The Supply Side of Retirement Savings Markets

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1Based on joint work with Motohiro Yogo (Princeton and NBER).
The Menu of Retirement Savings Products

- **Traditional view:** Retirement savings products are determined by consumer demand (e.g., life-cycle theory).
- The absence of certain insurance markets explained by demand-side frictions (adverse selection or moral hazard).

- **Alternative view:** Capital is costly to insurers
  \[\Rightarrow\] Aggregate shocks and capital regulation shapes the menu of retirement savings products.
- Evidence based on investment products with guarantees.
The Decline of Defined-Benefit Pension Plans

- The shift from DB to DC shifts investment risk, in part, from companies to employees.
- However, part of the (aggregate) risk shifts in fact to the insurance sector via variable annuities.
A consumer purchasing a variable annuity (VA) can select
- A (portfolio of) mutual funds from a pre-specified menu.
- Various guarantees during the accumulation phase (pre-retirement) or de-cumulation phase (post-retirement).

Guarantees often take the form of a maximum of the account value, which is affected by fund returns, and a benefit base, which may increase by a fixed rate of return.

Similar products are available in continental Europe.
Growth in Variable Annuities

- The VA market is over $1.5 trillion in the United States.

- However, the long-duration nature of these products makes variable annuities hard to value and to hedge.
## Variable Annuities During the Financial Crisis

<table>
<thead>
<tr>
<th>Financial group</th>
<th>Account value (billion $)</th>
<th>Operating gain (share of capital and surplus)</th>
</tr>
</thead>
<tbody>
<tr>
<td>MetLife</td>
<td>143</td>
<td>-0.05</td>
</tr>
<tr>
<td>AXA Financial</td>
<td>139</td>
<td>-0.18</td>
</tr>
<tr>
<td>Hartford Life</td>
<td>119</td>
<td>-0.52</td>
</tr>
<tr>
<td>AIG Life</td>
<td>105</td>
<td>0.00</td>
</tr>
<tr>
<td>ING USA Life</td>
<td>98</td>
<td>-0.14</td>
</tr>
<tr>
<td>Lincoln Financial</td>
<td>97</td>
<td>-0.01</td>
</tr>
<tr>
<td>Manulife Financial</td>
<td>94</td>
<td>-0.46</td>
</tr>
<tr>
<td>Prudential of America</td>
<td>79</td>
<td>-0.28</td>
</tr>
<tr>
<td>Aegon USA</td>
<td>61</td>
<td>-0.26</td>
</tr>
<tr>
<td>Ameriprise Financial</td>
<td>57</td>
<td>-0.44</td>
</tr>
<tr>
<td>Total for life insurers</td>
<td></td>
<td></td>
</tr>
<tr>
<td>with VA guarantees</td>
<td>1,460</td>
<td>-0.09</td>
</tr>
<tr>
<td>without VA guarantees</td>
<td>0</td>
<td>0.01</td>
</tr>
</tbody>
</table>

- The guarantees in variable annuities suddenly in the money, in particular for those products sold close to the financial crisis.
Implications for the Market for Retirement Guarantees

- Fewer insurance companies provide guaranteed living benefits following the financial crisis.
Implications for the Market for Retirement Guarantees

- Importantly, insurers for which the reserve value jumps the most exit the market.
- The same firms are more likely to move existing policies to affiliated (captive) reinsurers.
- In addition, fees rise and investment options get restricted.
Risk Regulation and Product Market Outcomes

- As capital appears to be costly to insurers, product market outcomes are affected by risk regulation.
- Evidence from a tightening of capital requirements in the U.K.

Source: Sen and Humphry (2016).
The market has changed in response to aggregate shocks and tightening capital regulation may lead to more incomplete insurance markets.

The cost of incomplete insurance markets should be traded off with the benefit of a stable insurance sector (e.g., AIG, Hartford, . . .).

Offering long-term guarantees has turned out to be challenging (defined-benefit pension funds, U.K. and Japanese life insurers, U.S. life insurers).

Key questions for regulators

- Are some insurers offering too generous guarantees to attract consumers in a low-rate environment.
- If insurers abandon guarantees, will this also reduce the life cover of consumers.

Some of these tradeoffs are hard to assess at this point due to limited transparency and data availability.