



# Risky business...don't de-risk, right risk

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## IN BRIEF

In seeking to de-risk pension plans entirely, plan sponsors are dreaming an impossible dream. Strategies such as tax arbitrage are not feasible in a low yield, low liquidity environment. Similarly, arguments in favour of de-risking, such as agency costs and creative accounting, can actually end by increasing overall risks.

By blending broadly diversified return-producing and liability-matching assets, however, sponsors can right risk their plans, providing for growth while moderating unrewarded interest rate risk. Right risking entails several key considerations:

- A plan's funded status and the most efficient means of sustaining or enhancing it.
- The plan sponsor's capital structure, taking into account plan assets and liabilities.
- The risk appetite of the sponsor and the plan.
- The extent to which the long duration plan liabilities can be used to access sources of return unavailable to conventional investors.

More and more firms are seeking to de-risk their pension plans. Some plan sponsors seek to benefit from tax arbitrage opportunities, simultaneously reducing risk in their pension plans and increasing corporate levels of leverage.

However, by doing so they may actually be raising the risks for their shareholders, by increasing exposure to the firm's profitability while losing the benefit of diversified returns in the pension plan. At the same time, they may fail to secure any significant tax benefit, particularly at current low risk free rates of interest and high credit spreads.

A second group de-risks in order to make members' benefits more secure, even though reducing the expected rate of return in the plan may reduce security for some members. Other members might be willing to take the risk of deficit if there is the prospect of increased pensions at some point in the future.

Yet another cohort may claim that de-risking reduces agency costs, the direct and indirect costs that arise when people are appointed to act on behalf of others. These claims are questionable, and even if they were true, the magnitude of such costs would be small when compared to the potential fall in expected returns in the plan.

Total de-risking may not even be possible. Apart from the fact that current low levels of liquidity make it at best unattractive and at worst impossible for firms to raise debt at a reasonable rate of interest, the range of unhedgeable risks that exist in pension plans means that there will always be some residual risks after a plan has been de-risked.

Rather than de-risking, trustees should seek to right risk their plans. This process involves hedging interest rate and inflation risks to the extent that it is cost-effective to do so, but maintaining exposure to risks that hold the prospect of commensurate rewards, such as those available from equities, at a level in line with the risk appetite of the firm and the plan.

## What is de-risking?

De-risking has become a key feature of the pension landscape. As a result of escalating costs and increasing regulation, de-risking is seen as the ultimate aim for defined benefit pension plans, according to a recent survey from Aon Hewitt.<sup>1</sup> The survey found that 78% of US respondents thought it was prudent to reduce risk as funded status improved, in the UK 69% of respondents stated that their longer term objective was to take less or no risk in their schemes. In continental Europe, 53% of respondents stated that their long-term plan was to de-risk their pension plans and run them off, while a further 10% were targeting a buyout.

None of this tells us exactly what de-risking involves, either in terms of the end result or the process used to get there. In extreme cases, de-risking is taken to mean cashflow matching by designing a portfolio of fixed income securities, sometimes supplemented by swaps, so that the income received exactly matches the pensions payable. This exact approach can involve costly rebalancing if the expected payments change, for example due to differences between actual and expected mortality.

The more common result of a de-risking strategy is a portfolio of fixed income securities and derivatives that is used to mitigate the nominal and real interest rate risk present in pension plans. The extent to which this risk is managed varies according to how exact the matching strategy is. More exact approaches use key rate durations. These involve dividing the liabilities into duration buckets, each covering, say, five-year intervals. The present value of the liabilities in each bucket is then calculated. These are used to construct a fixed interest strategy where the present value of the income receivable in each bucket is equal to the liabilities. Thus, if an interest rate at any particular duration changes, the impact on the value of the assets should be the same as the impact on the liabilities. Movements in assets and liabilities should then track each other closely for a wide range of changes to interest rates.

For these interest rate-matching approaches, it is important to recognise that basis risk may exist if the fixed interest assets do not correspond to the valuation measure of interest. For example, if liabilities are discounted using corporate bond yields, as is the case for many valuations, then there may be a tendency to invest in corporate bonds. Although such an approach might limit the risk arising from instantaneous changes to interest rates, other risks do exist over the longer term. These risks stem from the possibility of downgrades and even defaults. Such credit issues could cause available assets to fall short of matching existing liabilities.

So that is how de-risking strategies can be implemented, but implementation by itself begs the fundamental question: why de-risk at all? Several rationales for de-risking are discussed in the following pages. Even though some may seem intuitively appealing, there are often practical issues that limit the effectiveness of these arguments. When added to the limitations of de-risking, which are discussed later, there are serious grounds for doubting the de-risking argument. First, though, let us look at some of the reasons for de-risking.

<sup>1</sup> Global Pension Risk Survey 2011, Aon Hewitt

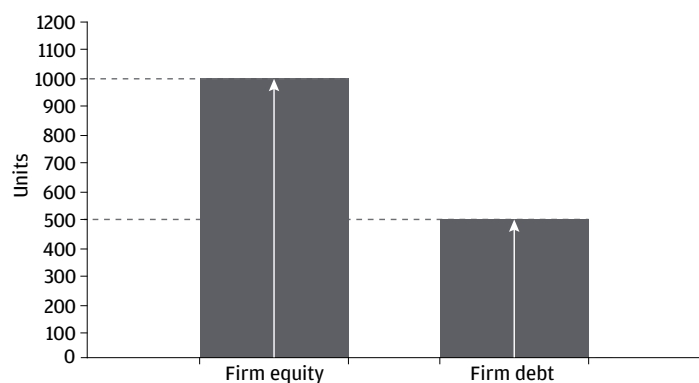
## De-risking rationales

### The tax arbitrage argument

The role of pension plans in the capital structure of companies has been recognised for many years. In particular, Tepper and Affleck<sup>2</sup> saw that it could make sense for companies to issue debt and use the proceeds to eradicate pension deficits, since the coupons in issued debt were tax deductible and the assets in the pension plan accumulated free of tax. The tax arbitrage de-risking argument takes this approach one step further.

In 1980, Fischer Black stated that almost every corporate pension fund should be entirely in fixed dollar investments.<sup>3</sup> His argument can be summarised as follows. Consider a firm funded by both 1,000 units of equity and 500 units of debt, as shown in Exhibit 1. Any money the firm makes that is not paid in taxes goes either to equity shareholders or to debtholders. The amounts payable to debtholders are fixed and must be made before the shareholders receive anything. The shareholders simply get what is left over after the debtholders have been paid. The greater the proportion of a firm's funding that is from debt rather than equity, the more the firm is exposed to the risk of insolvency.

Exhibit 1: The capital structure of a firm



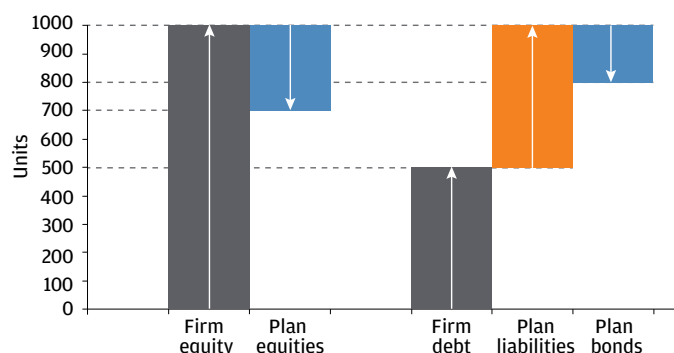
Source: J.P. Morgan Asset Management

Let us also assume that this firm has a pension plan. The plan consists of liabilities to pay pensions and assets intended to meet these liabilities. While the pension plan is legally separate from the firm, it is economically part of it. If there is a deficit in the plan, it is the firm that must make good. If there is a surplus, this can be used to reduce future contributions.

Since the liabilities represent the obligation to make payments in the future, and since the firm is ultimately liable for making these payments, these liabilities could be regarded as being similar to debt issued by the firm. The assets used to back these liabilities can take a variety of forms, but it is helpful to assume that only two types exist: bonds, which exactly match the liabilities they are intended to meet, and equities, which provide a return exactly in line with the return received by the firm's shareholders.

Because the bonds exactly match the liabilities, they can be regarded as negative pension liabilities and deducted from the total indebtedness of the firm. Similarly, the equities can be regarded as essentially contributing to the return required by shareholders, and so thought of as negative firm equity. This means that the true economic split of capital for the firm can be represented by Exhibit 2.

Exhibit 2: The capital structure of a firm allowing for the pension plan



Source: J.P. Morgan Asset Management

For a firm with a plan whose liabilities are equal to 500 units, which also invests 200 units in matching bonds and 300 in equities, including the plan in the calculation of leverage changes the ratio of debt to equity from 1:2 (500 debt to 1000 equity) to 8:7 (800 debt to 700 equity). In other words, it shows the company to be more highly levered.

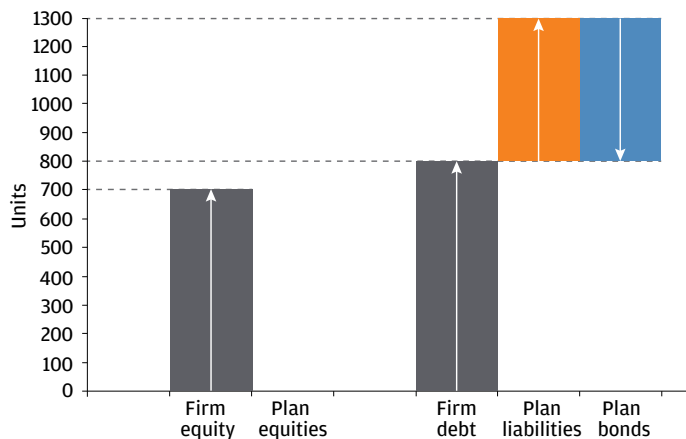
<sup>2</sup> Tepper, I and A.R.P. Affleck, (1974). "Pension Plan Liabilities and Corporate Financial Strategies", Journal of Finance, 29(5), 1549-1564.

<sup>3</sup> Black, F. (1980). "The Tax Consequences of Long-Run Pension Policy", Financial Analysts Journal, 36(4), 21-28.

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Treating these aspects of the pension plan consistently with the firm's capital structure means that the asset allocation of the plan and the capital structure of the firm can be altered to leave the pension-inclusive capital structure unchanged. For example, the firm could maintain the same level of leverage by selling 300 units of equities and buying the equivalent amount of bonds within the pension plan, while at a corporate level issuing 300 units of debt and using it to buy back the equivalent value of its own shares, as shown in Exhibit 3.

**Exhibit 3: The capital structure of a firm allowing for the pension plan, post restructuring**



Source: J.P. Morgan Asset Management

In the absence of taxes, such a change would have no effect on the firm's leverage or the risk and return profile of its equities. However, when corporate taxes are taken into account, a tax arbitrage emerges. Equities and bonds in a pension fund are treated exactly the same from a tax point of view they are both exempt. Coupon payments from a firm to its bondholders are tax-deductible, although all returns to shareholders are net of corporate taxes. This means that while there is no tax advantage to any particular asset allocation within a pension plan, there is a clear tax advantage to funding a company with debt rather than equity. It makes sense therefore under the tax arbitrage plan to have the pension plan invested fully in bonds, while the firm's leverage is increased through a debt-funded share buy-back.

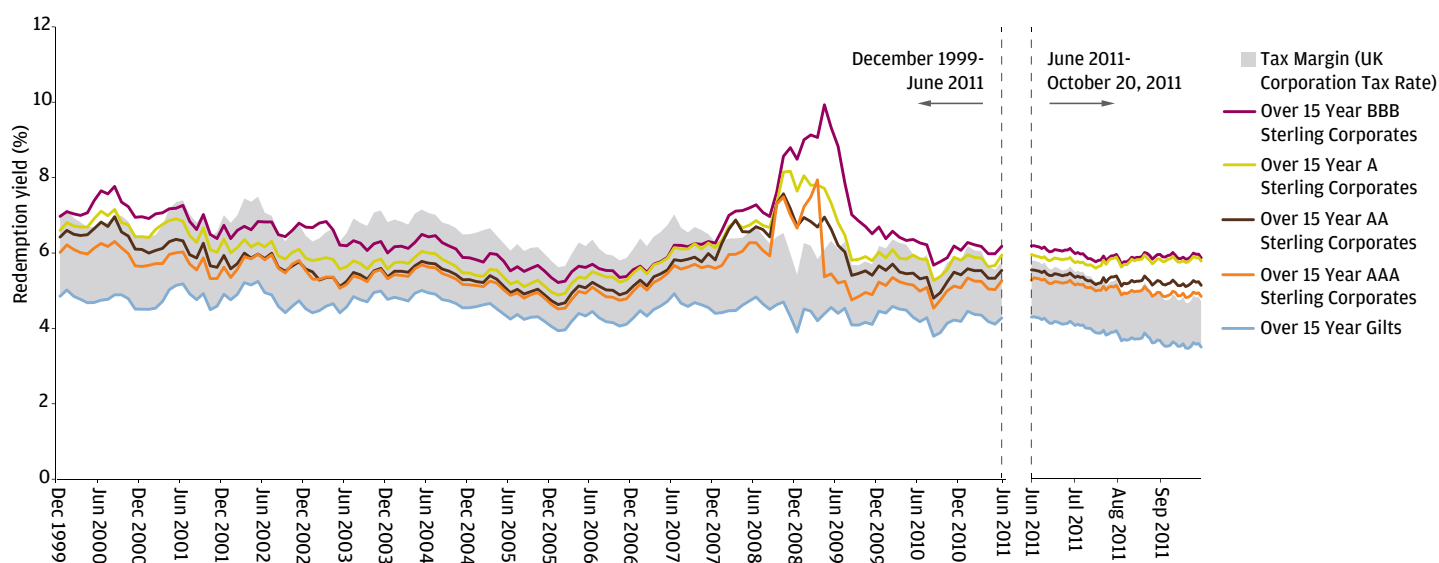
## The limits of tax arbitrage

So much for the theory, but there are some problems in practice. The first relates to the types of bonds bought and the type issued. If the bonds bought are genuinely intended to match the liabilities and reduce leverage, then risk-free government bonds are needed. As has already been mentioned, holding corporate bonds to match liabilities that are discounted using corporate bond yields does involve taking some risk.

But it is impossible for a corporation to borrow at a risk-free rate of interest. This means that if the cost of borrowing is too high, then the tax arbitrage disappears. A similar issue arises in relation to debt issuance to fill a deficit. In broad terms, an arbitrage is possible if the cost of borrowing is lower than the risk-free rate of interest grossed-up by the corporate tax rate. In other words, if the cost of borrowing multiplied by the corporate tax rate is less than the credit spread, the arbitrage does not exist.

The history of bond yields and arbitrage margins is shown in Exhibit 4. For the last few years in particular, the opportunities for tax arbitrage have been marginal, particularly for those firms with lower credit ratings. Importantly, we are currently in the least favourable position for tax arbitrage: where risk-free rates of interest are low and credit spreads are high. Furthermore, the main rate of corporation tax has been falling steadily. Having been at 30% until 2008, it now stands at only 26%, with a further fall to 25% planned for 2012. This all means that even an AAA-rated borrower would barely be able to benefit from the tax arbitrage.

EXHIBIT 4: The tax arbitrage margin and the yield on various iBoxx Sterling bond indices



Source: J.P. Morgan Asset Management

## The issue of diversification

Another issue with the tax arbitrage proposition is the assumption that equities in the pension fund behave exactly like the firm's own equity. In practice, this is unlikely to be the case. Specifically, the return-producing investment in a pension plan - which will frequently include asset classes other than equities - will be more diversified. As a result, adopting a tax arbitrage plan means accepting that the firm's shareholders will have a more concentrated exposure to the firm's underlying profitability, thus increasing the risk of insolvency.

The traditional riposte to this argument is that a corporation does not need diversification through its pension fund since investors in the firm can instead diversify their exposure by holding shares in a range of firms. This argument goes all the way back to the work on the irrelevancy of capital structure by Modigliani and Miller.<sup>4,5</sup> It is an attractive argument, but it assumes that the cost of insolvency is negligible. This point was made in relation to capital structure long before pension tax arbitrage was considered,<sup>6</sup> although the importance of these costs is disputed.<sup>7,10</sup> One important point to note is that not all costs are the same - only deadweight costs, such as the loss of reputation or brand value really matter. However, it is difficult to argue that the costs of insolvency can be ignored.

There are also human costs to insolvency, both for employees and for members of pension plans. Pension insurance and compensation schemes, such as the Pension Benefit Guaranty Corporation (PBGC), offer some protection against these costs, but this protection is not complete.

## The member security argument

This final point suggests another reason for de-risking: to make the pension plan safer for members. The argument here is straightforward. If there is no risk in the plan, then members are guaranteed to receive their pensions. This may be true, but it is a little simplistic.

First, if the capital structure of the firm is left unchanged, then moving to a lower risk strategy in the pension plan - for example, from equities to bonds - will typically have a higher expected cost for the firm. This is bound to be a concern for the firm, of course, and it may also impact pension plan members. In particular, if the cost is too high it might drive the firm into insolvency, which could well devastate members since insolvent firms do not tend to leave solvent plans behind them.

Pension plan members also have the benefit of insurance and compensation arrangements such as the PBGC. While these arrangements do not offer complete security, if the deficit is below the level covered by these arrangements, the logical thing for the pension plan to do is take more risk - the downside is limited, and the upside is the potential reinstatement of full member benefits.

<sup>4</sup> Modigliani, F. and M. Miller, (1958). "The cost of capital, corporation finance and the theory of investment", *American Economic Review* 48 (3), 261-297.

<sup>5</sup> Modigliani, F. and M. Miller, (1963). "Corporate income taxes and the cost of capital: a correction", *American Economic Review* 53 (3), 433-443.

<sup>6</sup> Kraus, A. and R.H. Litzberger, (1973). "A state-preference model of optimal financial leverage", *Journal of Finance*, 28(4), 911-922.

<sup>7</sup> Warner, J.B., (1977). "Bankruptcy costs: some evidence", *Journal of Finance*, 32(2), 337-347.

<sup>8</sup> Haugen, R.A. and L.W. Senbet, (1978). "The insignificance of bankruptcy costs to the theory of optimal capital structure", *Journal of Finance*, 33(2), 383-393.

<sup>9</sup> Myers, S., (1977). "Determinants of corporate borrowing", *Journal of Financial Economics*, 5(2), 147-175.

<sup>10</sup> Altman, E.I., (1984). "A further empirical investigation of the bankruptcy cost question", *Journal of Finance*, 39(4), 1067-1089.

## Agency arguments<sup>11</sup>

A number of other arguments for de-risking can be gathered together under the heading of agency risk. In broad terms, this is the risk that individuals hired to act on your behalf - agents - act for themselves rather than for you.

It has been argued that asset managers, investment consultants and plan actuaries are all incentivised to propose more complex strategies due to the opportunities to earn additional fee income. On the asset management side, an actively managed equity fund is likely to cost more to run than a passive matching bond strategy; investment consultants could be said to benefit from such strategies as they have the opportunity to offer advice both on the asset allocation and on the choice of managers, and to do so on a regular basis. In addition, equity-based strategies are more likely to result in surpluses and deficits, both of which - it is argued - provide a subject on which plan actuaries can advise.

Yet the increased popularity of liability-driven investing (LDI) and index-tracking management in recent years suggests that the full range of strategies is being proposed, but that the desire for de-risking is not universal.

## Creative accounting

A more serious concern is that managers might try to use non-matching investment strategies as a form of creative accounting. Historically, this concern arose when companies took credit for potential future equity outperformance by discounting pension liabilities using the expected return on assets. However, accounting standards now require liabilities to be discounted using corporate bond yields, whatever the asset allocation.

There is another way in which equities could be used in creative accounting by using the volatility in plan surplus that would arise from investing in equities to hide volatility in earnings coming from the core business. As plausible as this sounds, the volatility of pension disclosures is more often a cause for concern for company managers and directors - if anything, there is a desire for more smoothing so that the pension results do not have such a great impact on corporate earnings. In any case, pension disclosures have become increasingly transparent over the last few years, meaning that analysts are well able to determine which parts of a firm's profits derive from its core business and which are from the pension plan.

<sup>11</sup> These and other risks are covered in Exley, J., S. Mehta and A.D. Smith, (2003). "Pension Funds - A Company Manager's View", presented to a Society of Actuaries symposium on Current Actuarial Practice in the Light of Financial Economics.

## The risk appetite argument

The final argument for de-risking is simply that the pension plan is a source of too much risk for the corporation. As longevity has increased, the duration of liabilities has extended, making them more volatile. Adding to the problem, falling interest rates have themselves meant that the impact of longevity improvements has been more keenly felt. Additional mark-to-market legislation has also added not only to the cost of providing pensions, but to their volatility as well.

These points are all valid. None suggest that complete de-risking is the solution. Rather they suggest that risk should be reduced to a more acceptable level. This might mean that the balance between matching and return-producing assets needs to change. In particular, the extent of any non-normality can be allowed for.<sup>12,13</sup> On the other hand, it might mean that explicit tail risk hedging is required, perhaps using options, swaptions or other derivatives. In any case, what it does not mean is that there should be an attempt to completely exclude risk from the portfolio, so long as it is at the level of confidence that the company is comfortable with – and the company understands the likely impact of this strategy on the cost of making good promises for accrued pension benefits.

The appropriate level of risk will differ widely from plan to plan and from firm to firm. A key question is how does this level vary with funded status? One way to answer this question is to ask another: why is the plan well- or badly-funded in the first place? It is possible that the reason for the size of the surplus or deficit is also a factor in determining the most appropriate asset allocation.

A plan may be significantly under-funded because the sponsoring employer cannot afford to clear the deficit. A firm may also resist clearing a deficit. Borrowing to fill a deficit, as suggested by Tepper and Affleck, will not be cost effective for a firm that cannot borrow at a low rate of interest. In fact, the higher the cost of borrowing, the more attractive a deficit becomes as an inexpensive alternative to raising capital.

Even if the size of the deficit does not reflect the ability to assume pension risk, it may well influence the way in which the sponsor ought to deal with it. A firm that is unable to clear a deficit through increased contributions or through the issuance of debt may see favourable asset returns as the only way for the plan to clear its deficit. This argument is strengthened in the presence of institutions, such as the PBGC, which protect members from downside risk. There can be factors that operate in the opposite direction, however. If legislation requires firms to pay more for under-funded plans, either to statutory insurers or into the plans themselves, then this will mitigate the appetite to take risk. For example, the PBGC has levies linked to the size of any deficit.

## Divergent appetites

How should a more solvent employer act when faced with a deficit? Liquidity permitting, it makes more sense for such an employer to issue debt and use the proceeds to fill the deficit. It should have less need to rely on investment risk, so should adopt a more conservative strategy. However, as noted above, members of such plans may well prefer more risk to be taken.

As the solvent firm's plan moves from deficit to surplus, the incentives of the employer and the plan members remain unchanged. Solvent employers are still likely to be less willing to take investment risk in a plan, not least because they are the ones for whom the tax arbitrage strategy looks more attractive.

For the less solvent employer, the situation changes. As funded status increases, so does the downside risk for plan members. Their expected benefits rise above the levels available from pension insurance. This could limit members' desire to take investment risk. The sponsor's risk appetite might depend on whether the plan was still open and benefits were still being earned. If they were, investment risk could be used to offset future contributions. For a closed fund with no deficit, significant equity exposure presents only downside risk. Any surpluses are unlikely to find their way out of a plan back to the sponsor, but the sponsor will still be responsible for deficits that emerge.

<sup>12</sup> Sheikh, A.Z. and H. Qiao, (2009). "Non-normality of Market Returns: a framework for asset allocation decision-making", J.P. Morgan Asset Management Discussion Paper

<sup>13</sup> Sheikh, A.Z. (2010). "The Blind Side: Managing downside contribution risk in corporate defined benefit plans", J.P. Morgan Asset Management Discussion Paper

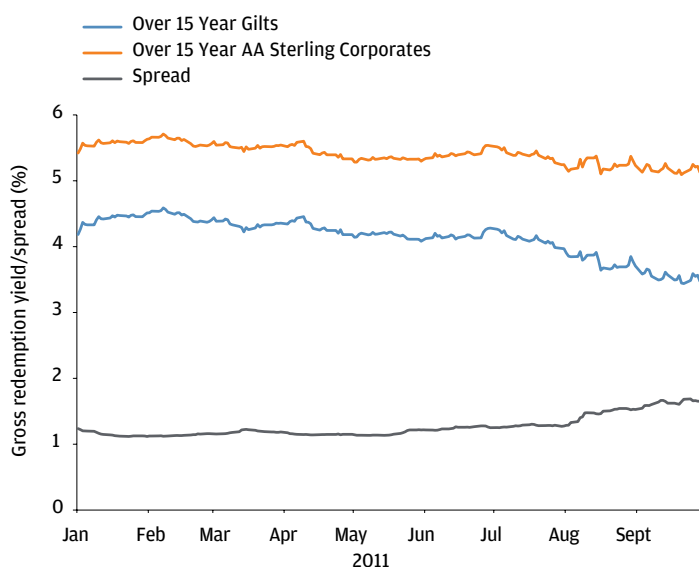
## When risk is good

### Illiquidity

The recent liquidity crisis must make even sponsors with high credit ratings question the wisdom of issuing debt or even using cash to fill deficits - particularly since the current financial climate may make borrowing difficult for all firms over the next few years. Similar arguments hold for de-risking. We have already seen that the tax arbitrage strategy does not work if it is too costly to borrow, but current spreads, shown in Exhibit 5, indicate a more general reluctance to provide finance to corporate borrowers.

However, illiquidity may also be turned to a plan's advantage. Defined benefit pension funds are one of the only investors that are in a position to benefit from the illiquidity premium available from investments such as private equity holdings, infrastructure investments and direct real estate that are lumpy - that is, their large unit size makes them difficult and expensive to buy and sell. It is reasonable to expect that the price of such investments will be reduced to reflect cost and inconvenience. As such, they should be particularly attractive to investors with a very large volume of assets and a very long time horizon. Indeed, pension plans are almost unique in being able to secure liquidity premiums available in many asset classes.

Exhibit 5: iBoxx Sterling bond yields and spreads from 31 December 2010 - 30 September 2011



Source: DataStream; J.P. Morgan Asset Management calculations

<sup>14</sup> Myers, S.C., (1984). "The Capital Structure Puzzle", The Journal of Finance, 39(3), 575-592.

### Capital flexibility

It is also worth noting that to adjust corporate leverage is not free of cost<sup>14</sup>. To issue or redeem bonds or shares is not in itself particularly expensive in terms of trading costs, but when the capital structure of a firm is changed, the price of the firm's securities will be affected. The price of shares will rise as they are bought back, and the cost of borrowing may also increase.

If one regards the pension plan as being part of the capital structure of the company, there is merit in maintaining pension plan asset allocation to alter the capital structure rather than de-risking completely. Changing the capital structure directly may involve trading in a significant proportion of a firm's capital, which can move the market, whereas buying and selling securities in a plan, where each security is likely to form only a small fraction of the total market capitalisation, will have a negligible impact on the firm's own stock price.

## Market inefficiency

Many of the arguments above rely on the ability of the market to see through the corporate veil and the various accounting distortions to the economic reality of the pension plan. This is important. The evidence of market efficiency in this area is mixed. Researchers have been able to show some relationship between pension risk – as measured by funded ratio and investment strategy – and investment returns.<sup>15</sup> However, the consensus seems to be that markets do not allow fully for unfunded pension liabilities when assessing firms,<sup>16-18</sup> and no evidence has been found that freezing a defined benefit plan increases the market value of a firm,<sup>19</sup> even though such an event should be unambiguously positive. This suggests that a more subtle addition of value, such as that provided by tax arbitrage, is likely to be swamped by other determinants of a firm's share price.

## Why de-risking is impossible

We have so far assumed that it is possible to essentially de-risk a pension plan, either matching by cashflow or by interest rate sensitivity. However, unless annuities are bought to secure members' benefits, complete de-risking is either impossible, impractical or both. This is because pensions are affected by a number of difficult-to-hedge facts:

- The most obvious of these is longevity. It is difficult to determine the current underlying rates of mortality for the members of a pension plan. It is even more difficult to predict how these mortality rates will change over time. It is possible to hedge longevity risks, but since there are few natural counterparties, offsetting the risk can incur a significant risk premium. Furthermore, many solutions are based on generic, population-based indices, which do a less than perfect job of hedging mortality risk.
- If a plan is open and pensions are still being earned, then they may well be linked to each member's salary at retirement. This, too, is almost impossible to hedge. And even if the plan is fully closed, many plans have indexation requirements that are difficult to hedge, including capped pension increases such as 5% and 2.5% limited price indexation (LPI).
- Annuitisation is an option, but with an increasing number of plans seeking to follow this route, the capacity of insurers to take on more longevity risk could well be reduced – as is already happening in the UK. In Europe as a whole there is an additional issue: the regulatory requirements known as Solvency II. These will require insurers to hold far more capital in respect of longevity risk, making annuities even more expensive.

As a result, it makes sense for pension plans to hold onto their assets and liabilities – and not to try and match them completely with risk-free assets. The fact that there will always be some residual risk means that it makes sense to try to offset this risk with investment risks. This is true even if the aim is to take as little risk as possible – and we have seen that taking as little risk as possible might not be desirable.

<sup>15</sup> Jin, L., R.C. Merton and Z. Bodie, (2006). "Do a Firm's Equity Returns Reflect the Risk of its Pension Plan?", *Journal of Financial Economics*, 81(1), 1-26.

<sup>16</sup> Liu, W. and I. Tonks, (2009). "Pension Fund Deficits and Stock Market Efficiency: Evidence from the United Kingdom", University of Exeter Business School Working Paper 09/01

<sup>17</sup> Gallagher, R. and D. McKillop, (2010). "Unfunded Pension Liabilities and Sponsoring Firm Credit Risk: an International Analysis of Corporate Bond Spreads", *European Journal of Finance*, 16(3), 183-200.

<sup>18</sup> McKillop, D and M. Pogue, (2009), "The Influence of Pension Plan Risk on Equity Risk and Credit Ratings: a Study of FTSE 100 Companies", *Journal of Pension Economics and Finance*, 8(4), 405-428.

<sup>19</sup> McFarland, B., G. Pang and M. Warshawsky (2009), "Does Freezing a Defined-Benefit Pension Plan Increase Company Value? Empirical Evidence", *Financial Analysts Journal*, 65(4), 47-59.

## Right risking

To an extent, our discussion has been in terms of whether to keep return-producing assets or to try to exactly hedge liabilities. A plan should probably include a little of each of these aims. Return-producing assets have a place in most pension plan portfolios. In many cases, these assets may be insufficiently diversified - more appropriate portfolios can be designed within a framework that allows for non-normality. The assets may also rely too heavily on returns generated by corporate profits rather than other sources, in particular those such as illiquidity where a pension fund can gain access to opportunities closed to other investors. But return-producing assets can add value for a fund and its sponsoring company.

This does not mean that liability matching should be ignored. Even though exact matching is impossible, it is important that the interest rate risk created by pension liabilities is recognised in the nature of the bond portfolio. Interest rate risk - incurred when the interest rate profile of the fixed income assets and liabilities differs - is generally unrewarded, inasmuch as there is no premium for differing term structures. What exactly does that mean? For a high risk appetite, where only a small proportion of assets is held in fixed income investments, it might be appropriate to use only an approximate duration hedging strategy. On the other hand, for a lower risk tolerance strategy involving a significant allocation to fixed income, more exact matching approaches should be used.

This combination of appropriate interest rate hedging on the fixed income side with smart diversification in the return-producing assets could be thought of as right risking a portfolio, to get the most out of it for a given risk tolerance in the context of all of the risks faced by the plan and the firm. It is this, rather than de-risking, that should be the aim of pension funds.

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