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Program Report

International Finance and Macroeconomics

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It has been three years since the NBER's Program in International Finance and Macroeconomics was last reviewed in the *NBER Reporter*. During this period, many researchers have continued to tackle the traditional problems of international finance, including: 1) the large and persistent apparent deviations from uncovered interest parity; 2) insufficient global diversification of risk; and 3) the slow convergence of real exchange rates to equilibrium levels. But many researchers have been attracted by more contemporary problems. Most notably, in the wake of the dramatic events in Europe and Latin America, there has been a resurgence of interest in the analysis of speculative attacks on fixed exchange rates and open economy monetary policy. A common goal of much of this research has been to understand better the nature of international capital flows.

This report does not attempt to be comprehensive. Many researchers in the IFM program work in overlapping fields, and much of their work is covered most appropriately in other program reports. For this reason, and for the sake of brevity, this report omits four recent "hot" areas of IFM-related research: international aspects of long-run growth; political economy; regional trading blocks; and international aspects of fiscal policy.

Real Exchange Rates

One of the recent areas of resurgent research in open economy macroeconomics has been the examination of real exchange rates. Much of this work is distinguished by the use of innovative datasets. The new datasets are long (in terms of time span), wide (in terms of the number of economic factors, commodities, or countries examined simultaneously), or clever (they

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involve the prices of Big Macs® or *The Economist*).

Perhaps three years ago a loose consensus had developed that deviations from purchasing power parity (PPP) have a half-life of around four years, as demonstrated by Froot and Rogoff.[1] Not only did they find convergence to PPP, but it seemed remarkably stable across different regimes, as exemplified by a dataset stretching back almost 700 years![2] Parsley, Wei, Frankel and others have confirmed this using panels of data covering many countries in the postwar period, while Cumby shows even faster convergence using an imaginative panel of Big Mac® prices.[3] However, Engel shows that the statistical evidence for convergence to PPP is weaker than it seems, while Taylor argues that the evidence seems to depend on the era considered.[4]

Since PPP can be expected to hold only in narrow circumstances, it is not surprising that the long-run *determinants* of real exchange rates continue to be a subject of great interest. In a pure accounting sense, Engel shows that real American exchange rate changes are accounted for almost completely by changes in *nominal* exchange rates; prices (even the relative price of nontradables) account for almost none of the variance, even at low frequencies.[5] Chinn and Johnston find that government spending and productivity trends help in the analysis of real exchange rates; their finding is confirmed by Canzoneri, Cumby, and Diba; and by De Gregorio and Wolf.[6] On the other hand, Clarida and Galí find little evidence of important supply-side determinants.[7]

International pricing *per se* remains a subject of interest to IFM researchers. Engel and Rogers show that price disparities within countries or regions are much more closely linked and likely to converge than price disparities across countries. This finding is

confirmed by Parsley and Wei, while Ghosh and Wolf document the importance of price stickiness and menu costs using a dataset consisting of prices for *The Economist* magazine.[8]

The renewed interest in empirical analysis of *real* exchange rates has not been matched by a comparable interest in *nominal* exchange rates.[9] However, the promising examination of market microstructure in the foreign exchanges begun by Lyons, Goldberg and others continues, albeit at a somewhat slower clip.[10]

The intertemporal approach to macroeconomic fluctuations in the open economy also continues to be an area of interest to IFM researchers. Obstfeld and Rogoff are most closely identified with this area, which forms an integral part of their new book; Razin and Milesi-Ferretti have provided related empirical analysis.[11]

International Financial Markets

Perhaps the most important continuing mystery of international finance is the "forward discount premium puzzle"; countries with high interest rates tend to have appreciating rather than depreciating currencies. Thus investors who receive a high interest rate return also tend to experience capital gains from currency appreciation, a deviation from the *uncovered interest parity* condition. Backus, Foresi, and Telmer show just how hard it is to rationalize this in models based on the absence of arbitrage and a reasonable risk premium. On the other hand, Elliott and Ito argue that the profits apparently available from investments in high interest rate countries are small and variable.[12] Marston looks at a number of parity conditions jointly, while Lyons and I examine them during currency crises.[13] Flood and I find that interest differentials are linked more closely to exchange rate changes for fixed exchange rate regimes than flexible ones; Favero, Giavazzi, and Spaventa analyze European interest rate differentials directly.[14] This area has been surveyed separately by both Engel and Lewis.[15]

While the forward discount premium puzzle links different financial asset prices, the other great unsolved problem of international finance is "home market bias" in asset stocks. This is the fact that investors tend to hold too many domestic securities for typical portfolios to be well-diversified internationally. Baxter, King, and Jermann show that the existence of nontradables (such as human capital) makes the problem look even worse.[16] But Lewis, Taylor, Baxter and Crucini, show that even though risk *appears* not to be shared or smoothed adequately internationally, there are a number of reasons why there may be few important deviations from optimum conditions.[17]

Speculative Attacks

After years of relative calm, the international financial system has experienced at least three waves of important speculative attacks of late. The attacks on the European Monetary System (EMS) in 1992 led to a number of devaluations and drove the United Kingdom, Italy, and Sweden from their stabilized exchange rate arrangements; the bands of the EMS were widened from ± 2.25 percent to ± 15 percent in 1993; Mexico devalued and then floated the peso in 1994; and a number of other Latin currencies were attacked in the "Tequila" aftermath. The features of these speculative attacks have led to a renewed research interest, and NBER economists have been at the forefront of this work, ably surveyed by Garber and Svensson.[18]

While some of these attacks were driven by economic fundamentals inconsistent with exchange rate policy, a number of them were not clearly warranted by policy inconsistencies. Hence there was a resurgence of interest in the concept of *self-fulfilling* exchange crises. Obstfeld has worked on models where attacks shift policy in such a way as to rationalize the attack itself, while Eichengreen, Wyplosz, and I have provided empirical analysis that indirectly supports the notion of self-fulfilling crises in the EMS.[19] Sachs, Tornell, and Velasco argue that the Mexican crisis was self-fulfilling rather than inevitable.[20] On the other hand, Atkeson and Rios-Rull believe that the Mexican crisis resulted from the inevitable collision of domestic considerations and sovereign risk, while Bordo and Schwartz argue that crises historically have resulted almost always from the conflict between external and internal policy commitments.[21]

Another issue that has attracted interest is the way that speculative attacks on one country are associated with attacks on other currencies. Buiter, Corsetti, and Pesenti analyze this relationship in the context of Europe with a model of the center country and its periphery.[22] Eichengreen, Wyplosz, and I provide empirical evidence that attacks on one country tend to spill "contagiously" over to others depending on *trade* links, while Sachs, Tornell, and Velasco find that *macroeconomic* policy is the key to understanding contagion during the 1995 "Tequila Effect."[23]

The recent speculative attacks also have led to a host of related developments in the literature. Flood, Garber, and Kramer have extended the standard model to account for the role of sterilized intervention, a highly visible defensive tactic in recent attacks.[24] Flood and Marion have analyzed devaluations in emerging markets with capital controls; Frankel and I provide related empirical evidence.[25] Frankel and

Schmukler evaluate the returns on closed-end investment funds, and find some evidence that Mexican residents suspected the pending devaluation before foreign investors.[26]

Transformation in Latin America and Europe

Many Latin American countries (including Argentina, Brazil, Chile, and Peru) have pursued far-reaching stabilization programs in recent years. A number of these stabilizations have been successful, at least thus far, as documented by Rebelo and Vegh.[27] Bruno and Easterly show that debtor countries with high inflation reform themselves more successfully than countries with moderate inflation.[28] Many of the Latin countries used fixed exchange rates as a "nominal anchor" during these stabilization programs, a subject discussed by Flood and Mussa.[29]

What can be fixed can be floated; the most striking feature of fixed exchange rate regimes is that they tend to collapse.[30] Although the behavior of exchange rates in the European Monetary System continues to be a topic of interest to IFM researchers, the field as a whole has rendered a negative verdict on fixed exchange rates.[31] And as fixed exchange rate regimes become increasingly unpopular, researchers have redirected their attention to alternative monetary policies. Lars Svensson has been at the forefront of recent analysts of inflation targeting.[32]

A growing consensus argues that fixed rates may not even be a critical component of a successful stabilization program. Tornell and Velasco show that fiscal policy may be better disciplined if exchange rates float, since lax policy is punished by exchange rate depreciation quickly.[33] This work is confirmed indirectly by Edwards and Losada in the context of Latin America, and more theoretically by Persson and Tabellini.[34] Edwards shows how easy it was for at least some of the Latin Americans to correct their previous fiscal excesses.[35]

While Latin American countries continue on the road to reformation, European countries are preparing for economic and monetary union (EMU). Persson and Tabellini demonstrate the advantages of using monetary policy to target inflation for countries wishing to enter EMU.[36] Eichengreen and von Hagen, and Aizenman examine the role of fiscal policy in currency unions.[37] Ghosh and Wolf have applied mathematical techniques from genetics to determine the optimum scope of currency areas.[38] Frankel and I have analyzed the relationship between international trade patterns and business cycle symmetry in the same context; Alesina and Perotti provide related work on fiscal unions.[39]

Capital Flows and Controls

The resumption of capital flows to Latin America in the early 1990s marked the end of "The Debt Crisis" (of the 1980s). Dooley, Dornbusch, Eaton, Fernandez, and others have taken the opportunity to review the lessons from the 1980s.[40] However, the new capital flows were themselves the source of much intense study, both after the Mexican crisis of 1994–5 and, remarkably, *before* the Mexico crisis.[41] Cole and Kehoe have shown why sovereign borrowers preserve their reputations by repaying debt in order to be able to borrow in the future.[42] And while most of the work of IFM researchers on empirical markets has focused on Latin America and Southeast Asia, there has also been some work on the economic transformation of Eastern Europe and the former Soviet Union.[43]

Capital controls continue to be an active source of interest for a number of researchers, such as Dooley.[44] Bartolini and Drazen model capital controls as signals of government information, thereby explaining why the removal of controls on *outflows* actually induces capital *inflows*.[45] Razin and Yuen show that controls can alter the slope of the Phillips curve.[46] Frankel argues that a "Tobin tax" on foreign exchange transactions has some advantages, though it might be difficult to enforce.[47] Tax policy in the context of countries that compete internationally has been the subject of intensive work.[48]

Conferences and Other Activities

The IFM Program meets for a week of the annual NBER Summer Institute; typically one day's session is shared with the Asset Pricing group. In addition, since 1994 there has been an annual one-day program meeting in late March. But the IFM Program is integrally involved with a large number of other conferences, including the International Seminar on Macroeconomics, the East Asian Seminar on Economics, and the Inter-American Seminar on Economics. In 1996 Robert Hodrick organized the NBER-Universities Research Conference on the "Determination of Exchange Rates".[49]

Finally, no discussion of recent academic work in international economics would be complete without mention of the recently published third volume of the *Handbook of International Economics*. This was edited by NBER Research Associates Gene M. Grossman and Kenneth S. Rogoff, and includes contributions from a large number of IFM researchers.

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[48]*Members of the IFM program have participated in research organized in the public economics program. See, for example,* The Effects of Taxation on Multinational Corporations, *M. Feldstein, J.R.Hines, Jr., and R.G.Hubbard, eds. Chicago: University of Chicago Press, 1995. See also E.G. Mendoza and L. L. Tesar, "Supply-Side Economics in a Global Economy," NBER Working Paper No. 5086, April 1995.*

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Research Summaries

Evaluation of Tax Policy

Louis Kaplow*

Much of my research on tax policy has focused on the elusive problem of evaluation. This article briefly reviews my work in three areas where this problem has been important. First, I describe a challenge to recent consensus views about how policymakers should assess the welfare costs of financing public goods through distortionary taxes and of implementing environmental taxes. Second, I summarize my work in reconciling notions of tax equity with economists' notions of social welfare. Finally, I consider the challenge of analyzing problems of tax complexity and enforcement while simultaneously assessing the equity and efficiency of the tax systems being administered.

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Financing Public Projects and Levying Environmental Taxes

The conventional view of economists is that, in determining the optimal level of public goods and services, one must take into account directly the cost of financing those goods and services with distortionary taxes, notably, a tax on labor income.[1] For example, if a project entails a direct cost of $1.00 per capita and produces a benefit of $1.10, it may well be undesirable if, say, raising the income tax imposes a distortion of $0.25 for every dollar of revenue raised.

My research calls this standard view into question.[2] Indeed, the type of projects that are usually analyzed can be financed in a manner that involves no additional distortion. For example, suppose that a new project produces benefits that rise with income (for example, police protection, which may be more valuable to those with more to protect). Suppose further that this project is financed by a tax increase that rises with income at the same rate. Then, the combination of the new project and the tax increase will not cause any change in individuals' labor effort. As people contemplate earning more, a somewhat higher share must be paid in taxes, but what remains will be worth correspondingly more because of the public project. These effects are precisely offsetting, so there are no complications from changed labor effort are absent. Hence, simple, unadjusted cost-benefit analysis is appropriate.

How can the difference between this conclusion and the conventional view be reconciled? In essence, the problem is that the conventional approach treats distributive concerns inconsistently. Raising revenue through the income tax is distortionary because it is redistributive. If, as in the earlier example, the project were financed in a distribution-neutral manner — taking into account both the distributive effects of the project and of the income tax adjustment — then there would be no distortion.

What if finance is not distribution-neutral? In particular, suppose that there is more distortion, which will