Finance: Economic Lifeblood or Toxin?

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Motivation: two conflicting views of finance

- Typical textbook view: efficient allocation machine, ensuring that:
  - capital is put to its best use
  - risks from the real economy are shared efficiently

- Current view emerging from the media:
  - culprit of giant misallocation of resources:
    - empty real estate developments in the U.S., Spain and Ireland
    - massive losses on banks’ loan portfolios, funded by taxpayers
    - cost of forgone output and employment in the current recession
  - bubbles and crashes: source of risk for the real economy

- Both views have been with us for a long time…
Hicks (1969): finance as growth engine

- “According to Hicks, the products manufactured during the first decades of the industrial revolution had been invented much earlier. … Many of the existing innovations, however, required large injections and long-run commitments of capital. The critical new ingredient that ignited growth in eighteenth century England was capital market liquidity” (Levine, 1997)

- Supported by much empirical work on finance and growth in the last 30 years: more on this below…
Keynes (1936): finance as potentially harmful “casino”

- “It is usually agreed that casinos should, in the public interest, be inaccessible and expensive. And perhaps the same is true of Stock Exchanges.” (General Theory, p. 159)
- Shiller’s “irrational exuberance” view and, lately, growing body of research in behavioral finance
- Alternative view: finance is dysfunctional because policy and regulation provide perverse incentives to market participants – or at least fail to correct them
- If so, why are policy and regulation ill-designed?
Both views may be right

- In early stages of economic development, financial development (e.g. liberalization of banking industry) may lift financial constraints on firms ⇒ expand output: finance as “lifeblood”
- Financial development gradually reduces the fraction of constrained firms ⇒ in financially developed countries, further increases in credit bring no further increases in output, but induce drop in lending standards, etc. ⇒ hypertrophy of finance, instability: finance as “toxin”
- Upshot: **non-linear** effect of financial development
Plan of talk

- The bright side: finance as engine of growth
- The dark side: financial hypertrophy and excess risk-taking
- Non-linear effects of financial development on:
  - long-run growth
  - bank solvency
  - systemic stability
- Why did regulation fail? The role of politics
1. The bright side

- What does “financial development” mean?
  - banking liberalization, leading to more competition among incumbents and entry of new banks
  - stock market liberalization, allowing foreigners to invest in home stocks and residents to invest in foreign stocks
  - reforms strengthening investor protection

- Questions: does financial development lead to:
  - financial constraints mitigation $\Rightarrow$ output growth, entry?
  - more efficient allocation of funding across firms, more technological innovation?
Key issue: sorting out direction of causality

- Three types of data:
  - industry-level: Rajan & Zingales (1998), etc.
  - firm-level: Guiso, Sapienza & Zingales (2004), etc.

- “Quasi-natural experiments”:
  - bank liberalizations: Jayaratne and Strahan (1996) on bank branch liberalization in the U.S. and Bertrand, Schoar & Thesmar on 1985 French Banking Act
2. The dark side

- Until 2007, in the U.S. and Europe there was an over-expansion of finance: abnormal growth in
  - private credit
  - leverage of financial institutions
  - issuance of securitized assets
  - compensation of financial-sector employees
- This “hypertrophy” of finance has gone hand-in-hand with a deterioration of lending standards
- Why? Broadly speaking, for three reasons…
2.1. Shadow banks and securitization

- Development of “shadow banks” in the U.S.: unregulated and funded by securities issuance – especially securitizations – rather deposits:
  - finance companies
  - structured investment vehicles
  - Investment banks
  - government-sponsored agencies (Fannie Mae, etc.)
- Mutual feedback between asset price bubble and leverage of shadow banks (Adrian & Shin, 2008)
Greenwood & Scharfstein (2012)

Output of U.S. finance industry as % of GDP

Relative to non-farm private sector

= Asset Management and Investment Banks
2.2. Low interest rates and drop in lending standards

- Shadow banks and securitizations were particularly prominent in the U.S.
- But feedback loop between asset prices and credit expansion and deterioration of credit standards also occurred in Europe (esp. Ireland, Spain, Iceland)
- Evidence that low rates (esp. short-term ones) raised banks’ risk taking on both sides of the Atlantic:
  - Dell’Ariccia, Igan & Laeven (2012): U.S.
  - Maddaloni & Peydrò (2011): Euro area
  - Jimenez, Ongena, Peydrò & Saurina (2011): Spain
2.3. Systemic bailouts, excess lending and systemic risk

- Previous argument: too low policy rates $\Rightarrow$ excess bank lending, drop in lending standards
- But argument goes also the other way round: anticipation of monetary accommodation/bailouts $\Rightarrow$ excess lending, drop in lending standards
- Farhi & Tirole (2012): authority is captive of banks’ collective risk taking decisions (“too many to fail”):
  - the only time-consistent policy is excess accommodation
  - each policy response “plants the seeds” of the next crisis
- Brown & Dinç (2011): regulatory forbearance
Systemic bailouts: monetary policy and “Greenspan’s put”

Federal Funds Rate

- 1987 market crash
- Dotcom crisis
- Start of sub-prime loans crisis
- Mexican crisis
- LTCM crisis
- Lehman collapse
- Start of € debt crisis
3. Non-linear effects of financial development

- Hypothesis: “both roles of finance are present, but at different levels of financial development”
- Beyond a threshold, finance turns from “lifeblood” to “toxin”
- Empirically, non-linearity in the relationship between private credit/GDP and:
  - growth rate of value added
  - creditworthiness of banks
  - systemic stability
3.1. Long-run growth


\[ Y_{jc} = \delta(FD_c \times ED_j) + \gamma SHARE_{jc}^{1970} + \mu_j + \mu_c + \varepsilon_{jc} \]

- \( Y_{jc} \): growth of real value added from 1970 to 2003, UNIDO INDSTAT3 2006 data, 28 three-digit industries, 63 countries

- \( ED_j \): external dependence from Rajan & Zingales (1998)

- Financial development (\( FD_c \)):
  - private credit/GDP
  - stock market capitalization/GDP (1980–95 averages)
## Regression results

<table>
<thead>
<tr>
<th>Explanatory variable:</th>
<th>All countries</th>
<th>OECD countries</th>
<th>Non-OECD countries</th>
</tr>
</thead>
<tbody>
<tr>
<td>Industry's share in 1970</td>
<td>-0.156*** (0.030)</td>
<td>-0.204*** (0.027)</td>
<td>-0.212*** (0.054)</td>
</tr>
<tr>
<td>External dependence × stock market capitalization (80-95)</td>
<td>0.026* (0.014)</td>
<td>-0.022 (0.018)</td>
<td>0.037** (0.016)</td>
</tr>
<tr>
<td>External dependence × claims of banks and other fin. inst. (80-95)</td>
<td>0.034** (0.016)</td>
<td>-0.011 (0.011)</td>
<td>0.091** (0.036)</td>
</tr>
<tr>
<td>Observations</td>
<td>1533</td>
<td>1637</td>
<td>628</td>
</tr>
<tr>
<td>R²</td>
<td>0.32</td>
<td>0.33</td>
<td>0.48</td>
</tr>
</tbody>
</table>
3.2. Bank solvency

Dependent variable: \( Z\)-risk = (banks’ ROA + equity/assets)/ \( \sigma(\text{ROA}) \)

Data from Financial Structure Dataset, sample period: at most 1997-2010

<table>
<thead>
<tr>
<th>Explanatory variable:</th>
<th>All countries</th>
<th>Countries with credit/GDP &lt;50%</th>
<th>Countries with credit/GDP &gt;50%</th>
</tr>
</thead>
<tbody>
<tr>
<td>Credit/GDP</td>
<td>-0.111***</td>
<td>-0.055</td>
<td>-0.116***</td>
</tr>
<tr>
<td></td>
<td>(0.014)</td>
<td>(0.055)</td>
<td>(0.014)</td>
</tr>
<tr>
<td>Country and year fixed effects</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
</tr>
<tr>
<td>Observations</td>
<td>2,048</td>
<td>1073</td>
<td>975</td>
</tr>
<tr>
<td>Countries</td>
<td>166</td>
<td>88</td>
<td>78</td>
</tr>
<tr>
<td>( R^2 )</td>
<td>0.61</td>
<td>0.51</td>
<td>0.64</td>
</tr>
</tbody>
</table>
Bank solvency and credit/GDP in selected low-credit/GDP countries

$$Z\text{-risk} = \frac{\text{banks’ ROA} + \text{equity/assets}}{\sigma(\text{ROA})}$$
Bank solvency and credit/GDP in selected high-credit/GDP countries

\[ Z\text{-risk} = \frac{\text{banks’ ROA} + \text{equity/assets}}{\sigma(\text{ROA})} \]
3.3. Systemic instability

Dependent variable: aggregate capital shortfall of banks/ capitalization
Source for the dependent variable: VLab, sample period: at most 2000-11

<table>
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<th>Explanatory variable:</th>
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<th>Countries with credit/GDP &gt;50%</th>
</tr>
</thead>
<tbody>
<tr>
<td>Credit/GDP</td>
<td>0.009***</td>
<td>-0.024 (0.033)</td>
<td>0.0078** (0.002)</td>
</tr>
<tr>
<td>Country and year fixed effects</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
</tr>
<tr>
<td>Observations</td>
<td>353</td>
<td>51</td>
<td>302</td>
</tr>
<tr>
<td>Countries</td>
<td>46</td>
<td>10</td>
<td>36</td>
</tr>
<tr>
<td>R²</td>
<td>0.44</td>
<td>0.46</td>
<td>0.52</td>
</tr>
</tbody>
</table>
4. Why did regulation fail?

- If the “toxic” side of finance emerges when it expands beyond a threshold level, it is natural to ask why regulation failed to prevent its “hypertrophy” and which specific aspects of regulation failed.

- In many cases, the problem was regulatory inertia, or clueless extension of rules “by analogy” to new settings: “sins by omission”.

- In others, it was inappropriate changes in rules: “sins by commission”.
4.1. “Sins of omission”

- Inaction vis-à-vis fast financial innovation:
  - Example 1: extensive regulatory delegation to credit ratings agencies. These had been effective in the corporate bond market, but not well suited for the more complex asset-backed securities.
  - Example 2: no oversight of LIBOR setting, even after it became the reference rate for a huge amount of financial contracts, creating conflicts of interest for banks making LIBOR submissions.

- A variant of Goodhart’s Law at work…
4.2. “Sins of commission”

- Here politics played a key role:
  - In the U.S., political determination to support widespread homeownership induced government-backed agencies to guarantee high-risk loans
  - In 2001 the FDIC to lower banks’ capital requirement for investments in MBSs and CDOs from 8% to 1.6%
  - In Europe, political will to support demand for public debt induced the EU commission to allow banks to apply a zero risk weight on all their euro-area sovereign debt holdings in setting their capital ratios
Iceland

- Benediktsdottir, Danielsson & Zoega (2011):
  - politicians provided key support to transform a tiny fishing and aluminum-producing economy into a platform for international banking
  - privatized banks by selling them to their cronies, and allowed them to borrow hugely in international markets with the implicit government guarantee
  - failed to equip the country with supervisory authorities adequate to the scale of the banks
Spain

- The managers of the Cajas, regional politicians and real estate developers formed a powerful social coalition that channeled much credit towards the construction business before the crisis
- Cuñat & Garicano (2009): Cajas controlled by politically appointed managers lent more to real estate developers and performed worse in the crisis
- Garicano (2012): these political connections also explain the “supervisory failure of the Banco de España”, i.e. excessive forbearance of the Cajas
Conclusions

- In assessing the merits and faults of finance, economists often tend to be excessively influenced by recent events: currently, the crisis.
- Instead, we should think of the overall picture.
- Even if now it is unpopular, finance has given much support to growth and efficiency.
- Our task: ask what can lead it to become hypertrophic and “toxic”, and when this happens.
- This paper: just a first step in this direction.