Entity-wide Risk Management for Pension Funds

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The paper "Entity-wide Risk Management for Pension Funds", co-authored by Malcolm Kemp and Chinu Patel, was presented at meetings of the Institute and Faculty of Actuaries in Edinburgh and London on 21 February and 28 February 2011. A pre-print version of the paper is available here and slides relating to a model example used in the presentation are available here. Other supporting material and relevant links to the UK Actuarial Profession website are available in the Nematrian Presentation Library.

The paper includes a reference to 'Kemp (2011)', i.e. this page, in two places:

(a) **In a footnote in Section 1.8 in which this page is referred to as a source of material on more mathematical aspects of risk management.**

Please refer to relevant pages on the Nematrian website focusing generically on risk measurement, including Introduction to Risk Measurement.

(b) **In Section 6.6 in which this page is referred to as a source of models that can analyse quantitatively the different interests that different stakeholders might have in a pension fund**

See below for a description of the types of output such a model might produce and see here for more material on the Nematrian website relating to such a model.

Kemp and Patel (2011) express the view in Section 6.7 of their paper that a particularly useful model to focus on in this respect is one that aims to estimate the following:

(1) The spread (versus risk-free) on the beneficiaries' pension benefits implicit in the arrangement, because payment of pension benefits will in general be contingent on the continued health of the pension fund and ultimately therefore on the continued health of the sponsor.

(2) The effective (instantaneous) asset mix underlying the beneficiaries' interest in the fund.

(3) The effective (instantaneous) asset mix underlying the sponsor's interest in the fund.

Their reasons for doing so include:

(a) *It fits naturally with the balance sheet characterisation described in Section 5.8 and the Appendix of their paper;*

(b) *It helps differentiate between sponsors and beneficiaries in cases where their interests diverge, as per Section 3.7 of their paper;*

(c) *These outputs potentially offer insights not directly available from traditional ALM models. For example, they provide a more effective way of analysing sponsor covenant risk from the perspective of beneficiaries/trustees than traditional ALM models;*

(d) *Such a model naturally places 'economic' values on assets and liabilities and thus is immediately consistent with financial economic principles. This type of model behaviour is seen as particularly important for promoting effective ERM by Hatchett et al. (2010); and*

(e) *It hopefully simplifies the interpretation of any assumed equity risk premium (and other similar aggregate economic assumptions). As explained above, traditional ALM models generally include an assumed (positive) equity risk premium. Often their primary purpose is to help quantify the trade-off between more favourable expected outcomes and potentially more unpalatable adverse outcomes. Beneficiaries (and sponsors) should therefore be particularly interested in understanding how much of any apparent risk-adjusted return uplift is purely the result of an assumed equity risk premium and how much derives from other factors. For example, beneficiaries who are rich enough could alter the disposition of the remainder of their assets to neutralise their implicit equity exposure via the pension scheme. The same is true of the sponsor. The effective (instantaneous) asset mixes in (1) and (2) indicate the magnitudes of the adjustments that each would need to make to their other assets (and liabilities) if they wished to hedge their investment exposures in this manner.*