Can Risk be Shared Across Investor Cohorts? Evidence from a Popular Savings Product

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Inter-generational risk sharing

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  - \$1 invested in 1949 for 20 years = \$10.8.
  - \$1 invested in 1901 for 20 years = \$1.2.

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  - Resources are inefficiently allocated.
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- Long-lived intermediaries can help facilitate risk sharing.

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- Ex-ante welfare improving.
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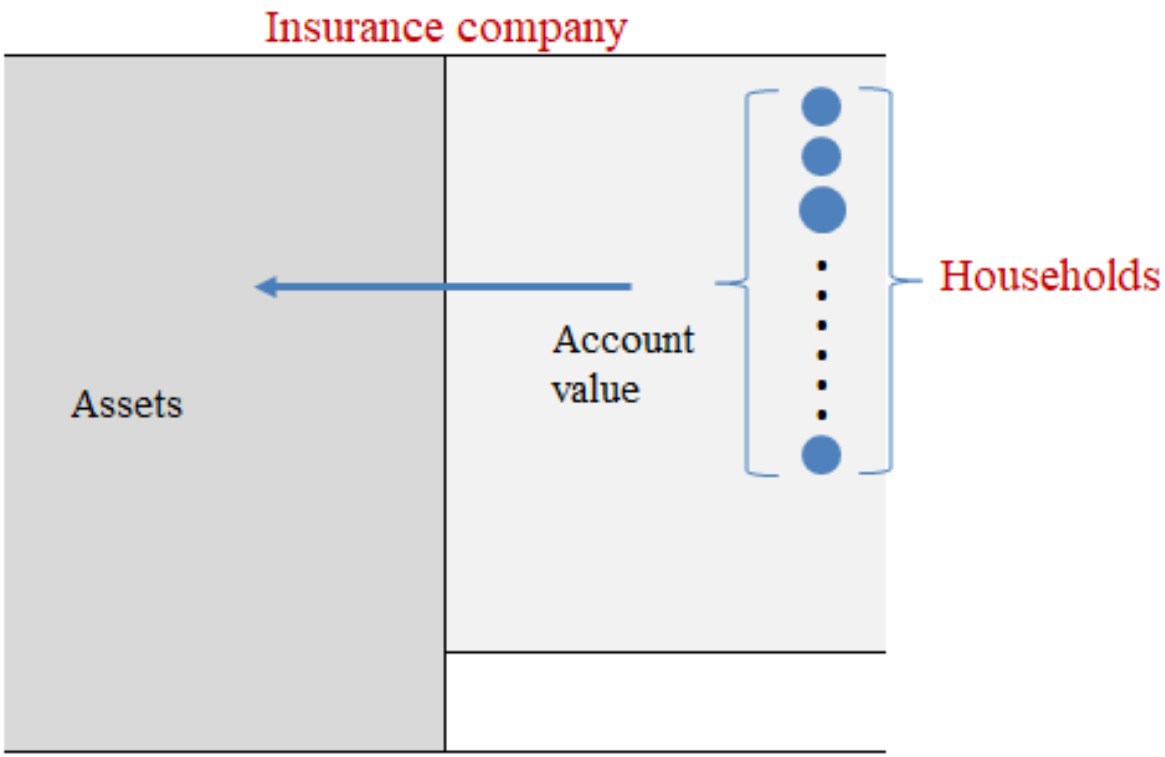
  - Riskier asset allocation (Gollier (2008)).
- Key ingredient for inter-generational risk sharing:
  - Commitment: all generations contribute to a collective defined contribution pension system (first best).
  - Unravels if contributions are liquid and savings market is competitive.

Main contribution

- The paper quantifies the inter-generational risk transfer in France using a popular savings contract and shows that it is economically large.
  - Transfers across cohorts = €17 billion or 0.8% of GDP.
  - Despite savings market competition.
- Shows that investor flows are inelastic and attribute it to lack of sophistication of investors.

Euro-denominated life insurance contracts



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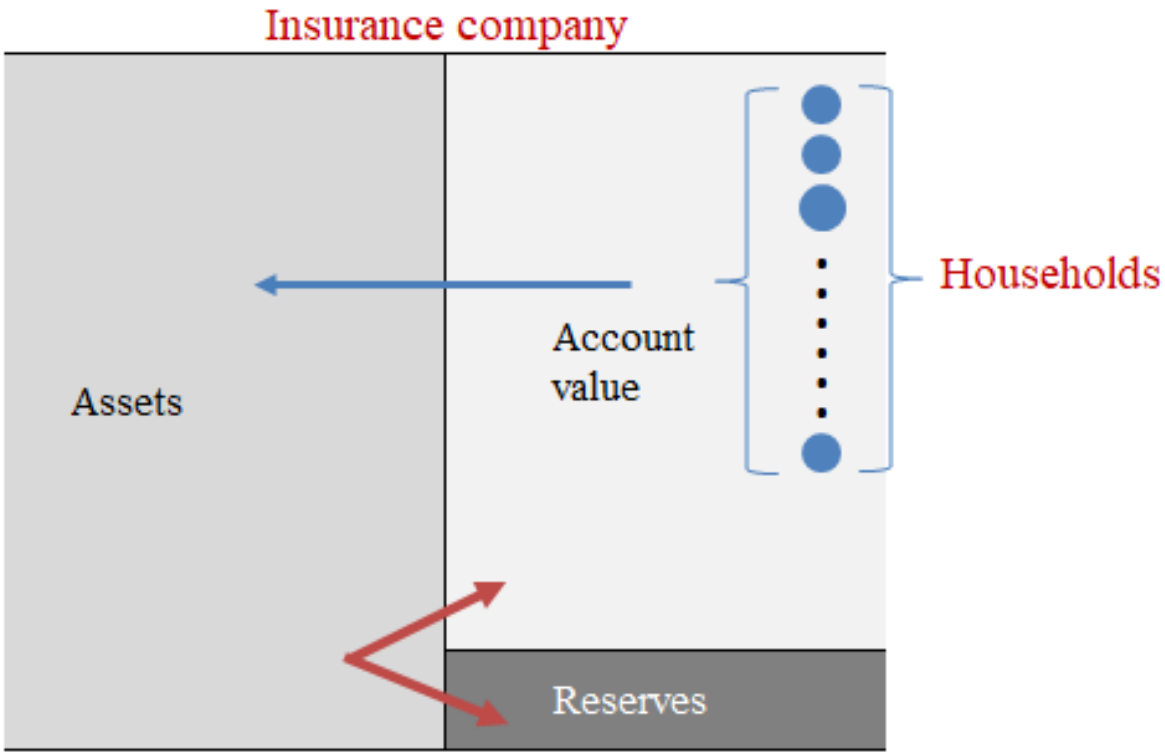

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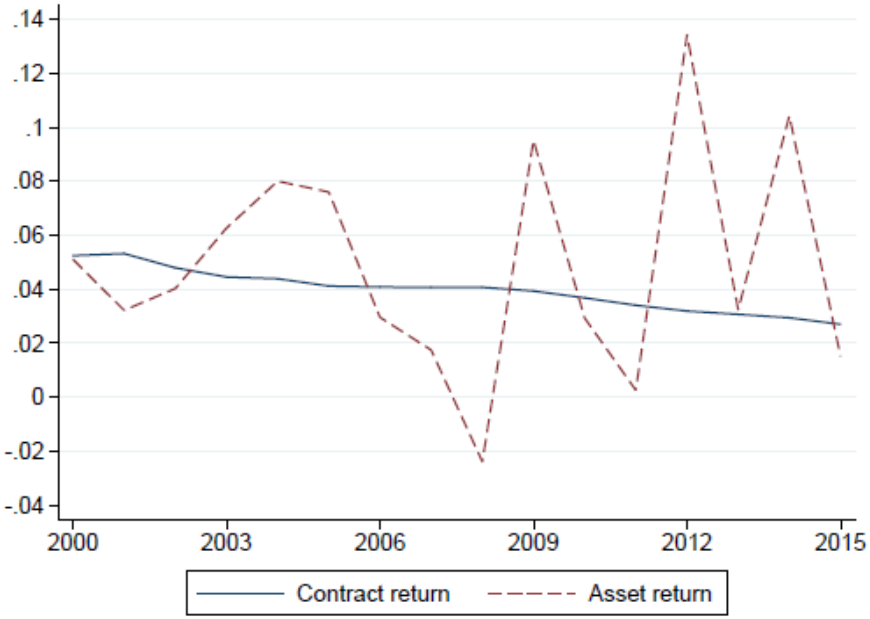

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- Fluctuations in asset returns are entirely absorbed by fund reserves.
- Reserves belong to current and future investors.

To what extent life insurers manage reserves?

- "Insurers must distribute 85% of **asset income** to investors"...but can "choose how much is credited immediately,..., and how much credited to or debited from reserves."
  - Asset income includes coupons, dividends, and realized changes.

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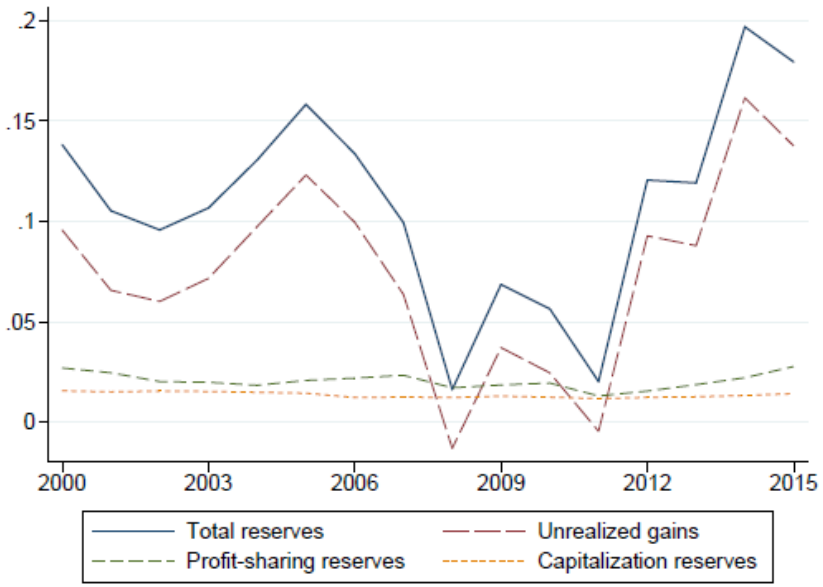
- "**Unrealized changes** are not booked as fund income." They are booked as **reserves**.
- Why is that so?
  - $>$80% of the assets are bonds.
  - Unrealized changes (are just MTM changes) do not matter economically if investors hold to maturity and there is no default.
    - Primarily sovereigns and investment grade bonds.
    - Average holding period in the data is high = 12 years (liabilities).
    - Duration(Liabilities - Assets) = 4.8 years (EIOPA).

To what extent life insurers manage reserves?

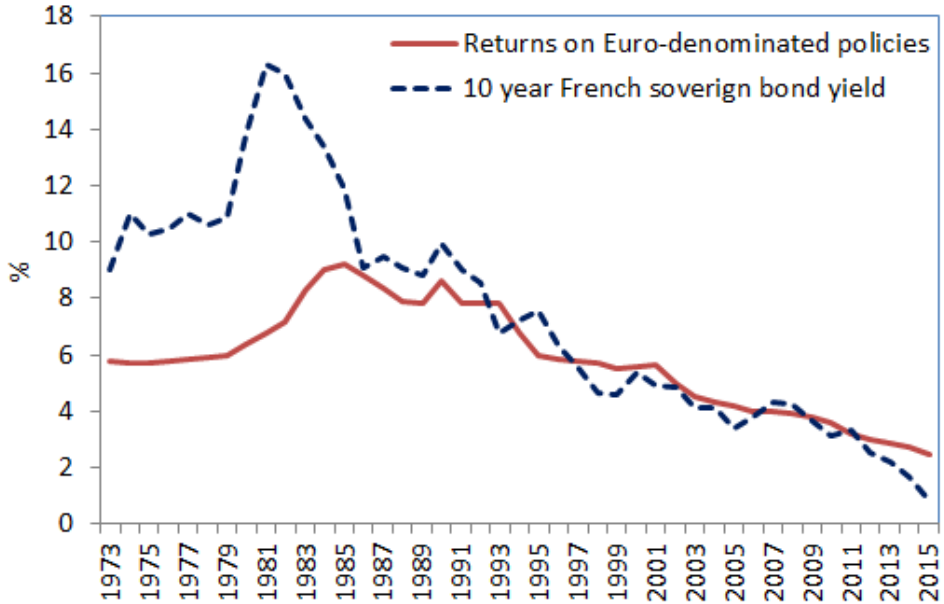
- Reserve composition:
  - 2/3 are unrealized gains and losses.
  - 1/3 are asset income and realized changes.



- Bulk of variation in reserves are due to unrealized changes.
- But **the part insurers actually manage** is how much to contribute to the profit-sharing and capitalization reserves.

To what extent life insurers manage reserves?

- Do insurers offer the historical yields of the bonds purchased years ago?



Sources: Federation française des societes d'assurance and Datastream.

- **Historical perspective:** contract returns are close to (and track) current long-term bond yields.
- Quantifying transfers with total reserves may overstate findings.

Reasons for risk sharing

Two key empirical features of the Euro contracts and the French savings market:

- **Fact 1:** contract returns do not depend on current asset returns. In some specifications, the relationship is actually negative.
- **Fact 2:** investor flows are not sensitive to the level of reserves and this is attributed to lack of sophistication.

Both facts suggest investors **do not behave opportunistically**, sustaining inter-generational risk sharing.

Reasons for risk sharing: another perspective

Fact 1: contract returns do not depend on current asset returns.
(in some specifications, the relationship is actually negative.)

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  - Fall in rates $\rightarrow$ asset returns increased and contract returns decreased.
  - Further substantiates how accounting framework works.

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Question: Fact 1 has implications for the build up of reserves. To what extent is asset yield kept aside for future generations?

Reasons for risk sharing: another perspective

Fact 2: investor flows are not sensitive to the level of reserves and this is attributed to lack of sophistication.

- Are investors really sticky: positive relationship but insignificant (on average) and significant for large investors.
  - Flows respond to large shocks in reserves?
  - Flows have a large low frequency component?

Reasons for risk sharing: another perspective

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  - Flows respond to large shocks in reserves?
  - Flows have a large low frequency component?
- Investors are sticky because:
  - They get most of the asset yield if they hold to maturity.
    - *Question*: How do flows respond to changes in profit sharing reserves?
  - Interest rates are low and outside good pays lower yields.
    - *Question*: How does the flow-reserve relation look like prior to 2009?
  - Taxes are very high in the initial years and there is entry fee!
    - *Question*: Implies barriers to entry which suggests that the market is not as competitive (Allen and Gale economy).

Broader questions

- If risk sharing is so high, why do insurers invest so much in safe and liquid assets and not in riskier assets?
- Long term savings are highly illiquid due to tax incentives in DC plans. Why does the French tax system allow liquidity only after 8 years?
- Would inter-generational risk sharing unravel when interest rates eventually start to rise?

Quantifying inter-cohort transfers

Ideal data:

- Actual transfer C_{it} and counter-factual transfer $\tilde{C}_{it}$ in the absence of reserve management $\forall i$.
- Full investment history: entry and exit (t_1, t_2)
- Inflows and outflows.
- Total inter-cohort transfer: $ICT = \frac{1}{2} \sum_i |\sum_{t_1}^{t_2} (C_{it} - \tilde{C}_{it})|$.

Quantifying inter-cohort transfers

Observe:

- Changes in **reserves** at the insurer level: proxies $(C_{it} - \tilde{C}_{it})$.
  - Explanations: (1) reserves belong to all policyholders, (2) time variation in returns across products are similar, (3) insurer does not behave strategically.
  - Construct: hypothetical transfer matrix for all potential investment histories.
- But do not observe flows or investment histories at the cohort level.
  - How to aggregate the hypothetical transfer matrix?
  - Assumptions and impact on ICT unclear.
  - Example:
    - Construct average holding period from aggregate flows.
    - Assume: outflows are uniformly distributed across cohorts.
    - But, this biases holding period downwards and overestimates ICT.

Final comments

- Very important and interesting research topic.
- Extremely relevant and has big policy implications.
- Main suggestions
  - Take the accounting framework more seriously in order to quantify total transfers across time.
  - Important implications due to taxes and low interest rates.