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DC: Profiting responsibly of abandoning guarantees

Risk-bearing investments in the pay out phase: method and consequences

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Context

- Defined contribution is growing
  - Results in less risk for employers
- Interest rates are historically low, resulting in low annuity
- Legislation changes
  - E.g Germany, the Netherlands

Who is presenting?

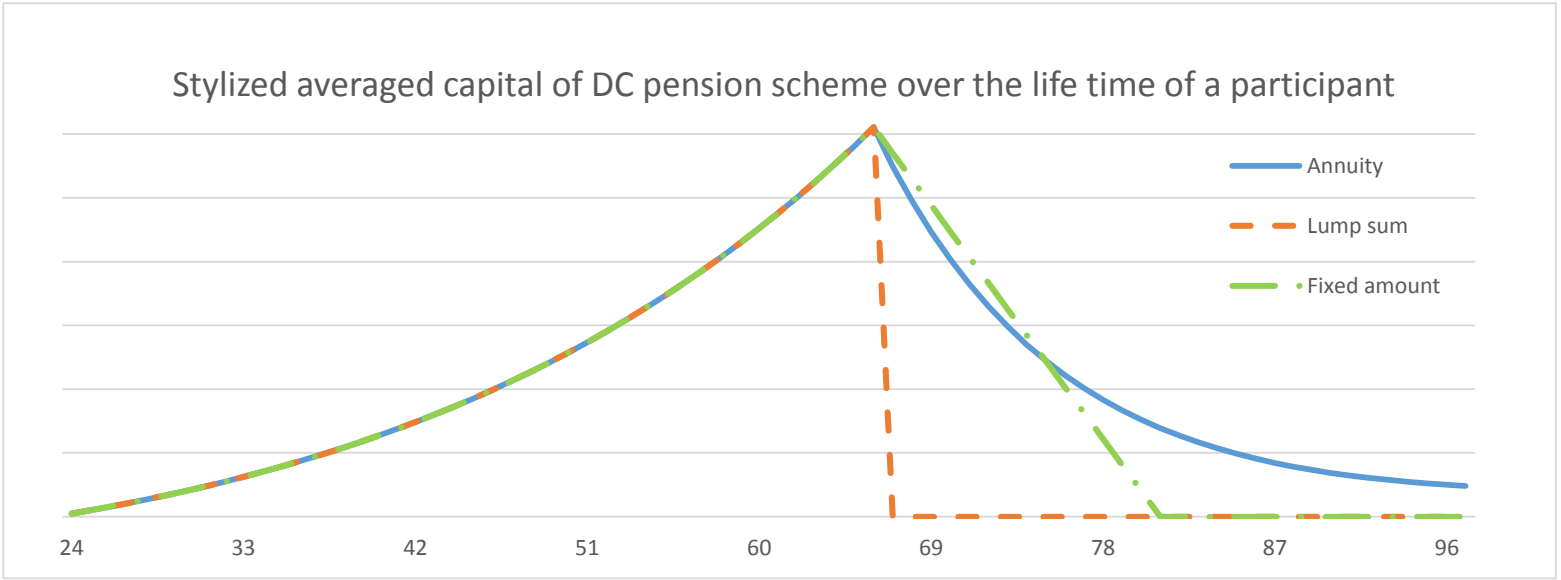
- **Ruud Smits**
- Former IT consultant, trustee and chair of investment committees at several pension funds
- Financial analyst with background in electronics, business administration, actuary and investment management

- Multinational insurer with 29000 employees
- Asset manager with 317 billion euro AuM
- Research institute on financial and insurance subject

Agenda

1. Phases of a DC scheme
2. Traditional uses of accumulated capital
3. The alternative use of capital
4. Consequences for benefits
5. Summary

Overview of DC capital



Accumulation phase

Decumulation (pay out) phase

Source: Aegon

The decumulation phase

From capital to pension benefit

Simplest

Pay out a lump sum (Take a world trip, but what then…?)

Little bit more prudent

Pay out a fixed amount every month (But what if capital runs out?)

More prudent

Buy a fixed-term annuity (But what if you live longer…?)

Most prudent

Buy a life-long annuity (But what if interest rates are very low …?)

Improving the risk – return ratio (I)

Investing throughout the decumulation phase

Retirement age

Capital (0)
Annuity (0)
Pension (0) = Capital (0) / Annuity (0)
Invest(0) = Capital (0) – Cost of Pension (0)

Retirement age + 1

Capital (1) = Invest(0) + Return (0) + Survivor bonus (0)
Annuity (1)
Pension (1) = Capital (1) / Annuity (1)
Invest(1) = Capital (1) – Cost of Pension (1)

Retirement age +2

….
….

Improving the risk – return ratio (II)

Origin of the survivors bonus

- If capital does not go to depending survivors:
- Compare to a (reverse) life insurance
  - The collective or insurer receives the remaining capital at the end-of-live of a participant
  - Participant receives a compensation in the form of a survivors bonus
- Alternatively this can be seen as a distribution of the capital of participants that have deceased that year
- $Suvivors\ bonus = (Capital\ - cost\ of\ pension) * \frac{q_x}{1-q_x}$
- Gets more significant at higher ages / expected mortality

Improving the risk – return ratio (III)

Investing throughout the decumulation phase

Retirement age

Capital (0)
Annuity (0)
Pension (0) = Capital (0) / Annuity (0)
Invest(0) = Capital (0) – Cost of Pension (0)

Retirement age + 1

Capital (1) = Invest(0) + Return (0) + Survivor bonus (0)
Annuity (1)
Pension (1) = Capital (1) / Annuity (1)
Invest(1) = Capital (1) – Cost of Pension (1)

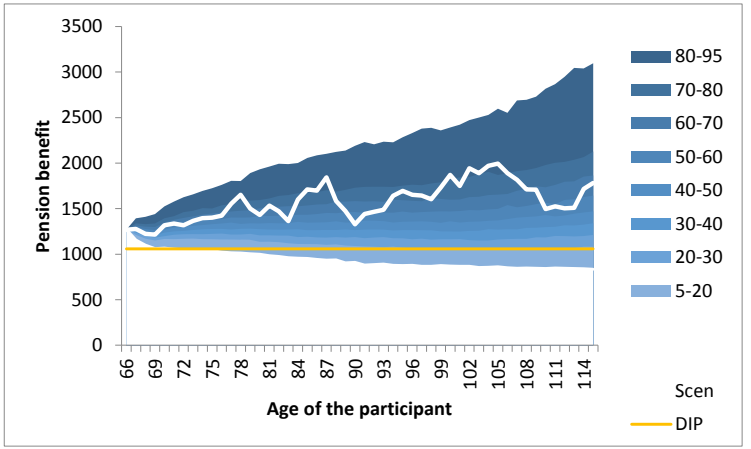
Retirement age +2

….
….

Improving the risk – return ratio (IV)

Consequences for pension level

- Risk premium of 4% on equity with 50% equity
- Difference between 1% or 3% interest on annuity = 17% more pension
- Locking in current low interest rate
- But do you have the stomach for a volatile pension income?



Source: Aegon

Improving the risk – return ratio (V)

Responsible risk?

Next steps / Future work

- Determine optimal asset mix in pay out phase (glide path?)
- Determine whether glide path in accumulation phase needs adaptation

Summary

- So it is possible to abandon guarantees and still make sure that benefits are paid until the participant deceases
  - Remaining capital needs to go to a collective or an insurer at the time the participant deceases
  - When taking investment risk, benefits will be paid till death, but the level fluctuates
  - The starting and expected subsequent benefits are higher than the corresponding life long annuityannuity
  - Risk aversion should be taken into consideration when determining the asset mix and which portion of the pension could bear the risk

Thank you very much for your attention!

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Appendix
Relevant literature (I)

- Bakels, S., Bosboom, B.-J., Dietvorst, G.J.B., Joseph, A., Kamminga, K., Meniar, M., Nijman, T.E. Steenkamp, T., en Werker, B.J.M., (2014) "Een toekomstperspectief voor premieovereenkomsten" NETSPAR occasional papers. http://arno.uvt.nl/show.cgi?fid=133889 (Dutch)
- Blanchett, D.M. (2015). "Revisiting the Optimal Distribution Glide Path." *Journal of Financial Planning* 28 (2): 52–61. https://www.onefpa.org/journal/Pages/FEB15-Revisiting-the-Optimal-Distribution-Glide-Path.aspx
- DNB 2016-1, "STB 2016 248 – Wet verbeterde premieregeling", http://www.toezicht.dnb.nl/5/8/1/50-235724.jsp (Dutch)

Appendix
Relevant literature (II)

- DNB 2016-2, “Het toepassen van een periodieke vaste daling bij een variabele pensioenuitkering”, http://www.toezicht.dnb.nl/2/50-235784.jsp (Dutch)
- DNB 2016-3, “Vaste daling bij toepassen van een lifecycle in de uitkeringsfase”, http://www.toezicht.dnb.nl/3/50-235806.jsp (Dutch)
- DNB 2017-1, “Rendementen tijdelijke regeling informatieverstrekking variabel pensioen”, http://www.toezicht.dnb.nl/2/50-235752.jsp (Dutch)
- DNB 2017-2 “Wet verbeterde premieregeling”, http://www.toezicht.dnb.nl/2/50-235754.jsp (Dutch)

Appendix
Relevant literature (III)

- Pfau, W.D., and Kitces, M.E. (2013) “Reducing Retirement Risk with a Rising Equity Glidepath” https://papers.ssrn.com/sol3/papers.cfm?abstract_id=2324930
- Schaus, S.L. (2010) “Designing successful target-date strategies for defined contribution plans” John Wiley and sons Inc. ISBN 978-0-470-59631-9 http://onlinelibrary.wiley.com/doi/10.1002/9781119200017.ch3/summary
- Surz, R (2012) “The three stages of individual investing are like a journey into space”, http://www.targetdatesolutions.com/articles/3_Stages_Individual_Investing_Surz_20120914.pdf