

Agenda

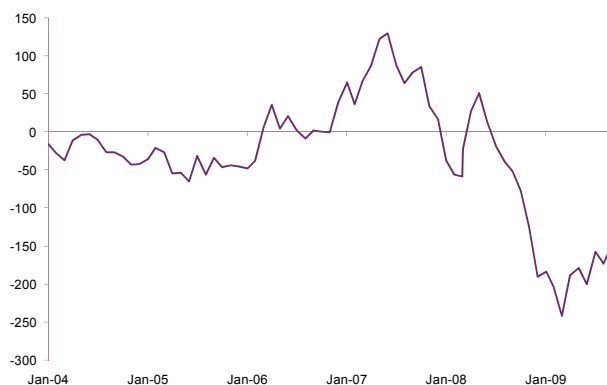
Advancing economics in business

Defined-benefit pension plans: defining the cost

The funding status of defined-benefit pension plans has been adversely affected by the financial crisis, exposing companies to greater risks. In light of widening pension deficits and increased capital market scrutiny, the treatment of pension costs is gaining prominence in the regulatory debate. This means that it is increasingly important to understand the implications of pension risks for companies' cost of raising finance

Since the start of the financial crisis, pension deficits have widened substantially, particularly those plans that invested heavily in equity, with the aggregate deficit across UK companies with defined-benefit pension schemes now estimated at around £93 billion (as at November 2009) (see Figure 1).¹

Figure 1 Evolution of the pension fund surplus/deficit across UK companies (£ billion)



Source: The Pensions Protection Fund.

Heightened market uncertainty, caused by events such as the recent turmoil in Dubai, has exposed companies to additional pension risks. This suggests that understanding the impact of pension risk on the cost of financing is critical for all companies, and particularly important for regulated companies.

The impact of pension risks on the cost of financing has not been considered to any great extent in past regulatory reviews. However, the treatment of pension

costs is gaining prominence in the regulatory debate in light of the increasing size of companies' pension deficits and greater capital market scrutiny of pension funds.

In 2008 Ofgem, the GB energy regulator, began a consultation on pensions, which was concluded in the recent distribution price control review (DPCR5) Final Proposals, and the telecoms regulator, Ofcom, has recently launched a consultation on the treatment of pension costs, with potential significant implications for prices.² Under the range of options considered by Ofcom, wholesale regulated charges could increase by up to 4%, or alternatively, fall by a 'small amount', depending on the selected option.³ The findings from these reviews will set an important precedent for other sectors.

The underlying issue considered in these consultations is how to ensure that pension costs are treated consistently within the regulatory framework—a critical issue for companies with large pension schemes.

This article begins by considering the impact of defined-benefit pension schemes on risk in general, and on the cost of financing in particular. The factors that influence the extent to which pension risks affect the cost of financing, including the influence of regulation, are then examined.⁴

How do pension schemes affect risk?

Companies' overall risk profile, and hence the cost to the company of raising external finance, will be affected by the presence of defined-benefit pension schemes

through two principal transmission mechanisms (see box below).

Any company with a defined-benefit pension scheme will be exposed to changes in ongoing pension costs and deficit repair costs. The requirement to pay out these costs effectively constrains free cash flows, thereby increasing companies' financial risk. The impact on financial risk will be even greater for those companies with a pension deficit, since the presence of the deficit will lead to a rise in the risk of default, reducing the recovery rate upon default, as the pension provider becomes an unsecured creditor under insolvency. If a company fails to pay the costs agreed with the Trustee of reducing the deficit, this may ultimately lead to insolvency through either of two routes.

- Under the 2004 Pensions Act, a default by the pension scheme sponsor on deficit repair payments can result in intervention by the Pensions Regulator and may lead to insolvency.⁵
- Under FRS 17, pension deficits must be recorded as a liability on the sponsor's balance sheet, and as such, a large pension deficit may precipitate 'balance sheet insolvency' via covenants embedded in other debt instruments.⁶

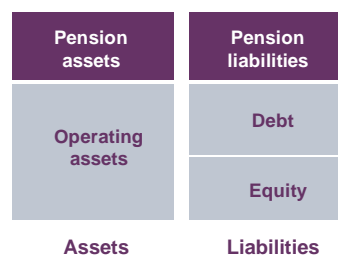
This suggests that any company with a large defined-benefit pension scheme would be expected to face higher costs of raising both debt and equity compared with a similar company without any pension scheme. This is supported by empirical evidence that finds that the risk of companies' pension plans is incorporated by market participants into their assessment of companies' risk exposure.⁷

Impact of pension risk on the cost of capital

Any assessment of the cost of financing (eg, the cost of capital) for companies with defined-benefit pension schemes would need to take into account the risk of the pension scheme in addition to operating asset risks (see Figure 2).

- **Cost of debt.** For companies with defined-benefit pension schemes, the pension plan's assets and liabilities should be taken into account to determine the weight to apply to the cost of debt and equity

Figure 2 Capturing pension risks—augmenting operating assets and liabilities



Source: Oxera, based on Cooper, I. (2009), 'The Effect of Defined Benefit Pension Plans on Measurement of the Cost of Capital for UK Regulated Companies: A Report for Ofcom', September 2nd.

financing (eg, the level of gearing) in order to derive an overall estimate of companies' cost of capital. This suggests that companies with large defined-benefit pension schemes should be treated as having higher gearing than similar companies without such a scheme. This approach would be consistent with market practitioners, including credit rating agencies, such as Moody's and Standard & Poor's, which typically take into account unfunded pension obligations, together with corporate debt, when assessing the likelihood of default.⁸

The higher level of gearing would be expected to translate into a higher cost of debt financing, as the requirement to meet ongoing contributions to the pension scheme lowers cash flows available to service debt obligations. Indeed, empirical evidence finds that an increase in mandatory pension contributions leads to a higher cost of debt, particularly for companies whose pension liabilities are reported on the balance sheet, or for those companies that face external financing constraints.⁹ There is also evidence that companies with greater pension liabilities have a lower credit rating, with unfunded liabilities decreasing ratings more than an equal amount in assets increases ratings.¹⁰

- **Cost of equity financing.** Corporate finance theory suggests that as the amount of debt in companies' capital structure increases, the probability of default increases, and as equity holders are only the residual claimants in the event of default, equity holders require a higher return to compensate for this

Principal transmission mechanisms

Heightened exposure to market conditions—pension costs co-vary with general market conditions, thereby increasing the systematic risk to which investors are exposed.

Commitment to an additional fixed obligation—pension costs represent an additional contractual obligation agreed with the scheme's trustees, which needs to be met from operating cash flows. This is similar to coupon payments to purchasers of fixed income securities, such as bonds.

additional risk.¹¹ As such, companies with large pension schemes would be expected to face higher equity risk, which would in turn be captured in the cost of equity financing through the estimate of the beta—a measure of the relationship between returns on a company's stock price and returns on the overall market such as the FTSE 100.

Empirical evidence has found that the market valuation of companies reflects the risk of companies' pension plans, as well as any difference between the value of the pension plan's assets and liabilities.¹² This implies that estimates of the beta reflect both the risk of operating assets as well as the risk of pension assets.

- **Overall cost of capital.** There is clear evidence that both the cost of debt and cost of equity would be higher for companies with large pension schemes compared with similar companies without such schemes. However, the overall impact on the companies' cost of capital could be in either direction, as greater weight will be placed on the cost of debt when calculating the overall cost of capital. To the extent that debt is typically cheaper than equity, the net effect on the cost of capital could be in either direction.

What determines the impact of pension risk on the cost of capital?

Characteristics of pension schemes

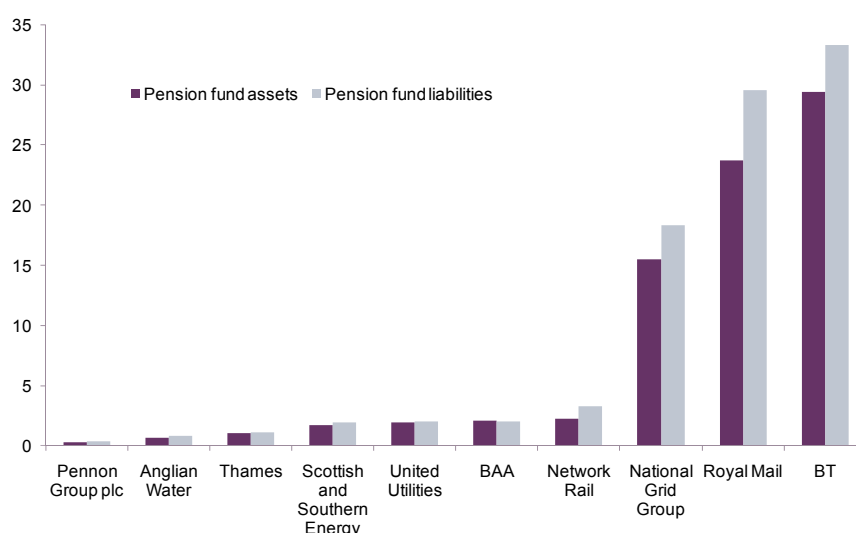
The allocation of the pension plan between debt and equity, together with the size of the pension scheme,

will influence the impact of pension risk on the cost of capital.

- **Allocation between debt and equity.** Returns on pension plans that are more heavily allocated towards equity would be expected to be more volatile as a result of the sensitivity of companies' performance to economic conditions. Indeed, since the start of the financial crisis, due to the poor returns from equity markets, a number of pension plans have diversified their portfolio away from equity. To the extent that stocks behave pro-cyclically, companies with a large proportion of their plan invested in equity may need to increase their funding for pension contributions at a time when such companies may be least able to afford the increase in contributions.¹³ This suggests that such companies may face higher costs of equity and debt compared with similar companies with pension plans allocated more heavily towards debt.
- **Size of pension schemes.** Even if the pension scheme is in surplus, a company with a large defined-benefit pension scheme will be exposed to greater risks, with these risks magnified if the company also faces a large pension deficit (see Figure 3).

Figure 3 shows that there is a significant degree of variation across companies. Some of this difference arises from the treatment of pensions at privatisation. The significant deficit of some pension schemes highlights the importance of the treatment of pension risk within the regulatory framework. For such companies, it is critical to ensure that pension risks are

Figure 3 Size of selected companies' pension schemes (£ billion)



Note: To reflect the most up-to-date information, the data reported has been obtained from the latest available annual accounts rather than the latest valuation of the pension schemes.

appropriately reflected within the financeability assessment, in order to provide a robust indication of the true financial state of the regulated company.

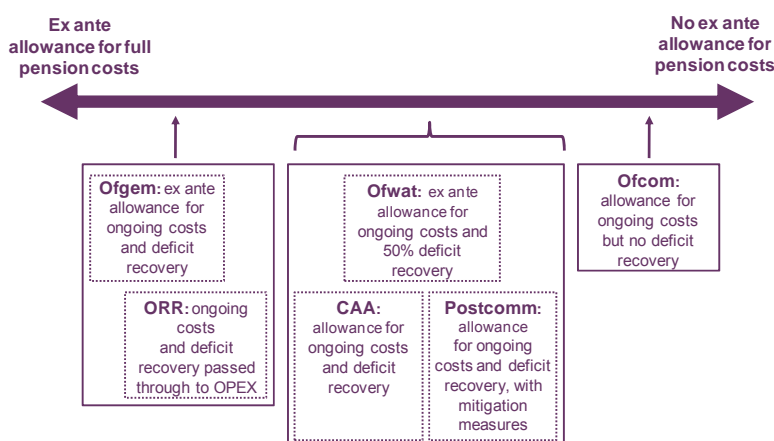
Regulatory treatment

When considering the appropriate regulatory treatment, two key issues facing regulators are whether, as a matter of principle, it is appropriate to reflect pension costs associated with historical liabilities in price controls, and whether it is appropriate to leave the company exposed to a degree of pension risk.

To the extent that any risks associated with companies' pension schemes are not controllable by the regulated company, whether to allow remuneration for these risks within the regulatory framework to ensure that a sufficient return is provided to investors would need to be considered.

- **Treatment of pension risks across regulators.** As highlighted in the box below, it is important to ensure consistency between the treatment of pensions—whether in OPEX or the RAB—and the estimation of the cost of capital. In previous regulatory reviews, there has been either no or very limited discussion about the impact of pension risk on the cost of capital. Although the treatment of pension costs varies significantly across regulators (see Figure 4), this has not translated into systematic differences in either the cost of equity or cost of debt. Ofgem and the Office of Rail Regulation (ORR) have in the past been more generous than Ofcom, with the approach adopted by a number of other regulators lying somewhere between these two approaches. For example, at DPCR4, all pension allowances (ongoing and deficit repair payments) were funded either on a pay-as-you-go basis or through the regulatory asset value.¹⁵ The ORR treats both ongoing costs and deficit repair

Figure 4 Illustration of the variation in the treatment of pension costs across regulators



Source: Oxera, based on regulatory documents. Ofwat, the England and Wales water regulator; CAA, Civil Aviation Authority; Postcomm, the GB postal services regulator.

Options to reflect pension risks within the regulatory framework

Operating expenditure (OPEX)—one option is to include in OPEX the ongoing service costs and deficit repair payments (defined either with reference to either cash contributions or the projected charge within the profit and loss statement), subject to ex post efficiency checks.¹⁴

Regulatory asset base (RAB)—an alternative is to capitalise ongoing service costs and deficit repair payments within the RAB. If the RAB at privatisation incorporated pension costs, only additional pension costs over and above those already reflected in the RAB should be included. For those companies with pension deficits, a key issue would be to ensure that the treatment is consistent with the proposal agreed with pension fund trustees to eliminate the deficit.

If the full amount of the 'efficient' ongoing service costs and deficit repair payments were included in either OPEX or the RAB, the cost of capital that is applied to calculate allowed returns would need to be adjusted such that it does not reflect pension risks in order to avoid double-counting. However, if the total amount of ongoing service costs and deficit repair payments were not fully reflected in either OPEX or the RAB, the cost of capital would need to reflect these pension risks to which the company is exposed.

Note: Other options that could be considered include capital injections, risk mitigation measures and pension fund buyouts.

costs similar to other operating costs, with costs rolled forward in line with a general assumption on OPEX efficiency.

Despite these differences in approach across regulators, the standard cost of capital calculation used in regulatory reviews implicitly assumes that pension assets and liabilities have the same risk characteristics as operating assets. While this may be an appropriate assumption for those companies with relatively minor pension scheme surpluses or deficits, it may be too crude an assumption for those companies with large defined-benefit pension schemes.

However, the importance of assessing the implications of the treatment of pension risk for the cost of capital is gaining increasing attention, with the start of Ofcom's review. Ofcom's review raises a number of questions, including:

- how the impact of pension risks on the beta could be estimated robustly;
- the basis for estimating the allowance for ongoing service costs—for example, whether this

is on the basis of cash costs or the IAS19 accounting standard;

- the appropriate discount rate to calculate the present value of future payments; and
- the approach to apportion pension costs held at the Group level to the regulated entity.

Conclusions

Although Ofcom has acknowledged the challenges of estimating the impact of pension risks on the cost of capital, the increasing focus on pensions highlights the importance of developing a robust framework within which to ensure that pension risk is appropriately reflected in the regulatory regime.

Understanding the impact on the cost of capital will be essential in developing the regulatory debate in this area, and importantly, in ensuring that pension risks are appropriately allocated between the company and consumers. It will be critical to ensure consistency between allowances for pensions within the regulatory framework and the treatment of pension risks within the calculation of the cost of capital.

¹ The Pension Protection Fund (2009), 'November 2009 Update', PPF 7800 Index.

² Ofgem (2009), 'Electricity Distribution Price Control Review: Final Proposals'. December 7th. Ofcom (2009), 'Pensions Review', December 1st.

³ Ofcom (2009), *op. cit.*, pp. 1–2.

⁴ Under defined-benefit schemes, the benefits to be received by employees are determined by the terms of the scheme. As such, the employer is obliged to pay these benefits to current and former employees, and thus carries both the actuarial and investment risks of the pension fund. In contrast, under defined-contribution schemes, the employees carry the actuarial and investment risks of the pension fund. Defined-contribution schemes are not considered in this article. For discussion on the role of defined-contribution schemes, see Oxera (2008), 'Defined-contribution pension schemes', *Agenda*, January 23rd.

⁵ Pensions Act 2004, para 17.

⁶ Accounting Standards Board (2000), 'Financial Reporting Standard 17 Retirement Benefits', November.

⁷ Jin, L., Merton, R.C. and Bodie, Z. (2005), 'Do a Firm's Equity Returns Reflect the Risk of its Pension Plan?', Harvard Business School. Watson Wyatt LLP (2005), 'Corporate Pension Funding and Credit Spreads', Technical Paper Series, June.

⁸ In the case of insolvency, pension liabilities are treated as junior creditors.

⁹ Campbell, J.L., Dhaliwal, D.S. and Schwartz, W.C. (2009), 'Financing Constraints and the Cost of Capital: Evidence from the Funding of Corporate Pension Plans', University of Arizona, September, and Cardinale, M. (2005), 'Corporate Pension Funding and Credit Spreads', Social Science Research Network, June.

¹⁰ Carroll, T.J. and Niehaus, G. (1998), 'Pension Plan Funding and Corporate Debt Ratings', *The Journal of Risk and Insurance*, **65:3**, pp. 427–43.

¹¹ Modigliani, F. and Miller, M. (1958), 'The Cost of Capital, Corporation Finance and the Theory of Investment', *American Economic Review*, **48**, pp. 261–97.

¹² Jin, L., Merton, R.C. and Bodie, Z. (2005), 'Do a Firm's Equity Returns Reflect the Risk of Its Pension Plan?', Harvard Business School.

¹³ Black, F. (1980), 'The Tax Consequences of Long-run Pension Policy', Financial Analysis.

¹⁴ Historically, the majority of regulators have introduced allowances for actual cash contribution rates in those cases where the charge in the profit and loss account has differed from the cash-funding rate recommended by actuaries. However, Ofcom currently allows BT to recover reported pension service costs as accounted for under the international accounting standard—IAS 19—although the regulator's pension consultation seeks views about this approach.

¹⁵ In Ofgem's Final Proposals for DPCR5, it announced a 50:50 sharing of any deviations from distribution network operators' forecast costs, with pension costs being included in benchmarking exercises in future reviews. Deficit repair costs will be funded on a pay-as-you-go basis over a 15-year period, with the potential for a review of the efficiency of these costs by the Government Actuary's Department.

If you have any questions regarding the issues raised in this article, please contact the editor, Dr Gunnar Niels: tel +44 (0) 1865 253 000 or email g_niels@oxera.com

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