

Dynamic Asset Allocation and Fund Governance



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Views expressed here are those of the author, who is solely responsible for any errors and omissions.

Introduction

It is increasingly widely recognised that the industry's best practice model of the last three decades has not served us well and is arguably not fit for purpose. But while it has been easy to pick holes in the current model, many, if not most funds, carry on regardless because no new model has emerged to take its place.

This short paper seeks first to revisit the reasons for questioning today's best practice, and then moves on to propose a practical alternative. A feature of the alternative proposed is that it naturally takes account of a fund's individual characteristics, its regulatory environment and its risk preferences. The main difference between the proposed model and today's is a more dynamic approach to asset allocation where asset allocation is driven by valuation (price of risk assets, risk premia) and wealth. While I think we can all agree (provided we can overcome our behavioural biases!) as to how we should respond to changing risk premia, there is no single answer as to how we should respond to shifting wealth. However, we can demonstrate that there are some unavoidable consequences to different wealth-driven utility functions.

1. Today's model re-visited¹

When I started out in this business thirty eight years ago, investment management agreements could be encapsulated in a one and a half page letter and almost every mandate was a 'balanced' mandate investing across multiple asset classes. Mind you, the world was a lot simpler then and we limited our asset class definitions to gilts, UK and overseas equities, and property. The first and most important decision we made was how much to invest in our four asset classes and there was a real willingness to change the asset mix in a meaningful way.

All this began to change with the passing of ERISA (The Employee Retirement Income Security Act) in the United States in 1974. This turned out to be a powerful catalyst for the growth of the investment consulting industry which in turn set about redefining the best practice model to the standard we are familiar with today. The following five stage process is a short-hand description of that model:

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¹ Extract from 2010 Investment Perspectives

- Conduct an asset/liability study to determine a strategic benchmark
- Construct an implementation plan around that benchmark – typically combining a mix of specialist managers in both active and passive strategies
- Conduct a manager search to fulfil the implementation plan
- Fund and monitor managers
- Repeat every three to five years

On the face of it, this is an appealing model built around some apparently common sense principles:

- No one can time markets, so a relatively static asset mix based around some long-run equilibrium return assumptions made good sense. Funds would rebalance periodically to the benchmark which, if you believed in a mean reversionary world, might actually add a little value as you would be selling the asset class that had performed well and buying the one that had lagged.
- No single manager could be the best at everything so instead managers would be chosen for their best of breed capabilities in specialist areas. The investment manager became a component supplier.
- While markets were not perfectly efficient, some areas were clearly more efficient than others – large cap US equities for example, compared to emerging market equities. It made sense therefore to use one's alpha risk budget (active management risk) in areas where rewards were likely to be greatest and to buy cheap, passive beta market exposures elsewhere. Concepts of market efficiency and alpha and beta, which were previously confined to the ivory towers of academia, now migrated into the jargon of the industry.

It all seems very sensible. How could anyone find fault with this as a model? Unfortunately, it is riddled with problems.

2. Complexity and cost

Over time, the level of complexity involved in managing institutional assets has grown dramatically. Our definitions of asset classes have ballooned from the four that I started out with in the seventies to include private equity, infrastructure, hedge funds, currency, commodities, credit, emerging market debt and emerging market equity. We have even started subdividing within asset classes such as we do with equities into value, growth, small and large cap. This has introduced a considerable level of complexity which makes the understanding of risk within a portfolio and changes to portfolio structure difficult, and layers on significant additional costs.

If all of this was being compensated for by superior returns, all well and good, but looking at returns at the fund level suggests that any benefits being earned at the specialist level are being eroded through inflexible asset allocation and higher costs. It is not uncommon for large funds to have 25 fund managers or more. To be clear, it is the complexity and associated high costs and inflexibility of such structures I dislike, not the high degree of diversification which I applaud.

3. The 80:20 rule

Today's best practice model devotes most of its effort to controlling a portfolio's deviation from the benchmark that came out of the asset/liability study. Only every three to five years do we manage the risks from the benchmark to the liabilities. Yet the lesson of the last fifteen years is that the risks from the actual portfolio relative to the strategic benchmark are small, sometimes trivially small, whereas the risks from the strategic benchmark to the liabilities are large, sometimes very large. (Not all funds have explicit benchmarks, but all have implicit benchmarks. Generally all investors seek a positive real rate of return after all fees, charges and taxes.)

In short, we have the 80:20 rule back to front. By spending most of our time worrying about market benchmark relative returns, we are missing the point that you cannot pay pensions out of relative returns; we need to be much more focused on the benchmark that really matters, the liabilities. Not doing so has cost us dearly. As interest rates have declined over the last twenty five years, pension liabilities have grown dramatically, which has resulted in underfunding problems. By holding assets of much shorter duration than those of the liabilities, there has been no compensating increase in asset values. Belatedly, many pension funds have recognised this which has led to the rapid growth in LDI (Liability Driven Investing) where real and nominal interest rate risks are explicitly hedged or, if left uncovered, are done so as a conscious risk position.

4. Our risk appetite never changes!

Implicit in a static strategic benchmark is that our risk appetite remains unchanged even as our wealth (funding ratio for a pension plan) changes or as forward-looking risk premia (return expectations) change. This makes no sense at all. Surely we can all agree that our risk appetite should respond to changing return prospects, and surely most of us will acknowledge that our risk appetite does in fact change as our wealth rises or falls, even if the manner in which it changes will be different for different investors.

As soon as one starts to think of risk in a more dynamic sense we find ourselves having to think of the investment management problem in a much more holistic way. So, for example, one of the first observations we can make is that, generally, risk premia and wealth move in opposite directions. Pension funding ratios tend to improve when equities outperform bonds, but when equities materially outperform bonds forward-looking risk premia tend to decline. The reason for this is that typically bull markets are fuelled by P/E multiple expansion and, since P/E multiples are bounded (they cannot rise or fall forever), when P/E multiples are already high future returns are likely to be low.

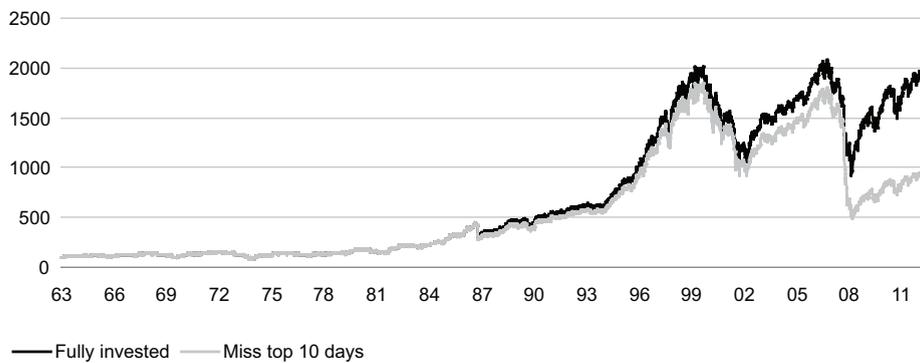
Should our risk appetite be governed more by changes in our wealth or funding ratio, or changes in risk premia? The answer to this question will depend in part on the risk preferences of the pension fund trustees and this, in turn, is likely to be conditioned on the strength of the implied covenant with the fund sponsor and the regulatory environment the fund operates in. This is explored in the second half of this paper.

We need to remember that according to several studies, asset allocation overwhelmingly determines the return earned on a fund, typically accounting for over 90% of the investment performance: Brinson, Beebower and Hood, FAJ (1986), Ibbotson and Kaplan (2000) and Brinson, Singer and Beebower (1991).

5. But we can't time markets, can we?

It is often claimed that it is time in the markets that counts and any attempt to time markets is doomed to failure. To provide support for this argument one often sees charts of returns from an index set against returns from the same index minus just the top ten days, such as the one below for the S&P 500.

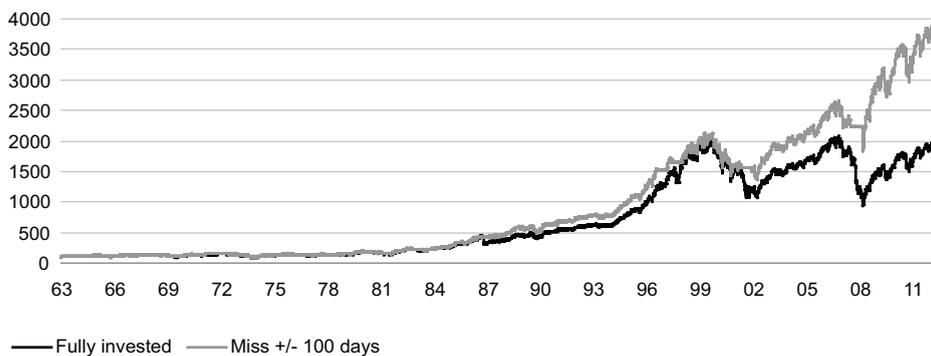
Figure 1: Fully invested in US Equities compared to missing best ten days of performance



Note: S&P 500 price index, nominal terms. Source: Schroders, Thomson Datastream, 16 January 2013

The argument goes that since you can't possibly know when the best days will be and the price for missing them is so high, you had better stay fully invested. Of course no one operates a daily asset allocation policy. What happens instead if you look at returns where you come out of the market 100 days before a top ten day and go back in 100 days after? This equates to a 200 business day investment horizon, or a little over nine months, a rather more realistic period.

Figure 2: Fully invested in US Equities compared to missing 100 days on either side of the best ten days



Note: S&P 500 price index, nominal terms. Source: Schroders, Thomson Datastream, 16 January 2013

It turns out now that the picture completely reverses and you make substantial gains by missing the period around and including the ten best days! I present this not as a case for market timing but to demonstrate that you can prove what you want if you torture the data long enough.

However, I will make an argument shortly that we can improve on the very static return assumptions used in most asset/liability modelling studies. First though, let's look at how effective or not asset/liability modelling has been.

6. Asset/Liability modelling (A/L)

The great risk with modelling is that it is all too easy to get caught up in the sophistication of the model and the precision of the numbers that emerge. Yet the 'GIGO' principle holds, 'Garbage In Garbage Out'. The return assumptions used, are of course, critical. Typically, an A/L model will use something close to the current redemption yield as the forecast for bond returns. For equities the model will use something similar to a Gordon Growth Model. The Gordon Model simply says that the long-run real return from equities will equal the current dividend yield plus the long-run growth rate. Essentially the idea is that in the very long run, returns are dominated by income, dwarfing changes in valuation. The current dividend yield is observable, and the long-run growth is usually derived from looking at long-run historical growth rates in earnings or GDP.

The problem is that, in every decade since the 1970s, a Gordon Model forecast would have been way away from reality. In the last decade and in the 1970s, the forecast would have been far too high, and in the 1980s and 1990s, far too low.

Figure 3: Gordon Growth Model versus reality

Annual Real returns on the S&P 500	Strategic Forecast (Gordon Model)	Actual
1970s	7.2%	-0.1%
1980s	7.6%	12.6%
1990s	5.1%	14.8%
2000s	2.7%	-2.1%
1970s to 2010	7.2%	6.5%

Source: Strategic Forecast data from Robert Shiller, Used in "Irrational Exuberance" Princeton University Press, 2000, 2005, updated. Actual data from Global Financial Data, Thomson Datastream, Schroders, February 2012, for illustration only

Now if you really did have a forty-year investment horizon, the Gordon Model forecast would have been much closer. However, for most, if not all of us, being way off target for periods as long as ten years is unacceptable. And for an individual saving for retirement, where the order of returns also matter, errors of this magnitude can be very costly indeed.

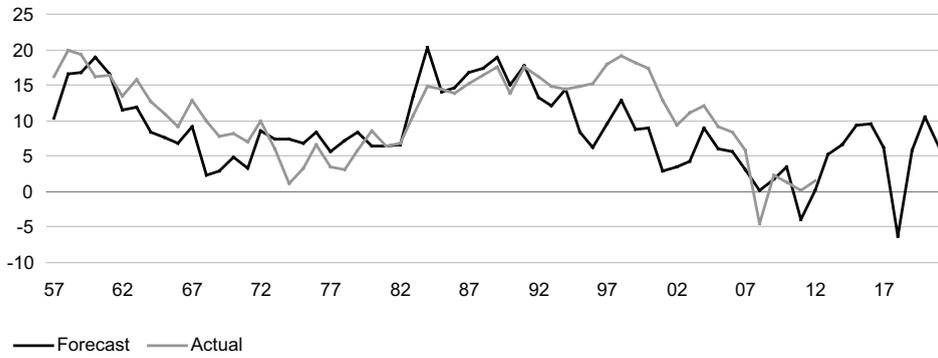
7. Forecasting

Of course, to do any better we have to demonstrate forecasting ability. We are not proposing forecasting over short-term horizons where the signal to noise ratio is very poor, but we do believe that there is a lot we can say about returns over meaningful investment horizons of say three, five or ten years. Over multi-year periods, earnings and dividends do tend to grow in line with trend; whether or not we experience above or below average returns from say, equities, is largely determined by whether or not we are in a period of Price/Earnings multiple (P/E) expansion or contraction (the valuation effect).

First, there is a tendency for the P/E multiple to mean revert over long periods, if P/E multiples today are high, it stands to reason that they are more likely to fall than rise further, and vice versa.

This relationship was used by John Bogle, founder of The Vanguard Group, to produce a forecast of the US market based on the simple assumption that P/E multiples would revert to their historic average over a seven year period (Investing in the 1990s, John C Bogle, JPM 1991). The following chart is a forecast of rolling ten year returns using the relationship described by John Bogle compared to the actual rolling ten year returns of the US equity market (figure 4). The results are quite good and certainly a lot better than our Gordon Model which ignores valuation effects.

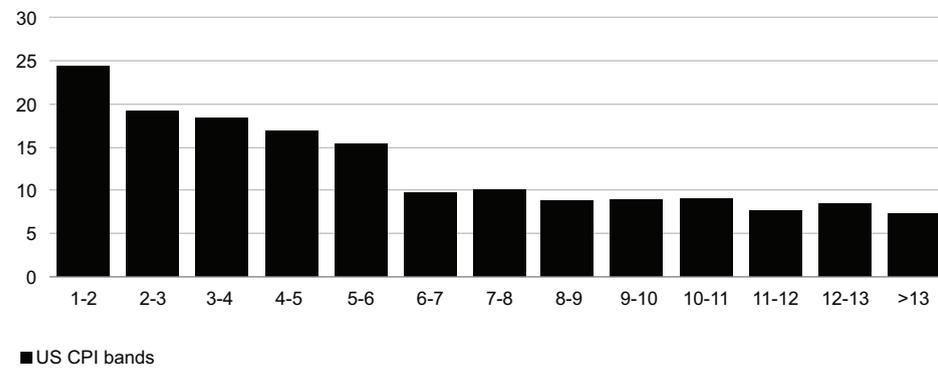
Figure 4: US forecast returns versus actual



Source: Bogle (1995), Schroders, Thomson Datastream, 16 January 2013

Second, there is a well-documented relationship between inflation and P/E multiples. When inflation is high, P/E multiples tend to be low, and vice versa as was demonstrated by Robert Shiller of Yale. This is not necessarily obvious. If you think about a Dividend Discount Model, where the value of an equity is the discounted value of all of its future dividends, inflation is implicitly in both the numerator (in the growth of nominal earnings) and in the denominator (through the discount rate). However, high periods of inflation are often accompanied by high levels of uncertainty and volatility. Periods of stable and low inflation also mean low interest rates which make the cash flow consequences of borrowing to leverage more benign.

Figure 5: US median P/E ratios within inflation bands: 1968 to 2012



Note: Based on trailing price-earnings ratios of the S&P 500. Source: Schroders, Thomson Datastream, 16 January 2013

This relationship appears to hold good pretty much everywhere. So, if you have a view on inflation at some point in the future, you also have an implicit view on equities.

We do not suggest that either approach on its own is good enough, although both are an improvement on the Gordon Model. There are a large range of factors that can affect price/earnings multiples, including those discussed above:

1. A tendency to revert to the mean over the long term (the Bogle story)
2. Varying inflation rates and interest rates (the Shiller story)
3. Higher or lower perceived equity market growth potential

Changes in trend rates of growth are almost by definition rare. However, they do happen. For example the trend rate of growth of per capita GDP is a function of productivity growth and capital formation. We believe that the capital formation process in the developed world has been so damaged by the financial crisis that trend rates of growth quite likely have been reduced by perhaps 0.5% per annum, making the cost of this crisis over time astronomical.

4. Changing accounting standards

This influences the 'E' in the 'P/E', while underlying realities remain the same.

5. Impact of leveraging/deleveraging

Outside frictional effects of, for example, taxes and bankruptcy costs, the value of a firm cannot be changed by altering its capital structure between debt and equity. However, value can be moved from the bondholder to the equity holder or vice versa by the degree of leverage employed.

8. Taking a view: a better best practice model

So, if we are to take a more dynamic view of asset allocation, how are we to do this?

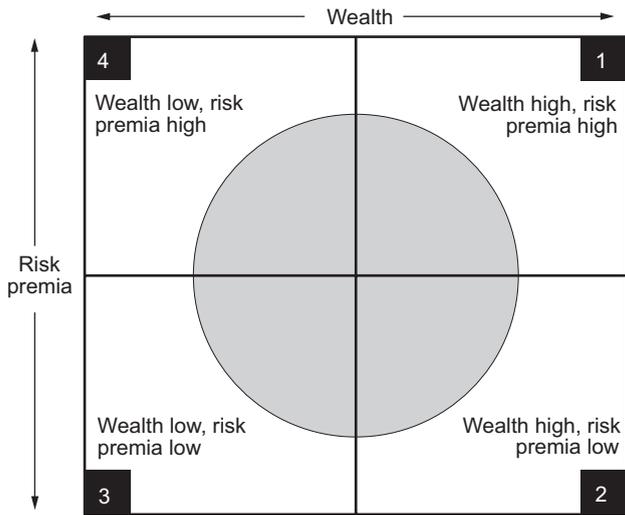
We can frame the problem in the following way. An investor's risk appetite should be a function of risk premia (price of risky relative to safe assets) and of wealth (the funding ratio in the case of a pension fund). There could be other factors that influence risk appetite (age for an individual investor, for example). For simplicity, I will consider just the two factors of risk premia and wealth. The reader can generalise the approach to include further factors if they are relevant to their own circumstances.

So:

Risk appetite = function (risk premia, wealth)

We can represent this graphically below.

Figure 6: Risk premia, wealth and the four corners



Source: Schroders, March 2012

There is a large area in the middle where we should be relatively agnostic in recognition of the inherent uncertainty around all measures of risk premia and wealth. This is the territory where the answers that fall out of conventional strategic asset allocation studies arguably give us reasonable solutions. Equilibrium return forecasts and standard assumptions about risk appetite probably hold reasonably well. It is in the four corners that life gets interesting and we visit those corners far more frequently than the world of efficient markets and normal distributions would suggest.

9. What can we say about the four corners?

The most interesting corners are 1 and particularly 4.

Corner 1: In corner 1, both risk premia and wealth are high. An enviable position to be in, but also one that presents choices. Conventionally, many would suggest that if you have the opportunity to lock in a favourable funding ratio then you should take the opportunity to de-risk, rather than use the opportunity to earn further wealth. However, there's no right answer. Endowments and sovereign wealth funds with long time horizons might choose to take the latter route. Funds may, for good reasons, respond differently. Amongst many factors which may influence the pension fund response are the following:

- The size of the pension fund in relation to the sponsoring organisation – the larger the relative size of the pension fund, the more likely that de-risking will appear to be the attractive option given the exposure of the organisation to the pension liability.
- The financial health and risk preferences of the sponsor – the weaker the financial condition of the sponsor then the lower the risk appetite and the more likely that de-risking will appear to be the attractive option.
- The maturity of the fund (closed to new members, future accruals?) – the more mature the fund, the more likely that de-risking will appear to be the attractive option.
- The potential to flex (reduce) contribution rates – there is a trade-off between contribution rates and a fund's risk posture. All other things being equal, lower contribution rates require higher allocations to higher returning assets.

Corner 4: In corner 4, wealth is low, but risk premia are high – the situation most of the industry is in today. This is the bottom of the bear market scenario. A fund's response here will be conditioned on a number of factors of which the most important are the regulatory/accounting environment, the strength of the covenant with the sponsor and the risk appetite of the sponsor.

In some cases the regulatory environment will dominate and preclude other choices. So, for example, an insurance company realistically has little choice other than to reduce holdings in risk assets to preserve a hard solvency floor. This is economically equivalent to buying a put option or operating a portfolio insurance, dynamic hedging programme and it comes at a cost (which we will explore later in a separate paper).

A pension fund may have other choices depending on the strength of the sponsor's covenant and their risk appetite. If the covenant and risk appetite are high, there is no particular reason why a fund would necessarily have to adopt a more conservative asset allocation at a time when risk asset prices are cheap. Alternatively, it may be that the sponsor is unwilling or unable to provide the necessary assurance in which case the fund may have no choice but to cut its losses (literally!) and respond by adopting a more conservative asset allocation.

Many of the same factors as corner 1 will drive the decision.

Low risk premia – corners 2 and 3

When risk premia are low (corners 2 and 3), so too should be our risk appetite. There is no reason why when risk assets are expensive that our desire to invest in them (behavioural biases aside) should rise just because our wealth may be high. However, even if we know the direction we should be going in, the magnitude of our response may well be conditioned on our wealth. In the scenario where our wealth is high, but ex-ante risk premia are low (top of a bull market, corner 2), we may want to aggressively de-risk.

In the hopefully less likely scenario where both wealth and risk premia are low (corner 3), our response may be influenced by pension accounting rules. This is where regulation and accountancy potentially dominate what might otherwise be sensible economically motivated decisions. Too steep a reduction in risk assets may cause a reduction in the actuarial assumed return, reducing the discount rate applied to the liabilities and so further depressing funding ratios.

10. Plan ahead

We believe that there are compelling reasons why governing boards should consider their “corner” solutions well ahead of time. First, any change in allocation away from the comfort zone of the “strategic asset allocation” solution will potentially take a fund away from the consensus, never an easy choice to make. Second, the decisions are complex, particularly in corners 1 and 4. There are also significant return, and therefore cost implications, to the choices made. These need to be understood before an informed decision can be taken. Of course any decision taken in advance can be re-visited at the time, but at least the issues will be understood and the arguments, for and against, will have been rehearsed.

Going down this path has significant skills and governance implications for fund boards which could be the topic of a whole paper on its own. Dynamic asset allocation necessarily means doing something different to other funds and the consensus and that is an inherently uncomfortable act for many. It is also inevitable that in doing something different to the typical fund there will be periods when headline returns are worse. The governance structure needs to be able to withstand that pressure. While there are a wide number of permutations possible, we think that a robust, sustainable governance structure will have the following three elements:

- **A highly skilled investment committee.** Key investment decisions are going to have to be made jointly. For all parties to the decision to be comfortable, everyone at the table will need to be able to contribute.
- **Representation by all key stakeholders.** Everyone with a material interest needs to be at the table, the sponsor, the trustees (or their investment committee), the fund’s consultant, and the fund’s lead asset allocation manager/adviser. In order to be able to withstand the pressures of being on the wrong side of the median fund, it is important that key decisions have been collective so that they are a shared responsibility.

- **Detailed records.** Memories can be fickle and 20:20 hindsight is a wonderful thing. It is important that detailed records are maintained of the reasons behind key decisions. When those decisions are later on being questioned, it is important to be able to objectively judge whether the assumptions behind them have turned out to be false (in which case the strategy must change), or whether they remain valid (in which case it will probably be right to tough it out and wait for the strategy to come good).

This kind of an interaction between stakeholders and particularly the collective nature of decision making is very different from the typical *modus operandi* of funds today. However, the prize, if properly conducted, is a strategy which responds to the highly cyclical returns from markets and is genuinely tailor made to the circumstances and risk appetite of the fund.

Finally, in a world of closed defined benefit (DB) schemes and in recognition that most funds will almost inevitably reach a point when they want to de-risk, I want to briefly consider the conventional view of de-risking and where it can potentially fail.

11. De-risking

Throughout this paper there is an embedded assumption that we need to consider a pension fund holistically, looking at assets and liabilities jointly, and considering sponsor covenant-related issues. The conventional view of de-risking often focuses on the liability side of a pension fund's balance sheet. A "glide path" solution is proposed whereby an increasing proportion of a fund's sensitivity to changes in real and nominal interests is hedged out in a "one-way" ratcheting process. If that is the limit of de-risking and the fund continues to own growth assets we are in a potentially dangerous position as there is at least one plausible scenario where such a hedging strategy could increase the likelihood of a sharp drop in the funding ratio (wealth). It is a scenario which today cannot be ignored.

Assuming there will come a day when the financial crisis is behind us, we will at that point start to return to business as usual. In a business as usual world, interest rates might average something like nominal GDP, say 4.5%, and the ten year gilt in a normal, upward sloping yield curve might yield 1% more, say 5.5%. Such an increase in the yield curve would of course have a profound effect on the value of a scheme's liabilities as discount rates rise. However, if a fund has hedged out all or a majority of its interest rate sensitivities those potential gains will be foregone. At the same time an increase in interest rates of that magnitude may coincide with a period of positive correlation between equity and bond markets. If that were to be the case, equity prices (and other risk assets) could come under severe pressure depressing the asset side of the balance sheet and funding ratios. While on average, over long periods of time, correlations between stock and bond returns are low, over shorter periods of time (three years), correlations have quite frequently been above 0.5% or below -0.5%. Periods of positive correlations have often been associated with periods of increased inflation volatility.

All this argues that de-risking is more complicated and more nuanced than one might at first think. Once again governing boards should consider their policy ahead of time. Decisions of this type are complex and cannot be fitted into a quarterly meeting schedule.

12. Return (cost) implications

In a follow up paper, I will consider the cost implications of different utility choices using Monte Carlo simulations to explore three different utility functions.

13. Conclusion

For now, we will conclude by noting that today's best practice model is relatively static. If you agree that a fund's risk appetite should be more dynamic and should be a function of ex-ante risk premia and wealth, then this article points to a path that funds and their investment committees can follow to consider ahead of time how their risk appetite should respond to the extremes of wealth and risk premia, the corner solutions we have described above.

Finally, while recognising the value of LDI de-risking strategies, we point out that there is at least one scenario where hedging the liabilities in isolation of considering the assets could end up with the perverse and unwanted result of increasing risk and actually depressing funding ratios!



The 300 Club

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Current economic and investment trends will change the investing landscape over the next two decades and we are at a crisis point which presents huge risks to investors, according to the 300 Club. Moreover, the 300 Club believes that current financial and investment theory and practice run the risk of failing investors at their time of greatest need.

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