpe ratio, then risk parity becomes an excellent policy for an asset allocation risk budget.

However, we might have expectations for markets that differ from classical theory, in which case a different risk budget would be appropriate. In a given market environment, Sharpe ratios may vary widely across asset classes. We happen to think that these environments can be identified in real time. Consequently, it makes sense to calibrate the allocation of risk to the expectations for the overall market environment, favoring asset classes with higher Sharpe ratios and reducing those with lower Sharpe ratios. That might not yield the most diversified portfolio, but such a portfolio would have a higher Sharpe ratio.

P&I: ***Can you address the specific risks faced by fixed income investors today?***

Jeff Knight: We have very low interest rates. That creates two problems for fixed income investors. One of them is vulnerability to rising interest rates and the other is the lack of conventional yield sources. Both of those create risk management challenges. In a low interest-rate world, investors are aware that rising interest rates would work against you, so you might want to revisit your risk allocation to de-emphasize duration and emphasize other things, like spread risk, liquidity risk or sector rotation.

The lack of conventional yields introduces a bigger risk in that all the sources of incremental yield – credit risk, illiquidity risk – are being priced in an increasingly demanding way. They are being influenced not by their idiosyncratic fundamentals, but rather by this overarching search for yield, which means that the correlations across the fixed income asset class are likely to be very high in an illiquidity or volatility event.

Brian Fleming: Last May and June, you did have a sharp sell-off in fixed income and we are obviously at a turning point in terms of the role that fixed income assets play in portfolios. I still think they do have an important role to play, particularly versus liability benchmarks and in diversification. You might simply have to be more creative about how you express fixed income views in your portfolio.

Herold Rohweder: The steady-state interest rate should be higher than it is today because central banks have been employing policies in the last three to five years that have dampened the rate level. It is going to be adjusting back to equilibrium at some point. The typical duration risk premium for investing in the 10-year versus money markets is 100 to 150 basis points. This won't be realized during this period of adjustment, so it boils down to shorter-term return expectations. But there's a flip side here as well. If you have liabilities that are long and assets that are shorter in duration, then a rising rate helps

> *It makes sense to calibrate the allocation of risk to the expectations for the overall market environment.*
>
> *~ Jeffrey L. Knight, Columbia Management Investment Advisers, LLC*

you. So if you have a liability driven approach and you happen to be short duration on the asset side, you won't mind interest rates rising. If you have an asset-only view, then of course, you'll be concerned about duration exposure.

P&I: ***Should investors rethink their approach to static asset allocation versus dynamic asset allocation?***

Herold Rohweder: I would phrase this question a little differently, if I may. The static asset allocation is always a point of reference and not a question of either/or. So you can't get away from constructing a static asset allocation. The question is what you do beyond it or not. We do recommend to consider a dynamic asset allocation around the static long-term asset allocation for the purpose of both increasing the long-term return and mitigating shorter-term risk - or put differently, to achieve higher wealth and a smoother ride.

Brian Fleming: We don't necessarily believe in static asset allocation to any particular asset class. So we've always taken a more dynamic approach. It's important to think of this as a way to add return if you make good investment decisions, but perhaps also a way to reduce risk if you can manage things appropriately. That's not to say that it may not be appropriate to have static positions. So a pension plan sponsor may wish to reduce some duration or inflation risk, and may buy some assets or derivatives to help to do this. In that case, that's a hedge. But in terms of where I'm deploying risk to seek return, we would always prefer a dynamic approach.

P&I: ***How do we ensure that investors take enough risk?***

Brian Fleming: When it comes to ensuring that you take enough risk, that is actually about expected returns rather than risk. If a client has a return objective and you think you can hit that return objective, then generally you will try to do that with as little risk as possible. So the question is really about saying, 'Are you going to hit the target level of return that the plan is looking for?'

You can go through a risk exercise, some kind

of structured risk questionnaire about the types of risks that people think about. And from that, end up with a risk budget and construct a portfolio with that type of risk characteristic. But that may not be the right portfolio for them. I think you still need to say that the risk budget would result in a certain return. And the client needs to consider whether that return satisfies their requirements. If not, then you need to go back and forth, iterating between the amount of risk they are willing to run, thinking about drawdown versus long-term goals and the end return. Ultimately that's about defining the client mandate.

Herold Rohweder: This is a very good question because in retail and retirement investing, there is often concern that risk is too high. If you have a long investment horizon and you don't make use of that, then you fall short of the value of time. It's important when you look at target-date solutions, which try to address this through glidepaths that look risky when you are far from retirement, but derisk appropriately as you draw closer to retirement.

Jeff Knight: This is a behavior question and behavior is very connected to incentives. So how do we align the incentives with the idea of making forceful enough investment changes? That could be taking higher levels of equity risk in a year like 2013, when the market was up 30%. Or it could be meaningfully underweighting stocks when the outlook is highly uncertain and capital preservation becomes a primary portfolio objective. As an investor it is easy to become too anchored to your benchmark, because that's how you are evaluated. As a consequence, you might have all the right market views, like a negative equity outlook, but rather than protect the portfolio in a forceful way, you underweight the benchmark by 3% or 4%.

To overcome this anchoring, a solution I like is dynamic benchmarking. By dynamic benchmarking, I mean that the policy portfolio itself responds when changing market conditions warrant a change in portfolio design. For example, we could specify precise criteria that would trigger a shift in objective to capital preservation. When these criteria are met, the benchmark itself reorients completely, and the portfolio manager then becomes accountable against an entirely new benchmark, built to purpose for capital preservation in this case. If dynamic benchmarking is operationalized well and communicated well, it can provide a behavioral incentive to take enough risk in both directions.

P&I: ***How should plan sponsors think about diversification, one of the most enduring risk management techniques?***

Brian Fleming: It's perhaps the only free lunch available. That said, one of the first things that a portfolio manager might say when presented with the idea of diversification is that it will have a negative effect on the returns because it is a constraint. However, diversification is really about finding better risk-adjusted returns. We see many investors broadening out within a single asset class – moving from domestic equities to global equities, for instance. But the correlations between various equity sectors are still high. Moving beyond an asset class to find its true diversifiers is very important.

Jeff Knight: The power of diversification comes in when investments are deployed more intelligently in combination to offer a better risk-adjusted return than they can independently. You should think about diversification as distinct from your overall risk tolerance, however, because you can configure your portfolio today by relaxing the leverage constraint, allowing you to separate risk allocation from overall risk tolerance.

P&I: ***In a related question, should investors be worried that the correlations between asset classes are narrowing?***

Herold Rohweder: Correlations are not constant. The good part of the message is that they tend to be different from one, that means that diversification benefits do exist. I am not worried about them narrowing, as long as they don't converge to the value of one, which I don't expect. However, there are times when correlations temporarily converge and rise close to one. They do so when markets are rather weak. So when the benefits of diversification should be highest, in terms of expectations, the market tends to deliver the least. This is an empirical observation. It happens over and over again. It shouldn't be taking you by surprise. It has risk management implications, because diversification benefits can evaporate and this requires answers in terms of risk budgeting.

Brian Fleming: We've been thinking about what a correlation actually is, because people will often just look at the total return of two strategies or asset classes. So if you look at, say, U.S. credit and U.S. equities, you've made some money over the past six months and therefore those asset classes are highly correlated. In fact, correlations can be a bit misleading because they are really about fluctuations, not trends. High correlations don't necessarily mean similar performance. An example of that would be equity and government bond markets between 2009 and 2012. Both made strong returns over the period. But if you measure the fluctuations – day-to-day, week-to-week – then the correlations were actually negative. If you can find strategies that you expect to have positive trend returns but actually have negatively correlated fluctuations, then that's ideal.

P&I: ***How do you think about hedging as a risk management technique?***

Jeff Knight: Conventional diversification may be a disappointing defense against drawdown if many asset classes decline simultaneously, like they did for a time last spring. In light of that scenario, we need other mechanisms to position for stability. That's where hedging comes in. I like incorporating a standing tail-hedging strategy into my portfolios today because the possibility of concurrent declines across many different asset classes is realistic. Monetary stimulus may have elevated all investment valuations simultaneously, so its removal may introduce the opposite effect. That would render simple diversification ineffective, so we need something else to truncate our losses.

Brian Fleming: It's certainly a valid risk management technique. We try not to just pay for protection in our portfolios. At the end of the day, if you continue to pay for downside protection then in the long run you shouldn't expect to be any better off than the risk-free rate. Hedges can be very valid if you want a hard outcome. If you want a floor over a particular period so that your portfolio doesn't go down below a certain level, then having these types of hedges in place can be helpful.

Herold Rohweder: We talk about using available linear derivatives that are liquid and exchange-traded to hedge a strategic asset allocation that has been using indexes where direct hedging instruments aren't available. The problem can be that there is basis risk between the available proxy hedging instruments and the strategic asset allocation. But we highlight these issues with clients.

Brian Fleming: An additional angle might be cross-hedging – increasing investor thinking about whether there are other asset classes or other strategies that I could use that might be a little less obvious. For example, as an equity investor, I might observe that the volatility in the currency markets is low, so I might buy a cross-hedge in the currency market to provide some tail protection.

Jeff Knight: Yes, you could hedge your global equities with S&P options or get more elaborate and hedge your overall risk exposure with yen calls. I see proxy hedging as a silver lining to the dark cloud of increasing correlations. But if you're worried about the decline in a particular asset, sometimes it's better just to sell it rather than relying on a proxy hedge.

Herold Rohweder: This is basically going from an asset class approach to a risk factor approach, and then to an approach where you map the risk factors onto available hedging instruments. So if you think in three dimensions, mathematically speaking, you are trying to map the dimensions onto each other. Proxy hedging is one part of the exercise.

We think you should be looking at the value added of doing cross hedges. You shouldn't bank too strongly on them because these kinds of correlation effects can go away and impact the efficiency of your hedge.

Brian Fleming: That's a good point. A natural conclusion for us would be that you can't always map risk factors onto investments. Taking a view on how a particular strategy or position will behave is much more a fund management decision than a risk management decision.