Financial Structure and Incentives

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http://www.worldbank.org/financialdevelopment
Motivation: two streams of literature

1. Regulation literature
   - Emphasizes the central role of incentives in the financial sector.
   - The challenge of financial sector regulation is to align private incentives with public interest without taxing or subsidizing private risk-taking.

2. Research on financial structures
   - New evidence: as economies develop, services provided by financial markets become more important than those by financial institutions.

In our NER article, we bring these two streams together
   - As systems develop from bank-based to market-based, traditional regulatory approach relying on banking ratios becomes less effective.
   - A greater need for properly monitoring and addressing the underlying incentive weaknesses as systems become more market-based.
• NER (2012) article “Financial Structure and Incentives”

• WB’s *Global Financial Development Report*
  – Combines new data and research with lessons from operational work
  – Collaboration within WBG and with external contributors
  – Accompanied by *Global Financial Development Database*, other major databases and surveys, benchmarking of financial systems around the world, a range of underlying case studies and research papers
  – GFDR 2013: rethinking the state’s role in finance, in light of the global crisis
  – Includes a section on regulation and supervision
  – GFDR 2014: financial inclusion

• WB paper introducing “incentive audits”
Examples of other variables in the database: ownership of financial institutions, structure (H-statistics etc), measures of internationalization, features of the regulatory and institutional framework, etc.


### Financial structures: descriptive statistics

<table>
<thead>
<tr>
<th>Variable</th>
<th>Mean</th>
<th>St. dev.</th>
<th>Maximum</th>
<th>Minimum</th>
</tr>
</thead>
<tbody>
<tr>
<td>Log real GDP/cap (const. Y2000 USD)</td>
<td>7.6</td>
<td>1.6</td>
<td>10.9</td>
<td>4.1</td>
</tr>
<tr>
<td>Private credit / GDP (%)</td>
<td>39.3</td>
<td>35.9</td>
<td>319.7</td>
<td>0.0</td>
</tr>
<tr>
<td>Stock value traded / GDP (%)</td>
<td>28.8</td>
<td>57.4</td>
<td>632.3</td>
<td>0.0</td>
</tr>
<tr>
<td>Stock market capitalization / GDP (%)</td>
<td>47.7</td>
<td>58.4</td>
<td>561.4</td>
<td>0.0</td>
</tr>
<tr>
<td>Securities market cap / GDP (%)</td>
<td>59.1</td>
<td>71.2</td>
<td>588.3</td>
<td>0.0</td>
</tr>
</tbody>
</table>

Note: Calculated from available annual data for 1970-2010.
Financial structure and development, 1970-2010

Note: Annual data for all countries for 1970-2010. GDP in constant 2000 U.S. dollars
Financial structure and development, 2008-2010


Note: averages of annual data for 2008-2010.
Financial structure and development, 1970-2007

What do 91 quantile regressions tell us?

Panel A: No Controls

Private credit
(controlling for market value traded)

Stock value traded
(controlling for private credit)

Securities market capitalization
(controlling for private credit)

Stock market capitalization
(controlling for private credit)
What do 91 quantile regressions tell us?

Panel B: Accounting for Standard Controls
Private credit
(controlling for market value traded)

Stock value traded
(controlling for private credit)

Securities market capitalization
(controlling for private credit)

Stock market capitalization
(controlling for private credit)
Financial structure matters for development

• The empirics ....
  – As economies grow, banks and financial markets become more developed; the association between economic activity and bank development tends to fall, while the association between economic activity and securities market development tends to increase
  – Demirgüç-Kunt, Feyen, and Levine 2012

• .... is consistent with theory
  – Financial institutions provide different financial services from those provided by financial markets; as economies grow, services provided by securities markets become relatively more important for promoting economic activity (e.g., as economies evolve, they require more custom-designed financial arrangements that ease the financing of new longer-term investments, often employing more intangible inputs)
  – Allen and Gale 2000; Boot and Thakor 2000; Boyd and Smith 1998; Song and Thakor 2010

• Important policy implication: policies and institutions that impede the evolution of the structure of financial systems as economies grow can have detrimental ramifications for economic development.

Financial structure also matters for crisis probability

Crisis probability: 14.7%  
(1 in 7 years)

Crisis probability: 5.5%  
(1 in 18 years)

What causes these crises?

• Wallison and Calomiris (2009) and Calomiris (2011)
  – Policies to promote home ownership in the United States created perverse incentives within official and quasi-official agencies, contributing to the build-up of exposures in subprime mortgages, and to forbearance in the regulatory oversight of the risks.

• Levine (2010)
  – Design, implementation, and maintenance of financial policies in 1996–2006 were primary causes of the US financial system’s demise.
  – Rejects the view that the collapse was only due to the popping of the housing bubble and herding behavior of financiers selling increasingly complex/questionable products.
  – Evidence indicates that regulatory agencies were aware of the growing fragility of the financial system associated with their policies during the decade before the crisis and yet chose not to modify those policies, under pressure from industry and politicians.

• Barth, Caprio and Levine (2012), on a broader sample of developed economies
  – Regulators often failed to implement the regulations and powers that they already had.
  – Amongst other factors, psychological bias in favor of the industry (similar to that prevailing in sport, where referees regularly call games in favor of home teams) operates in finance (see also the literature on regulatory capture, eg Kane, 2001).
  – Key issue thus is not necessarily new regulation (although some additional regulations may be appropriate), but how to get regulators to enforce the rules.
What features of regulation characterize crisis countries?

- Broader capital definition (Is Tier 3 allowed in regulatory capital?)
- More sophisticated modeling (Is an advanced internal ratings-based approach offered to banks?)
- Less strict provisioning I (Are minimum levels of specific provisions for loans and advances set by the regulator?)
- Less strict provisioning II (Is there a regulatory requirement for general provisions on loans and advances?)
- Less oversight of external auditors (Are external auditors subject to independent oversight by the supervisor?)
- Lower standards for public data quality (Do laws or regulations require auditors to conduct their audits in accordance with international standards?)

Source: Čihák, Demirgüç-Kunt, Martínez Pería, and Mohseni 2012.
Note: Percentage of countries that responded “yes” to the question in parentheses. Based on the World Bank’s 2011 Bank Regulation and Supervision Survey. “Crisis” countries are defined as those that had a banking crisis between 2007 and 2011, as identified in Laeven and Valencia (2012).
Incentive breakdowns played key role in crisis run-up

- **Crisis hit countries had weaker regulation and supervision practices...**
  - More complex, less stringent measures of minimum capital (broader, reliance on banks’ own risk assessment); also somewhat lower actual levels of capital
  - Less strict regulatory treatment of bad loans and loan losses
  - Banks faced fewer restrictions on non-bank activities

- **... and weaker incentives for private sector to monitor risks**
  - E.g., generous deposit protection coverage

- **After crisis, countries stepped up efforts on macroprudential policy, crisis resolution, and consumer protection**
  - However, unclear whether incentives for market discipline improved
  - Survey suggests scope for improving disclosures and monitoring incentives

It’s the incentives, stupid!

Incentive breakdowns: key role in crisis run-up

– Bank managers’ incentives to boost short-term profits and create banks that are “too big to fail”
– Regulators’ incentives to forebear and withhold information from other regulators in stressful times
– Credit rating agencies’ incentives to keep issuing high ratings for subprime assets.

• Approach to re-orienting financial regulation to have at its core the objective of addressing incentives on an ongoing basis.

• We propose “incentive audits” as a tool to help in identifying incentive misalignments in the financial sector. Basic idea: regularly and systemically evaluate structural factors affecting incentives for risk-taking in the financial sector.

• Standard approaches to assessing financial stability (macroprudential stress tests and assessments of compliance) provide useful insights, but a forward-looking analysis of financial vulnerabilities needs to complement these approaches with the assessment of structural weaknesses in financial systems. The incentive audit focuses more directly on the factors that influence economic behavior of the main agents in the financial sector.
Our proposal: incentive audits

• How can the incentive audits ensure that addressing the incentive breakdowns is central to the regulatory framework?

• The regulation-based policy response to systemic risk is to build buffers of capital and liquidity to enhance the resiliency of the financial system to handle the risks
  – pro-cyclical capital charges, contingent capital buffers, leverage ratio, additional capital/liquidity provisions for systemically important financial institutions

• Approach based on incentive audits would seek to identify and correct the distortions and information frictions that contribute to the buildup of excessive risk.
  – E.g., buildup of excessive risk concentrations due to interconnectedness can be attributed to serious information gaps that prevent assessment of exposures and network risks, and to incentive failures in monitoring of risks due to conflicts of interest and moral hazard, as well as incentives in the micro prudential regulations that encouraged risk transfers. Addressing these underlying incentive problems should be the first line of response.
Our proposal: incentive audits

• The approach based on higher capital/liquidity charges or higher buffers has the acknowledged shortcoming of creating incentives for circumvention and of increasing risks associated with the perimeter of regulation.

• The incentive audit approach seeks to eliminate the risk at source.
  – Should not give rise to the same incentives for circumvention; would not impose the same burden on the regulatory framework.
  – Less reliance on enhancements of statistical indicators and network models to measure systemic risk, more emphasis on methods and techniques to identify incentive failures in the financial system that result in the buildup of systemic risk.
  – A recalibration of prudential measures to take account of systemic risk would support or be replaced by a correction of the incentive failures.
  – The range of polices would potentially be much broader than prudential measures (e.g., also recommendations to eliminate tax incentives that encourage excessive borrowing).
While “incentive audit” is a novel concept...

.... in-depth analysis of incentives in the financial sector is not without precedents.
Example #1: Iceland


- A meticulous (2,400-page), publicly available report
- Notes the overly rapid growth of the three major Icelandic banks as a major contributor of the crisis
- Goes into great depth in documenting the underlying “strong incentives for growth”
- These included the banks’ incentive schemes as well as the high leverage of the major owners.
- The report then proceeds to map out in detail the network of conflicting interests of the key bank owners who were also the largest debtors of these banks
Example #1: Iceland

• “The largest owners of the big banks had abnormally easy access to credit at the banks they owned, apparently in their capacity as owners. ... in all of the banks, their principal owners were among the largest borrowers.”

• “When the bank [Glitnir] collapsed, its outstanding loans to Baugur and affiliated companies amounted to ... 70% of the bank’s equity base.”

• “When Landsbanki collapsed, Björgólfur Thor Björgólfsson and companies affiliated to him were the bank’s largest debtors. Björgólfur Guðmundsson [his father] was the bank’s third largest debtor. In total, their obligations to the bank ... were higher than Landsbanki Group’s equity.”

• “During a hearing, an owner of one of the banks [Mr. Guðmundsson], who also had been a board member of the bank, said he believed that the bank “had been very happy to have [him] as a borrower”.”

• “The operations of the banks were, in many ways, characterised by their maximising the interests of the larger shareholders, who managed the banks, rather than running solid banks with the interests of all shareholders in mind, where due responsibility was demonstrated towards their creditors.”
Example #1: Iceland

- “In 2008 the banks were buyers on average in 45% of cases of automatically matched trades in their own shares. In comparison they were sellers in less than 2% of cases of automatically matched trades during the same period. ... all the banks in this manner attempted to elicit abnormal demand for their own shares.”

- “At the beginning of 2006, ... all the prerequisites for a financial crisis were in place.”

- “It has been established that until just before the collapse of the banks [in October 2008] there was little discussion within the Icelandic government of the bank’s standing and of the liquidity crisis which began towards the end of summer 2007.”

- “When the ministers intended to improve the image of the banking system by partaking in public discussions, mainly abroad, it was done without any assessment of the financial capability of the state to come to the banks’ assistance and without information being available on the cost of a possible financial shock.”

- “… when the banks collapsed there was no joint governmental contingency plan available.”
Example #2: United States


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<th>Market incentives?</th>
<th>Incentives of regulators/supervisors?</th>
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<tr>
<td>1. End mortgage risk subsidies</td>
<td>Better origination/brokerage</td>
<td>Less politically conflicted supervision and regulation (no more conflict between prudential regulation and ‘affordable housing’ goals)</td>
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<tr>
<td>2. Require NRSROs to use numerical forecasts of default, with ‘sit out’ penalties for egregious errors</td>
<td>Rating agencies will have strong incentives to make estimates accurate, and will resist buy-side pressures to inflate ratings</td>
<td>Avoids micromanaging NRSROs Transparency improves accountability of enforcement</td>
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<tr>
<td>3. Use loan interest rates to help set capital ratios</td>
<td>Loan pricing reflects risk and will continue to do so when loan spreads are used to budget risk-based capital</td>
<td>Standards are transparent and rule-based, and therefore credible</td>
</tr>
<tr>
<td>4. Require CoCos with market triggers</td>
<td>Banks pre-emptively raise equity</td>
<td>Enforcement of conversion is automatic, so credible: CoCos automatically convert before resolution, so will not be bailed out even if other debts are</td>
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<tr>
<td>5. 10% minimum haircuts when government limits</td>
<td>Enhances market discipline</td>
<td>Less excuse for avoiding haircuts because they are not too large</td>
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<td>6. Ring fencing of jurisdictions over resolution</td>
<td>Less able to game resolution</td>
<td>Clear responsibility implies better enforcement, implying fewer bailouts of creditors ex post</td>
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<td>7. Remunerative reserve requirement = 20% of assets</td>
<td>Improves incentives to manage risk</td>
<td>Clearly observable and therefore credibly enforced</td>
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<td>8. Macro-prudential changes in capital, liquidity and provisioning requirements based on dual threshold of credit growth and asset price growth</td>
<td>Improves incentives to manage risk (anticipating changes in requirements)</td>
<td>Limits discretion and concentrates regulatory responsibility, which enhances credibility of enforcement</td>
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<tr>
<td>9. Regulatory capital and liquidity requirement surcharges on non-exchange cleared transactions</td>
<td>Encourages counterparties to employ centralized clearing while avoiding prohibitive costs for innovative contracts</td>
<td>Easy to enforce and therefore credibly enforced</td>
</tr>
<tr>
<td>10. Establish principles and guidelines (e.g. matching requirements) to constrain assistance of banks</td>
<td>Enhances market discipline</td>
<td>Makes resolution rules credible</td>
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High level questions:
- market structure,
- government safety nets
- legal and regulatory framework

Key elements that motivate and guide financial decision making: contract design, banking powers, banking relationships, structure of ownership and liabilities, industrial organizations, existence of guarantees, and the adequacy of safety nets.

Specific areas, including: (i) ownership and control structures; (ii) institutional framework for oversight of; (iii) adequacy of data and disclosures on risk exposures; (iv) implicit and explicit guarantees; (v) corporate governance culture, risk management and compensation; (vi) incentive compatibility of financial regulations; and (vii) issues posed by financial innovation.
Conclusions

• As economies grow, both the banking system and financial markets become more developed, but the association between economic activity and bank development tends to fall, and the association between economic activity and securities market development tends to increase.
  – Financial institutions provide different financial services from those provided by financial markets
  – As economies grow, the services provided by securities markets become more important for promoting economic activity, whereas those provided by banks become less important.

• This research suggests that policies and institutions that impede the evolution of the structure of financial systems as economies grow can have detrimental ramifications for economic development.

• As systems develop from bank-based to market-based, traditional regulatory approach relying on banking ratios becomes less effective.
  – A greater need for properly monitoring and addressing the underlying incentive weaknesses as systems become more market-based.
  – Incentive audits could be a useful tool to help in identifying incentive misalignments in the financial sector (as part of a broader re-orienting financial regulation to have at its core the objective of addressing incentives on an ongoing basis).
Thank you!

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