Review of
Financial Crises, Liquidity, and the International Monetary System
by Jean Tirole

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Jean Tirole is a distinguished economist, well known for his contributions to game theory, industrial organization, and corporate finance. Although Tirole wrote a much cited paper on price bubbles in intertemporal general equilibrium models early in his career, he has not been known for his work on open economy macroeconomics. In this book, Tirole takes on the topic of the international financial crises in developing countries that have occurred since the 1994-1995 Mexican crisis from the point of view of an outsider: he studies this topic using the tools of contract theory, in particular, variations of the principal-agent model.

Reviewing the large and growing literature on international financial crises, Tirole concludes that most of it has focused on the symptoms, rather than on the underlying causes, of the crises. He asks, Why does capital account liberalization in developing counties sometimes lead to what are perceived as inefficient market outcomes? What determines a country's access to attractive levels and forms of financing? What is the role of the international financial institutions, such as the International Monetary Fund (IMF), in regulating international capital flows?

The book proposes a framework for analyzing international financial crises using the sorts of tools used in the modern theory of corporate finance. Tirole identifies two sources of market failures that lead to an undersupply of funds in international context: the dual agency problem and the common agency problem. The market failures result from externalities that are not internalized in the absence of contracting with the government. Tirole sketches out a potential role for the IMF in helping borrowers and lenders internalize these externalities and thereby ensure an efficient allocation of capital across countries.

The dual agency problem arises when the actions of two agents affect the payoff of one principal. In the context of capital account crises, Tirole observes that, while a foreign lender (the principal) can contract with a private borrower (one of the agents), the lender cannot contract with the borrower's government (the other agent). The government's actions affect the return on foreign investment, however, through such instruments as taxes and exchange rates. There is a time-consistency problem: ex ante, the government would like to commit to policies that increase expected return on foreign investment, but, ex post, once investment is sunk, the government has no incentives to

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honor its commitment. Two sources of time inconsistency apply. First, the government favors the interests of domestic constituencies over those of foreign investors and, therefore does not fully internalize the value of foreigner's claims. Second, the presence of a wedge between the total value generated by the domestic productive activity and the amount of income that can be credibly promised to outside investors (pledgeable income) leads to credit rationing (where some socially desirable projects do not receive financing from capital markets) and the government does not internalize the effect of its policy on the country's credit limit. The wedge between pledgeable income and the net present value of the domestic firms arises for two reasons. In the domestic context, it reflects the presence of agency costs: insiders derive private benefits, which cannot be appropriated by the investors (for example, employment and prestige), and investors need to provide insiders with some financial incentives to help align their preferences with those of the investors. In the international context, the amount of pledgeable income is determined not only by the borrower's agency costs but also by the country's "international collateral," which is limited by its ability to produce tradable goods since foreigners have little demand for nontradables.

The common agency problem arises when the payoff of several principals is affected by the action taken by one agent. Tirole argues that market failures associated with the common agency problem arise both in the context of private borrowing and in that of sovereign borrowing:

- In private borrowing, pairwise contracts between private borrowers and lenders produce externalities on each other by affecting government incentives. Although each lender is too small to affect government decisions, the aggregate contract structure affects government choice at the margin. When the share of equity held by foreigners increases, for example, government incentives to adopt policies that bring higher expected return on investment is reduced if the cost of adoption of such policies is borne solely by the borrowing country.

- In sovereign borrowing, the government contracts with several lenders and does not take into account the negative externality that each contract imposes on the other lenders. When shifting loan maturity structure towards the short term, for example, the government and the new lender do not take into account that their contract devalues the claims of other, longer-term, investors since short-term borrowing increases the probability of not withstanding liquidity shocks in the near future. It is worth pointing out that, although similar problems can arise when a firm borrows from several investors, there are contractual mechanisms to mitigate this problem in the context of corporate borrowing (for example, covenants imposing limits on issuance of equally or more senior securities and acceleration clauses). Such contractual mechanisms are largely absent in the context of sovereign borrowing.

These externalities induce inefficiencies that, under competitive capital markets, are passed through to the domestic borrowers, who lose access to attractive forms of financing. Thus, the cost of incomplete contracts is ultimately borne by the borrowing country.

Tirole points out a weak link in many discussions of the international financial crises, namely, that the structure of private financial arrangements affects government behavior, and, therefore, any proposal to alter this structure needs to consider its impact on government incentives. To analyze currency and maturity mismatches, for example, we need to understand how these mismatches come about in the first place and what effects they have on government behavior. Tirole emphasizes that the total amount of borrowing, including liquidity needs, is limited by the country's international collateral. Short-term debt allows the country to borrow more, but increases the probability of not withstanding liquidity shocks. As a result, short-term debt plays a role of a disciplining device in that it makes domestic firms more susceptible to liquidity shocks and, thereby, forces the government to adopt more investor-friendly policies, which help secure refinancing and increase country's borrowing capacity. Thus, at a relatively low level of debt, a decrease in the short-term debt may reduce the welfare of the borrowing country.

To resolve the dual agency problem and the common agency problem, we need to find a mechanism by which the interests of the foreign investors can be represented. For example, the country may gain better access to international capital markets by "hiring" an international monitor, who would substitute for missing contracts between international lenders and the domestic government. Tirole suggests that the IMF could play the role of such a delegated monitor on behalf of foreign investors.

The book raises an important question: What "should" the main objective of the IMF be? It argues that currently this organization may be trying to achieve too many goals, which are at times conflicting. Although Tirole proposes a focused objective for the IMF — namely, achievement of efficient borrowing solution in the presence of market failures — it is not clear that this role of a delegated monitor is politically feasible. Currently, the IMF is a "credit union" consisting of "permanent" borrowers and "permanent" lenders. The success of a delegated monitor approach hinges on the credibility of government commitment: Can the IMF devote itself to protecting the interests of foreign investors only, even if in the end the borrowers would benefit from this approach? Can the IMF itself commit to forcing a government to follow policies that are optimal ex ante but very painful ex post? Does the IMF have enough leverage over sovereign countries to enforce such policies?

Yet another thorny issue is whether the governments would be willing to give up some of their control rights to foreign creditors, as the corporate finance principle of conditionality dictates. Tirole points outs that the governments have already given up some of their control rights to the IMF. Nevertheless, the governments collectively "own" the IMF and retain their voting power in the organization at all times. With foreign creditors, however, the governments would face a difficult choice of transferring control rights to complete outsiders, who are mostly concerned about their own profits.

The book provides useful insights on how the countries with limited access to international capital markets could improve their borrowing prospects. Even if contracting problems are resolved, however, the outlook for countries with limited capacity to produce tradable goods and, thus, with small international collateral to start with, remains quite gloomy. Tirole does not address this issue, but, following the book's logic, we can conclude that efficient market solution does not guarantee the inclusion of these countries in the world capital markets.

This book is a valuable asset to graduate students and to researchers who are studying the causes of financial crises and the role of international financial institutions. Tirole lays out a broad research agenda and provides a rigorous contract theory approach to analyzing international financial arrangements. It should be stressed, however, that this is exactly what the book does: it lays out a research agenda rather than provide extensive examples of analysis that follows this agenda. Tirole (2003) takes some important first steps, but the field is still wide open. The book abounds with topics for potential graduate theses and research papers. For example, this approach could help us answer the question posed by Cole and Kehoe (2000) of why Mexico shortened the maturity of its debt in 1994 even though this shortened maturity left the country vulnerable to a self-fulfilling crisis.

Since the book started out as the text of a public lecture, the Paolo Baffi Lecture at the Bank of Italy, it is written without much explicit reliance on formal economic theory. In particular, it does not contain any equations. This makes the book potentially valuable to policy analysts and readers with an interest in international finance but without training in formal economics. Make no mistake, however: any potential reader needs to be able to follow somewhat complicated logical arguments or at least be able to take the conclusions of these arguments on faith. The argument that the inefficiencies induced by the dual agency problem and the common agency problem impose costs that are ultimately borne by the borrowing country, and not by the lenders, is hard to follow for someone not used to seeing a principal-agent problem presented as a constrained maximization problem. Unfortunately, this sort of argument can also be hard to follow for readers trained in formal economics without having the equations explicitly laid out. It is only by trying to write down these equations that a reader can understand the role played by the assumption of competitive capital markets and the potential limitations of the argument induced by the neglect of general equilibrium effects on the world interest rate. Then again, this is the value of the book: a graduate student or researcher can pick it up, try to fill in the details of an argument, work out the implications and limitations, and be off and running on a research topic.

References

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