Correlation conundrums

Summary
• Understanding the role diversification plays in pension portflios should be a top priority for trustees.
• Correlation may seem easy to understand as a concept, but in times of crisis, assets may not behave as expected.
• Trustees should boost their understanding by asking the right questions of their managers and consultants.

The importance of understanding how the assets in a portfolio relate to one another comes under the spotlight in times of crisis, but how much of the technical detail do trustees comprehend and how much do they really need to know? Francesca Fabrizi finds out

Pension scheme trustees are not on their own when it comes to learning the basic mechanics of an investment portfolio. Guidance is readily available and, even if they can't get out to industry events and seminars in the current environment, industry bodies, consultants, pension providers and press have been quick to fill that gap with online tutorials and virtual conferences to help keep trustees on track.

As a result of all this information available at their fingertips, and the requirements from the regulator for them to keep on top of things, the basic concept of diversification is generally understood by pension fund trustees today – they are aware of the need to diversify the assets in their portfolio to help ensure that when one asset goes down, all the others don't follow suit.

"Trustees are becoming increasingly aware of the role diversification plays in a well-constructed investment strategy, and the need to recognise how asset classes interact with one another, to understand the level of risk," says Quantum Advisory senior investment analyst, Stefano Carnevale. "A good example is when undertaking a stochastic asset liability modelling (ALM) exercise for a defined benefit (DB) scheme, where consideration is given to how the assets move relative to liabilities."

But while most trustees may be comfortable with the concept of diversification in their portfolios, they might not understand the finer details or nuances of correlation, says SECOR Asset Management head of strategy and risk, Scott Freemon, nor should they necessarily be expected to.

"Our clients tend to think in terms of hedges (correlations near -1) and diversifiers; but group all diversifiers together. The difference between correlations of 0.2 and 0.7 is often difficult even for statisticians to intuit, so it's unfair to ask the same of a trustee," says Freemon.

Also, as always, understanding tends to vary between trustee boards, and is dependent on their levels of experience and knowledge; and while they don't necessarily need to be investment or, more specifically, correlation experts, if they don't understand what's happening in their portfolios, they should take the time to learn.

"It is important for trustees to understand their investment strategy and its expected characteristics. If they do not, time should be spent to overcome this. It is always important to ensure trustees understand the implication of adding and/or removing an asset class to a diversified portfolio from both a risk and return point of view," stresses Carnevale.

Added to this, trustees need to be aware that it's not as simple as it might seem at first, and correlation in itself is a statistical expectation (measured historically), a guarantee of neither future performance nor diversification, warns CFM managing director, Stephane Vial.

"Correlated assets tend to move together 'on average' but can certainly diverge from one another at times, even if strongly correlated," he says.

More specifically, in times of crisis, it's even harder to predict just what assets might do. Carnevale explains: "Investors spend considerable time seeking asset classes with correlations less than one. Unfortunately, we have seen time and again that many of these correlations tend to move towards one in a crisis. This is to be expected because we know growth assets rise in value over time specifically because they fall together during bad times. Reliable portfolio defence comes from truly uncorrelated investments/anti-correlated investments or, at a minimum, investments with anti-correlated components embedded in their risk profile."

Education, therefore, should be high on any trustee's agenda.

Asking the right questions

In addition to attending seminars and seeking out guidance in order to better understand the goings on in their portfolios, pension fund trustees should also be taking the time to ask questions of their managers and consultants, but what sorts of questions should they be asking when it comes to furthering their understanding of diversification and correlation?

First of all, says Freemon, with their managers, trustees should be concerned with concentration risk, ie investment portfolios that "put all of their eggs in one basket" and fail to spread the risk that all holdings in a given portfolio will fall to zero value simultaneously. "Concentration risk can be justified but the rationale should be clearly articulated," he advises.

In addition, with their consultants, Freemon urges trustees to make sure that they reduce or eliminate all risks that can be reduced or eliminated cheaply, either by hedging or asset diversification. "Once that is well in hand, trustees should make sure that they have included all asset classes that could meaningfully improve the risk-return trade-off. Some of the most attractive diversifiers and hedges are often excluded due to complexity or governance burden," he states.

Trustees should also question how correlation matrixes (correlation between a range of asset classes) have been constructed, says Carnevale, and how they are being used in projections of asset class returns. "Often, correlations based on historic returns are used to infer possible future portfolio returns. Where a fund's holdings change, understanding what the change adds in terms of diversification could be useful. Furthermore, understanding how a fund has performed under various market conditions will provide an insight into the true impact/value of the fund's approach to diversification," he says.

It is also worth asking about correlation on average and correlation conditioned by specific events, eg tail correlation or correlation during equity market downturns, says Vial. "If two strategies are uncorrelated to the market, there is more value in adding (to an equity portfolio) one that exhibits negative correlation to market tails than one that is correlated (and would amplify the market drawdown)," he explains.

Learning from the crisis

While past performance is of course never to be relied on to make future decisions, it's interesting to look at which assets performed well in the most recent crisis and which performed less favourably. "Unlike previous crises, all major asset classes generally experienced large declines, the only real exceptions being cash and government bonds," says Carnevale.

Generally, he continues, asset classes that tend to be less correlated to equity markets (commodities and investment grade bonds as an example) performed strongly, however, given the unprecedented speed at which equity markets fell, investors were limited to the choice of asset classes that returned positively. Thus, diversification proved to be less effective.

However, he adds, the level of falls did vary across asset classes, which would have provided some protection. "Furthermore, certain regions were affected to differing degrees and so regional diversity proved beneficial too," he says.

Freemon states that what he saw was high-equity, low-LDI portfolios performing poorly in the recent crisis while their return-oriented client portfolios held up "quite well due to positions in nominal gilts, unhedged dollar-based investments, low-beta absolute return strategies, and equity downside protection", he explains.

The best asset diversifier, argues Freemon, has long been nominal gilts. "In that sense, LDI can often be thought of as an asset hedge. Other attractive diversifiers include systematic macro hedge funds, unhedged positions in dollar-denominated assets, and corporate bonds with an interest rate component. "We would also strongly advise against standalone hedging of the inflation indexation risk embedded in liabilities as these hedges are often positively correlated with the riskiest investments, particularly in times of crisis."

For trustees with the need for even more correlation reduction, he recommends looking at low-cost equity downside protection strategies that seek to replicate the return on equity put options or collar strategies at a more reasonable cost.

Going forward, Carnevale argues that illiquid asset classes (such as long lease property and private markets for example) are typically less sensitive to market movements and can therefore reduce the overall level of correlation with other asset classes. It's important, however, for trustees to weigh up the benefits of correlation/diversification against the overall liquidity requirements of a scheme. "As cashflow requirements increase, the ability to redeem assets to fulfil these becomes more important. Having a limit on the amount of diversification may be necessary to ensure benefits are not eroded. For defined contribution schemes, it is key that members understand this too," he warns.

For defined benefit schemes, he continues, trustees should also consider correlation with the scheme's liabilities, and funding position, specifically, trying to match characteristics of a scheme's assets and liabilities. "Correlation in this sense is a good thing as this provides a form of insurance to its funding position," he says.

Finally, he adds, trustees should consider diversification across investment managers, to benefit from different house styles and views.

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