Financial Development, Innovation, and Growth

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Central questions

- Do countries with better developed banks and financial markets enjoy substantially greater economic success?
- Does this translate in higher capital accumulation or productivity growth?
- Why do not all countries take advantage of this?

Alternative views

- Economists hold startlingly different views about the impact of finance on long-run economic growth
  - 1) Finance promotes growth (Hamilton –Schumpeter)
    - “banks are the happiest engines that ever were invented for creating economic growth”
  - 2) Finance hurts growth (Adams):
    - “banks have done more harm to the morality, tranquility, and even wealth of this nation than they have done or ever will do good”
  - 3) Finance follows growth (Robinson)
  - 4) Finance doesn’t matter (Solow growth accounting):
    - “growth is mainly due to technological progress, leaving little role for finance”

Finance promotes growth: Theory

- Financial instruments, markets and institutions arise to mitigate the effects of information and transaction costs (market frictions)
- Thus, financial systems influence saving rates, investment decision, technological innovation, and long-run economic growth
- Possible dynamic interactions where financial system influences growth, and growth transforms the operation of the financial system (ongoing work)

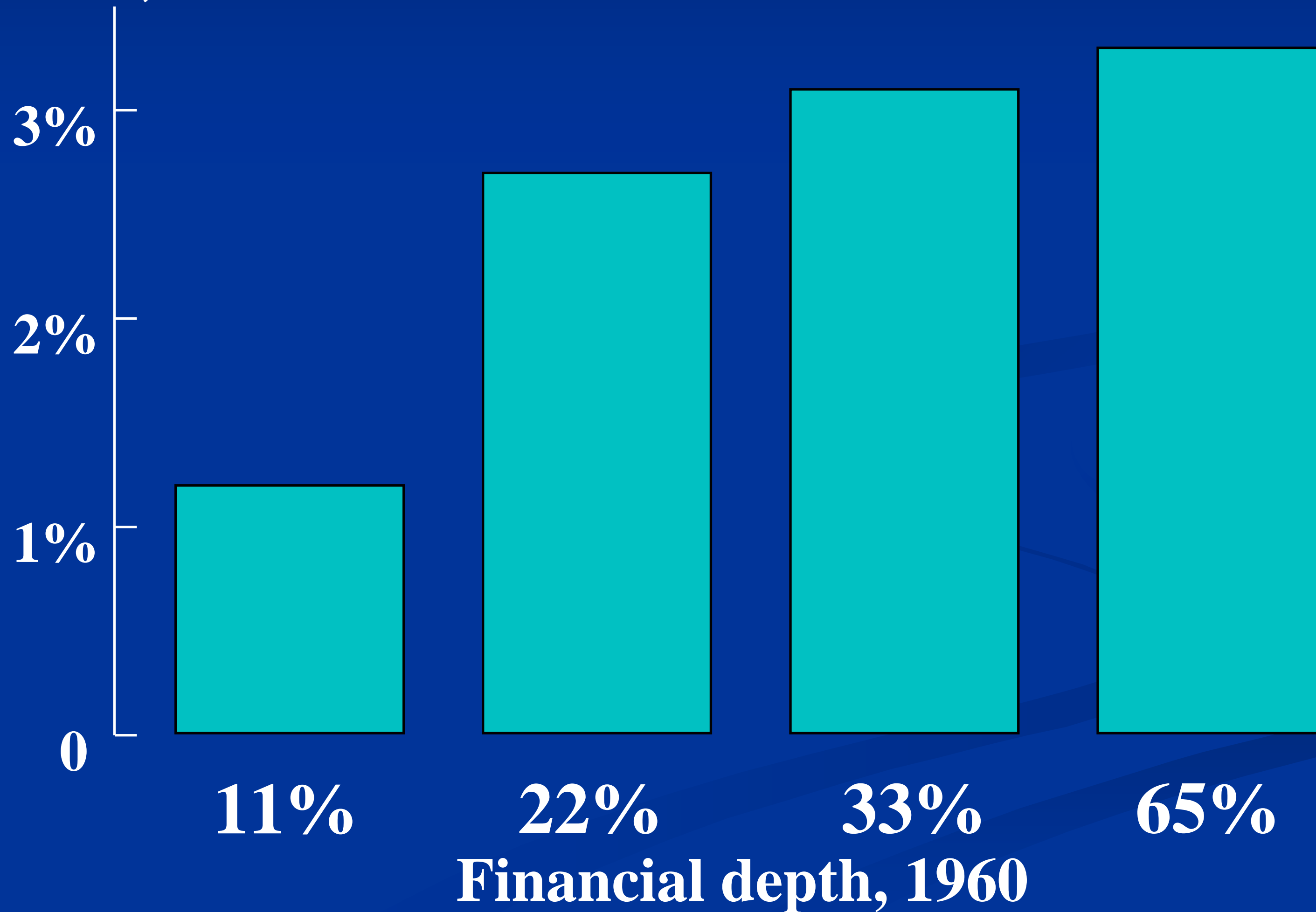
Functions of financial system (Levine, 2005)

- Produce information ex ante about possible investments and allocate capital
- Monitor investments and exert corporate governance after providing finance
- Facilitate the trading, diversification, and management of risk
- Mobilize and pool savings
- Ease the exchange of goods and services

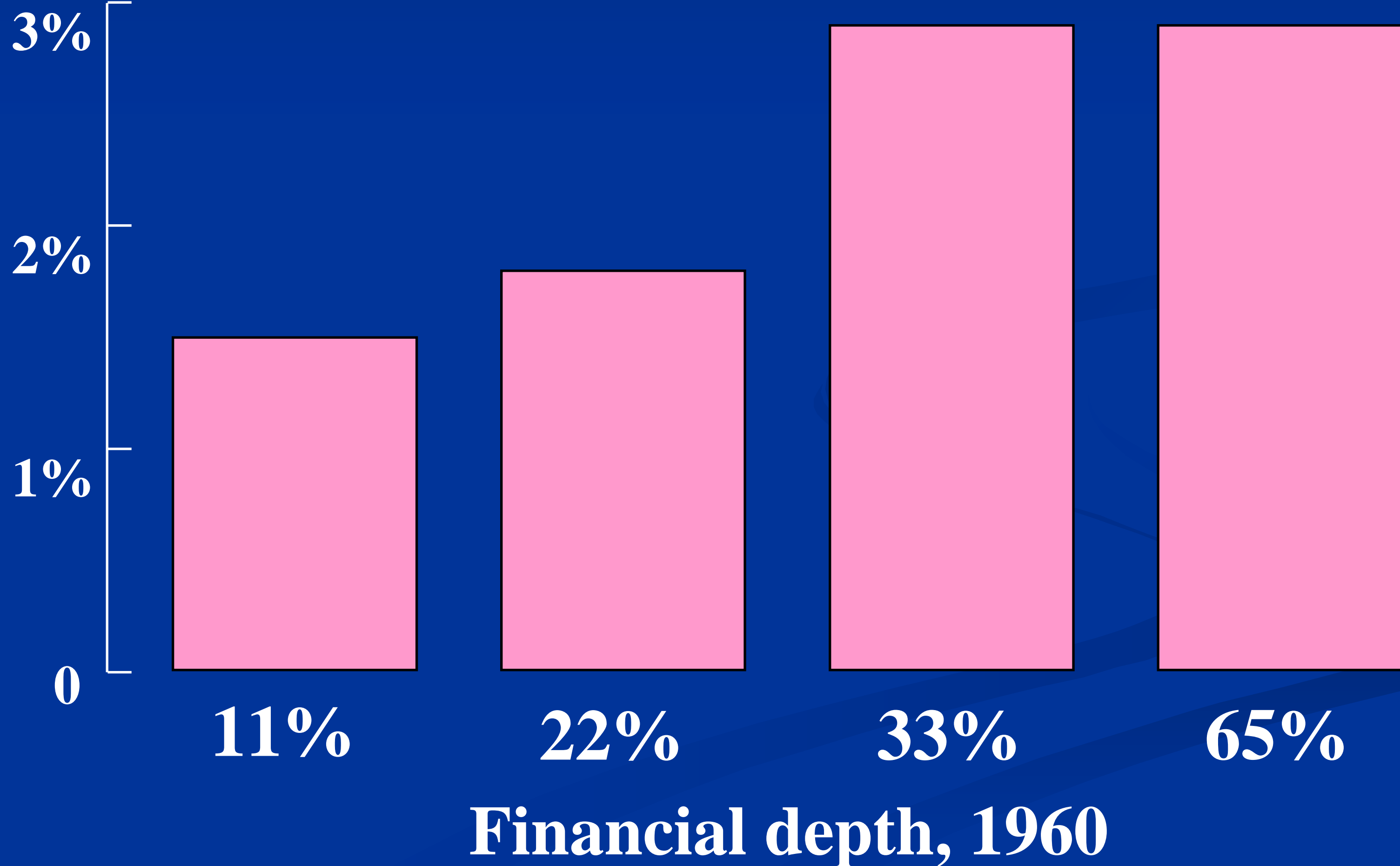
Empirical evidence

- Cross-country growth regressions (King and Levine 1993)
- Financial development in 1960, measured as Private credit to GDP, is positively associated with Growth in per capita GDP over period 1960-2000
- The banking sector influences long-run growth by altering the rate of TFP growth
- The relationship between financial sector development and both physical capital accumulation and private saving rates is more ambiguous

Financial depth predicts future growth



Financial depth predicts future productivity growth



Measures of banking development

- Empirical proxies for "financial development" do not measure accurately the concepts emerging from theoretical models, but rather capture financial deepening
  - Private Credit = Credit by banks to the private sector as share of GDP
  - Not a direct measure of the ability of banks to ameliorate information and transaction costs
- Countries financial development has seen reversals over the course of the 20th century (Rajan and Zingales 2003)
- Hartmann et al. (2007) collect new data on several aspects of the financial system, including financial innovation (securitization and venture capital)
- Though an improvement over existing measures, these indicators still does not directly capture the ability of banks to ameliorate information and transaction costs

Industry-level studies

- Cross-country growth regressions suffer from country-specific omitted variables and causality problems
- Rajan and Zingales (1998) address these problems (i) by looking at growth of industries within countries (so that they can control for country and industry fixed effects) and (ii) by looking deeper at the mechanism through which finance spurs growth
- They present evidence suggesting that industrial sectors that are relatively more in need of external finance develop disproportionately faster in countries with more developed financial markets

External financing across industries in the U.S. (1980s)

ISIC	Industrial sectors	Ext. Dep.	ISIC	Industrial sectors	Ext. Dep.
314	Tobacco	-0.45	332	Furniture	0.24
361	Pottery	-0.15	381	Metal products	0.24
323	Leather	-0.14	3511	Basic chemicals excl. fertilizers	0.25
3211	Spinning	-0.09	331	Wood Products	0.28
324	Footwear	-0.08	384	Transportation equipment	0.31
372	Non-ferrous metal	0.01	354	Pet. and coal products	0.33
322	Apparel	0.03	3843	Motor vehicles	0.39
353	Pet. Refineries	0.04	321	Textile	0.40
369	Non-metal products	0.06	382	Machinery	0.45
313	Beverages	0.08	3841	Ship	0.46
371	Iron and steel	0.09	390	Other industries	0.47
311	Food products	0.14	362	Glass	0.53
3411	Pulp, paper	0.15	383	Elect. Machinery	0.77
3513	Synthetic resins	0.16	385	Professional goods	0.96
341	Paper and products	0.18	3832	Radio	1.04
342	Printing and publishing	0.20	3825	Office computing	1.06
352	Other chemicals	0.22	356	Plastic products	1.14
355	Rubber products	0.23	3522	Drugs	1.49

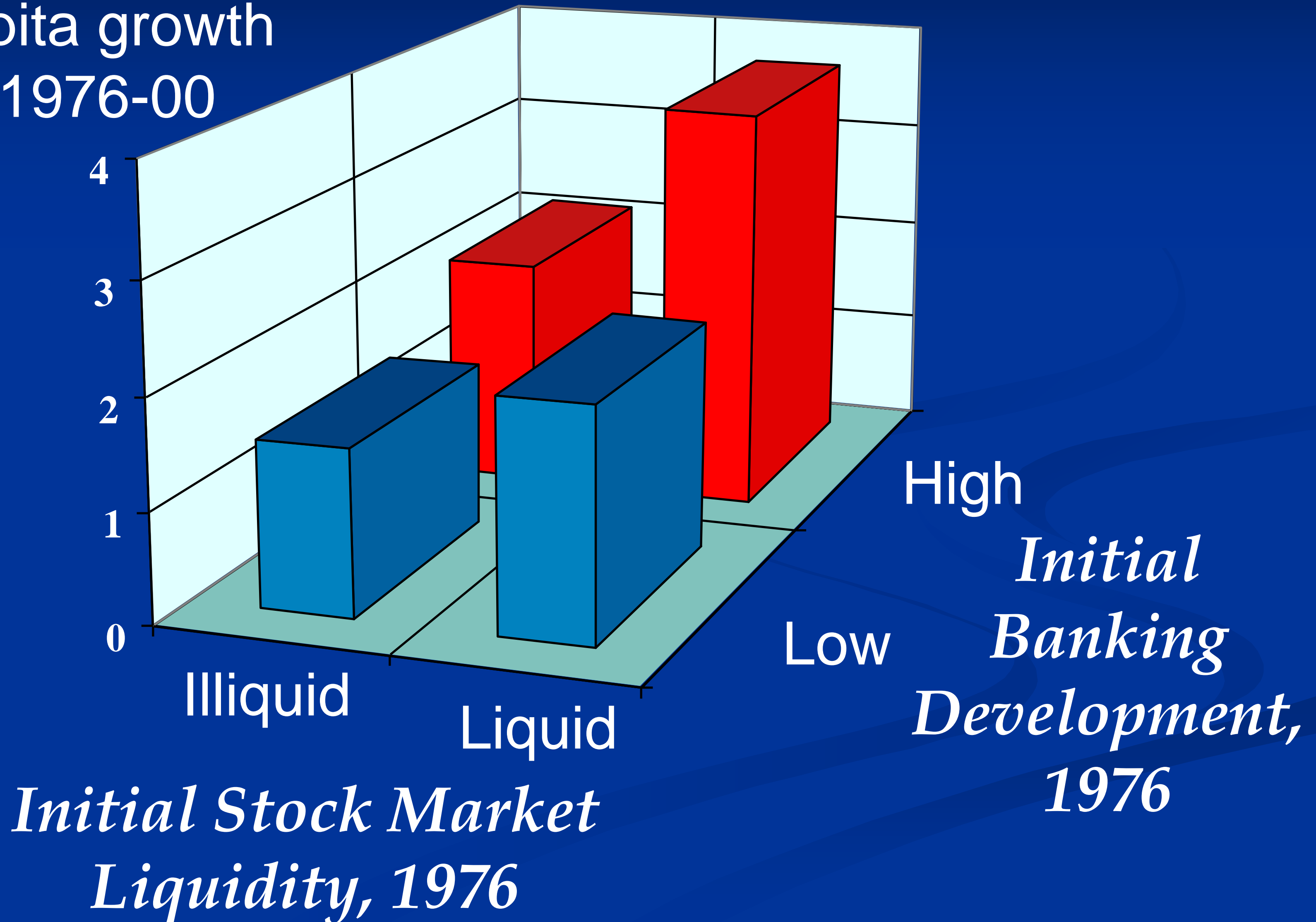
Firm creation and entrepreneurship

- Financial development and entry deregulation (lowering the cost of setting up a business) enhance firm creation, particularly for financially dependent firms and industries that naturally tend to exhibit entry (Klapper, Laeven, and Rajan 2006)
- Large incumbent firms depress the growth of new young firms

Banks versus markets

- Markets may not effectively monitor managers due to a free rider problem (Stiglitz 1985)
- Banks may gain a huge influence over firms and this influence may manifest itself in negative ways (Hellwig 1991; Rajan 1992)
- Banks may not be effective gatherers and processors of information in new, uncertain situations involving innovative products and processes (Allen and Gale 1999)
- Markets and banks may provide complementary growth enhancing financial services to the economy (Boyd and Smith 1998)
- Empirical evidence supports this notion (Beck and Levine 2002)

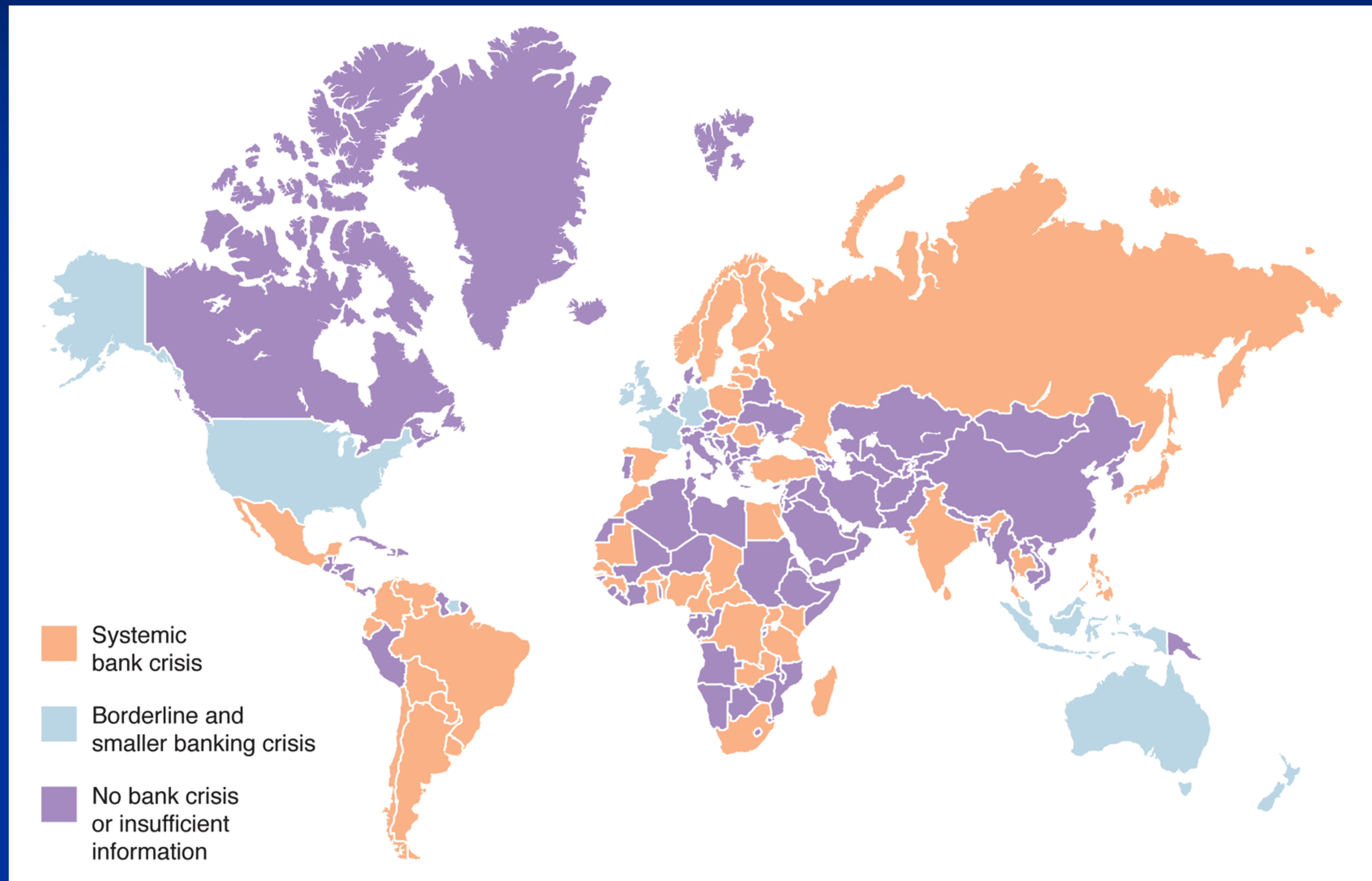
Growth, stock markets and banks



Constraints to financial development

- Political economy considerations: Vested interests may block financial reform (such as financial deregulation or liberalization; e.g., Kroszner and Strahan 1999)
- Political connections matter for access to finance (Claessens, Feijen, and Laeven 2007)
- Financial reform can lead to credit booms which often result in crisis (Barajas, Dell'Ariccia and Levchenko 2007, ongoing work)
- Although empirical evidence suggests that financial deregulation and liberalization result in greater firm growth and entrepreneurial activity (Jayaratne and Strahan 1996) and an improvement in the allocation of capital (Bertrand et al. 2007)

Banking crisis throughout the world



Banking Crises Throughout the World Since 1970, Source: Honohan and Laeven (2005)

Takeaway points

- Financial sector innovation and real sector innovation are likely jointly determined and their association with growth is therefore likely to be complex
  - More research on the causes and consequences of financial innovation, and its impact on growth, is needed
- Need a diverse financial system that caters to a broad set of borrowers
- Traditional measures of financial deepening do not always accurately reflect financial development
  - Financial development often coincides with episodes of financial instability, resulting in credit booms or even crisis
  - More work is needed to more accurately measure the performance of financial systems
  - The work by Hartmann et al. is a step in the right direction