University of California Berkeley

CENTER FOR INTERNATIONAL AND DEVELOPMENT ECONOMICS RESEARCH
Working Paper No. C93-013

Three Comments on Exchange Rate Stabilization and European Monetary Union

Jeffrey Frankel

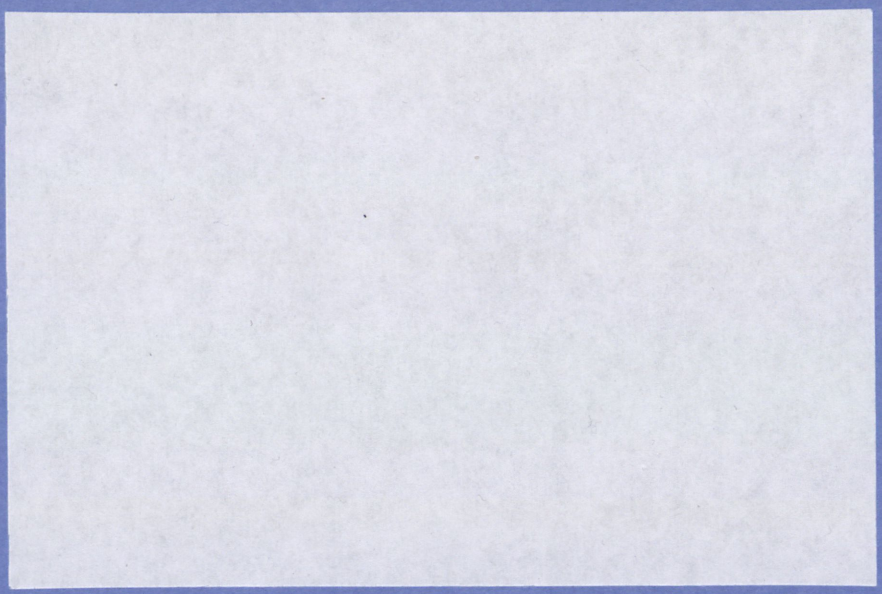
University of California at Berkeley

March 1993

Department of Economics

iber

CIDER



CIDER

CENTER FOR INTERNATIONAL AND DEVELOPMENT ECONOMICS RESEARCH

The Center for International and Development Economics Research is funded by the Ford Foundation. It is a research unit of the Institute of International Studies which works closely with the Department of Economics and the Institute of Business and Economic Research. CIDER is devoted to promoting research on international economic and development issues among Berkeley faculty and students, and to stimulating collaborative interactions between them and scholars from other developed and developing countries.

INSTITUTE OF BUSINESS AND ECONOMIC RESEARCH

Richard Sutch, Director

The Institute of Business and Economic Research is an organized research unit of the University of California at Berkeley. It exists to promote research in business and economics by University faculty. These working papers are issued to disseminate research results to other scholars.

Individual copies of this paper are available through IBER, 156 Barrows Hall, University of California, Berkeley, CA 94720. Phone (510) 642-1922, fax (510) 642-5018.

UNIVERSITY OF CALIFORNIA AT BERKELEY

Department of Economics

Berkeley, California 94720

CENTER FOR INTERNATIONAL AND DEVELOPMENT ECONOMICS RESEARCH
Working Paper No. C93-013

Three Comments on Exchange Rate Stabilization and European Monetary Union

Jeffrey Frankel

University of California at Berkeley

March 1993

Key words: Maastricht, European Monetary Union, fiscal convergence, Portugal, optimum currency area, foreign exchange intervention

JEL Classification: F31, F33, F36

Contents

1. "'Excessive Deficits': Sense and Nonsense in the Treaty of Maastricht; Comments on Buiter, Corsetti and Roubini," panel meeting, Centre for Economic Policy Research, London, October 15-16, 1992; forthcoming, *Economic Policy* 16, April 1993.

2. "Thoughts on the Financial, Monetary, and Economic Integration of Portugal into Europe in 1992," in *Portugal and the Internal Market of the EEC*, Luis Miguel Beleza and Jose da Silva Lopes, eds., Banco de Portugal, Lisbon, 1991, 187-191.

3. "Concerted Interventions and the Dollar: An Analysis of Daily Data," Ossola Memorial Conference, Banca d'Italia, Perugia, Italy, July 9-10, forthcoming in a volume edited by F. Papadia and F. Saccomani.

Three Comments on Exchange Rate Stabilization and European Monetary Union

Abstract

This working paper consists of three comments on exchange rate matters, presented at recent conferences in Europe. They concern, respectively, why the Maastricht Agreement of December 1991 specified fiscal targets as the requirements for countries to join European bank intervention in the foreign exchange market. Foreign exchange intervention may be able to have an independent effect on the exchange rate in the short run. Nevertheless, a small country that wishes to fix its exchange rate and eliminate barriers to international capital movement, as a means of integrating with its neighbors, must ultimately be prepared to give up all monetary independence. We learned in 1992 that the populations of most European countries are in fact not yet prepared to give up that much economic sovereignty, notwithstanding the political aspirations of their leaders.

"'Excessive Deficits':
Sense and Nonsense in the Treaty of Maastricht"
Comments on Buiter, Corsetti and Roubini

Presented at panel meeting, Economic Policy, Centre for Economic Policy Research, London, United Kingdom, October 15-16, 1992. Revised March 1993.

Jeffrey A. Frankel
Professor of Economics
University of California
Berkeley, CA 94720 USA

Buiter, Corsetti and Roubini (1992) is a nice thorough review of the issues surrounding the fiscal criteria that were adopted by the EC leaders in December 1991. It is no less relevant for the serious setbacks that European Monetary Union has sustained in the meantime. In my view the authors can dispense with their worries that theirs is an exercise in "necrophilia." Economists have been pointing out serious problems with the plans for EMU from the beginning.[1] Often we have been told that our points are not politically relevant, because EMU is already a "done deal". Now that the deal appears to have come "undone," it is a good time to review the problems, perhaps with the aim of improving the specifications of a reborn Maastricht Agreement [or, more pessimistically, with the possible outcome of concluding that EMU is too difficult an enterprise for Europe to undertake, at this stage in history].

The Maastricht Agreement included a list of "musts," economic criteria that members of the EC 12 must meet by the end of the decade if they are to be eligible for membership in EMU. Of these musts, the exchange rate, inflation, and interest rate are all clearly relevant

variables, since monetary union will mean giving up independent monetary policies. But the central focus here is on the fiscal criteria -- limits on the budget deficits and debts, as fractions of GNP. The proposal to include these criteria, which originated in the Delors Report, struck many as surprising.

The authors show that, whether judged by historical standards or by the likely macroeconomic effects, the fiscal criteria are severe (the "musts strict"). The debt criterion (60% of GNP) is so tough -- requiring severe contractions particularly in Italy, Greece, Ireland and Belgium -- as to make it very unlikely to be seriously attempted.

The authors report results of several econometric simulations of the likely effects of meeting the budget deficit criterion. One simulation study was conducted at the Research Department of the International Monetary Fund, and reported (prematurely and inaccurately) in French newspapers in the summer of 1992. The IMF study had two scenarios. The first assumed that European interest rates come down, because high credibility is established; it forecast a cumulative output loss of 0.4 per cent. The second scenario assumed that investors remain skeptical for the time being, and interest rates stay high; it forecast a cumulative output loss of 0.8 per cent. Much of the lost GNP occurs in Italy.[2]

The authors point out that it might help to choose between these two scenarios if one could decompose observed interest differentials, which are still substantial across Europe, into components due to the possibility of future exchange rate changes and a component due to the risk of default or other "country risk." I have referred to these two components of international interest differentials as the "currency premium" and "country premium," respectively. I found that the country premium for most European countries tended in the

late 1980s to narrow more rapidly than the currency premium, presumably as the result of the liberalization of capital controls in many EC countries.[3] Those results were for short-term deposits. Tests on longer-term bonds are probably more relevant. Giovannini and Piga (1992) find that the country premium or default premium on Italian bonds is relatively low. If low premiums hold up, this would point toward the more optimistic of the two IMF scenarios.

Some leaders who saw the reports of the IMF study reacted by expressing surprise at the forecasted loss in GNP, and suggested the results might be too pessimistic. Most economists, however, think that the design of the experiments made them, if anything, too optimistic. As the authors note, other studies such as one by Giovannini and McKibbin (1992) show much larger losses.

The central question addressed by the authors, or at least the central question on which I wish to focus, is the following: Why did the European leaders include the fiscal criteria in the Maastricht rules? Notwithstanding plans for monetary union, why not let each country run whatever fiscal policy it chooses, as is the case with states within the United States. If a profligate country incurs a large debt, that will drive up the interest rate premium it must pay to compensate investors for the risk of default.[4] Ideally this penalty will discourage the country from being profligate in the first place. But even if it does not, what business is that of its European neighbors?

The authors go through a variety of possible reasons why the guardians of EMU included the fiscal variables among the Maastricht criteria. I have added a few to the list.

Altogether, I count eight, which I will go through one-by-one.

The first three possible explanations have to do with international externalities of one sort or another.

(1) Fiscal imprudence brings **risk of bailout** by central authorities, either fiscal or monetary. The authors emphasize that Clauses 104 (including 104a and 104b) of the Agreement rule out bailout, but the key question is whether this commitment is credible. History is full of examples where a government stated explicitly that it would not bail out a particular category of borrower, and then was forced to do precisely that when disaster struck and financial or economic collapse seemed to be the only alternative. (One example is the Chilean government's statements in the late 1970s that it would not take responsibility for privately incurred international debts.) One might object to these examples that it is one thing for a government to face irresistible political pressure to bail out its own citizens or sub-units, and quite another to bail out those of another nationality. This depends on the question of how much "solidarity" exists among nationalities. The authors are rather dismissive of the idea of solidarity, but we shall return to it below.

(2) There is the danger of **spread of fiscal or financial crisis** to neighboring countries. The authors classify this difficulty as one of those that could lead to bailout by monetization. (See "bailout, comma, monetary" above.) But there is the distinct issue of possible debt **contagion**. Latin America provides more examples: in 1982, Colombia was faced with a cut-off of lending as severe as those afflicting its South American neighbors, notwithstanding that it had done a relatively good job keeping its fiscal house in order.

Similarly, ten years later, Brazil is facing an inflow of capital along with its neighbors, notwithstanding that it has done a much worse job of putting its fiscal house in order. It is possible that international lenders place too much weight on relatively superficial characteristics like geographical location. In models of bank runs, bandwagons, or bubbles, such behavior need not even be especially "irrational."

(3) There is the much-analyzed factor of **macroeconomic spillover effects** via interest rates and exchange rates. In theory, such effects call for the coordination of monetary and fiscal policy, to improve on the Nash non-cooperative equilibrium. The authors correctly point out the difficulty that model uncertainty creates for coordination. In simulations conducted by Brookings, twelve major econometric models of the world macroeconomy showed a large range of variation in their predictions as to the international spillover effects of specific policy experiments.[5] The models were evenly split on the sign of transmission of monetary policy.

At the time, there was at least less disagreement as to the sign of transmission effects in the case of fiscal policy than there was for monetary policy. Only one out of ten models showed negative transmission of a fiscal expansion (Patrick Minford's Liverpool model). But in the years since that experiment was conducted, many of the models have been revised. The McKibbin-Sachs Global model and the IMF's Multimod both now feature negative transmission of fiscal policy.[6] Such models can easily produce the result that the Nash non-cooperative equilibrium entails competitive real appreciation and excessively expansionary fiscal policies; a Europe-wide agreement would then call for coordinated limits on fiscal expansion. The trouble is, many other models that feature positive transmission will produce

the results that the Nash non-cooperative equilibrium entails competitive real depreciation and excessively contractionary, beggar-thy-neighbor, fiscal policies. In that case a Europe-wide agreement would call for joint expansion, as under the "locomotive theory."

In addition to the problems of uncertainty regarding the correct model, I would like to mention the problems of uncertainty regarding the level of potential output, the "baseline" position of the economy relative to potential output, and the proper weight to be placed on stabilizing output versus inflation. Minor errors in the perception of such variables or parameters could cause policymakers to seek coordinated expansion when coordinated discipline was in fact called for, or vice versa.

The next two possible explanations for why the European leaders put fiscal deficits on the Maastricht list arise, not from true international externalities, but simply because the problem of excessive deficits has been on their minds. We begin with the point that realistic political economy models can produce a bias toward excessive deficits. The authors sketch how this bias can arise. Given that the leaders have had excessive deficits on their minds, what is the connection to EMU?

(4) One possibility is that there is no intrinsic logical connection, but that including the fiscal criteria in the Maastricht Agreement was an **easy expression of virtue.** In other words, "why not?" It is suggestive that these criteria, unlike those for the exchange rate, inflation rate, and interest rate, are not to be strictly enforced, there being several provisions for leeway.

(5) EMU membership, even if not intrinsically connected to fiscal deficits, might be

intended as a reward or incentive for good fiscal behavior. The institution would be a device for giving the national governments "backbone," for reinforcing their political will do to what they should be doing anyway on domestic grounds. The incentive theory is consistent with a special property of the criteria noted by the authors, the leeway provision that takes into account changes in debt: if (for example) Italy succeeds in bringing down its debt from the current high level, it could apparently qualify for EMU, even if its level of debt is still higher than that of a Denmark that has made no progress and fails to qualify. This otherwise-anomalous property can be seen as evidence that the criteria are meant to function as incentives. Some teachers tell their students after the mid-term exam that they will reward those who improve in the second half of the term with better grades. I don't do this myself, because it seems unfair to those with the better performance on average throughout the term (and also because (1) it is a less-efficient scheme for gathering information on the students, and (2) undermines the students' incentive to exert themselves in future courses' first halves.) Nevertheless, those teachers that do pay attention to the rate of improvement probably have the incentive effect in mind.

The authors seem to see no reason why a fiscal commitment mechanism should be installed at the international level rather than the domestic. They mention the Gramm-Rudman-Hollings legislation and proposals for a balanced-budget amendment in the United States as examples. The failure of these mechanisms at the federal level gives grounds for skepticism; the authors list five reasons for worry, concerning such issues as the difficulty of monitoring commitments in the presence of accounting tricks [p.60]. They seem to miss the point, however, that many of the (economically correct) refinements regarding the

measurement of fiscal deficits and debt that they suggest earlier in their critique of the Maastricht budget guidelines [particularly in Sections III.1-III.3, pp.28-36], would make it even more difficult for the man or woman-in-the-street to judge whether the government was honestly abiding by its commitment.

The last set of three possible explanations for the Maastricht criteria are based in the classical mythological notion of the Quest. To begin with classical Greek mythology, a common pattern goes as follows. The hero asks an oracle or king for something, often the hand of the king's daughter. The king sends the hero off on an exceedingly difficult quest, which is supposed to be a test of worthiness. Jason of the Argonauts, for example, is sent off for the Golden Fleece before he can claim his kingdom. At Maastricht, the fiscal criteria are the object of the quest, and EMU membership the prize.

(6) In one version of the quest hypothesis, **the assigned task is clearly meant to be impossible**. In Greek mythology, the quest can be a ruse on the part of the king to get rid of the troublesome upstart. This was the intention of Jason's uncle Pelias, when he sent him in search of the Golden Fleece. Another precedent comes from a more recent golden age, late 19th century America. In The Wizard of Oz, Dorothy and her friends are sent off on a seemingly-hopeless quest for the broom of the Wicked Witch of the West. The wizard has told them that this task is the price for granting their desires (returning to Kansas, in the case of Dorothy); but he is really trying to get rid of them.

The authors mention this possible explanation of the Maastricht criteria as a "Machiavellian plot." Here, Helmut Schlesinger is cast in the role of the wizard, and

Frankfurt is the Emerald City. The Bundesbank knows the quest is impossible, but wishes to torpedo EMU. The Wizard of Oz is a fitting allusion, because the story was originally written as a populist allegory about the gold standard and William Jennings Bryan's quest for easier money. Frankfurt would simply substitute for the U.S. East Coast as the perceived home of an elitist secretive cabal of central bankers set on tight money, high interest rates, deflation, and the bankruptcy of indebted farmers.

(7) The next possibility is that the difficulty of the task is designed **to make EMU seem like a more desirable goal**. I intend this explanation half-facetiously. But it is striking that the only two major countries that currently meet the Maastricht criteria are also the two where the electorate has declared itself ambivalent about EMU (Denmark and France; I am not classifying Luxembourg as a "major" country). At the same time, the countries where the fiscal criteria look least attainable, especially Italy, are where EMU is most popular. (Also some countries like Sweden, that are not even eligible at this stage, seem more anxious to participate than do many of the EC 12.)

(8) A more serious version of the classic quest, and the one to which I incline as an interpretation of Maastricht, is that the criteria are a test of will. Visionary political leaders, for political reasons, sometimes seek monetary integration before their countries are truly ready for it. The theory of optimum currency areas says that a country should not give up its currency and its monetary independence unless it is willing to share the monetary policies of its neighbors. If it tries, the first major economic shock that comes along will have disruptive effects, unless the shock hits all members in the same way, and unless they place the same priority in their desired response on stabilizing output versus inflation. If the

countries' populations desire to respond to the shock with different monetary policies, and they are not willing to sacrifice their desired policies for the greater cause of monetary union, a crisis will follow.[7] If the monetary authorities respond to the will of the national constituency, the crisis will occur in the foreign exchange market; if they do not, the crisis will take a political form.

We saw these old truths illustrated in Europe in 1992. The shock was the German spending associated with the earlier incorporation of the Eastern Lander, and the crisis in this case occurred in both the foreign exchange and political arenas. In my view, Europe is fortunate that the shock came along as early as it did. The embarrassment and disruption would have been worse if the crisis had occurred during Stage II.[8]

The tests of will that are the most relevant to the Optimum Currency Area question are thus really tests of national willingness to give up independent will. Perhaps the best mythological precedent comes neither from Ancient Greece nor America, but from Asia. In Buddhist tradition, the hero's quest lies not in overcoming external obstacles, but rather in self-abnegation, in elimination of one's ego or will. A meditating neophyte is supposed to learn to refrain from responding to a flea by scratching it, just as a political region is supposed to learn to refrain from responding to a local downtick in demand by lowering interest rates.

The fiscal criteria are less directly relevant to the Optimum Currency Area question than the other Maastricht criteria. But precisely because they are so difficult, they offer a test of strength and will. They, even more seriously than a referendum, force the

constituencies within a country to confront the question of how badly they want EMU.

In Greek mythology, King Aegeus placed his sword and sandals under a large stone, and left behind instructions that only when his son Theseus was able to lift the stone and take the sword and sandals should he come to Athens to claim his kingdom. Theseus' mother waited before telling him even to try to lift the stone, until he was old enough and strong enough to do it easily. The European countries are not yet ready to lift the Maastricht stone. But perhaps that is as it should be.

* * *

References

Alesina, Alberto, Mark de Broeck, Alessandro Prati and Guido Tabellini (1992). "Default Risk on Government Debt in OECD Countries," Economic Policy 15 [Oct.], 428-451.

Argy, Victor, and Joanne Salop, (1979). "Price and Output Effects of Monetary and Fiscal Policy Under Flexible Exchange Rates," IMF Staff Papers 26, 224-256.

Buiter, Willem, Giancarlo Corsetti, and Nouriel Roubini, (1992) "'Excessive Deficits': Sense and Nonsense in the Treaty of Maastricht," Economic Policy 16, forthcoming.

Fitoussi, J.P., and E. Phelps, (1986). "Causes of the 1980s Slump in Europe," Brookings Papers on Economic Activity 2, 487-513.

Frankel, Jeffrey, (1988). "Ambiguous Macroeconomic Policy Multipliers in Theory and in Twelve Econometric Models," In Empirical Macroeconomics for Interdependent Economies, eds., Ralph Bryant, et al., Brookings Institution: Washington, D.C., 17-26.

Frankel, Jeffrey, (1991). "Quantifying International Capital Mobility in the 1980's," in National Saving and Economic Performance, D. Bernheim and J. Shoven, eds., University of Chicago Press: Chicago, 227-260.

Frankel, Jeffrey, Steve Phillips and Menzie Chinn (1992). "Financial and Currency Integration in the European Monetary System: The Statistical Record", NBER Working Paper No.3819; forthcoming in The Transition to Economic and Monetary Union in Europe, edited by Francisco Torres and Francesco Giavazzi, Banco do Portugal, Lisbon, and Centre for Economic Policy Research, London.

Giovannini, Alberto, and Warwick McKibbin, (1992). "The Economic Consequences of Maastricht," The Brookings Institution, May.

Giovannini, Alberto, and Gustavo Piga (1992). "Understanding the High Interest Rates on Italian Government Securities," Columbia University, May.

Goldstein, Morris, and Geoffrey Woglom (1992). "Market-Based Fiscal Discipline in Monetary Unions: Evidence from the US Municipal Bond Market," in M.Canzoneri, V.Grilli and P.Masson (eds.), Establishing a Central Bank: Issues in Europe and Lessons from the US, Cambridge University Press, Cambridge.

International Monetary Fund, (1992). "The Macroeconomic Effects of Convergence in the European Community," Annex III to World Economic Outlook, September.

McKibbin, Warwick J., and Jeffrey D. Sachs, (1991). Global Linkages: Macroeconomic Interdependence and Cooperation in the World Economy, Brookings Institution: Washington, D.C.

Portes, Richard (1992). "After the Fall: EMS and EMU," Centre for Economic Policy Research, London.

Sachs, Jeffrey D. (1980). "Wages, Flexible Exchange Rates, and Macroeconomic Policy," Quarterly Journal of Economics 94, 731-47.

* * *

Footnotes

1. Portes (1992) reminds a surprised world of some of these warnings.

2. IMF (1992).

3. Frankel (1991) and Frankel, Phillips and Chinn (1992).

4. Goldstein and Woglom (1992) and Alesina, de Broeck and Prati and Tabellini (1992) find significant correlations between the size of public debt and the interest rate premium. (The tests apply to samples of U.S. states and OECD countries, respectively.)

5. Frankel (1988), and other papers in the volume.

6. McKibbin and Sachs (1991). The negative transmission comes when the appreciation of the currency of the expanding country raises real wages among its neighbors (as in Argy and Salop (1979), Sachs (1980), and Fitoussi and Phelps (1986)). These econometric models also seem to predict negative transmission from German fiscal expansion to other European countries, even with a fixed exchange rate. This effect may come through implicit monetary contraction.

7. One can give a more complete list of the criteria that determine when a unit is small enough to merit submerging itself into a larger currency area. (1) Openness with respect to trade determines the magnitude of the benefits to a fixed exchange rate. The other characteristics concern the costs of giving up monetary independence. As noted, the need to respond independently to disturbances will be small if: (2) shocks are highly correlated with those of neighbors, (3) similar weights are placed on inflation and output stabilization, and (4) the unit is politically willing to make sacrifices for the sake of monetary union. In addition, the need for a deliberate independent monetary policy response will be smaller if there exist alternative ways of coping with a shock, namely if: (5) labor mobility is high, or (6) other units in the union are willing to transfer funds. Items (4) and (6) relate directly, and items (3) and (5) indirectly, to the question of "solidarity" among nationalities. But if solidarity is a requirement for monetary union, then one cannot dismiss it in considering the possibility of bailout of fiscally profligate national governments. (Note that all the criteria relate to the degree of economic and social integration, which seems to be gradually increasing in the case of Europe.)

8. What if the EC had skipped Stage II and gone directly to full currency union? Many economists say this would have been better, that the problem with Maastricht lies in the transition period. It is true that, for certain medium-sized shocks, full currency union would be more likely to hold together than fixed exchange rates, because speculators could not substitute among the national currencies. But a sufficiently large shock would disrupt even a currency union, if individual nationalities had not in their hearts and their votes made the necessary commitment, and the resulting disruption would be all the messier and costlier. (The current break-up of the Soviet Union is a good illustration.) There are some streams where one can leap across, and a wavering of resolve makes it more likely that one will fall in. There are other streams that are so wide that one cannot cross in a single leap no matter how determined, and one had better look for stepping stones along the way.

Portugal and the Internal Market of the EEC

Proceedings of the International Conference held in Lisbon

Edited by
J. SILVA LOPES
and
L. M. BELEZA

1991

Sponsors
BANCO DE PORTUGAL
FUNDAÇÃO CALOUSTE GULBENKIAN
FUNDAÇÃO LUSO-AMERICANA

COMMENTS ON "THE MEMBERSHIP IN THE EMS, FREE CAPITAL MOVEMENTS, AND ECONOMIC DEVELOPMENT"

JEFFREY A. FRANKEL

Several of the sessions at the conference have been related to the topic of international capital mobility. Jorge Braga de Macedo and Francisco Torres (1989) have in their comments referred to earlier research of mine measuring the degree of financial market integration for 25 countries, including Portugal, in the 1980s. So it may be appropriate for me to report here on my recent results, particularly in the light of 1992 and European integration.

In my view, the best measure of the degree of financial market integration — in the sense of the magnitude of capital controls, transaction costs, default risk, risk of future capital controls, and other barriers to the free movement of capital across political boundaries — is the magnitude of the covered interest differential. The covered interest differential is the difference in interest rates between the domestic country and the Euromarket, adjusted for the price of hedging foreign exchange risk on the forward market.

Most European countries, with the exception of Germany, the Netherlands, and Switzerland, maintained capital controls even after 1974. As can be seen from table 1, the covered interest differential has been large for Portugal in the past. The 1982-1988 average for Portugal was the largest of European countries with the exception of Greece. The fact the interest rate was higher offshore suggests that capital controls or other barriers were operating to penalize the *outflow* of capital more than the inflow.

The first of the European countries to remove what had been binding controls on capital outflow was Britain in 1979. Legal restrictions had required British banks to keep their "offshore" accounts separate from their domestic accounts, until the incoming Thatcher government removed the restrictions. In 1978, the

three-month Europound interest rate averaged 1.43 percent per annum higher than the U.K. interbank interest rate, indicating effective controls against capital outflow. The differential fell to 29 percent per annum in 1979, and to zero soon thereafter.

The liberalization trend spread more widely in the 1980s. Australia began to liberalize early in the decade, and New Zealand followed suit. France, which strengthened controls on outflow when the Socialists came to power in 1981, began to remove them in the late 1980s. France and Italy are both expected to meet a mid-1990 deadline for full liberalization among the EC-12. In the enlarged EC, only Spain, Portugal, Greece, and Ireland are expected to need later deadlines.

Most tests of covered interest parity have somewhat artificially tested the hypothesis of "perfect" capital mobility, which can turn out awkwardly when non-zero covered interest differentials are in fact found. Furthermore, most tests have been confined to small subsets of the G-10 countries, as theirs are the only currencies that have well-developed Euromarkets. However, it has recently become possible to obtain London forward rate quotes for more countries, for the period since September 1982. These data are ideal for studying the extent of integration in the 1980s. The magnitude and variability of the covered interest differentials were examined over the average of the period in Frankel (1989). Here we examine the *trend*, to look for evidence of liberalization taking place within the sample period 1982-1988.

Table 1 presents the results of regressions of the absolute covered interest differential against time. Twelve countries show statistically significant downward trends (at the 95 percent level). The seven with the most rapid estimated trend, listed in descending order, are as follows: Portugal, Spain, France, New Zealand, Denmark, Australia, and Italy. This is precisely the list that one would have expected for countries liberalizing in the 1980s. The estimated trend for Portugal is a decline of 33 basis points per month! Indeed, as a graph shows, the covered interest differential had fallen essentially to zero for Portugal, and for many of the other countries as well, by 1988.

The elimination of barriers to the movement of capital across national boundaries as reflected in covered interest differentials is not enough to equalize real interest rates across countries, as is well known. A small covered interest differential is evidence of a low *political premium*, i.e., of low barriers associated with the political jurisdiction in which an asset is issued. This still leaves the possibility of a high *currency premium*, i.e., barriers associated with the currency in which an asset is issued.

Let i be the U.S. interest rate, and i* be the foreign interest rate. The real interest differential $(i\text{-}p)\text{-}(i^*\text{-}p^*)$ can be tautologically decomposed as follows:

$$(i - i^*) - (p - p^*) = (i - i^* - fd) + (fd - \Delta s^e) + \Delta s^e - p + p^* \qquad (1)$$

where *fd* is the forward discount and Δs^e is the expected rate of depreciation. The first term, the covered interest differential, is associated with the country or political jurisdiction in which an asset is issued, not with the currency in which it is dominated. We have already seen that liberalization sharply reduced the differential in 1979 for the case of the United Kingdom, and gradually reduced it in the 1980s for the case of Portugal and other countries. The second and third terms, which are the exchange risk premium and expected real depreciation respectively, are associated with the currency of denomination, not with the political jurisdiction. Given the high volatility of exchange rates, it is quite possible that these latter terms have increased in size and variability in the 1980s for floating-rate countries, rather than decreased.

For the case of Portugal, even though the real interest differential was high during the period 1984-1987, the negative covered interest differential tells us that this was not a sign of barriers to capital inflow.[1] Rather it was a sign that investors perceived a risk of real devaluation of the escudo.

When Portugal completes its freeing of capital movements, will it lose monetary sovereignty? As suggested in the paper by A. J. Marques Mendes, the answer is "yes", if at the same time it effectively fixes its exchange rate through the European Monetary System. We can see why from equation (1). Removing the possibility of changes in the nominal and real exchange rate will set the last two terms in the equation equal to zero, and Portugal will be unable to pursue a real interest rate that differs from that in the rest of Europe. This illustrates the theorem of open-economy macroeconomics that a country can have any two out of three — open capital markets, exchange rate stability, and monetary independence — but it can't have all three.

Why should Portugal be willing to give up its monetary sovereignty? Even without any sort of anticipated transfer or "bribe" from the richer countries of Northern Europe, the theory of optimum currency areas gives us several reasons, which are considerably more relevant for a small open country like Portugal than for the United States or Japan. One is reduced exchange rate uncertainty, and the increased ease of international trade and investment.

[1] See Braga de Macedo and Torres (1989).

Another is the favorable effect on inflation (for a given level of output) obtained from a more credible commitment of monetary policy. These arguments suggest that, while economic integration can be expected to give rise to a capital inflow into Portugal, to take advantage of new opportunities and to raise the low capital-labor ratio, there is less of an economic case for anticipated subsidized transfers.

Of course there are valid arguments for planned transfers that are unrelated to economic efficiency. When I was last in Portugal, in 1976, the argument in the EEC for admitting Portugal, Spain, and Greece was to strengthen Western-style democracy. I am pleased to observe that this goal is now unneeded. The argument now, I take it, is based on reducing economic inequalities between regions, as in the Italian experience recounted by Riccardo Faini.

There is a kind of transfer that is relevant for the choice whether a small country should fix its exchange rate. In the event of an unexpected disturbance, such as a fall in demand for the country's goods, there should be some way of adjusting to the disturbance, in the absence of perfect wage and price flexibility. If the country gives up the right to devalue, what options are left for it?

One possibility is the movement of capital: borrowing from abroad. We saw above that European financial markets are becoming more highly integrated at the short end of the maturity spectrum; a similar trend is underway for longer-term capital as well.

A second possibility, the subject addressed by Marques Mendes, is transfer payments from a federal fiscal system. When Louisiana goes into a slump, its residents receive net spending and transfers from the U.S. federal government, much of it automatic through the income tax system.

The third possibility, introduced in the original optimum-currency area contribution of Robert Mundell, is the movement of labor. It will of course be easier for Portuguese workers to emigrate to Northern Europe after 1992. The subject of emigration has been admirably addressed at this conference by Faini and João Ferreira do Amaral. Faini shows that emigration can depend on the *level* of wages, in addition to the wage differential with the North.[2] Thus emigration will not necessarily continue until wages are equalized. But I do not see anything damaging to economic efficiency in this. If workers in the Mezzogiorno or in Portugal are willing to forego some wage differential in return for some sunshine, there is nothing wrong with it. If it were literally true that, after full economic integration, Portuguese workers were as happy as residents of Northern Europe, then this would seem to undermine the moral argument in Brussels for transfers to Portugal to reduce regional income inequality. But, friend of Portugal that I am, I will never tell.

[2] In the "Ricardian" model, workers' utility function includes the pleasure of living in their own country, in addition to the other things that money can buy. It follows that when their wage rises, they choose to take some of their higher real income in the form of staying home.

References

AMARAL, João Ferreira do, "*Emigration and Wages*," this volume.

FAINI, Riccardo "Regional Development in an Economic Union," this volume.

FRANKEL, Jeffrey "*Quantifying International Capital Mobility in the 1980s,*" NBER Working Paper no. 2956, 1989; in D. Bernheim and J. Shoven, eds., *Saving*, University of Chicago Press: Chicago, 1990, forthcoming.

MACEDO, Jorge Braga de and TORRES, Francisco "*Real Interest Differentials and European Integration*," October 1989.

MENDES, A. J. Marques "*Financial Transfers Within the EEC and Economic Development,*" this volume.

Table 1: Covered Interest Differentials

September 1982 — April 1988

	Absolute magnitude in 1982	Average size 1982-88	Rate of change per month 1982-88
1. Portugal	19.1	-7.9	-.333
2. Spain	5.3	-2.4	-.074
3. France	4.0	-1.7	-.064
4. New Zealand	3.5	-1.6	-.041
5. Denmark	4.7	-3.5	-.034
6. Australia	2.0	-0.8	-.030
7. Italy	2.1	-0.4	-.028
...			
24. Greece	9.8	-9.4	
25. Mexico	26.3	-16.5	

July 15, 1992

Comment on
"Concerted Interventions and the Dollar: An Analysis of Daily Data"
by P. Catte, G. Galli and S. Rebecchini
presented at the Ossola Memorial Conference
Banca d'Italia, Perugia, Italy

forthcoming in a volume edited by F. Papadia and F. Saccomani

Jeffrey A. Frankel
Department of Economics
University of California
Berkeley, CA 94720 USA

The Ossola Memorial Conference was held the same week as a G-7 meeting in Munich. It was at another G-7 meeting, held precisely ten years earlier at Versailles, that the national leaders commissioned a study on the effects of foreign exchange intervention. At the time, the French were the most ardent supporters of intervention, and the Americans, under the first Reagan Administration, were opposed. The results of the study, known as the Jurgenson Report, were submitted to the subsequent G-7 summit at Williamsburg in 1983. The report said that the effects of sterilized intervention, that is intervention which is not allowed to affect money supplies, could at most be minor and transitory.

Econometric tests appeared to show that sterilized intervention was ineffective. The evident reason was that a typical investor treats bonds denominated in different currencies as perfect substitutes, so long as they pay the same expected rate of return, and thus is indifferent to the currency competition of his or her bond portfolio.[1] The results of academic research happened to coincide with the views of many practitioners, particularly the view of policy-

makers in the 1981-84 U.S. Treasury that nothing needed to be done about the appreciating dollar. Thus there was a remarkable degree of consensus in the early 1980s that exchange market intervention did not offer a useful independent policy tool.

The U.S. position changed in 1985, when James Baker and Richard Darman replaced Donald Regan and Beryl Sprinkel at the Treasury. Their policy of intervening to push the dollar down, and the subsequent policy adopted in 1987 of trying to stabilize the dollar, came to be widely perceived by practitioners to have been successful. Ever since 1985, when reports of intervention come out over Reuters, foreign exchange traders react by leaping for their terminals. Central bankers tend to be a bit more restrained than traders in their evaluations, but nevertheless share the view that intervention has often been effective.

Only among academics does the consensus remain that sterilized intervention is ineffective. I think the time is ripe for research economists to re-examine this conventional wisdom in light of the post-1985 experience, and I welcome the contribution of Catte, Galli and Rebecchini to this effort. I found their paper to be quite a persuasive accounting of the effects of intervention during this period, and I congratulate them for it.

Data and Methodology

The use of true daily data on intervention operations is key to this study, as it is to any study that hopes to find effects in the foreign exchange market. Quarterly or monthly data won't do the job; tests of such frequency tend to find the wrong correlation between asset-supply data and exchange rates. The explanation is probably the simultaneity created by the phenomenon

of "leaning against the wind:" when the dollar falls in value, central banks buy dollars to support it, creating a negative correlation. It is very difficult to deal with such simultaneity bias on quarterly or monthly data. One can get some idea of daily intervention by compiling reports in the financial press. But the true intervention series is not the same as the reported series. In a study that Kathryn Dominguez and I are preparing for the Institute for International Economics, we found that only 81 % of medium-sized and larger intervention operations by the U.S. Federal Reserve are reported in the press, and only 71 % of smaller intervention operations.[2] Most central banks, while sharing their intervention data with each other, have long declined to make the data public, including until recently the Federal Reserve. The Banca d'Italia, like the Banque de France, Bank of England, and Bank of Japan, continues to keep its data confidential. Those who wish to learn about the implications of the data are thus obliged to read studies such as the one by Catte, Galli and Rebecchini.

The authors start with the observation that intervention in the period 1985-91 was concentrated in 17 episodes. Their approach is qualitative: they look at the direction of change of the exchange rate subsequent to the intervention episode. The approach and results are quite similar to a table of eight major episodes in our study for the Institute for International Economics: we found that in each of the eight episodes, the exchange rate moved during the subsequent month in the same direction as the intervention.

[TABLE GOES ABOUT HERE]

The authors' criterion for judging when intervention is successful is that the subsequent

TABLE

INTERVENTION AND EXCHANGE RATE CHANGES

EPISODE	change in DM/$ over preceding month[a]	level of DM/$ before intervention	amount of intervention (I) Fed	Bundesbank (in millions $)[c]	SNB	# of days of (I)[d]	change in DM/$ during period[b] of intervention	change in DM/$ over subsequent month[e]
1/11/85 - 3/4/85	2.3%	3.152	-643	-3470	0	25	6.9%	-8.3%
9/23/85 - 11/12/85	4.5%	2.910	-3301	-1123	0	29	-9.1%	-3.5%
3/11/87 - 6/3/87	1.3%	1.853	4840	744	305	25	-3.6%	0.8%
10/19/87 - 1/21/88	-0.5%	1.801	4600	3130	935	34	-6.2%	2.0%
5/31/88 - 10/7/88	2.5%	1.714	-5066	-7851	-730	62	7.6%	-3.7%
10/31/88 - 12/2/88	-5.8%	1.774	2600	359	70	15	-1.96%	3.0%
12/8/88 - 2/6/89	-1.3%	1.748	-2230	-174	-415	22	7.8%	-0.86%
3/8/89 - 10/12/89	-0.86%	1.856	-19676	NA	-1280	86	2.9%	-1.5%
2/90 - 3/90	-0.60%	1.677	-1780	NA	NA	32	0.03%	-2.19%
5/90 - 7/90	-0.41%	1.671	1000	NA	NA	17	-2.30%	-5.91%

a) % change in DM/$ rate in month prior to first day of intervention; $(\ln S_{t-21} - \ln S_{t-1})$ where S is the DM/$ rate and t is the first day of official intervention in the episode; positive sign denotes dollar appreciation and negative sign denotes dollar depreciation

b) $(\ln S_t - \ln S_{t+k})$ where t+k is the last day of intervention in the episode

c) positive values represent operations in support of the dollar and negative values represent operations aimed at reducing the value of the dollar

d) number of days on which one or more central banks (Fed, Bundesbank and/or SNB) intervened during the episode

e) $(\ln S_{t+k+1} - \ln S_{t+k+21})$

Source: Dominguez and Frankel, Institute for International Economics, Washington, D.C., forthcoming May 1993.

change reverses the preceding trend in the dollar or, in one case (the Plaza episode of September 1985), pushes the dollar in the downward direction that it had already been moving. I agree that the central banks' goal most of the time is resisting the recent trend (the "leaning against the wind" pattern already noted); and that the goal in September 1985 was to continue the recent trend. There are interesting questions in explaining the pattern of intervention. Fred Bergsten has called the Plaza kind of policy "leaning into the wind," and has suggested that it might be an especially potent way to intervene. I would suggest a characterization of intervention patterns that would encompass the Plaza episode at the same time as most of the others: central banks have tended to sell dollars when its value is above a medium-run moving average, and to buy dollars when it is below (the same strategy that one might wish private speculators to follow).

But the proper criterion for judging whether the subsequent movement in the exchange rate is what was desired by the central banks is simple. One has only to ask whether the direction of the movement is the same as the direction in which they were intervening: Does the value of the dollar increase after dollars are purchased? For this question, it is not necessary to know why the central banks were intervening.

Some Episodes

I will discuss several of the authors' 17 episodes that seem to me of particular interest, before moving on to broader lessons.

Episode 1 took place in February 1985. Almost everyone accepts the Plaza Accord of

September 1985 as the big turning point in intervention policy. But January or February of that year seem to me more accurate, and I am glad to see the authors concurring. There are four reasons for dating the shift from early in the year. (1) Messrs. Baker and Darman took office in late January, (2) the communique from the January G-5 meeting in Washington (which Baker attended in part) uses language that sounds at least as pro-intervention as that in the later Plaza Accord, (3) substantial intervention took place, particularly by the Bundesbank in late February but also by the Federal Reserve (the magnitude of sales of dollars for marks was almost as great as in the Plaza episode), and (4) newspapers at the time reported both the view that the new Treasury officials might be more receptive to proposals to intervene to bring down the dollar, and the fact that dollar sales were taking place.[3]

If one accepts the idea of dating the change in intervention policy from February rather than September, then a widely-cited argument of Martin Feldstein's is turned on its head. Feldstein argues that, because the rate of dollar depreciation during the period after the Plaza (excluding the drop on the day of the announcement of 4 % or so) was no greater than the rate of depreciation from March to September, intervention must not have been effective. But if the policy shift is dated from February then, contrary to Feldstein, the timing is perfect to explain the reversal of the 1981-85 dollar appreciation. In this case one has to give more credit to the Germans, who were the strongest interveners in the earlier episode, than to the U.S.

Episode 4, in March-April 1987, and *episodes 6* and *7*, both in the aftermath of the October 1987 stock market crash, illustrate the importance of using daily data. The authors find greater evidence that intervention had the desired effects, even if they were short-lived, than

have other observers using only publicly available data.

Episode 9, in the summer of 1988, occurred in the midst of a U.S. presidential election campaign. Rumors at the time had the Bank of Japan and other foreign central banks buying dollars to help President Bush. There is also a view, now held fairly widely in Japan, that the Japanese authorities were buying dollars throughout 1987-89 to help the United States, and that the effect of these dollar purchases on the Japanese money supply were a prime cause of the 1987-89 bubble in stock prices and land prices. But the actual intervention data show that the Bank of Japan was not intervening at all in the summer of 1988, and the Federal Reserve and Bundesbank were actually selling dollars. *Episode 10*, November 1988, does show dollar purchases, but *episodes 11-14* in 1989 all show dollar sales again. How can these data be reconciled with the story of Japanese support for the dollar and the asset-price bubble? One possible hypothesis, attributable to David Hale, is that the Japanese authorities did not so much intervene themselves as pressure Japanese institutional investors to buy dollar assets. Another -- not inconsistent -- hypothesis is that Japan undertook more rapid monetary growth in 1987-89 than it otherwise would have, in order to fulfill its obligations under the Louvre Agreement, but that the growth primarily took the form of domestic credit expansion rather than purchases of foreign currency. If these actions are still thought to have been motivated by a desire to help the United States, there remains the puzzle of why the U.S. itself would have been intervening to push the dollar down in mid-1988 and 1989.

Episode 16 took place in February 1991, when the authorities intervened to reverse a

dollar depreciation. This is another occasion when the timing is crucial, and the authors' interpretation might be gainsaid by others, who have attributed the turnaround in the dollar to the success of Operation Desert Storm in Kuwait. The U.S. started to buy dollars on February 4, and continued for 7 days in conjunction with other central banks. The depreciation halted on February 11, intervention was ceased the next day, and a strong dollar appreciation then commenced. The authors attribute the exchange rate reversal to the intervention because Desert Storm did not end until later (February 24). But others would argue that the success of the military operations had become clear earlier, and that it explains the reversal.

Episode 18 does not exist in the authors' list, but I would add it. The authors show July 1991 as the only one of nine turning points in the exchange rate that was not accompanied by coordinated intervention. I don't have the true daily intervention data for 1991. (The Federal Reserve and Bundesbank have agreed to release data only with a year lag.) But I know that intervention to cap the dollar appreciation was reported in July 1991. So I would add this dollar turning-point to the list of successes.

Conclusions

The authors draw a number of conclusions from their analysis of the 17 episodes. Three of the conclusions warrant particular comment. First, they find that all of these episodes were successful in achieving their goals. Second, they find that seven out of eight turning points coincide exactly with episodes of concerted intervention. (Their one exception is July 1991, the one that I would count as a success.) Even a more skeptical view that judged some of their

successes to be so short-lived as not to be successes at all, might still see the overall record as an impressive one.

The authors last conclusion regards contemporaneous monetary policy. It is that interest rate differentials moved so as to help pull the exchange rate in the desired direction in a majority of intervention episodes, but in many cases did not. This is not surprising. There are many ways to explain such episodes, where the value of the currency moves in the desired direction but the interest rate moves in the opposite direction. One explanation is simply that the dollar sales are sterilized (even if less than 100%), implying that the supply of bonds increases, driving up interest rates, and thus moderating the resulting fall in the value of the dollar. As the authors note, these episodes are evidence that intervention potentially offers a tool distinct from monetary policy. The authors go so far as to reverse the conventional view that intervention is effective only to the extent that it constitutes a change in monetary policy; instead monetary policy seems effective only to the extent that it takes the form of intervention.

I am a fan of simple charts, tables, and recounting of historical events. These modes of analysis are useful, both when taking a first look at the data, and when presenting conclusions to a general audience. But in between, it is usually desirable to do some more complete econometrics. There are at least three reasons why this is called for in the context of intervention. First, to avoid ex post rationalization of exchange rate movements. These three authors are fairly careful about defining uniform criteria for central bank goals and success or failure. But the number of weeks over which subsequent performance is measured is arbitrary.

Second, a number of studies (e.g., Loopesko, 1984, and Dominguez, 1990[4]) have

already found an effect from daily intervention data. One would like to disentangle the "signalling effect" (and other varieties of effects via expectations) from the "portfolio effect." One possibility is to use news reports to identify which interventions were known to the public, and to use survey data to measure the reactions of participants in the foreign exchange market.

Perhaps the most important reason for undertaking careful econometric analysis is the problem of simultaneity. Some readers are suspicious of results like those in the Catte, Galli and Rebecchini paper and the IIE study, because they indicate that the effect on the exchange rate appears only after intervention stops. Look at the second-to-last column in the Table. During the period of intervention, the exchange rate is almost always moving in the same direction as in the preceding period, the opposite of the direction desired. Some say demand for dollars appears to increase when the central bank is selling dollars; only when the authorities stop and the private market is left to clear on its own does the dollar fall. Now compare the last two columns in the Table. The change after intervention stops is often not enough to outweigh the change during the period of intervention. Some might claim that the total effect is zero. One would like to know what would have happened in the absence of intervention. Theory says the effect of intervention should be instantaneous (if not sooner). But then simultaneous equation techniques are called for.[5]

Notes

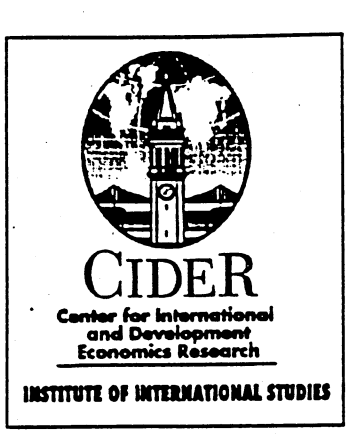
1. E.g., Kenneth Rogoff, 1984, "On the Effects of Sterilized Intervention: An Analysis of Weekly Data," Journal of Monetary Economics 14, 133-150; and Frankel, "A Test of Perfect Substitutability in the Foreign Exchange Market," Southern Economic Journal 46, no. 4 (April 1980).

2. "Intervention Policy Reconsidered," Institute for International Economics, Washington, D.C., November 1991.

3. Frankel, "The Dazzling Dollar," Brookings Papers on Economic Activity 1 (1985), 199-217.

4. Kathryn Dominguez, 1990, "Market Responses to Coordinated Central Bank Intervention," Carnegie-Rochester Series on Public Policy vol. 32. Bonnie Loopesko, 1984, "Relationships Among Exchange Rates, Intervention and Interest Rates: An Empirical Investigation," Journal of International Money and Finance 3, 257-77.

5. In Dominguez and Frankel (1992), we estimate two simultaneous equations, an expectations equation and a portfolio equation, and use news reports and survey data alongside the true daily intervention data: "Does Foreign Exchange Intervention Matter? Disentangling the Portfolio and Expectation Effects for the Mark" (with Kathryn Dominguez), NBER Working Paper No. 3299; Revised, February 1992.



Center for International and Development Economics Research

The Center for International and Development Economics Research is funded by the Ford Foundation. It is a research unit of the Institute of International Studies which works closely with the Department of Economics and the Institute of Business and Economic Research (IBER). All requests for papers in this series should be directed to IBER, 156 Barrows Hall, University of California at Berkeley, Berkeley CA 94720, (510) 642-1922.

Previous papers in the Economics Department Working Paper Series by CIDER authors:

90-151	"Is Europe an Optimum Currency Area?" Barry Eichengreen. October 1990.
90-153	"Historical Research on International Lending and Debt." Barry Eichengreen. December 1990.
91-154	"Risktaking, Capital Markets, and Market Socialism." Pranab Bardhan. January 1991.
91-156	"The Origins and Nature of the Great Slump, Revisited." Barry Eichengreen. March 1991.
91-157	"The Making of Exchange Rate Policy in the 1980s." Jeffrey Frankel. March 1991.
91-158	"Exchange Rate Forecasting Techniques, Survey Data, and Implications for the Foreign Exchange Market." Jeffrey Frankel and Kenneth Froot. March 1991.
91-159	"Convertibility and the Czech Crown." Jeffrey Frankel. March 1991.
91-160	"The Obstacles to Macroeconomic Policy Coordination in the 1990s and an Analysis of International Nominal Targeting (INT)." Jeffrey A. Frankel. March 1991.
91-162	"Can Informal Cooperation Stabilize Exchange Rates? Evidence from the 1936 Tripartite Agreement." Barry Eichengreen and Caroline R. James. March 1991.
91-166	"The Stabilizing Properties of a Nominal GNP Rule in an Open Economy." Jeffrey A. Frankel and Menzie Chinn. May 1991.
91-167	"A Note on Internationally Coordinated Policy Packages Intended to Be Robust Under Model Uncertainty or Policy Cooperation Under Uncertainty: The Case for Some Disappointment." Jeffrey A. Frankel. May 1991.
91-171	"The Eternal Fiscal Question: Free Trade and Protection in Britain, 1860-1929." Barry Eichengreen. July 1991.
91-175	"Market Socialism: A Case for Rejuvenation." Pranab Bardhan and John E. Roemer. July 1991.
91-176	"Designing A Central Bank For Europe: A Cautionary Tale from the Early Years of the Federal Reserve." Barry Eichengreen. Revised, July 1991.
91-181	"European Monetary Unification and the Regional Unemployment Problem." Barry Eichengreen. October 1991.
91-184	"The Marshall Plan: History's Most Successful Structural Adjustment Program." J. Bradford De Long and Barry Eichengreen. November 1991.
92-187	"Shocking Aspects of European Monetary Unification." Tamim Bayoumi and Barry Eichengreen. January 1992.

92-188 "Is There a Conflict Between EC Enlargement and European Monetary Unification?" Tamim Bayoumi and Barry Eichengreen. January 1992.

92-189 "The Marshall Plan: Economic Effects and Implications for Eastern Europe and the Soviet Union." Barry Eichengreen and Marc Uzan. January 1992.

92-191 "Three Perspectives on the Bretton Woods System." Barry Eichengreen. February 1992.

92-196 "Economics of Development and the Development of Economics." Pranab Bardhan. June 1992.

92-200 "A Consumer's Guide to EMU." Barry Eichengreen. July 1992.

New Papers in the Economics Department/CIDER Working Paper Series:

C92-001 "Does Foreign Exchange Intervention Matter? Disentangling the Portfolio and Expectations Effects." Kathryn M. Dominguez and Jeffrey A. Frankel. December 1992.

C92-002 "The Evolving Japanese Financial System, and the Cost of Capital." Jeffrey A. Frankel. December 1992.

C92-003 "Arbitration in International Trade." Alessandra Casella. December 1992.

C92-004 "The Political Economy of Fiscal Policy After EMU." Barry Eichengreen. December 1992.

C92-005 "Financial and Currency Integration in the European Monetary System: The Statistical Record." Jeff Frankel, Steve Phillips, and Menzie Chinn. December 1992.

C93-006 "Macroeconomic Adjustment under Bretton Woods and the Post-Bretton-Woods Float: An Impulse-Response Analysis." Tamim Bayoumi and Barry Eichengreen. January 1993.

C93-007 "Is Japan Creating a Yen Bloc in East Asia and the Pacific?" Jeffrey A. Frankel. January 1993.

C93-008 "Foreign Exchange Policy, Monetary Policy and Capital Market Liberalization in Korea." Jeffrey A. Frankel. January 1993.

C93-009 "Patterns in Exchange Rate Forecasts for 25 Currencies." Menzie Chinn and Jeffrey Frankel. January 1993.

C93-010 "A Marshall Plan for the East: Options for 1993." Barry Eichengreen. February 1993.

C93-011 "Model Trending Real Exchange Rates." Maurice Obstfeld. February 1993.

C93-012 "Trade as Engine of Political Change: A Parable." Alessandra Casella. February 1993.

C93-013 "Three Comments on Exchange Rate Stabilization and European Monetary Union." Jeffrey Frankel. March 1993.