Centraal Planbureau

CPB Netherlands bureau for economic policy analysis

Value-based generational accounting and the current pension reform in the Netherlands

Guest lecture

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March 7th, 2012

Contents

1. Request from Ministry of Social Affairs and Employment
2. Value-based generational accounting
3. Examples

Request from
Ministry of Social Affairs and Employment

Policy relevance

- Request from Ministry of Social Affairs and Employment:

  "What are the consequences for generations with regards to the distribution of benefits, burdens and risks?"

<u>Political relevance:</u>

- Retired participants concerned about more frequent pension cuts in new pension contracts.
- Young participants concerned that they are disadvantaged because of higher discount rate

<u>Legal relevance</u>

- Transferring existing entitlements from old to new contract possible only if no specific groups or generations within collective disproportionally disadvantaged

Value-based generational accounting

Value-based generational accounting

- Effects of policy change for generations are analysed on the basis of ALM analysis. We compare:

  - Future cashflows under continuation of current pension contract
  - Future cashflows under in new pension contract

- Evaluation of cashflows can be done in many ways:
  - Look at avarege benefit for each generation (ignores risk!)
  - Look at probablity distribution for each generation (how to compare?)
  - Utility-based ALM (which utility function to use???)
  - Value-based ALM

Value-based generational accounting

- Our research approach: value-based generational accounting

Redistribution between generations in market value

- Does the value of the future cashflows of a specific generation increase or decrease?

- Market valuation based on principe of replication: the market value of a future cashflow equals the price of a replicating portfoliostrategy with the exact same cashfllow.

- Market value partially based upon market prices (if possible), but also partially based on assumptions

Value-based generational accounting

- Market valuation: trade-off between risk and return is evaluated on the basis of the prices in financial markets
- Zero-sum game
- Not possible to “hide” current deficits being shifted onto future generations.

Value-based generational accounting

- Literature

- Bovenberg, A.L., Th. Nijman en B. Werker (2012), Nieuw toezicht op hervormde pensioenen, *Economisch Statistische Berichten* 96, pp 4-8.
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- Ponds, E. H.M., Pension funds and value-based generational accounting, *Journal of Pension Economics and Finance*, 2003, nr 2, pp. 295-325.
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2. Examples

Assumptions

- Assumptions:
  - Career average pension scheme
  - Fixed accrual rate
  - Fixed contribution rate
  - Benefit level conditional on returns on investments
  - Financial gains and losses are levied upon participants during a 10 year smoothing period
  - Discount rate is fixed and equal to expected portfolio return minus expected (wage)-inflation

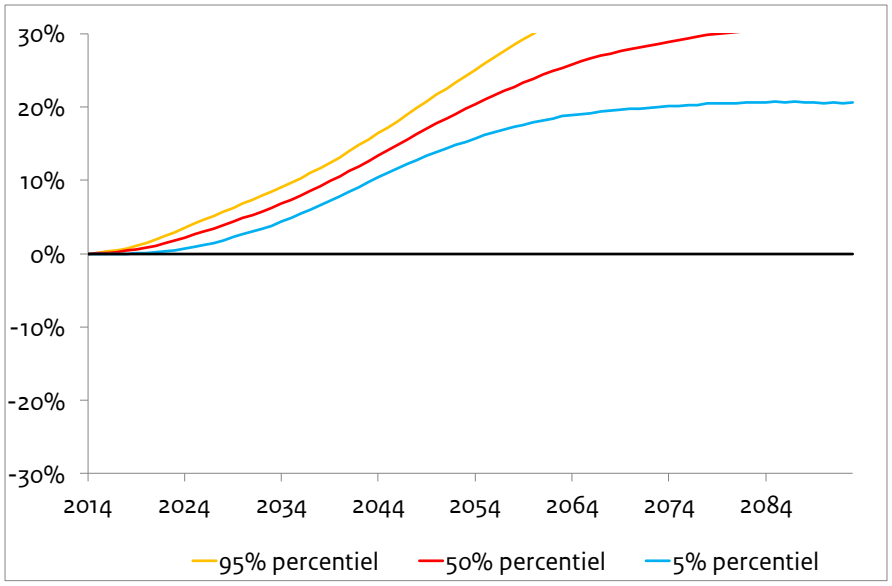
Six policy changes

1. Lower discount rate (1 %point lower)
2. Higher discount rate (1 %point higher)
3. Buffer-creation in good economic times
4. Increased length of smoothing period (10 years -> 15 years)
5. Increased risk taking in portfolio and higher discount rate
6. Increased risk taking in portfolio and unchanged discount rate

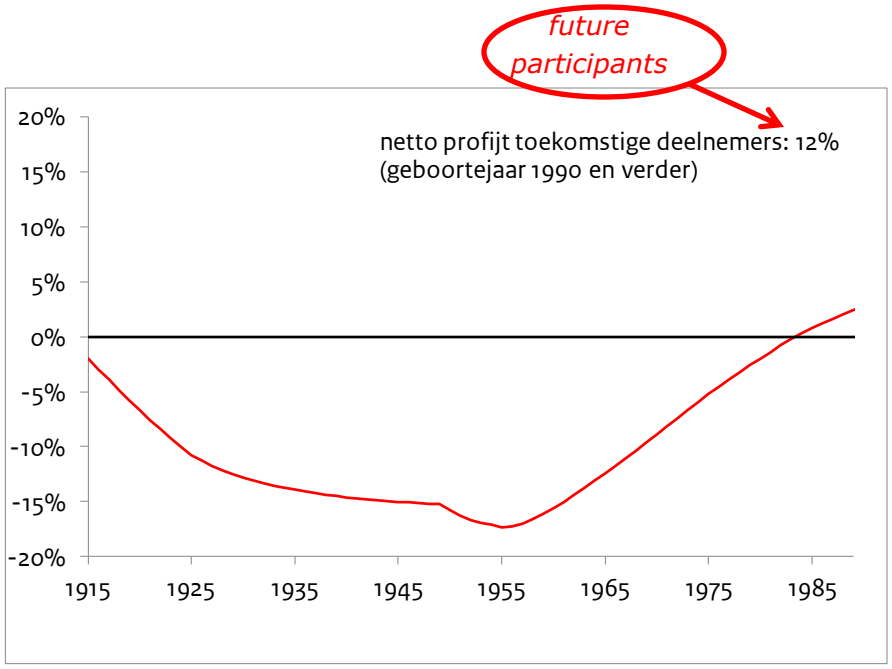
Lower discount rate (1 %point lower)

Lower discount rate (1 %point lower)

Pension fund assets, % change



Redistribution in market value, for each birth-year.



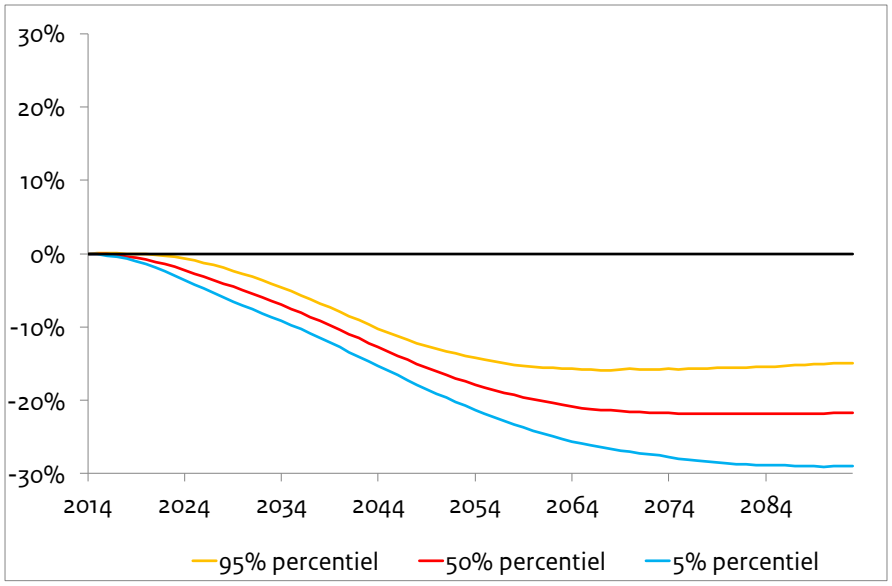
Lower discount rate (1 %point lower)

- Effects for generations:
  - Results in immediate decrease of funding ratio by approximately 15 %points.
  - Not attractive for older generations: an immediate increase in their perspectives: pensions cannot be indexed to prices or wages because funding position worsens
  - Attractive for young and future generations: increase in pension fund assets in the long run

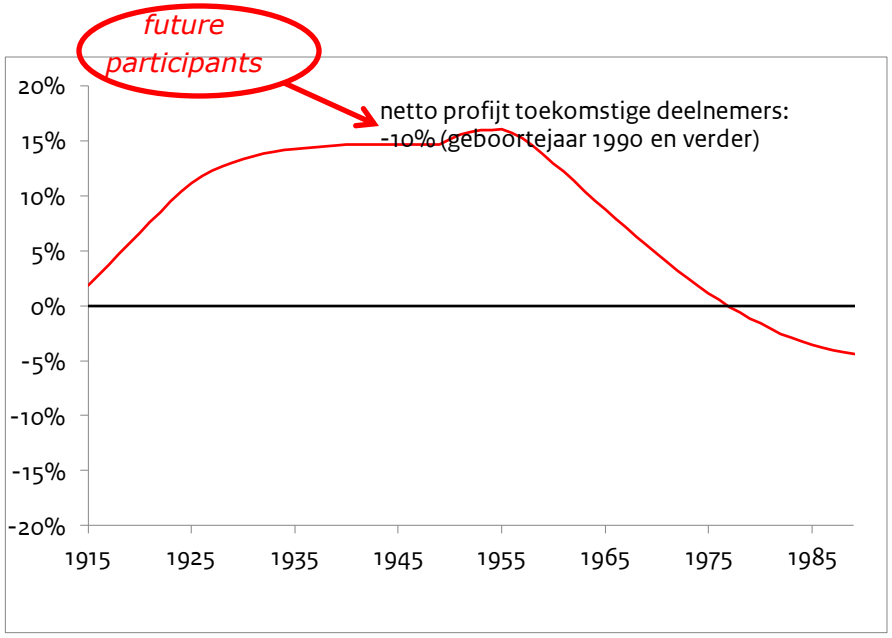
Higer discount rate (1 %point higher)

Higher discount rate (1 %point higher)

Pension fund assets, % change



Redistribution in market value, for each birth-year.



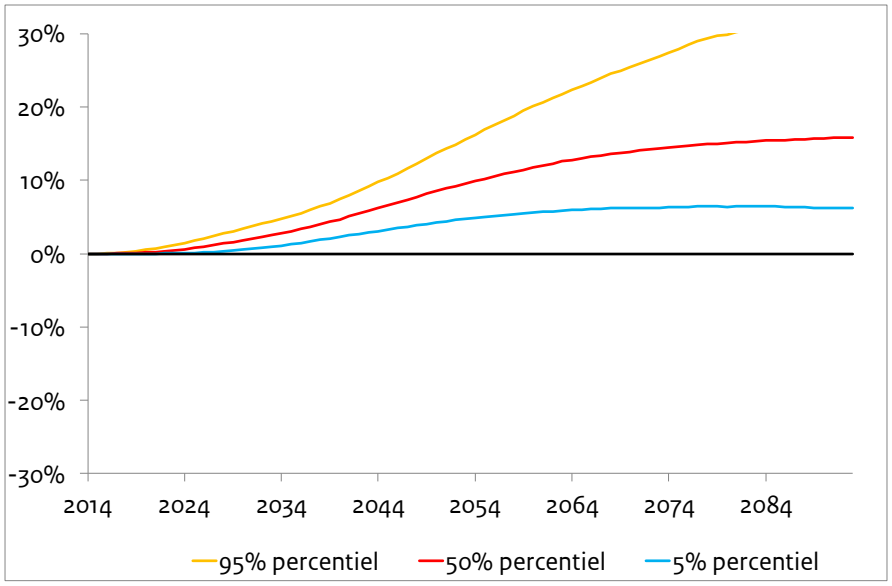
Higher discount rate (1 %point higher)

- Effects for generations:
  - Results in immediate increase of funding ratio by approximately 15 %points.
  - Attractive for older generations: an immediate worsening in their perspectives: pensions can be indexed to prices or wages because funding position improves.
  - Not attractive for young and future generations: reduction in pension fund assets in the long run

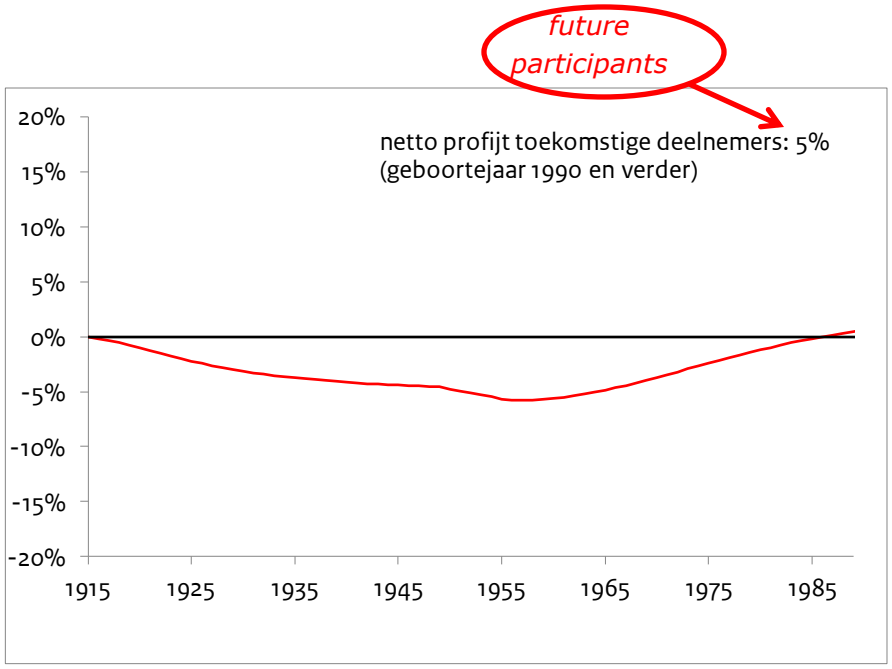
Buffer-creation in good economic times

Buffer-creation in good economic times

Pension fund assets, % change



Redistribution in market value, for each birth-year.



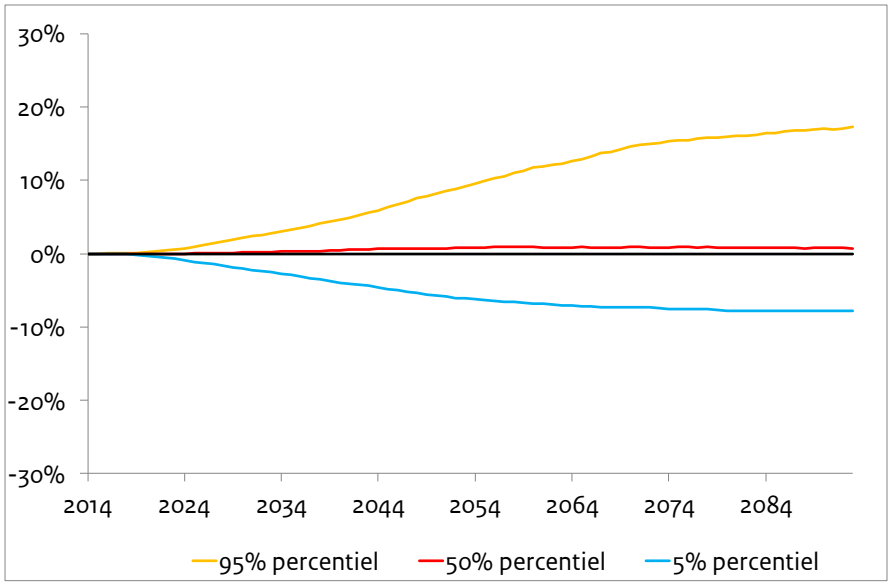
Buffer-creation in good economic times

- Effects for generations
  - Buffer has not been created yet in the initial situation
  - Financial gains are not immediately distributed, but are instead used to accumulate a financial buffer
  - Older generations lose: they mainly contribute to the creation of the buffer, but do not benefit from it very much
  - Young and future generations gain: increase in pension fund assets in the long run.

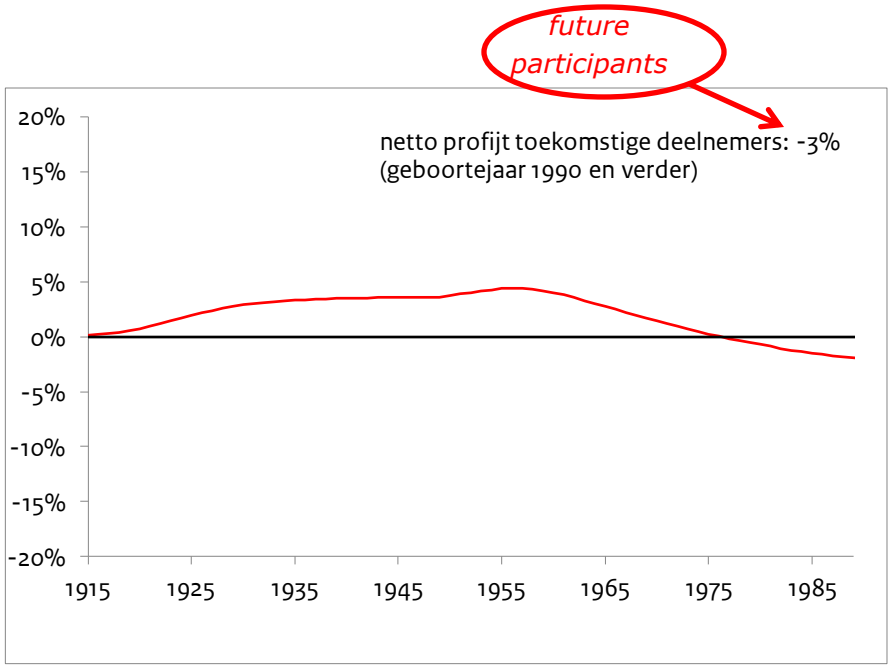
Increased length of smoothing period

Increased length of smoothing period

Pension fund assets, % change



Redistribution in market value, for each birth-year.



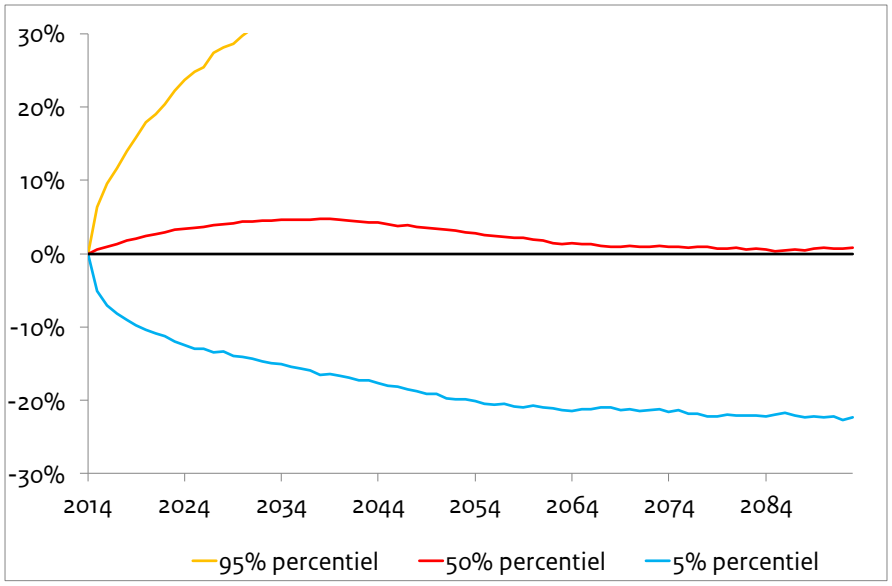
Increased length of smoothing period

- Effects for generations:
  - Increase in smoothing period implies that more risk is being shfted towards the young and future generations.
  - Young and future generations are not rewarded for this additional risk.
  - Median of future pension fund assets is unchanged
  - Young and future generations lose in market value; additional risk is shifted to the future but not additional return.
  - Older generations gain in market value: their pensions become less risky (more risk is shifted into the future) while their expected pension payments remains unchanged

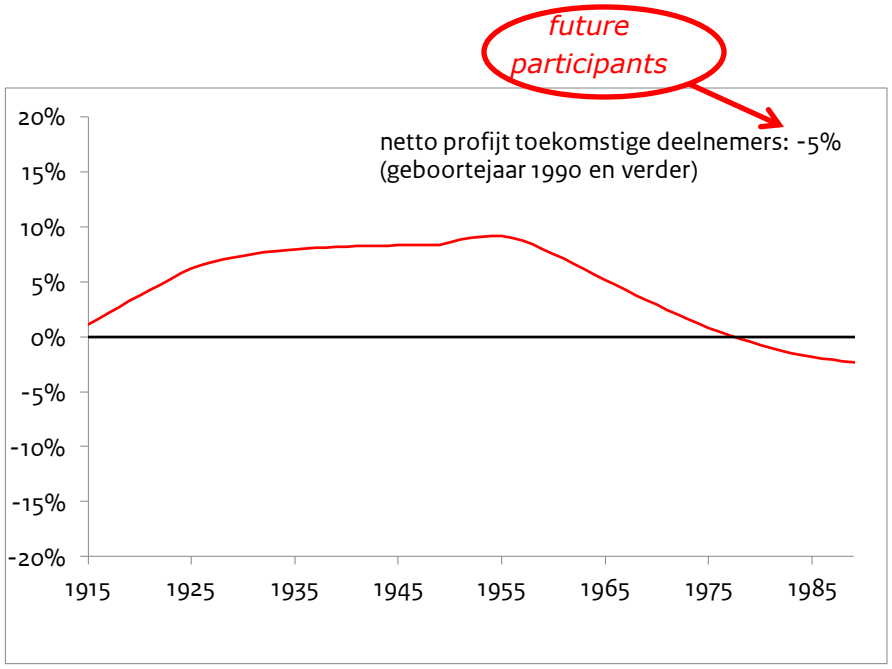
Increased risk taking in portfolio and higher discount rate

Increased risk taking and higher discount rate

Pension fund assets, % change



Redistribution in market value, for each birth-year.



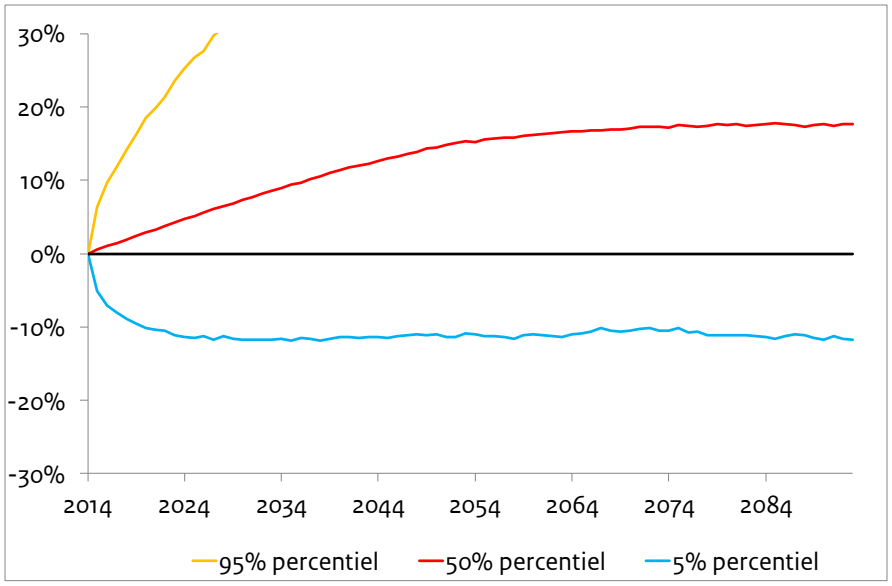
Increased risk taking and higher discount rate

- Effects on generations:
  - This is an example of what happens in a system where the discount rate equals expected portfolio return; an increase in risk taking results in a higher discount rate.
  - In this situation, the funding position of the fund immediately improves, resulting in higher benefits for the generations that are currently retired
  - The median of pension fund assets is roughly unchanged: this implies that more risk is shifted onto young and future generations, but these generations are not rewarded for this additional risk.
  - Young and future generations lose in terms of market value

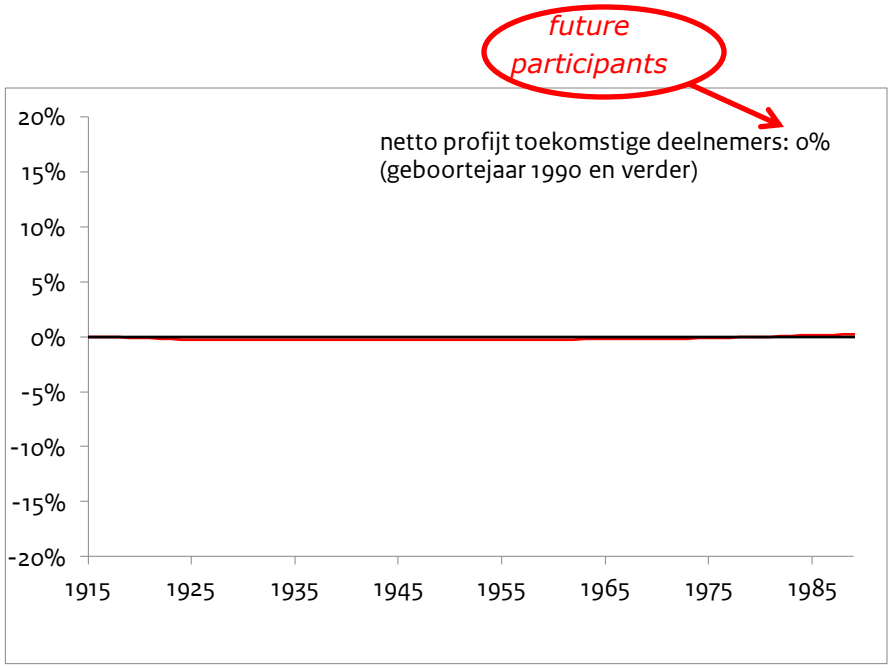
Increased risk taking in portfolio and unchanged discount rate

Increased risk taking and unchanged discount rate

Ontw. fondsvermogen, proc. verandering



Redistribution in market value, for each birth-year.



Increased risk taking and unchanged discount rate

- Effects for generations
  - In this situation more risk but also more return is shifted onto future generations
  - If the smoothing mechanism of the pension contract is symmetric, it holds (this can be proved analytically) that each generation gets a fair (according to market value) reward for the addtional risk
  - There is no redistribution in market value between generations
  - The conclusion is that a higher expected return on the investment portfolio does NOT justify a higher discount rate. In fact: a change in the asset allocation of the pension fund has no impact at all on the market value of pension entitlements.

Conclusion

- Research analysis still in process...

- The most important conclusion at this point is that a higher expected return on the investment portfolio does NOT justify a higher discount rate.
- In fact: a change in the asset allocation of the pension fund has no impact at all on the market value of pension entitlements (if the adjustment mechanism of the pension contract is symmetric)