ALM Modeling for Dutch Pension Funds in an Era of Pension Reform

Willem K. Klein Haneveld, Matthijs H. Streutker, and
Maarten H. van der Vlerk

Dept. of Econometrics & OR, University of Groningen, The Netherlands
m.h.streutker@rug.nl

Summary. This paper describes the features of a multistage ALM recourse model in light of the recent pension reform in the Netherlands. The main results are explicit modeling of indexation decisions and modeling of new regulatory rules.

1 Introduction

Pension fund management in the Netherlands is on the move, which sets ALM modeling for pension funds for new challenges. Years of apparent stability abruptly ended with the severe drop of the stock indices at the beginning of the new millennium. This unrest, also fed by the ageing discussion, encouraged a broadly conducted debate on the Dutch pension system. Important outcomes of the debate are trimmed-down pension contracts and the development of new regulatory rules for pension funds. Currently, most pension contracts are based on average earnings instead of final earnings as in the past, and full indexation (correction for inflation) is not granted anymore. The new regulatory rules, which are called the Financieel Toetsingskader (Financial Assessment Framework) and are scheduled to be implemented in January 2007, are based on risk based supervision and show strong affinity with the Solvency [6] and Basel [2] Accords.

An upcoming ALM methodology is multistage stochastic programming. The headway made is described in surveys by Mulvey [9] and Sodhi [11]. In this paper we show how we deal with the recent pension reform in our multistage recourse ALM model.

2 Pension Reform

The pension reform takes place on two fronts. First, in the past ten years the pension contracts have been extremely trimmed-down by (1) the shift from

final to average earnings contracts and (2) absence of complete indexation. Second, new far-reaching regulatory rules for pension funds are bound to be implemented.

2.1 Trimmed-Down Pension Contracts

Almost all pension contracts in the Netherlands are defined benefit contracts, where the benefit payments upon retirement are predetermined, as they are linked to the salary of the participant. Each working year the participant accrues new rights, for which contributions are paid by the participant and his employer. In the past in the majority of the contracts the benefit payments were based on the final salary before retirement. Such final earnings (FE) schemes lead to a pension that is 70% of the final salary. If this 70% goal is to be reached in 40 years, then the so-called accrual rate is $\frac{70\%}{40} = 1.75\%$. In the past years the pension schemes changed to the more sparing average earnings (AE) schemes. In these schemes the benefit payments are based on the average salary instead of final salary. In Table 1 the percentage of active participants per scheme are given for the last 5 years. In 2001 the majority of the contracts were FE contracts. However, in only 5 years time this completely shifted to AE schems.

Table 1. Percentage of active participants in the Netherlands with a final earnings (FE) and an average earnings (AE) scheme. Source: DNB [3]

Year	FE	AE
2001	56.1	32.2
2002	54.3	31.6
2003	49.3	35.4
2004	12.0	72.6
2005	10.6	74.3

Another important development is that the common practice of granting full indexation stopped. The nominal rights as accrued are guaranteed, but the correction of the benefit rights for inflation is conditional. The indexation of ABP[1], which is one of the largest pension funds in the Netherlands, for the past two years did not equal the wage inflation. It was 79% (2004) and 45% (2005) of the wage inflation. As there is in general a long period between accrual and consumption of rights, the indexation of rights is essential for a good pension, especially in an AE scheme as pointed out by Van Ewisk [5].

To underline the effects of these two developments, we illustrate the typical build-up of pension rights in a FE and a (fully-indexed) AE scheme in Fig. 1. The parameters are a starting salary of 10,000 Euro, every 5 years a 10% salary jump due to career improvements, 2.4% wage inflation each year, and an accrual rate of 1.75%. The FE scheme results in the 70% of final salary. The