Funded pensions, long term finance, and economic growth (preliminary)

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"New role for pensions funds and institutional investors" (EU Green paper)

- Europe needs long term finance to promote economic growth
  - investment performance in EU worse than the world average
  - market failures in particular significant for long term investment
  - bank credit will be constrained in the years to come
  - increased fragmentation of markets, home bias

- New role for pension funds and other institutional investors
  - long time horizon makes them patient and steady investors restraining "short-termism"
  - possibly in combination with Long Term Investment Funds (LTIF)
Also: Pension funds can better cope with macroeconomic risks

- pension funds are less leveraged than banks
- less vulnerable for liquidity risks
- better able to share risks between generations

*Obstfeld (1994): halving the variance of macroeconomic risks through better risk sharing could increase growth from 1.7% to 2% and lead to a welfare gain of 37%.

- also advantage from lifecycle perspective:
  - pension funds can match pension saving, housing wealth and mortgage debt
This paper: Is there a link between pension system, long term finance and economic growth?

- **Step 1:** Is there a link between pension system and the financial structure of the economy?
- **Step 2:** Does pension funding affect economic growth?

- Step 1: descriptive
- Step 2: pooled regressions for OECD 2000-2010
Step 1. How do funded pensions affect the financial landscape?

- **Large funded pensions can be expected to go together with**
  - smaller savings through bank deposits
  - and therefore larger funding gaps of banks

- which does not have to be a problem in normal times when banks can attract funds on wholesale markets
- but may be problem when financial markets are stressed and liquidity risks dominate
Some descriptives: Two groups of countries

**funded pensions** (≥80% GDP)
- Netherlands
- Finland
- Denmark
- UK
- Iceland
- Switzerland

**not funded** (<50% GDP)
- France
- Germany
- Italy
- Austria
- Belgium
- Greece
- Ireland
- Portugal
- Spain
- Norway
Quick scan of financial landscape

Financial structure Funded vs non-funded
% of GDP, unweighted, 2007-2011 period, averaged

- **Funded**: CHE, DNK, FIN, ISL, NLD, UK
- **Non-Funded**: AUT, BEL, FRA, DEU, GRC, IRE, ITA, NOR, PRT, ESP

*Note: Diagram details not transcribed.*
Funding gap banks (credit vs deposits)

Funding gap banks
unweighted, 2007-2011 period, averaged

Funded = CHE, DNK, FIN, ISL, NLD, UK. Non-Funded = AUT, BEL, FRA, DEU, GRC, IRE, ITA, NOR, PRT, ESP.
Lower funding ratio of banks for countries with funded pensions

Funded vs non-funded, average 2007-2011,
where funding ratio = (household deposits / credit to private sector)

Constant pattern over time: Funding ratio 1995 - 2012

<table>
<thead>
<tr>
<th>Year</th>
<th>Denmark, Year Denbank: Loans by MFI's OECD Credit by Banks</th>
</tr>
</thead>
<tbody>
<tr>
<td>1998</td>
<td>1.40 0.35</td>
</tr>
<tr>
<td>1999</td>
<td>1.41 0.35</td>
</tr>
<tr>
<td>2000</td>
<td>1.43 1.35</td>
</tr>
<tr>
<td>2001</td>
<td>1.52 1.43</td>
</tr>
<tr>
<td>2002</td>
<td>1.59 1.45</td>
</tr>
<tr>
<td>2003</td>
<td>1.68 1.52</td>
</tr>
<tr>
<td>2004</td>
<td>1.73 1.58</td>
</tr>
<tr>
<td>2005</td>
<td>1.86 1.72</td>
</tr>
<tr>
<td>2006</td>
<td>2.04 1.86</td>
</tr>
<tr>
<td>2007</td>
<td>2.24 2.03</td>
</tr>
<tr>
<td>2008</td>
<td>2.46 2.16</td>
</tr>
<tr>
<td>2009</td>
<td>2.75 2.23</td>
</tr>
<tr>
<td>2010</td>
<td>2.71 2.16</td>
</tr>
<tr>
<td>2011</td>
<td>2.66 2.09</td>
</tr>
</tbody>
</table>

**Note:**
- **Funded =** CHE, DNK, FIN, ISL, NLD, UK
- **Non-Funded =** AUT, BEL, FRA, DEU, GRC, IRE, ITA, NOR, PRT, ESP
Conclusions on funded pensions and financial structure

Some evidence for larger funding gap of banks in countries with funded pensions

• primarily because of larger credit, more than smaller deposits!

But not necessarily negative for banks

• also foreign assets of banks larger in countries with funded pensions
Step 2. Regression analysis of impact of funded pensions on economic growth

34 OECD countries 2001 - 2011

Two approaches

• First, we analyze the impact of pension assets on economic growth (update Zandberg and Spierdijk, 2013).

• Second, we address causality: difference-in-difference approach by pension funding with industry dependence on external finance (Rajan and Zingales, 1998)
Economic growth and pension assets

Growth regression: yearly 2001-2011 + controls

\[ GDP \text{ growth}_{i,t} = \beta_0 + \beta_1 GDP \text{ growth}_{i,t-1} + \beta_2 PA \text{ growth}_{i,t-1} + \beta_3 ror_{i,t-1} + \epsilon_{i,t} \]

\( PA = \) pension assets to GDP \hspace{1cm} \( ror = \) rate of return
## GDP growth and pension assets

<table>
<thead>
<tr>
<th></th>
<th>Model 1</th>
<th>Model 2</th>
</tr>
</thead>
<tbody>
<tr>
<td>Real GDP growth (L1)</td>
<td>0.483*** (0.073)</td>
<td>0.485*** (0.070)</td>
</tr>
<tr>
<td>PA growth</td>
<td>0.021*** (0.005)</td>
<td>0.020*** (0.004)</td>
</tr>
<tr>
<td>Rate of return</td>
<td>-0.023 (0.037)</td>
<td>-0.021 (0.036)</td>
</tr>
<tr>
<td>PA growth # crisis</td>
<td>0.005 (0.012)</td>
<td></td>
</tr>
<tr>
<td>N</td>
<td>288</td>
<td>288</td>
</tr>
<tr>
<td>adj. R-sq</td>
<td>0.685</td>
<td>0.684</td>
</tr>
</tbody>
</table>

Standard errors in parentheses
* p<0.10, ** p<0.05, *** p<0.01
More on transmission mechanism:

• **Do funded pensions contribute to the financing of the corporate sector?**
  - differential impact on sectors with large external finance needs (Rajan & Zingales, 1998)
  - has this impact changed during the crisis?

• **Data: 33 OECD countries, 69 industries, 2001-2010**
Partial effect of pension assets on sectors with large external finance needs

\[ V_{\text{Agrowth}}_{i,j,t} = \beta_1 \Delta \text{Size}_{i,j,t-1} + \beta_2 PA_{i,t-1} + \beta_3 [PA_{i,t-1} \cdot ED_j] \\
+ \beta_4 [PA_{i,t-1} \cdot ED_j \cdot \text{crisis}] + \beta_x Z_{i,t-1} + \varepsilon_{i,j,t} \]

\( i = 1,..,33. \quad j = 1,..,69. \quad t = 1,..,10, \quad (4) \)

*VA = Value Added, \quad PA = pension assets/GDP growth, \quad ED= external dependence*
Regression results, funded growth

<table>
<thead>
<tr>
<th></th>
<th>no crisis dummy</th>
<th>crisis dummy</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Growth per sector</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>industry share</td>
<td>-3.564*** (-3.16)</td>
<td>-3.553*** (-3.15)</td>
</tr>
<tr>
<td>PA growth</td>
<td>0.178*** (3.07)</td>
<td>0.196*** (3.31)</td>
</tr>
<tr>
<td>ED # PA growth</td>
<td>0.089** (2.27)</td>
<td>0.054 (1.35)</td>
</tr>
<tr>
<td>ED # crisis</td>
<td></td>
<td>-0.051*** (-3.27)</td>
</tr>
<tr>
<td>ED # crisis # PA growth</td>
<td></td>
<td>0.249** (2.09)</td>
</tr>
<tr>
<td>N</td>
<td>9644</td>
<td>9644</td>
</tr>
</tbody>
</table>

ED = external dependence dummy (75th percentile)
Conclusions (1)

- Banks in countries with funded pensions tend to have lower funding ratios
  - But this does not seem to have a negative impact on bank credit

- Regression analysis tend to confirm that funded pensions contribute to higher growth on average
  - specifically also for industries relying on external financing
  - but not evidently through a stronger collapse of credit to the corporate sector
Conclusions (2)

- Lessons on pension funds and long term finance
  - funded pensions contributes to economic growth
  - this may become more important during after the crisis when banks are more constrained

- LTIF's may help to tailor finance to the needs of (international) institutional investors
  - be careful not to throw out the baby with the bathwater: pension funds also contribute to stability by international diversification of risks