The role of financial innovations in developing countries: towards inclusive growth and sustainable development

by

Jean-Louis Arcand
Director, Centre for Finance and Development
Professor, Department of International Economics
Head, PhD in Development Economics Programme
The Graduate Institute - Geneva

20 MARCH 2013

This material has been reproduced in the language and form as it was provided. The views expressed are those of the author and do not necessarily reflect the views of UNCTAD.
The role of financial innovations in developing countries: Towards inclusive growth and sustainable development

Jean-Louis Arcand

*Director*, Centre for Finance and Development
*Professor*, Department of International Economics
*Head*, PhD in Development Economics Programme
The Graduate Institute | Geneva

www.graduateinstitute.ch/cfd
www.graduateinstitute.ch/economics/faculty/arcand

Geneva, March 2013
A traditional topic, at least with respect to the first two components

- Bagehot (1873), Schumpeter (1911), Goldsmith (1969)
- Financial intermediation improves efficiency (not volume) of investment
  - Theory: Jovanovich (1990), Bencivenga and Smith (1991)
- Financial development simply a by-product of economic development
  - Robinson (1952): “where enterprise leads, finance follows”
- More recent empirical work:
  - King and Levine (1993): financial depth
  - Levine and Zervos (1998): stock market liquidity (not size of the stock market)
- What is needed at the macro level is to differentiate in terms of the importance of commodities for the countries in the sample
Trying to establish causality

- The problem: measures of financial development on the RHS of the growth regression are almost certainly endogenous
- Less of a problem for commodity-dependence: simple interaction term
- Need to think carefully about the identification strategy
  - Two solutions proposed
    1. Traditional IV or GMM
    Levine, Loayza, and Beck (2000): instrument their cross sectional regressions with legal origin (La Porta et al., 1998)
  2. An important technical innovation
    - Uses sectoral (and not country-level) data + DID identification strategy
    - Rajan and Zingales (1998): industrial sectors that are more dependent on finance grow relatively more in countries with a larger financial sector
Non-monotonicity in the relationship?

- **Precursors**
  - Minsky (1974), Kindleberger (1978): possibility that financial sector may ultimately reach a size where there are negative marginal social returns (but emphasis is on volatility aspects)
  - Tobin (1984): the best and the brightest...

- **More recent sceptics**
  - Rajan (2005): presence of a large and complicated financial system has increased the probability of a “catastrophic meltdown”
  - Gennaioli, Shleifer, and Vishny (2010): with neglected tail risk financial innovation can increase financial fragility even in the absence of leverage

- **No link made heretofore to commodities**
Conditionality in the relationship?

- Large literature
  - Demetriades and Hussein (1996): time series for 16 countries: no causal relationship going from finance to growth
  - Demetriades and Law (2006): financial depth does not affect growth when institutions are poor
  - Rousseau and Wachtel (2002): finance has no effect on growth in countries with double-digit inflation
  - De Gregorio and Guidotti (1995): financial depth is positively correlated with output growth in high income countries over 1960-1985, but correlation becomes negative for 1970-85
  - Capelle-Blancard and Labonne (2011): relative number of employees or credit volume/employees has no impact on growth in the OECD
  - Rousseau and Wachtel (2011): financial depth and credit to the private sector has no statistically significant impact on GDP growth over 1965-2004

- Most relevant sub-literature: Arestis and Demetriades (1997) and Arestis et al. (2001): institutional factors affect the relationship
Empirical approach
Six different combinations of types of data and estimators

- Country data: cross section
  1. Linear cross-section with quadratic term
  2. Semiparametric cross-section

- Country data: panel
  3. Panel system GMM with quadratic term
  4. Panel semiparametric
  5. Panel system GMM with interactions in quadratic term

- Industry-level data
  6. Rajan-Zingales DID approach with quadratic term

Results are remarkably stable across types of data or econometric methodology....
...even when we try hard, we can’t kill the result
The marginal impact of credit to the private sector

**Figure:**
Cross-sectional semiparametric results

**Figure:** Semiparametric estimation compared with quadratic parametric fit
**Figure:** Credit to the Private Sector. Evolution of credit to the private sector over GDP (PC) for the sample of countries included in the cross-sectional regressions. The left panel plots the mean and median values of PC. The right panel plots the share of observations for which PC>90% (solid line) and PC>120% (dashed line).
Figure: Marginal Effect Using Panel Data.
Figure: **Countries with Large Financial Sectors (2006).** This figure plots the 2006 level of credit to the private sector over GDP (PC) for all countries that in 2006 had values of PC $>90\%$. The vertical line is at PC $=110\%$. 
Panel semiparametric results

Figure: **Semi-Parametric Regressions using Panel Data.** Solid black line plots semiparametric relationship between PC and GR. Dotted lines are 95% confidence intervals and solid light grey line plots the parametric quadratic fit.
Conclusions
Empirical findings

- In countries with very large financial sectors there is no positive correlation between financial depth and economic growth.
- There is a positive and robust correlation between financial depth and economic growth in countries with small and intermediate financial sectors.
- There is a threshold (estimated to be at around 80-100% of GDP) above which finance starts having a negative effect on economic growth.
- Results are robust to using different types of data and estimators.
- **No** empirical evidence of difference of inverted U-shaped relationship between finance and growth, between commodity-rich and commodity-poor countries.
Conclusions
Implications and research priorities

- This is only a first pass at the cross-country level...
- An interesting research agenda for the future
- More macro-level evidence is needed to disentangle effects of:
  - Institutions
  - Geography
  - Resource / commodity abundance
  - and their interactions
- Micro-level evidence is especially lacking
- Difficulty of finding convincing identification strategies