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D05 Enterprise Risk Management Implications of DB Pension Schemes

William Perraudin, Risk Control and Ian Maybury, Independent
Trustee

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Enterprise Risk Management Implications of DB Pension Schemes

William Perraudin, Risk Control

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Agenda

- ❖ Why do companies manage risk?
- ❖ What is the impact of DB schemes on firm risk?
- ❖ How should DB schemes be allowed for in ERM?

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Why do companies manage risk?

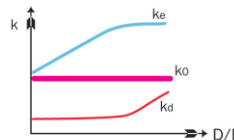
- ❖ Distinguish (i) operational and business risk management from (ii) financial risk management.
- ❖ Operational risk management involves taking steps within the business.
- ❖ Financial risk management includes:
 - Hedging
 - Insurance
 - Alterations in financing
e.g. the relative amounts of debt and equity.
- ❖ Financial risk management involves transacting with other parties to lay off or take on risk in some way.



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Why companies might not manage financial risk

- ❖ Individuals can be thought of as preferring higher returns and disliking risk or variability in their returns.
 - Companies are not like this.
- ❖ Companies may instead be thought of as portfolios, long assets and short liabilities
- ❖ If an outside investor in a firm dislikes the financial risk in a firm they may simply hedge it themselves.



Example - Jaguar when it was an independent company

- Stock price was sensitive to the US dollar due to high US sales
- But if investors disliked US dollar exposure they could hedge it
- So, one might argue, why would Jaguar hedge itself as a firm?



- ❖ This is a version of the Modigliani-Miller theorem (Modigliani and Miller, 1958, 1963)

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Why companies do manage risk (1/3)

- ❖ **BUT** Firms are not simply portfolios...
- ❖ Outsiders do not observe firms' internal workings. When firms come to the market asking for more equity this might reflect either:
 - A. The bad quality of the firm's business, or
 - B. The bad realisation of a risk
- ❖ This provides an explanation for why:
 - When a firm worth £100 raises £10 in new equity:
 - The market does not value it at £110
 - Instead the price is typically marked down to, say, £105.
- ❖ When maximising the firm's equity value managers should avoid equity-depleting shocks since **"external equity" is costly**.

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The value of risk management

❖ Equity shortages destroy value.

Example - European Banks:

- European banks are currently struggling to rebuild capital levels
- Consequently, they are foregoing profitable investment opportunities in the form of high-return/low-risk loans
- Banks play a crucial role in facilitating economic activity
- As a result, the dire state of the European economy can be considered a consequence of the costliness of external equity.



❖ ERM adds value by reducing chance of equity shortages

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Why companies do manage risk (2/3)

- ❖ Risk management is part of an **implicit contract** with stakeholders
- ❖ Compare it to bond covenants:
 - These limit borrowers actions ex post to decrease borrowers' ability to increase the chance of default through risky actions.
- ❖ The processes and ways of working of **Enterprise Risk Management** limit the possibility that risk taking will increase unexpectedly.
- ❖ Large firms are policed in their ERM through rating agencies' credit quality evaluations.



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Why companies do manage risk (3/3)

- ❖ A second category of external stakeholders keen to see effective ERM systems is **regulators**.
- ❖ Regulators dislike market instability, because:
 - It creates externalities for individuals
 - They have some direct credit exposure themselves through, for example, bank deposit guarantees
- ❖ In the latter regard, they are again like creditors and hence risk management becomes again a rather direct form of covenant.



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DB Schemes as off-balance-sheet items: what is the pass through (1/2)

- ❖ Compare a Defined Benefit (DB) scheme to an item in which gross positions in assets and liabilities are netted out.
 - e.g. an asset swap under which the holder contracts to make future liabilities payments in exchange for extra income on assets.
 - even balanced pension schemes may add substantially to firm risk.
- ❖ This view of DB schemes has been expressed influentially by the US academics, Jin, Merton, and Bodie (2004), who argue that:
 - “In analysing the expected return on a firm’s assets, adjustments should be made when a DB scheme is present”.
 - (Such measures of expected returns are important for regulatory decisions on price ceilings for utilities.)

Table 1.2. Estimated Equity and Operating Asset Betas for 2001

Company	Equity Beta	Operating Asset Beta		Operating Asset Beta	
		Correct	Error1	Error2	%overestimate
BOEING	0.69	0.16	0.54	0.55	250%
DUPONT	0.71	0.45	0.63	0.63	30%
EASTMAN	0.97	0.35	0.68	0.70	99%
KODAK	0.73	0.26	0.43	0.44	60%
TEXTRON					

Table 8. Filtered test results

filter used	beta_PA*PA/TA=0.02	PA/TA=0.02
Intercept	-0.4698	-0.3778
	(-1.2138)	(-1.0253)
Pension Risk	1.7806	1.3519
	(2.1372)	(3.9832)
Adjusted R-squared	0.2575	0.2277

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DB Schemes as off-balance-sheet items: what is the pass through (1/2)

Ian Cooper's Ofcom report provides counter arguments:

- ❖ There are several convincing reasons to believe DB schemes are not simply asset swaps on a firm's balance sheet.
- ❖ Firms do not “own” the assets of their DB schemes in that large losses or gains do not necessarily flow through to the firm's profit and loss.
 1. Sharing in pension fund risk by other agents
 2. The effect of regulation attenuating the effect of pension fund risk on measured equity risk
 3. Other slippage between pension fund risk and share price response.



The effect of defined benefit pension plans on measurement of the cost of capital for UK regulated companies

A report for Ofcom

Professor Ian Cooper*

London Business School

2 September 2009

*Ian Cooper, London Business School, Sunning Place, Regent's Park, London NW1 4SA, England, i.cooper@london.ac.uk

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Incomplete “pass-through”

- ❖ These arguments against “**pass-through**” of pension fund risk are somewhat convincing.
- ❖ However, the mechanisms identified are unlikely to fully offset the impact of shocks to pension funds on a firm’s financial position.
- ❖ This implies that a firm that manages its own financial risk will wish to react to incomplete hedging by its DB scheme.
- ❖ How may it react?
 - The incomplete pass-through is itself an obstacle to hedging as any attempt to offset possible risks will generate substantial base risk.
 - Also, the precise level of risk of a DB scheme is notoriously difficult to pin down as the maturity of the liabilities and their true split between real and index linked components is difficult to judge.

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How is this affecting DB schemes?

- ❖ Incomplete and uncertain pass through and the opaque nature of the underlying liability risk suggests that the correct response for firms concerned about the risks they inherit from their DB schemes is indeed what we are actually currently observing, namely:
 1. Exert pressure on trustees to engage in Liability Driven Investment
 2. Close DB schemes altogether

Example - DB Scheme Closures

- NAPF’s latest survey showed that the fraction of DB schemes closing to new members was 8% in 2013 after almost a third closed in 2012.
- Currently, only 12% remain open to new members.



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Diminishing benefits of DB schemes

- ❖ The economic benefits of (slowly vesting) DB schemes as a means of locking employees into long term relationships with their employers has been reduced by the changing nature of industry:
 - Workers increasingly move around multiple times
 - Workers exercise several different roles in their working lives.
- ❖ Contracts in which payments depend on terminal wages earned at the end of a career with a single employer become less relevant and useful in these circumstances.
- ❖ So DB schemes would be declining anyway without the risk costs that they are increasingly been seen as imposing on firms.

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How should DB schemes be allowed for in ERM? (1/2)

- ❖ ERM, as usually exercised, is based on four steps:
 - Firms establish their risk appetite by:
 - Set ranges for risk indicators at board level derive operating limits for different business units and legal entities
 - Scenario or stress-testing calculations
 - Consider stress events to understand moderate risks that generate earnings volatility and severe risks that threaten solvency
 - Monte Carlo evaluations of risk and capital.
 - Tightly regulated firms may perform elaborate risk and capital calculations
 - Risk mitigating steps adopted including both financial and operational/business management

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How should DB schemes be allowed for in ERM? (2/2)

- ❖ Risk appetite should include acknowledgement of pension fund risk.
- ❖ Stress scenarios should include adverse events affecting pensions deficits including the perfect storm scenarios observed in the 2000s of drops in both interest rates and equity values.
- ❖ Pension fund risk should be included in formal capital calculations.
- ❖ Firms with significant pension fund risk should adopt cautious business plans with prudent capital structure (debt/equity ratios).

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Key points

- ❖ Risk pass through from pensions schemes is less than complete
- ❖ But the scale of the risk may still be substantial
- ❖ Hedging it is difficult in part because of the unpredictable nature of the pass-through
- ❖ The fact of risk pass through does not of itself imply that firm value is affected.
- ❖ The “portfolio view” of firms suggests firm value is unaffected by financial risk
- ❖ But evidence suggests external equity is very costly and firms should conserve their ability to engage in profitable investments as they arise
- ❖ So firms should reflect pensions risk in ERM whether or not regulators require it and should adjust their business activities prudently if they judge a DB scheme really is necessary

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Contact

[William Perraudin, Director](#)

Telephone: +44 20 3307 0731 (o) +44 7968 328 459 (m)

Email: william.perraudin@riskcontrollimited.com

Website: www.riskcontrollimited.com

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The Impact of DB Pension Scheme Risk

A Trustee Perspective

Agenda

- Why it matters
- What needs to be considered
- A few case studies

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The Impact of DB Pension Scheme Risk

A Trustee Perspective

Why it matters

- The Pension Regulator
 - Covenant assessment
 - New Funding Code

Trustees should manage funding, covenant and investment risks in a way which takes account of how they interact with each other

Trustees should seek appropriate funding which reflects a reasonable balance between the need to pay promised benefits and minimising any adverse impact on an employer's sustainable growth

Members' interest are best served by having a well funded scheme and a strong sponsor

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The Impact of DB Pension Scheme Risk

A Trustee Perspective

Why it matters

- Rating agencies
 - Credit rating – financial and operational leverage
- Other Regulators – both Financial Services and Utilities
 - Capital requirements
- Equity analysts
 - Equity beta and WACC

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The Impact of DB Pension Scheme Risk

A Trustee Perspective

Case Studies

Insurer

- Policyholders vs members
- Risk based capital regime
 - Future contributions
 - VaR
- Correlations or diversification
 - Market risk
 - Longevity risk

Bank

- Government support
- Lehmans
- Risk based capital regime
 - Future contributions
 - VaR
- Correlations or diversification
 - Credit risk

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The Impact of DB Pension Scheme Risk

A Trustee Perspective

Case Studies

Charity

- Covenant strength
- Impact of recovery contributions
- Reputational risk

Corporate

- Impact on WACC
- Asset backed contributions?
- ESG