Growth and risk: The role of financial markets

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"You know what the fellow said – in Italy [...] they had warfare and bloodshed, but they produced Michelangelo, Leonardo, and the Renaissance. In Switzerland, they had brotherly love, [...] five hundred years of democracy and peace – and what did they produce? The cuckoo clock."

(Orson Welles, The Third Man, 1949)
Finance, growth, and stability

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  - Credit markets (King and Levine, 1993; Rajan and Zingales, 1998; Beck et al., 2000)
  - Equity markets (Levine and Zervos, 1998; Beck and Levine, 2004)
  - Equity market liberalization (Bekaert et al., 2005, 2007; Gupta and Yuan, 2009)
  - Capital account liberalization (Quinn and Toyoda, 2008)
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• But... is the cost of higher growth higher variability of the growth process?
  – Strong perception that foreign capital increases volatility (Stiglitz, 2000)
  – Financial development may lead to risk-taking (Hellmann et al., 2000)
  – Financial crises usually preceded by out-of-trend growth in financial aggregates (Kaminsky and Reinhart, 1999)
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• Symmetric vs. asymmetric variability
  – Business cycle volatility vs. rare disasters
  – Utility loss from rare disasters higher than utility loss from volatility
  – Volatility vs. skewness of growth
Growth and volatility (*a la* Ramey and Ramey, 1995)
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  - Provide tools to deal with information asymmetries
  - Lower dependence of financial contracts on borrowers’ net worth
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  - Decrease banks’ charter value
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• In general, non-linear effect
  – Depends on whether monetary or real shocks, whether shocks reflect shifts in credit demand or supply
  – Lower aggregate volatility (Easterly et al., 2000)
  – Higher aggregate volatility (Kaminsky and Reinhart, 1999)
  – No effect (Beck et al., 2006)
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- Mean-variance efficiency framework
  - Take long-term growth, volatility, and cross-sector correlations as given
  - Construct a benchmark industrial composition associated with lowest volatility for each possible level of growth
  - Does finance affect speed of convergence from actual to benchmark industrial composition?
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• Lower volatility through the channel of reallocation (Acharya et al., 2011)
  – U.S. banking deregulation
  – Reallocation of output from sub-optimally large to sub-optimally small sectors
  – Appeal: simultaneous effect of finance on growth and volatility
  – Only drawback: case study
Finance, growth, and volatility: international evidence

- Mean-variance efficiency framework in international context (Manganelli and Popov, 2010)
  - 28 OECD countries
  - 1970-2007
  - Private credit / GDP as proxy for financial development
Finance, growth, and volatility: international evidence

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• Main results
  – Finance has Pareto-improving effect
  – Doubling financial depth increases speed of convergence from actual to optimal industrial composition by 2% to 4%
  – If Greece in 1970 had US financial depth, by 2007 18% lower long-term volatility
  – Caveat: results weaker when data up to 2010 included
Finance and convergence to benchmark allocation
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  - Agents do not care about upside and downside equally
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- Third moment of consumption growth captures better tail events
  - Incidence of large, abrupt, and rare macroeconomic contractions results in more negatively skewed distribution of growth rates
  - Possible to construct a long-term growth profile for country A and country B
    - Same long-term growth and volatility
    - Country A higher business cycle volatility, symmetric
    - Country B almost no volatility, a 25% decline in GDP once every 100 years
    - Citizens of country B would forego up to 10% of GDP each year to switch places with country A
Finance, growth, and skewness

- Growth, volatility, and skewness as joint outcomes of financial openness (Popov, 2011)

- Openness defined as joint credit market, equity market, and capital accounts liberalization

- 53 countries, 21 industries, 1963-2007

- Allow for all moments of growth to be determined by openness simultaneously
An example: Argentina vs. Panama

Moments of real growth, pre- vs. post-liberalization event

<table>
<thead>
<tr>
<th></th>
<th>Argentina</th>
<th></th>
<th>Panama</th>
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<tbody>
<tr>
<td></td>
<td>Pre-</td>
<td>Post-</td>
<td>Pre-</td>
<td>Post-</td>
</tr>
<tr>
<td>Mean</td>
<td>0.007</td>
<td>0.026</td>
<td>0.038</td>
<td>0.029</td>
</tr>
<tr>
<td>Standard deviation</td>
<td>0.042</td>
<td>0.043</td>
<td>0.059</td>
<td>0.034</td>
</tr>
<tr>
<td>Skewness</td>
<td>-0.118</td>
<td>-0.666</td>
<td>0.365</td>
<td>0.863</td>
</tr>
</tbody>
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Financial openness (both de jure and de facto):
  - Increases average growth
  - Increases left-skewness
  - Little action in the dimension of volatility

Direct effect on growth (left-skewness) lower (higher) than indirect one

Growth effect through TFP, skewness effect through capital, TFP, and new business creation

Growth effect strengthened and risk effect mitigated by strong institutions and by financial development
Volatile and skewness
Finance, growth, and risk: Conclusion

- Economic agents dislike growth variability.
- Variability has a symmetric and an asymmetric component.
- Does not seem that finance increases business cycle volatility.
  - May even be associated with lower volatility.
  - Especially when holding long-term growth constant.
  - Growth-volatility not a trade-off.
- Finance does seem to have an effect on asymmetric risk.
  - Growth-skewness a trade-off.
- Liberalization vs. credit market development.
- Welfare effects.
  - Higher growth vs. higher probability of large but rare “disasters”?
  - Output risk -> consumption risk?
  - Government insurance?
    - Effective in the case of additional volatility (Gali, 1994; Rodrik, 1998).
    - What about large and rare crises?