Relativity and volatility: A special relationship

Why hedging and asset allocation are equally important ingredients in an uncertain world

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As part of our series on exploring preparedness in a potentially uncertain economic future, this paper draws on data from our PFaroe™ software to examine similarities and differences between defined-benefit plans in the US and the UK

It is too early to determine the defining characteristics of this new decade. But even now, it seems unlikely that we'll see a repeat of last century's 'roaring Twenties'. From tariffs and trade wars, to climate change and COVID-19, economists across the world are watching economic indicators carefully.

We have seen a period of strong performance in global equity markets, particularly in the US, and a bond rally in both the US and the UK. However, fears of a global pandemic saw equity markets plunge as investors sought safer havens which triggered flight to quality as a result. All of these events indicate that markets are in a state where volatility can be detrimental to portfolios even if longer-term fundamentals remain strong. For a pension plan, any volatility on the journey to the ultimate funding level matters.

Our data shows notable differences in pension plan funding levels, and here we examine some of the reasons for those differences. After they have been identified, we explore the elements for a less volatile funding journey and show how we can help clients find the right mix of key ingredients.

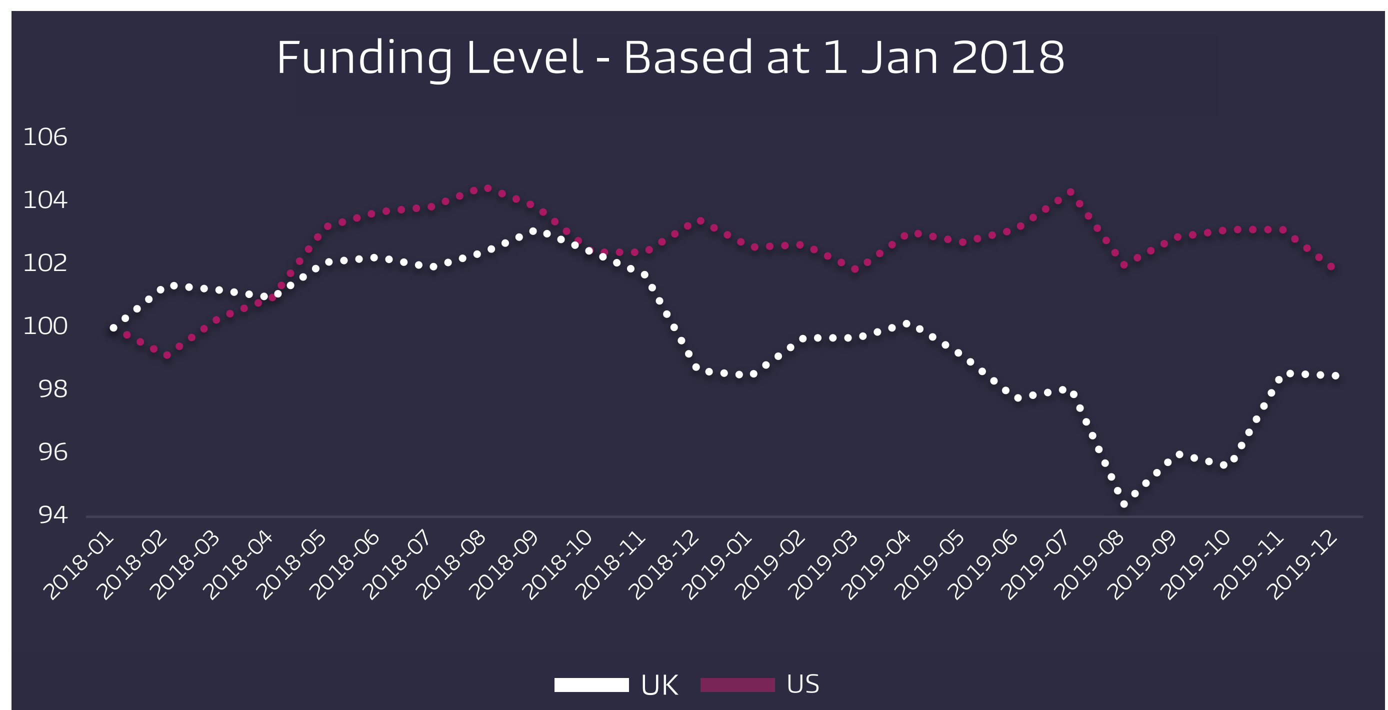
Funding-level progression 2018-2019

PFaroe software holds data for more than 3,500 pension plans across the US and the UK, with in excess of $1.5 trillion assets under management. The plans themselves range from less than $500 million to more than $2 billion.

On average, the funding levels of pension plans in the UK have fared slightly better than those in the US over the last two years.

Of course, statistics are never quite that simple. The plans in the two regions started from different positions. Their regulatory agencies require dissimilar outcomes based on their unique attitudes toward risk and—importantly—to valuation.

Figure 1 *



***Rebased at 31 Dec 2017. Accounting valuation methodologies have been used for both regions.**

Factoring this into our analysis from January 2018 to December 2019, the data in Figure 1 shows that a gap of almost 3% opened up between the two groups of plans.

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What might have produced that outcome? One contributing factor could be that the valuation methodologies in both jurisdictions are driven by high-quality bond yields in the respective markets. Whilst we have seen some deviation in relative corporate bond yields on either side of the Atlantic, this deviation alone does not explain the disparate outcomes.

What about deficit contributions? They also have an impact, but even when those are combined with any variation in bond yields between the two markets, this variation is still not sufficient to account for the full divergence in funding. Our further analysis suggests, perhaps not surprisingly, that a material contributor to that deviation has been variation in the respective investment strategies—both in terms of asset allocation and interest rate hedging strategies. However, the question still stands: Is one aspect more important to a less volatile journey or are both equally important? We explore the impact of each below.

A look at asset allocation

When it comes to asset allocation, as Figures 2 and 3 show, the picture is as you'd expect.

Figure 2

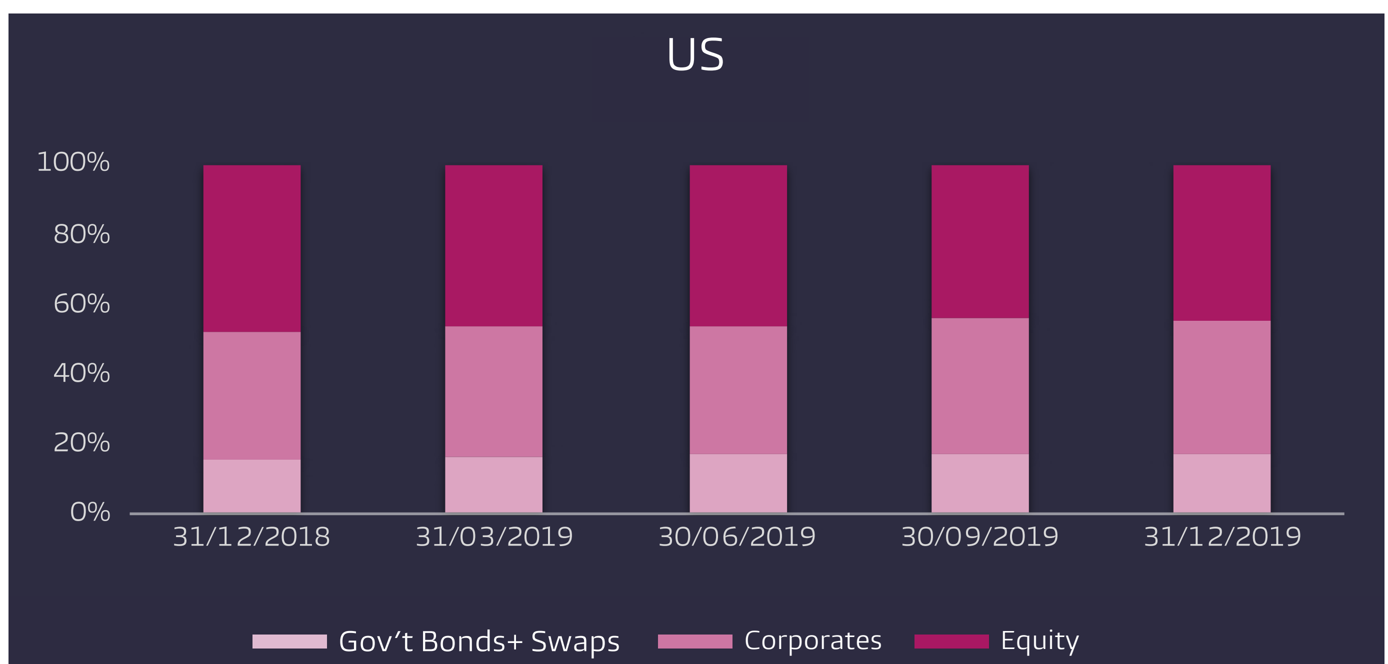
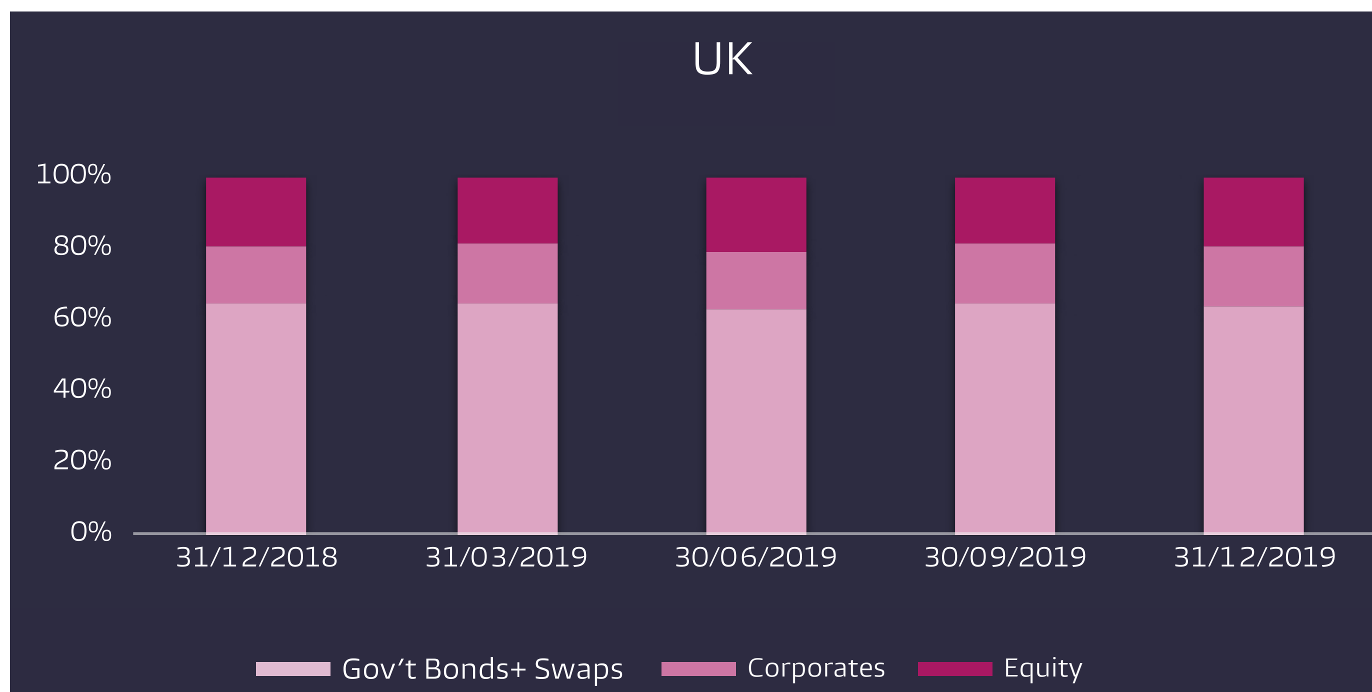


Figure 3



(We isolated the average pension scheme portfolio holdings, assuming it holds only equity, corporate bonds, government bonds, and swaps, and rebased the portfolio such that these add up to 100% of the total portfolio allocation for easier asset allocation comparison amongst these asset classes.)

US defined benefit (DB) pension plans hold, on average, more than double the amount of equities than the average UK DB pension. The same can be said of corporate bonds. When it comes to Treasuries and government bonds, however, US plans typically hold just under a third of what their UK counterparts do in government issuances.

Still, volatilities in both asset and liability values often contribute equally to relative performance, especially during unstable economic and geopolitical periods. We now look more closely at changes in AA corporate bond prices (which affect liability values) and equity values on each side of the Atlantic.

Figure 4

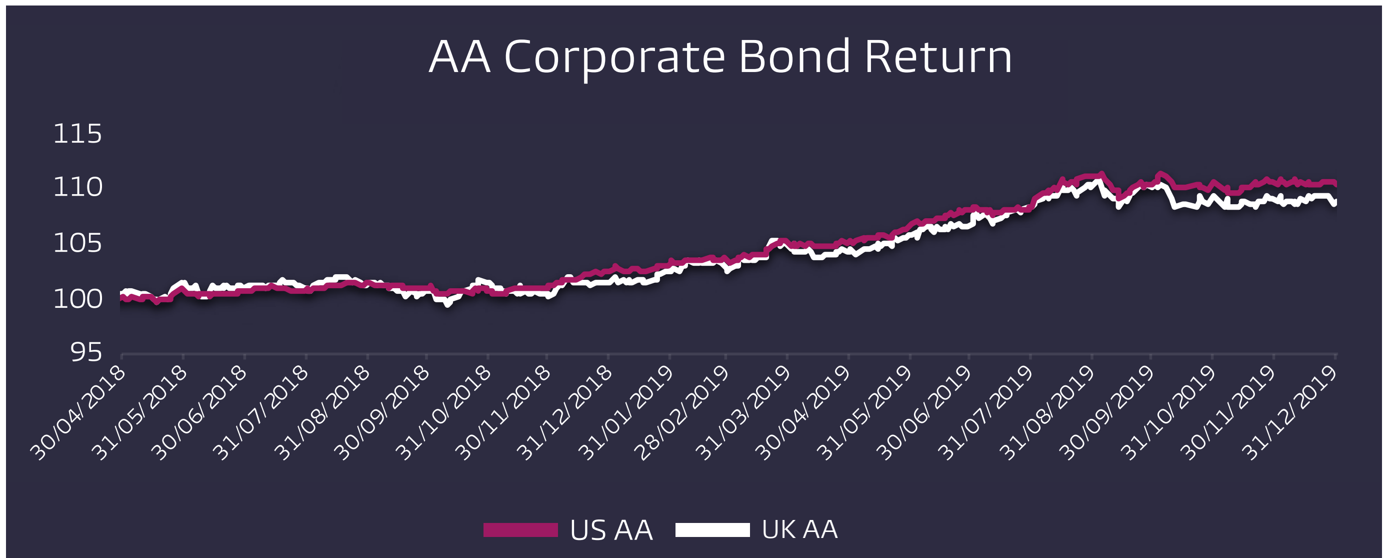
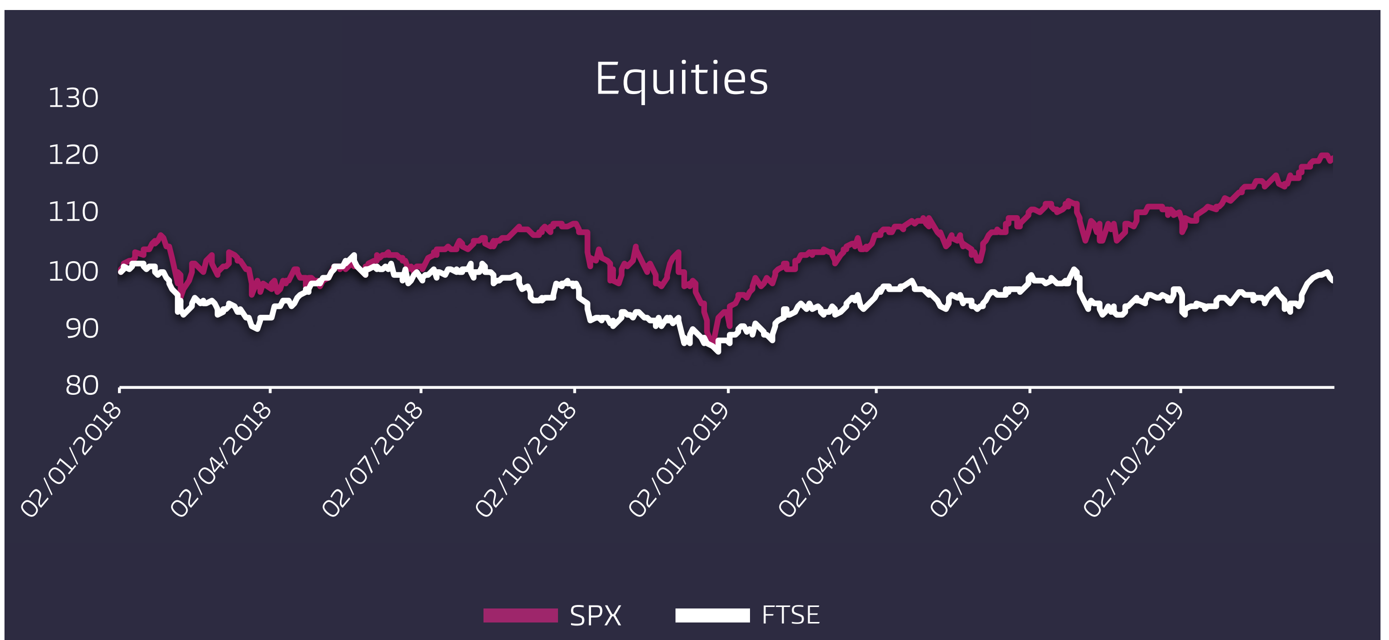


Figure 5



What we see from Figures 4 and 5 is that AA corporate bonds across both the UK and the US have moved roughly in line during the last two years,

whereas equities in the US have substantially outperformed equity markets in the UK—especially over the last 12 months until year-end. Yet despite the

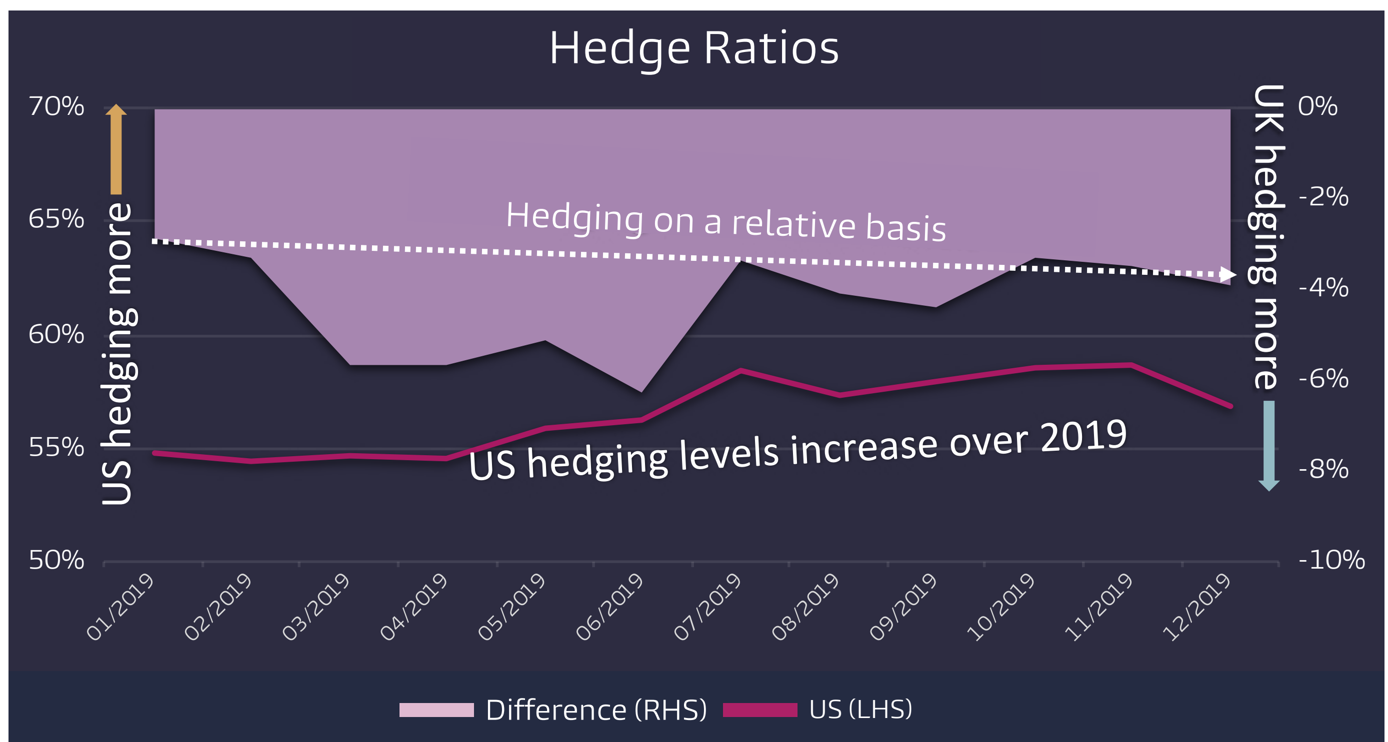
double exposure to equities within US pension plans as shown in Figures 2 and 3, as we have observed, the average US funding level has dropped almost 3% against the comparative UK funding level.

The steady increase in corporate (and government) bond returns over 2019, on the other hand (reflecting falling yields), has meant a material rise in liability values over this period, which have outpaced the increase in asset values—especially for those that are less well hedged against interest rate movements.

Hedging levels in the mix

Having uncovered that differences in funding levels emerged principally over 2019, and having established that asset allocation alone doesn't fully explain the divergence, we turned our attention to interest rate hedging. In Figure 6, we extracted average hedge ratios using interest rate sensitivity. The results are as follows:

Figure 6



The data shows that although US pension plans have seen a slight increase in hedging against interest rates since the beginning of 2019, hedging has played a more central role for the average UK pension plan over the same period. This is true even after considering relative market moves; hedging levels have been typically 2.5 to 7% higher among UK pension plans over the last two calendar years.

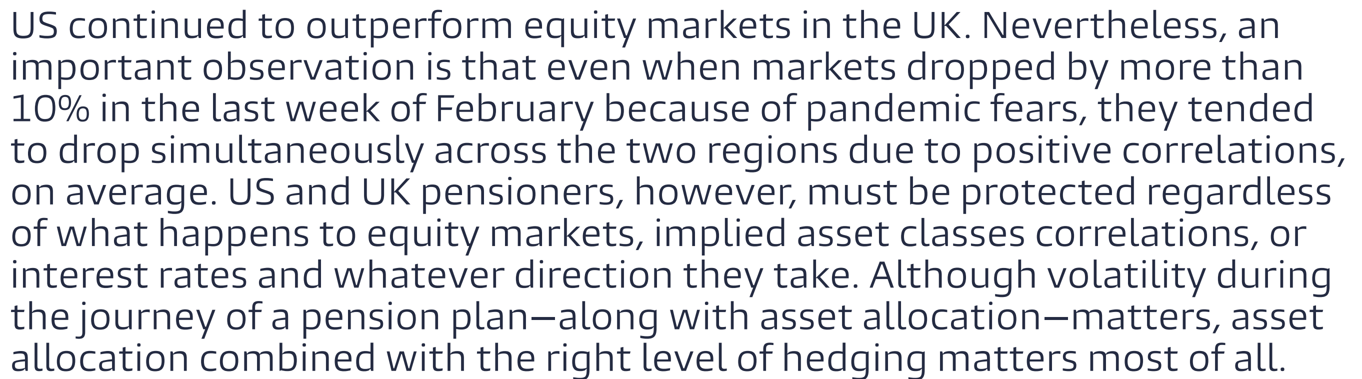
Returning to our initial question, it seems obvious that both asset allocation and hedging levels play an equal part in managing the balance between risk and return. To put this another way, any plan or sponsor concerned about funding-level volatility would be wise to have a clear hedging strategy within its overall asset allocation approach.

It's all relative

Key to any meaningful analysis is the understanding that it's all relative. Pension plans in the UK and the US are governed by different rules, and the incentives to hold one asset over another are varied, driven in part by numerous incentives to de-risk (regulatory, accounting, or reflecting diverse governance models). There's no right or wrong answer as to whether pension funds should focus on the asset mix (and return-seeking versus matching asset types) to improve the funding ratio over time. Indeed, it is not certain whether they should, instead be more focused on hedge ratios and protecting against interest rate (or inflation) movements as a means to a better funding-level over time. However, one thing is certain – neither element should be overlooked as they are equally important complementary ingredients which only when considered altogether can help produce a less volatile journey to a more robust funding level end goal.

What does all of this mean?

If the same drivers were observed but in the opposite direction—particularly with rising interest rates—the outcome would have been correspondingly different. US plans would have most likely outperformed their UK counterparts during the period, assuming equity markets in the


US continued to outperform equity markets in the UK. Nevertheless, an important observation is that even when markets dropped by more than 10% in the last week of February because of pandemic fears, they tended to drop simultaneously across the two regions due to positive correlations, on average. US and UK pensioners, however, must be protected regardless of what happens to equity markets, implied asset classes correlations, or interest rates and whatever direction they take. Although volatility during the journey of a pension plan—along with asset allocation—matters, asset allocation combined with the right level of hedging matters most of all.

Thus, pension plans would be wise to ensure that they are thoroughly testing their strategy against multiple alternatives in several markets using both stochastic modelling and scenario analysis. This testing should help uncover the optimal balance of risk and return that suits both the jurisdiction and the plan sponsor's business environment.

Interest rates are close to all-time lows. Early in the year, equities were at all-time highs and then during a week of global pandemic fears they plunged. Analysts across the globe are forecasting—at best—modest global economic growth. Based on these and other factors, many expect further market volatility.

It is no surprise, then, that we see an increasing number of PFaroe software clients using the modeling capabilities to help them test and build more robust asset allocation and complementary hedging strategies within their portfolios. Ultimately, the goal remains the same: to help pension plans achieve a better relative outcome regardless of volatility.

Asset allocation strategies will always vary depending on context. The challenge is to determine which strategy is better for you in the long run. The first step in the process is to make sure you have the right tools for your journey.

Technology for Asset Owners, Consultants, Asset Managers and Insurers

For the last decade, RiskFirst, now a Moody's Analytics Company, has leveraged the latest technology to drive the defined benefit (DB) pension industry forward by allowing it to better manage asset and liability risk. PFaroe DB, RiskFirst's initial product, is now a market leader in both the UK and US, used by many blue-chip institutions. Over 3,500 pension plans with in excess of $1.5 trillion of assets are modelled on PFaroe DB.

With a drive for continuous innovation, RiskFirst has launched impactful new solutions to power the institutional investment market including endowments, foundations and the front-office of investment managers. Our offerings cover risk, investments, and liabilities.

Core to our ethos is ensuring all of our products have an eye on the "ultimate goal": the asset owners' objective, whether that's to meet liabilities and/or to drive to returns. This harks back to our heritage of producing technology for asset owners, and continues to prove of great value to consultants and asset managers, providing the unique ability to bring together all of those parties engaged in the process.

A key element clients value about RiskFirst is that we bring a sensible level of commercial discipline to the way they interact with technology—something that is all too often lacking in IT departments. We are committed to delivering comprehensive and best-of-breed solutions that make our clients money, as well as help them maximize efficiencies.

Our products are continually enhanced to address fluid needs in an evolving marketplace and to join up analytics so that clients can rely on scalable, leading-edge products that are nimble, intuitive and ever-evolving.
Our people are a major focus in shaping the products we offer. Our team of enthusiastic and driven professionals is dedicated to providing intelligent, high-quality and helpful personal service.

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