

## Comments on Guiso et al (2004)

Pierre-Olivier Gourinchas

This is an interesting and ambitious paper on an important topic. A number of studies have documented the importance of financial development for economic growth. The authors argue that increased financial market integration in the euro zone will foster financial development, and therefore stimulate economic growth. This is a sensible argument.

The paper goes beyond mere generalities and boldly provides quantitative estimates of this “growth dividend” for EU countries. The analysis proceeds in two steps. First, the authors estimate the impact of financial development on economic growth on a large sample of countries, following the seminal approach of Rajan and Zingales (1998). With these estimates in hand, they proceed to evaluate the impact of financial integration for EU countries under two scenarii.

In the first scenario, they consider what would happen if financial integration lifted financial development in the eurozone to the ‘frontier’ i.e. U.S. levels. In the other, perhaps more realistic scenario, they consider what would happen if financial integration allowed EU members to adopt the ‘best EU practice’, i.e. the highest EU standards. Their estimates are very significant: growth in the manufacturing sector would increase by 0.6 to 0.7 percent per year.

My remarks will follow the natural gradient of the paper: first, I will discuss some potential pitfalls of the Rajan and Zingales (1998) approach. Then, I will review the connection between financial integration and financial development. As I will try to argue, the connection between the two is perhaps more subtle than one might initially think.

### 1 From financial development to growth

The first building bloc of the paper is an analysis of the relationship between financial development and growth. The authors follow the innovative instrumental variable approach of Rajan and Zingales (1998). Their key insight was to look at industry-level data instead of the country-level data typically used in earlier studies. Assume, these authors argued, that the degree of reliance on external capital is an industry characteristic, independent of the country. In other words, assume that the car industry has the same dependence on external capital in India and in the U.S.. If financial development affects growth, we should observe that more dependent industries suffer more in countries that are less financially developed. The key explanatory variable is the interaction between external dependence (the industry characteristic) and financial

development (the country characteristic). As Guiso et al discuss, this is a clever estimation approach, that circumvents the reverse causality problems that plagued the early empirical literature on the topic.

There is one problem though: the analysis disregards the long-run impact of financial development on a country's industrial composition. Let's consider again the example of India and the US. The financial underdevelopment of India will manifest itself in many ways, two of which are relevant to this discussion. First, if trade in manufacturing goods is possible, India will have an incentive to specialize in industries in that are less dependent on external capital. In essence, trade in manufacturing goods allows India to 'import' the level of financial development of the U.S. This is a standard implication of the theory of comparative advantage.

Rajan and Zingales' approach breaks down in that case: in the limit where India specializes in industries that do not need external finance, there is a perfect correlation between financial development and industry composition.

Second, even if specialization is not complete, India will have an incentive to specialize in processes –within industries– that are less dependent on external capital. We should not expect India to produce cars using the same technology as the U.S. As Rajan and Zingales (2004) document, India's car industry was shielded from foreign competition until the 1992. As a result, Indian consumers “had the choice between just three car models, and only one if they wanted a big car. The cars were obsolete gas-guzzlers, unchanged in design for decades (the biggest car, the Ambassador, had been designed in England nearly forty years before)”. On the side, a thriving underground economy developed, assembling rickety cars powered with lawn mower engines!!

Clearly, this manufacturing process was less efficient than the automated production processes lines in the U.S. The important point is that the car industry in India and the US faced different degrees of dependence on external capital, partly in response to the India's financial underdevelopment, and partly as a response to excessive regulation and taxation.<sup>1</sup> The direction of the overall bias is ambiguous: specialization reduces financial bottlenecks, which increases growth. But specialization also leads to the adoption of inefficient technologies. Fisman and Love (2004) develops an analysis along these lines.

The authors claim that to control for this problem by including the beginning of period industry share. Yet it is unclear that this solves the problem: if countries industry growth rates are close to the average but the industry

---

<sup>1</sup>The story has an interesting coda: following India's market opening, many foreign manufacturers developed local ancillary manufacturers and provided them with the financial and technological assistance to bring them to the technological frontier. India is now producing 600,000 cars, from about 50,000 twenty years ago, and planning to export some 20,000 to developed countries. See Rajan and Zingales (2004).

composition differs in a systematic way, the Rajan and Zingales estimates will be biased all the same.

## 2 From financial integration to financial development

The second leg of the argument runs from financial integration to financial development. The authors define financial integration as “a situation in which financial instruments with the same risk and return trade at the same price” (p3), hence equating financial integration with the Law of One Price. While this is the ultimate outcome of financial integration, it is important to think about the mechanisms through which it might occur. For if we equate financial integration and the Law of One Price, the relationship between financial integration and financial development becomes almost tautological: when similar financial instruments have the same price, it must be the case that financial development has converged, in the sense that firms and households face a similar financial environment independently of where they are located. Therefore, I find it more useful to think of financial integration as the elimination of barriers to capital mobility. Whether this translates into the Law of One Price depends in part on how it affects financial development.

This is also the approach that the paper takes, arguing that financial integration “should increase the supply of finance in the less financially developed countries of the integrating area [...] either because it brings more efficient intermediaries closer to the firms in backwards area [...] or because it enables the same firms to access more distant financial markets” (p5). What is important in the previous statement is the assumption that financial integration matters because it improves the efficiency of the financial sector. In the standard growth model, financial integration matters because it allows faster capital accumulation for capital-poor countries. But this particular source of welfare and output gains, central to the neoclassical growth model, proves limited in practice (see Gourinchas and Jeanne (2003) for some estimates of the gains from complete financial integration when there are allocative but no productive efficiency gains).

Instead, the gains from financial integration, if any, are to be found in their direct and indirect effects on domestic efficiency. Eliminating the domestic ‘wedges’ between the product of capital and its return to investors is potentially a big deal, and the paper focuses on the right questions. It argues that financial integration can either be a substitute or a complement to financial development. It is a substitute when domestic firms can access foreign –efficient– capital markets. It is a complement when it increases local competition and the efficiency of local intermediaries.

Unfortunately, the authors do not provide an answer to this question. They simply assert that financial integration will, nilly-willy, either provide local

firms and households with better access to cheap finance, as it substitutes for, or complements, domestic financial development. While this is a plausible outcome, one that we wish to believe, it is unclear that this assumption is warranted.

One problem is that the empirical evidence is not terribly supportive. We do not need to look far to reach that conclusion. Consider the assumption that financial integration allows local firms and households to access foreign capital markets. According to the authors, this should weaken the link between the level of domestic financial development and industry growth. Therefore, we should expect to find smaller coefficients on external dependence for countries with open financial account. Yet Table 2 column 5 of the paper indicates that the interaction between the external dependence/financial development variable and a non-OECD dummy is non significant. In other words, the link between financial development and growth is the same for non-OECD and OECD countries despite the latter having more open financial accounts.

Looking over time, and following a similar reasoning, we should expect the link between financial development and growth to weaken, as financial integration proceeds. Yet comparing column 1 and 4 of Table 4, we find instead that the coefficient on external dependence has increased between 1967-1981 and 1981-1995 from 0.035 to 0.048. Yet over the same period, financial integration increased substantially. For instance, Feldstein Horioka type regressions find much lower correlation between domestic investment and national saving for OECD or EU countries in recent years (see Blanchard and Giavazzi (2002) for some estimates). Taken together, these two results indicate that both in the cross section and in the time series, we cannot find strong evidence of a weakening link between financial integration and local financial development.

There are also good reasons to doubt that financial integration will stimulate domestic competition and increase local efficiency. Financial integration implies that private saving is free to move around. When domestic financial markets are repressed or inefficient, the net effect of financial integration may be a drying up, not an increase, in liquidity. Large domestic corporations may still be able to access foreign capital markets. But small and medium businesses, with access only to local capital markets, would face steeper cost of capital.

What is critical is whether domestic institutions are sufficiently developed to attract foreign capital. Consider the case of the many African countries with nominally open financial account. Private foreign investors have not been exactly rushing in. For financial integration to deepen local financial markets requires requires good domestic institutions.

### 3 Financial integration, Financial Development and Trade

This discussion had two themes. First, specialization can influence the link between financial development and growth. Second, the link between financial integration and financial development can be subtle. I now illustrate some of these linkages with a simple growth model. In that model, it is international trade, not financial integration, that eliminates domestic financial bottlenecks.

Two countries produce a final good  $y$  using two intermediate goods  $x_1$  and  $x_2$  according to a common Cobb-Douglas production function:  $y = x_1^\alpha x_2^{1-\alpha}$ .  $x_1$  and  $x_2$  are produced with physical capital according to the following production functions  $x_1 = \phi^{-1} k_1^\beta$  and  $x_2 = k_2^\beta$ . The coefficient  $\phi$  captures the degree of financial underdevelopment. A lower  $\phi$  means a more efficient domestic financial sector. By assumption, financial bottlenecks only affect sector 1. Moreover, we assume that the domestic country is financially backward, i.e.  $\phi > \phi^* = 1$  where a star denotes foreign variables. The rest of the model is standard: the preferences over consumption sequences of the representative agent satisfy  $\int_0^\infty e^{-\rho t} \ln(c_t) dt$  with a budget constraint  $\dot{k} = rk - c$  where  $r$  is the rental rate on capital  $k$ .

Consider the steady state under financial autarky, i.e. when the financial account is closed. It satisfies the following conditions. First, the capital stock  $k$  is equal to  $\left[ \phi^{-\alpha} / \rho \left( \alpha^\alpha (1 - \alpha)^{1-\alpha} \right)^\beta \right]^{1/(1-\beta)}$  and decreases with  $\phi$ . Second, the price of  $x_1$  in terms of the final good is equal to  $\phi^{1-\alpha} \alpha^{1-\beta} \left( \alpha^\alpha (1 - \alpha)^{1-\alpha} \right)^\beta / \beta$  and increases with  $\phi$ . Finally, the ratio of capital in both sectors is  $k_1/k_2 = \alpha / (1 - \alpha)$ , independent of the level of financial development. In steady state, a financially dependent country has less capital (of both kinds) and a steeper price of intermediate 1. But the interest rate is equal to the discount factor in both countries,  $r = \rho = r^*$ , so that opening the financial account and trading the final good would have no effect at all on the equilibrium allocations. Financial integration per se does not eliminate financial frictions.

Consider now what happens if we allow for trade in the intermediate goods, yet maintain a closed financial account. The Law of One Price imposes that  $p_1^* = p_1$  and  $p_2^* = p_2$ . This is only possible if the domestic country stops producing  $x_1$  and specializes in  $x_2$ . In that case, the steady state satisfies  $k = (1/2\rho)^{1/(1-\beta)}$ ,  $p_1 = p_2 = 1/(2\beta)$  and  $r = r^* = \rho$ . Specialization allows the domestic country to “import” the foreign level of financial development, bundled with imports of  $x_1$ ! This removes the domestic financial friction. Once again, opening the financial account would not change equilibrium allocations since both countries face the same interest rate in equilibrium.

What is going on? Financial integration only allows intertemporal trade in this model. This cannot alleviate domestic financial frictions: whether goods

are produced today or tomorrow, they suffer from our low level of financial development. Unless, that is, we assume that financial integration reduces  $\phi$ . But why should it? On the other hand, trade in intermediates provides a direct mechanism for eliminating this inefficiency. The model is only meant as an illustration. Yet it conveys what I believe are complex interactions that deserve further empirical and theoretical scrutiny.

Perhaps, for EU members, especially accession countries, the impact of trade integration on financial development will be much more significant than the gains from financial integration.

## References

- Blanchard, Olivier and Francesco Giavazzi, "Current Account Deficits in the Euro Area. The End of the Feldstein Horioka Puzzle?," in "Brookings Papers on Economic Activity" 2002.
- Fisman, Raymond and Inessa Love, "Financial Development and Growth in the Short- and Long-Run," 2004. mimeo, Columbia Business School.
- Gourinchas, Pierre-Olivier and Olivier Jeanne, "The Elusive Gains from Internatinal Financial Integration," May 2003. NBER Working Paper 9684.
- Rajan, Raghuram and Luigi Zingales, "Financial Dependence and Growth," American Economic Review, June 1998, 88 (3), 559–86.
- and —, "Capitalism for Everyone," National Interest, Winter 2003-2004 2004.