Stochastic valuation of sponsor support

Experience in the Netherlands

EIOPA, sponsor support event
Frankfurt, October 17th 2013
Niels Kortleve

PGGM

Agenda

- Issues with Holistic Balance Sheet (HBS)

- Dutch calibration HBS in QIS
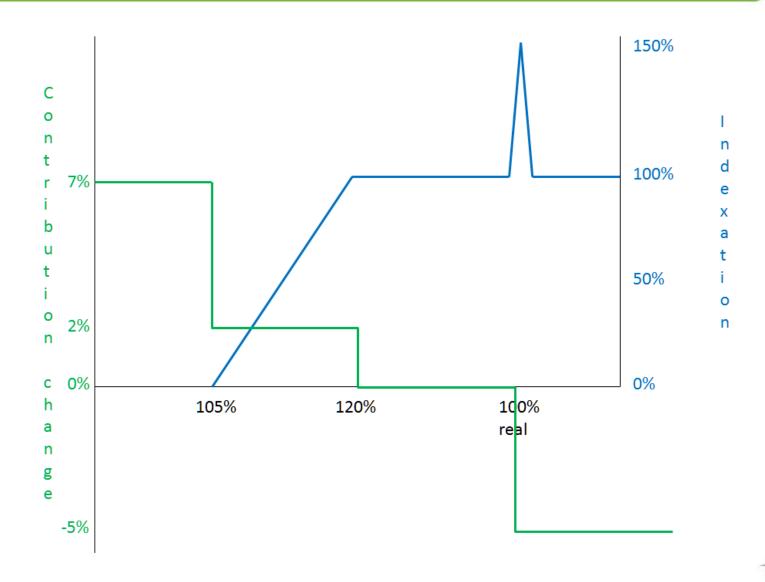
- Valuation of sponsor support

1. Can HBS be calibrated reliably?
   - Final EIOPA report: "rough estimates surrounded by a lot of uncertainty"
   - Also in the Netherlands many differences in assumptions and methodologies between QIS participants
   - Many technical issues (like incomplete markets*)
2. Can HBS be used as supervisory framework?
   - No proposal of prudential framework yet
   - Funding ratio "always" 100% (due to inclusion of mechanisms)
   - If SCR > 0, no recourse to extra funding (mechanisms included)
   - Dynamic inconsistency if steering rules depend on HBS
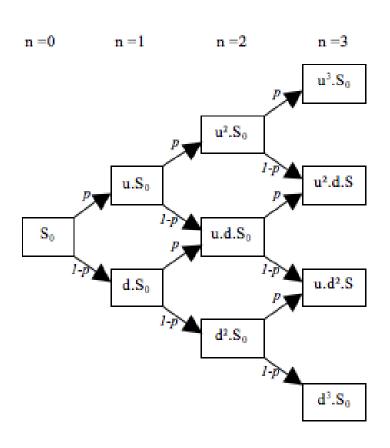3. Should supervision be harmonised?
   - Political issue

* E. Fransen, N. Kortleve, H. Schumacher, H. Staring and J.W. Wijckmans (2013), 'The holistic balance sheet as a building block in pension fund supervision', Netspar Design Paper 18, April 2013

D. Broeders, N. Kortleve, A. Pelsser and J.W. Wijckmans (2012), 'The design of European supervision of pension funds', Netspar Design Paper 6, February 2012

PGGM

Pension policy Dutch pension funds non-linear

$$p = \frac{e^{rt/n} - d}{u - d}$$

$$u = e^{\sigma \sqrt{t/n}}$$

$$d = e^{-\sigma \sqrt{t/n}}$$

HBS calibration in the Netherlands (1)

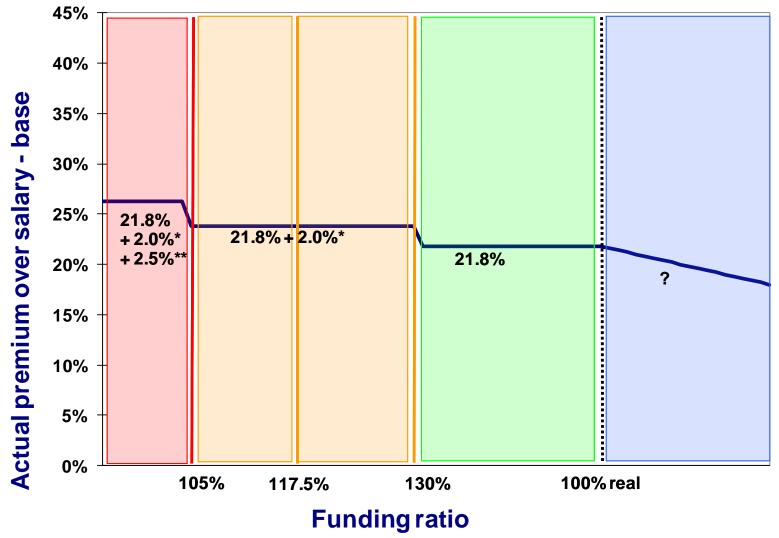Major similarities in QIS in the Netherlands
- Most IORPs used stochastic valuation based on risk neutral method
- QIS prescribes closed end fund, most IORPs used open fund and subtracted new accrual

Major differences in QIS in the Netherlands
- How to cope with inconsistency between applying UFR and market consistent valuation
  - Calibrate valuation model to term structure with or without UFR
- Projection period equal to duration liabilities up to 80 years
  - Higher projection period → higher conditional assets and liabilities → higher Loss Absorbing Capacity → lower net SCR
- Completeness of pension deal
  - Including benefit cuts reduced value sponsor support

PGGM

Valuation of sponsor support – contribution policy (example Dutch sector pension fund)
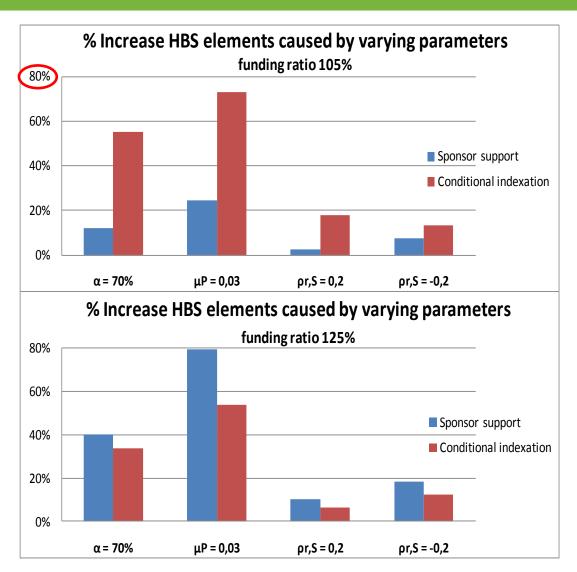
Valuation of sponsor support for sector pension fund

Assumptions used in QIS

- Contribution policy (see previous sheet)
  - Little room for discretionary steering in pension deal in Dutch supervisory framework
- Default probability not included
  - Limited number defaults of individual employers
  - Default risk spread over 20.000-30.000 employers
  - No CDS data available

PGGM

Sensitivity 1: big impact of different parameters

% Increase HBS elements caused by varying parameters

funding ratio 105%

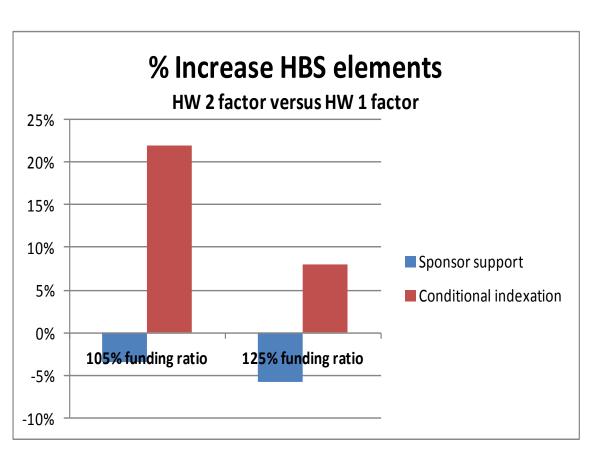**% Increase HBS elements caused by varying parameters**

funding ratio 125%

α = first mean reversion parameter Hull White (α = 0.5 in base case)

μP = mean price inflation (μP = 0.02 in base case)

ρr,S = correlation interest and equity (ρr,S = 0 in base case)

E. Fransen, N. Kortleve, H. Schumacher, H. Staring and J.W. Wijckmans (2013), 'The holistic balance sheet as a building block in pension fund supervision', Netspar Design Paper 18, April 2013

PGGM

% Increase HBS elements

HW 2 factor versus HW 1 factor

- Sponsor support
- Conditional indexation

105% funding ratio   125% funding ratio

Change in HBS due to using 2 Factor Hull White model instead of 1 factor HW model

Conclusions

Doubts about HBS as supervisory framework

- HBS very complex
- Many issues in HBS valuation (esp. in case of stochastic valuation)
- HBS (very) sensitive for assumptions

Valuation of sponsor

- Stochastic valuation preferred by EIOPA: requires many assumptions (high sensitivity)
  - Ideally: default probabilities correlated with scenarios
- Simplifications in discussion paper imply only sponsor support in case of underfunding
  - In NL also sponsor support in case of future underfunding PLUS increases in contribution according to policy

PGGM