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International Macroeconomic Policy Coordination

ABSTRACT

Increasing integration of the world economy, in both trade and capital markets, holds out the promise of mutual gains to countries from the coordination of their macroeconomic policy decisions. In this paper I describe the theoretical case for coordination, evaluate empirical estimates of the potential gains, review the history of macroeconomic policy coordination, and discuss the prospects for increased coordination.

The theoretical argument is seen most clearly in the consideration of fiscal expansion. Any one country that expands will create a current account deficit; all countries expanding together avoid that problem. In principle coordination is always better, but empirical estimates suggest the likely gains are small because the effects of policy in one country on the economies of other countries are small. Further, uncertainties about the effects of policy, reflected in differences among econometric models, mean that countries may have very different views on the likely outcomes of agreements--and therefore that some of them are bound to be disappointed.

Information exchanges and some coordination on trade policy take place in a large number of international organizations and frameworks. But the breakdown of the Bretton Woods system suggests that international differences in policy goals are too large for systematic macroeconomic policy coordination among the major economies to take place anytime soon. Occasional agreements on particular policy packages are possible, and coordination does take place in the framework of the European Monetary System.

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INTERNATIONAL MACROECONOMIC POLICY COORDINATION.

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International cooperation in policy-making takes place in a multitude of settings, including regular diplomatic contacts, the IMF, GATT, the EMS, the OECD, various G-'s, the BIS, and Summits. It takes a multitude of forms, from information-sharing about current and future policies, through consultation about decisions, to actual coordination of policies. Coordination "implies a significant modification of national policies in recognition of international economic interdependence."<sup>2</sup>

Coordination holds out the promise of mutual gains resulting from the effects of policy decisions in one country on the economies of others. The Bonn summit of 1978, in which Germany agreed to expansionary fiscal policy in exchange for a United States commitment to raise the price of oil to the world level, is a much quoted example of policy coordination.<sup>3</sup> That agreement, followed by the second oil shock and increased inflation, was later viewed by many as a mistake. It was used in 1986 by German policy-makers as an argument against the trade of fiscal expansion in Germany for fiscal contraction in the United States.

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<sup>1</sup>Department of Economics, M.I.T., and Research Associate, N.B.E.R. Paper prepared for the NBER Conference on International Policy Coordination, April 1987. I am indebted to Robert Solomon for helpful discussions, and to Geoffrey Carliner, Rudiger Dornbusch, and Martin Feldstein for comments.

<sup>2</sup>The definition is from Wallich (1984).

<sup>3</sup>Robert D. Putnam and C. Randall Henning, "The Bonn Summit of 1978: How Does International Economic Policy Coordination Actually Work?", Brookings Discussion Papers in International Economics, No. 53, October 1986, provide a comprehensive analysis of this episode.

Both the potential and the incentive for economic policy coordination have increased as the world economy has become increasingly integrated over the period since World War II. It was of course true over the entire period that other economies were significantly affected by United States economic performance. The impact of foreign economies on the United States has increased as both their share of world GNP and the share of imports and exports in United States GNP have risen. In Section I of the paper I trace the connections between economies and the impacts of foreign and U.S. fiscal and monetary policies on the respective economies. It remains true that the United States is the most independent of the major economies, least affected by decisions made elsewhere, but even it can no longer make policy as if it is a closed economy.

Research, theoretical and applied, on policy coordination has proliferated in the last decade. The potential gains from policy coordination, and the different types of coordination, have been clarified by a theoretical literature that draws on the theory of games. Conditions under which coordination may even worsen economic performance have been identified. However empirical work based on applications of these models, implies that the potential gains from coordinating policies may be quite small. These developments are reviewed in Section II.

Countries have cooperated in macroeconomic policy-making since at least the inter-War period, when Britain's 1925 return to gold was urged and assisted by the Federal Reserve. The breakdown of cooperation and the world economy during the Great Depression served as powerful spurs to the creation of the Bretton Woods system, the IMF, the World Bank, and GATT,

as institutions that would permit the resumption and growth of world trade. Those institutions, in place during a period of extraordinary growth and prosperity, were in many respects highly successful, even though in the end the Bretton Woods adjustable peg exchange rate system could not withstand the pressures of speculative capital flows.

The shift to flexible exchange rates in 1973 occurred because countries had been unable to coordinate their policies. It had been argued that flexible rates would insulate countries from foreign shocks, implying far greater freedom than under Bretton Woods to pursue domestic goals independently of foreign reactions and policies. But experience since the onset of floating has reaffirmed international interdependence, and led to the current search for methods of cooperation. In Section III I briefly describe policy cooperation and coordination since the 1920's, and the institutions that have been put in place to facilitate that cooperation.

In Section IV I discuss and evaluate recent proposals for policy coordination, including those arising from the 1986 Tokyo agreement, the 1987 Paris agreement, and exchange rate target zones. I argue that continued systematic policy coordination on a grand scale among the major economies is unlikely, because the largest countries are still too insulated--particularly in the short run--from the foreign repercussions of their actions. The most that can be expected in the near future is occasional agreements when a mutually advantageous bargain can be struck, and the continued exchange of information in the many formal and informal international meetings in which economic policy is discussed. But

coordination on a smaller scale, as in the European Monetary System, has developed significantly.

Eventually, but only in the very long run, as understanding of the operation of policy improves and interdependence grows, countries may begin systematically to coordinate their policy decisions for their mutual benefit. Even then, and certainly until then, the best that each country can do for other countries is to keep its own economy in shape.

### I. The Extent of Interdependence.

International trade has become increasingly important to all countries in the period since World War II. Table 1 presents data for the Group of 5 countries.<sup>4</sup> Both exports and imports have risen sharply for Germany, France, and the U.K. Japan's imports have not grown much as a proportion of GNP, though the export share has risen substantially. Although the proportionate increase in exports and especially imports has been high for the United States, it remains by far the most closed of the OECD economies. The importance of trade issues is seen clearly in the fact that the three largest OECD economies each had trade gaps of at least 3% of GNP in 1985.

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<sup>4</sup>Except for the U.K., the share of exports for each country in 1950 was below its 1929 level. U.S. imports, which amounted to 10% of GNP in 1985, have risen more rapidly than exports.

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 Table 1: SHARES OF EXPORTS AND IMPORTS IN GNP (%)  
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		U.S.	Japan	Germany	France	U.K.
1950	Exports	4.3	11.4*	11.4	15.6	22.3
	Imports	4.1	10.5*	12.7	14.6	22.9
1970	Exports	5.6	11.3	22.6	15.2	22.3
	Imports	5.4	10.2	20.6	14.9	21.4
1985	Exports	7.0	16.4	35.2	23.5	29.3
	Imports	10.0	12.6	31.3	24.0	28.1

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Source: International Financial Statistics, Yearbook, 1986

\* Figure is for 1955

More impressive even than the growth of trade in goods and services, is the increasing integration of the world's capital markets. European currencies only became convertible in 1958<sup>5</sup>; now there is complete freedom of capital movements for the major economies, except France and Italy--and they have announced their intention to remove controls. Whereas daily trading volume on the New York Stock Exchange averages less than \$10 billion, foreign exchange transactions in Tokyo, New York and London averages more than \$100 billion per day. Capital flows were the proximate cause of the death of the Bretton Woods system. They are a major and extraordinarily rapid transmission mechanism of shocks in the international economy.<sup>6</sup>

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<sup>5</sup>Germany allowed its residents to export capital from 1957; convertibility in 1958 applied to external holders of the other European currencies, while capital controls continued for domestic residents.

<sup>6</sup>They played this role too in the heyday of the gold standard, from 1880 to 1914.

Policy interactions among countries depend on the exchange rate regime. In the Bretton Woods adjustable peg system, expansionary monetary policy in the United States would cause domestic expansion, tending to raise the domestic price level, and a current account deficit. The current account deficit would cause an inflow of dollars to other countries requiring foreign monetary expansion to maintain the exchange rate. This was the source of the frequent charge that the United States exported inflation in the Bretton Woods period. With the lifting of capital controls, speculative capital flows provided a more immediate link among economies. Expansionary domestic policies could lead to the anticipation of devaluation, to a massive capital outflow, and to devaluation or to an imposed change in policies.

Proponents argued that flexible exchange rates would reduce interdependence. Expansionary monetary policy in one country would lead to inflation and depreciation of that country's currency, but not affect other economies. There was little discussion of the international transmission, if any, of fiscal policy changes in one economy.

Interdependence has nonetheless increased in the flexible rate system. The missing element in the earlier analysis was the recognition of the slow adjustment of prices and wages. If prices and wages in the domestic economy were fully flexible, then an increase in the money stock would indeed lead immediately to a proportional increase in the price level and exchange rate. In practice, the slow adjustment of domestic prices and wages, and the rapid adjustment of the exchange rate to policy changes, has meant that monetary and fiscal policy changes in one country



affect the real exchange rate rapidly. The real exchange rate changes are transmitted rapidly to foreign economies, affecting both the profitability of exports and the consumer price index as prices of imports change.

Policy decisions in today's flexible exchange rate world are transmitted to other countries through three main channels:

. In the first instance, policy decisions, or their expectation, affect interest rates and asset prices, including the exchange rate. U.S. fiscal expansion increases interest rates, attracting foreign capital and creating a demand for dollar securities. The capital inflow causes a dollar appreciation, and by drawing capital out of foreign economies raises interest rates abroad too. U.S. monetary contraction likewise raises interest rates and causes a dollar appreciation.

. The rapid interest rate and exchange rate responses are transmitted slowly to real variables. Exchange rate depreciation through the J-curve initially worsens the trade balance measured in domestic currency, taking up to two years (and perhaps more) to produce an improvement in the current account and through the increase in net exports to exert an expansionary effect on the domestic economy. By the same token, a depreciation of the domestic currency will take several years to reduce exports and real activity in foreign economies. Real interest rate movements likewise affect investment slowly.

. Aside from their effects on trade flows, changes in exchange rates also affect domestic inflation. A depreciation directly affects domestic inflation by raising the prices of imports. Further, by increasing the profitability of exports and increasing aggregate demand, depreciation affects wage claims and thereby indirectly increases the inflation rate.

Common sense evidence suggests these interactions are large enough to matter. The world economy recovered in 1984 and 1985 under the impetus of expansionary United States fiscal policy despite restrictive European and Japanese fiscal and monetary policies. The massive appreciation of the dollar from 1980 to 1985 made large parts of United States industry and agriculture uncompetitive and generated strong political pressures for protection--and to a much more limited extent, for a reversal of fiscal policy.

Some econometric evidence on the extent of interactions is summarized in Table 2, which shows the effects of fiscal and monetary policies in the U.S. and the rest of the OECD on those economies.<sup>7</sup> The data in the tables are estimates of the effects of the policies in the second year after they have been introduced, by which time most of the impact of the policy change has taken place. They are based on the properties of twelve econometric models, representing a wide range of views about the operation of the economy, and showing considerable diversity of results.<sup>8</sup>

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<sup>7</sup>The properties of twelve international econometric models were discussed at a Brookings Conference on Empirical Macroeconomics for Interdependent Economies, in March 1986. Frankel and Rockett (1986), Hickman (1986), and Holtham (1986) all present summaries of some of the properties of those models.

<sup>8</sup>The twelve models are: DRI multicountry; Compact (European Economic Community); EPA (Japanese Economic Planning Agency); Project Link; Liverpool (a rational expectations monetarist model); MSG (McKibbin-Sachs global); MCM (Federal Reserve Board's Multicountry Model); Minimod (based in the IMF); Interlink (from the OECD); Taylor (from Stanford University); VAR (a minimally structured vector autoregressive model); and Wharton.mode

To read the table, consider a typical entry, say that for GNP in row I. Note 1 shows that the policy action in row I is a sustained increase in U.S. government spending of 1% of GNP (with no change in tax rates). The entry "1.2" under "Own" means that GNP in the U.S. is 1.2%

Table 2: POLICY INTERACTIONS, UNITED STATES AND THE REST OF OECD.\*

	GNP		CPI		Int. rate		Current acc.#		Ex. Rate
	Own	For.	Own	For.	Own	For.	Own	For.	
I.	1.2	0.3	0.3	0.3	1.1	0.4	-13.1	6.9	+1.4%
II.	1.5	0.2	0.3	0.5**	0.6	0.4	-7.1	5.3	+0.4%
III.	1.2	-0.1	0.9	-0.3	-1.6	-0.5	-2.8	-2.9	-6.4%**
IV.	0.6	0.1	0.5	-0.5	-1.1	-0.3	-0.2	0.1	-3.2%

\* These data are averages of data reported in Tables 1a and 6a of Frankel and Rockett (1986). They are the change in the variable shown in year two after a policy change initiated at the start of year one.

# Measured in \$billions. The GNP, CPI and exchange rate data are percentage changes from a baseline value. The interest rate data are expressed as the change in the interest rate.

\*\* These numbers are heavily influenced by one substantial outlier.

Notes:

1. The policy actions are:

I. A sustained increase in U.S. government spending equal to 1% of GNP.

II. A sustained increase in government spending in the rest of the OECD by 1% of GNP.

III. An increase in the U.S. money supply of 4%.

IV. An increase in the money supply in the rest of OECD by 4%.

2. For. means foreign.

3. These results are averages, based on simulations of twelve econometric models. Some variables are not calculated in certain models, though in all cases there are at least ten estimates. Ranges of estimates vary; information on the ranges is reported in Holtham (1986).

4. The interest rate is a short rate.

5. The exchange rate is the value of the domestic currency: a depreciation registers as a negative number.

higher in the second year after the policy has been put in place than it would otherwise have been. The entry "0.3" under "For." means that GNP in the rest of the OECD in the second year after the U.S. policy change is 0.3% higher than it would otherwise have been. Similarly, moving across row I to the CPI column, the 1% of GNP increase in U.S. government spending raises the price level in both the U.S. and abroad by 0.3% (i.e. very little) relative to what it would otherwise have been.

The strongest and most consistent results found by examining the twelve models are those for the effects of U.S. fiscal policy. The results for monetary policy show considerable divergence across the different models.

U.S. fiscal expansion, line I of the table, is expansionary both in the U.S. and abroad, resulting in higher output and higher prices in both. Although the models concur in the inflationary effects in the U.S., some models show U.S. fiscal expansion reducing foreign prices. U.S. fiscal expansion increases interest rates both at home and abroad, and is generally shown as leading to a dollar appreciation. Note though that the interdependence between the U.S. and the rest of the OECD is limited: although fiscal expansion by 1% of GNP increases U.S. GNP by more than 1%, its impact in the rest of the OECD is only one-fifth its direct U.S. impact. None of the twelve models studied shows GNP in the rest of the OECD rising by as much as 1% of its GNP.

The results of foreign fiscal expansion, summarized in line II of the table, are consistent with the U.S. case. The foreign appreciation is much smaller than is the dollar appreciation in line I. This is

consistent with the complaint by individual foreign countries that fiscal expansion in their countries would lead not to appreciation, as in the United States, but rather to depreciation, as a result of loss of confidence in the sustainability of their balance of payments deficit.<sup>9</sup> The failure of the Mitterand expansion in 1981 is some evidence in favor of this view, though that period was marked by monetary as well as fiscal expansion. The spillover effects on GNP in the United States are quite small, though all but one of the models concurs in showing these effects to be positive.

Monetary expansion in the United States is examined in line III. A 4% increase in the U.S. money stock leads to lower interest rates, a dollar depreciation, and an increase in U.S. GNP and the price level. The U.S. current account is shown as worsening, probably because the effects of the increase in income on imports are more rapid than the effects of the dollar depreciation on the current account. Expansionary U.S. monetary policy is shown as having negative effects on the rest of the OECD. This must be largely due to the worsening of their current account. Note both that the table implies an improvement in the current accounts of non-OECD countries<sup>10</sup>, and that there is a greater diversity of views among the models of the effects of monetary expansion--particularly the spillovers to the non-OECD countries--than about fiscal expansion.

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<sup>9</sup>Oudiz and Sachs (1984) show that fiscal expansion may cause depreciation for countries whose liabilities are not held internationally.

<sup>10</sup>If the current accounts of both the U.S. and the rest of the OECD worsen, the current accounts of other countries must improve.

Note also that foreign fiscal expansion has relatively small effects on the U.S. current account within the two year horizon of Table 2. An increase in government spending of 1% of GNP in all the rest of the OECD improves the U.S. current account by only \$5 billion in the second year after the policy change. The table implies that the benefits for U.S. exports of foreign expansion are likely to be small.

The results of the effects of monetary expansion in the rest of the OECD on those countries are in the same direction as the "Own" columns in line III. However U.S. monetary expansion is more powerful in the U.S. than rest of the OECD monetary expansion is for those countries.<sup>11</sup>

The table confirms the interdependencies among economies. They are stronger--or at least more reliable--for fiscal than for monetary policy. But they have also to be qualified. In the first instance, the "own" effects on GNP are in all cases much larger than the "foreign" effects. The interdependence is limited. This is a fundamental finding, that will color much of the remainder of the paper. Second, the analysis of fiscal and monetary policy in the rest of the OECD implies a degree of coordination that simply does not exist. The major OECD countries, including Japan and Germany do not necessarily pursue co-ordinated policies. Even if they did--together with France, Italy, the U.K., Canada, and the smaller OECD countries--the effects of expansion in those countries on U.S. GNP would be limited, unless U.S. monetary and fiscal policy changed in response. The table therefore indirectly emphasizes the dominant role of the United States.

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<sup>11</sup>The "foreign" effects of the monetary expansions have different signs in some columns. However estimates of these effects show a wide range and the precise numerical magnitudes should not be given significant weight.

Significant as the basic results in Table 2 are, recent experience suggests they omit an important, sectoral, aspect of policy interdependence. Exchange rate changes, and subsequent effects on trade flows and competitiveness, generate pressures for policy changes. In the case of an appreciation, the pressures are for protection, not for fiscal discipline. Despite governments' commitment in principle, and in a succession of negotiations in practice, to increased freedom of trade, protectionist pressures from well-organized export and import-competing sectors have been increasingly effective. That sectoral aspect of interdependence, and the dangers it brings of a breakdown of the world trading system that has been a major achievement of the entire post-World War II period, is as important for the well-being of the major economies as the direct macroeconomic interdependences which are the subject of Table 2. Because the exchange rate adjusts very rapidly to expected and actual policy changes, the competitive effects of macroeconomic policies may begin to exert political pressures well before they have major macroeconomic impacts.

Slower moving interdependencies also deserve attention. Exchange rate changes move the location of production and international investment. The effects on the location of production go in both directions. Producers move to countries where wages, measured in international prices, are low--and thus to countries with undervalued currencies. But some producers, for example Honda, move into countries where protectionist pressures may raise import barriers--and thus to countries with overvalued currencies.

Structural interdependence arises from the growing integration of world markets, and the mobility of firms to areas of least regulation and taxation. The United States and the United Kingdom have agreed to coordinate capital requirements for banks. The U.S. tax reform of 1986 may well spark similar reforms in other countries, not necessarily because the intellectual case is convincing, but because other countries want to retain the skilled and high-paid individuals affected by the reform.

## II. Policy Coordination in Theory.

The theoretical literature on policy coordination<sup>12</sup> has grown rapidly in volume, sophistication and complexity. The basic argument for coordination can be seen in the following example. Consider two countries, for the sake of concreteness called America and Europe, each constrained to use only fiscal policy. Suppose that fiscal expansion produces higher output and an appreciation for the expanding country. Each country is concerned both about its level of output, and the current account.

In the most independent arrangement, each country chooses its optimal policy taking the policy action of the other country as given. Equilibrium in each country is reached at the point where the benefits of expansion are balanced by the costs of appreciation, given the other country's decision. This is a non-cooperative equilibrium.<sup>13</sup>

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<sup>12</sup>Mundell (1971) is an influential contributor. Hamada (1985), Buitert and Marston (1985), and Cooper (1986) are useful general references to the theoretical literature. This section draws in particular on Canzoneri and Gray (1983), and Canzoneri and Henderson (1987); the latter provides a comprehensive view of recent developments.

<sup>13</sup>In game theory jargon, it is called a Nash equilibrium.



In this situation, expansion in one country, say America, makes the other country better off. If America expands, Europe's output and current account improve, and vice versa. If both expand together, both will become better off, as output rises and the current account of each country deteriorates very little.<sup>14</sup> If the countries can agree on the expansion, both improve their situation. If only one country expands, it becomes worse off.<sup>15</sup> Without coordination or cooperation a mutually beneficial expansion is prevented.

Perhaps the only mystery in this story is why the countries do not reach the cooperative equilibrium without coordinating. The explanation lies in the football spectator problem.<sup>16</sup> If everyone is sitting, someone who stands has a better view. People see equally well if everyone stands or if everyone sits. Sitting in the seats is more comfortable than standing. In the non co-operative equilibrium, everyone stands. That is because in the non co-operative case, each person does what is best for him or herself given the actions of others. If everyone sits, someone

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<sup>14</sup>The mutual expansion cannot continue without limit, either because expansion worsens current accounts (vis a vis the rest of the world) or because full employment is reached.

<sup>15</sup>The reasoning is as follows. The country had previously expanded to the point where the benefits of expansion were balanced by the cost of appreciation. If it now expands further, the costs of the appreciation outweigh the benefits of the expansion.

<sup>16</sup>The usual example is the prisoners' dilemma. Here two suspects, questioned separately, are each offered a better deal if he confesses than if he remains silent while the other confesses. If neither confesses, the prosecution fails to convict. Fearing that the other will confess, each prisoner confesses. If they had been able to coordinate, neither would have confessed. Since it is not clear whether to be on the side of the prisoners (in which case the cooperative equilibrium is better) or the law (when the non-cooperative solution is socially preferable), I give a slightly less familiar example.

taking what others do as given, will stand. If everyone is standing, then it is best to continue standing. The cooperative solution is for everyone to sit. The problem though is that each person is tempted to get ahead by standing. Thus the cooperative solution will not be achieved without an explicit agreement on coordination--in this case that everyone stays seated.

Returning to the economic example, what happens if one country, say America, goes ahead, in the hope that Europe will follow? After all American expansion increases European income and improves its current account. Surely Europe will expand in response. What Europe does depends on its evaluation of American responses to its action. If it believes America will continue to act as the leader, it will likely expand, making both countries better off than they were in the non-cooperative equilibrium.<sup>17</sup> If Europe does not respond, America is worse off for having expanded. But even if Europe does respond when America acts as leader, the final equilibrium is not as good for both countries as would be possible if each could make its policy decisions with reassurance that the other would be cooperating fully.

This example, which underlies the locomotive case for German expansion in 1977, captures the essential motivation for policy coordination. But it is not always true that coordination leads to more expansionary policies by both countries. Optimal cooperative policies

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<sup>17</sup>Technically, America is acting as a Stackelberg leader, and the new equilibrium is a Stackelberg equilibrium. See Canzoneri and Henderson (1987) for more precise definitions and a discussion of some problems of the Stackelberg equilibrium.

depend on the objectives of the policymakers, on the nature of the transmission mechanism between the economies, on the policy tools that they have available, and on the nature of the disturbances that hit their economies and call for policy responses.

Transmission between the economies in the locomotive example is positive: expansion in one country produces expansion and an improved current account in the other. Negative transmission is also possible: under some circumstances expansionary monetary policy in one country causes contraction in the other; if the exchange rate is viewed as an instrument of policy, competitive devaluation can produce so-called beggar-thy-neighbor outcomes in which a devaluing country gains exports and increases employment at the expense of the other, which increases its imports and loses exports. Cooperation may then result in less active use of the policy than when the countries are independently pursuing their own interests. For instance, suppose the targets of policy are output and inflation, and monetary policy is the only instrument. In the non-cooperative equilibrium, each country is balancing the costs of added inflation against the benefit of higher output. But expansionary policy in each economy reduces output in the other. If monetary policy in each economy becomes less expansionary, the same income levels can be attained at a lower rate of inflation.<sup>18</sup>

Policies may also be transmitted asymmetrically between countries. As in Table 2, monetary expansion in America may produce lower output in Europe while European money growth produces higher output in America. If

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<sup>18</sup>Canzoneri and Gray (1983) analyze this example in detail.

the targets are inflation and output, the cooperative equilibrium is one in which Europe expands relative to the non-cooperative case, while America contracts. Despite the prominence of the locomotive theory example, coordination does not necessarily mean more expansion all round.

Cooperative responses depend also, obviously, on the disturbances with which they have to deal. If transmission effects are positive, a shift of demand between countries will call for differing policies in the two countries. A worldwide disturbance will call for similar policy responses in different countries if transmission effects are positive.

Differences in objectives between countries affect the particular policy actions that should be taken in each country, but do not affect the basic principle of gains from cooperation. Europe (or Germany) may be more hostile to inflation than America, but both countries can produce lower inflation rates by cooperating than by pursuing independent policies.<sup>19</sup>

So far it has been assumed that there is a once-for-all decision on policy, which takes effect immediately. Policy analysis becomes more difficult when account is taken both of the lags with which policy works, and of the fact that policy decisions are made period after period, and not once-for-all. Empirical evidence shows long lags in the effects of policy. The J-curve is a relevant example. When lags are long and

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<sup>19</sup>It is often pointed out in the literature that the coordination problem disappears if each country has as many policy instruments as targets. With perfect certainty, each country can then attain its targets exactly, and need not worry about foreign decisions. When the effects of policy are uncertain, international coordination may still be useful even if each country has as many policy instruments as targets.

uncertain, as they are, optimal policy is cautious. The danger is that strong actions taken today will come into effect at an uncertain later date, when they might be totally inappropriate to the economic situation.<sup>20</sup>

It is sometimes argued that the best policy is entirely inactive-- that the government should set a constant growth rate of money, fix tax rates and government spending at levels appropriate to the long run, and not respond at all to disturbances to the economy. The argument is not entirely resolved,<sup>21</sup> but there is a clear case for active monetary policy to counteract shifts in money demand that would cause inflation or deflation. Similarly, the short-run inflexibility of prices combined with the rapid adjustment of the exchange rate means that foreign monetary disturbances change the real exchange rate, also creating a possible need for active monetary policy to prevent the shocks being transmitted to the domestic economy.

Once we recognize the ongoing nature of policy interactions among countries, reputational considerations make cooperative equilibria more likely. Each country knows it will be better off in the long run if the cooperative equilibrium is maintained. They may develop strategies both to punish countries that do not cooperate, and to earn a reputation for reliability. It then becomes possible that countries will reach and stay at the cooperative equilibrium. This reduces the force of the one period example, by suggesting that there is more cooperation than the discussion of the football spectators suggests.

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<sup>20</sup>This is what happened after the Bonn summit, when expansionary German fiscal policy began to take effect as the second oil shock hit.

<sup>21</sup>It is reviewed at length in Fischer (1987).

Coordination through reputation, without explicit international agreements, is less likely the more countries there are. When everyone is at the cooperative equilibrium, the temptation for one small country to break ranks is very strong. The potential cost to it of doing so may also be high, for it is more dependent on the world economy than is a larger country. But because it inflicts very little damage on the rest of the world by not cooperating, it is not certain that it will be penalized. Coordination is probably easier to achieve among larger countries, or groups of countries that have coordinated policies internally, despite the inverse relationship between the size and openness of economies.

What happens to cooperation when countries have different views about the effects of policy? Frankel (1986) and Frankel and Rockett (1986) have examined cooperative policy making when nations have different models of the economy. Given each country's model, it is possible to find a set of policies that each nation believes will improve its welfare. Whether those policies will actually improve economic performance in their countries depends on the true model of the economy. Frankel and Rockett use the twelve models of the economy whose properties are summarized in Table 2 to examine the outcome of policies that might be agreed to. Assume that each country believes in one of the twelve models, and further that one of the models is correct, but that no-one knows which it is. Frankel and Rockett show that it is quite likely that cooperation makes an economy worse off than it would be if it pursued a non-cooperative strategy, doing what it regarded as best given the actions of other countries.

The force of this calculation is that the twelve models examined have each been advanced by reputable scholars, they come from several countries, and several might be used in choosing policies in their countries. If policy coordination agreements were made on the basis of those models, they would be quite likely to turn out badly. Just how powerful this result is depends on whether there are policies whose effects are widely agreed upon, and which work in the agreed-upon manner. It is then possible that policies that are not optimal in any model, but that do well in all of them, would perform well in the real world.

Rogoff (1985) and Kehoe (1986) have shown another condition under which cooperative policy may produce a worse outcome than the Nash equilibrium. In the Rogoff example<sup>22</sup>, domestic wage setting depends on the expected price level. The policy variable is the money stock. In the absence of cooperation, each central bank is constrained from trying to raise output through expansionary policy by the inflationary impact of the resultant depreciation. When the central banks cooperate, that constraint is removed. Expecting more inflation, wage setters set a higher nominal wage, and on average the price level is higher. If the central banks could precommit themselves not to attempt to expand the money supply excessively after the wage has been set, cooperation would produce better performance than uncoordinated policy.<sup>23</sup>

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<sup>22</sup>This is closely related to the Barro-Gordon (1983) analysis in which discretionary policy raises the average rate of inflation.

<sup>23</sup>Kehoe's example is also based on the government's inability to precommit, in his case not to tax capital heavily.

Many of the qualifications to the locomotive theory example raise doubts about the potential gains from cooperative policy-making. Another source of doubt is the weak interaction effects examined in Table 2. Several authors have attempted to estimate potential gains from cooperation, using econometric models. The best-known work is that of Oudiz and Sachs (1984), who used the Federal Reserve's MCM (multicountry model) and the EPA model of the Japanese Economic Planning Agency to study coordination among the U.S., Japan, and Germany.

Oudiz and Sachs assumed that governments target the level of GNP, the inflation rate, and the current account. They estimated the tradeoffs that each country was willing to make among the three goals on the basis of experience in those countries. Japan for instance appears to put the highest weight on the current account, Germany on the inflation rate.

Using these tradeoffs, Oudiz and Sachs in 1984 calculated the gains that would have been obtained in 1984-1986 by pursuing cooperative policies. Their basic result is that the gains for the United States and Germany would have been small (averaging, across the two models, less than 0.2% of GNP per year) while those for Japan were larger, averaging nearly 0.7% of GNP per year across the two models.<sup>24</sup> Surprisingly, cooperation involved expansionary fiscal and monetary policies in the United States, and fiscal contraction with monetary expansion in Germany and Japan. Oudiz and Sachs argued that the improvement from cooperation would increase if the entire OECD, or the major European countries, were added to the model.

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<sup>24</sup>The differences between the results using the two models are large, e.g. 0.99% of GNP per year gain in the MCM for Japan, versus 0.37% per year in the EPA.



In a subsequent paper, Oudiz (1985) examined policy coordination within the European Monetary System. Interaction effects are stronger than they are between the U.S. and the rest of the OECD in Table 2. Nonetheless, the gains from coordination are again quite limited, except in the case of France which would gain nearly 1% of GNP per year. Hughes Hallett (1986) finds small gains from cooperation between the United States and Europe, with most of the gains accruing to Europe.

The game theory literature on policy coordination, then, makes a convincing case that coordination is generally superior to non-cooperative policy making. But beyond that general principle, it provides no simple results showing how cooperative rules should operate. It shows also that there are exceptions to this principle, most important that the application of cooperative policies calculated in incorrect models may worsen rather than improve economic performance. It may be better to look for robust rules that perform well in many models than rules that are optimal in a particular model. Finally, calculations imply that the gains from coordination per se would be small, even if the correct model of the economy were known.

### III. The Historical Background.

International cooperation in economic policy extends back at least to nineteenth century cooperation between central banks. The Bank of England and the Bank of France, the major repositories of gold in Europe, helped each other out in several nineteenth century crises, starting as

early as 1825 (Clapham, 1844).<sup>25</sup> Russia and France, economically linked through French loans to Russia, also cooperated in maintaining the convertibility of gold in France.

The nineteenth century gold standard imposed discipline on monetary policies. As has often been remarked the system was far from automatic<sup>26</sup>. Supposedly, a set of "rules of the game" developed to describe the policies central banks should have followed. The standard account of the operation of the gold standard, in which an expansionary shock in one country leads to a gold outflow implies that central banks should have permitted the money stock to be determined by gold flows. However, Bloomfield (1959) has shown that gold inflows were typically offset, rather than allowed to produce automatic changes in the domestic money supply. Although policy had discretionary elements, one rule was followed consistently: tighten interest rates to defend the convertibility of gold. Thus the indirect effects of high interest rates on domestic activity substituted for the gold flow mechanism that Hume argued equilibrated the system. Explicit cooperation between central banks was episodic, associated with crises, but nonetheless effective. The coordination of non-existent fiscal policies was not an issue.

Cooperation between central banks became much more active in the nineteen twenties.<sup>27</sup> After Britain decided in 1918 to return to gold at

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<sup>25</sup>The assistance from the Bank of France to the Bank of England in 1825 was indirect, the British Foreign Secretary finding assistance from so recently defeated an enemy difficult to acknowledge. (Clapham, p. 101).

<sup>26</sup>Fischer (1987) discusses the automaticity of the system.

<sup>27</sup>Eichengreen (1985) provides an interesting account of this period, drawing on the theoretical developments described in Section II above.

the pre-War parity, international conferences in 1920 and 1922 laid the foundation for the return to gold in a gold exchange standard. The conclusions of the 1922 Genoa conference noted the need to avoid a competitive struggle by central banks to acquire gold, but did not specify how the cooperative solution was to be obtained.

Britain's return to gold in 1925 was actively encouraged by both the League of Nations and the Federal Reserve System. Benjamin Strong of the New York Fed and Montagu Norman of the Bank of England were in very close touch throughout the twenties, and the Fed supported Britain's return to gold with a \$300 million loan. Strong and Norman's attempts to restore the gold standard system seemed to have succeeded by the end of the twenties when over fifty countries were back on gold.

But by that stage the weakness of the system was already becoming clear. Britain had gone back to gold with an overvalued exchange rate, and struggled through the rest of the twenties to bring prices down further. Tight monetary policy, meaning high interest rates, were under constant attack from the U.K. Treasury, implying that the coordination imposed by the discipline of the inappropriate exchange rate might not withstand domestic political pressures. France in 1926 undervalued the franc and began accumulating gold with the intention of building Paris as a major financial centre. This was the competitive struggle for gold that the Genoa conference had warned against. Fixed exchange rate systems create an asymmetry between creditors and debtors that enable the former to avoid adjusting, and that create the incentive for competitive beggar-thy-neighbor devaluations.

The fixed parities could not withstand the shocks of the Great Depression and the persistent attempts of France to accumulate gold.<sup>28</sup> By 1931 Britain was off gold, floating its exchange rate, and beginning a period of relative recovery. In 1933 the United States left gold, in the process torpedoing the World Monetary and Economic Conference meeting in London that had on its agenda the stabilization of exchange rates. In 1934 the dollar attained de facto stability against gold at \$35 an ounce. All through this period France stayed on gold, devaluing eventually in 1936. A Tripartite Agreement was reached in that year to set exchange rates among the franc, dollar, and sterling, and it operated successfully through 1939, permitting devaluations of the franc while maintaining stability of the dollar-sterling exchange rate.

The lessons of the inter-War period for cooperation are mixed. The cooperative return of Britain to gold at the pre-War parity--chosen by Britain itself--was a mistake. France's lack of cooperation in competing for gold showed the potential weakness of a fixed rate system. And the unwillingness of the U.K. and the U.S. to subordinate their domestic policies to maintenance of the gold standard when the going got tough is a warning of the effective limitations of international constraints on domestic policy. Issues of fiscal policy coordination did not arise in this period either, aside from general agreement that budgets should be balanced.

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<sup>28</sup>Einzig (1937) sharply criticizes French international monetary policy in the inter-War period.

The most significant breakdown of international cooperation during the inter-War period came in the competitive devaluations and growth of protection that sharply reduced the volume of world trade. That breakdown, more than the failures of monetary coordination, is the shadow hanging over the international economy, warning of the continued need for cooperative policy.<sup>29</sup>

An important question that arises from the inter-War period is that raised by Kindleberger (1986), whether the Great Depression itself was largely due to a failure of international monetary leadership. Kindleberger argues that the international system cannot operate successfully unless some country or institution takes the responsibility for acting as lender of last resort in times of distress.

There can be little doubt that vigorous Federal Reserve policy in 1931, directed at stopping the domestic recession, would both have prevented the worst of the Great Depression in the United States and reduced its impact in other countries. But given that the Fed already had the clear task of sustaining domestic stability, it is difficult to see that agreements on international coordination would have led it to be more expansionary than it was.

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<sup>29</sup>Devaluations per se were actually expansionary, since by raising the value of gold they increased the nominal value of the world money stock. It has also to be noted that there are no estimates of the cost to individual economies of the reduction in the volume of trade. At the macro level protectionism diverted demand from the international to the domestic economy, and it is not certain that the total loss of demand was necessarily high. At the micro level protectionism reduced welfare by denying economies the benefits of comparative advantage.

Bretton Woods was the first, and probably the last, occasion that the entire structure of the international economy could be considered anew. The IMF as it emerged was closer to the American (White) plan than to the British (Keynes) proposal. The Keynes plan was more ambitious, particularly in encouraging adjustment on both surplus and debtor countries. Reserves were to be held in international currency (Bancor) units at the IMF, and interest would have been paid on both excess and deficient balances. A country holding excess reserves would have had to discuss with the IMF its plans for adjustment, including appreciation or expansion of the domestic economy. However, the IMF had no power to enforce policy decisions. The IMF would have been required to expand the total of reserves at a rate appropriate to the expansion of world trade.

The adjustable peg exchange rate system was common to both proposals. Under the Bretton Woods agreement, countries could adjust the exchange rate if they were in "fundamental disequilibrium". Except for adjustments within a twenty percent band of the parity first established, members would change exchange rates only with Fund approval--it was not anticipated that they would be adjusted often. Convertibility was expected to be restored after an initial adjustment period. The Fund could lend to deficit countries, but was not expected to finance capital outflows, which were instead to be handled through capital controls.<sup>30</sup> Policy coordination would come from the discipline of the fixed exchange rates, and from discussion and consultation within the Fund. "What had

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<sup>30</sup>In this section I draw freely on Robert Solomon's (1977) account of the period.

been created was the embryo of a world central bank" (Solomon, 1977, p.13), but it did not control the world supply of money or even high powered money.

The IBRD, also set up at Bretton Woods, was expected to help finance post-War reconstruction, but supplanted by the Marshall Plan has devoted itself to development. A stillborn International Trade Organization to promote free trade, negotiated in 1946 and 1947, was not ratified. The GATT, a surprising success, served much that purpose.

Bretton Woods was followed by a quarter century of substantial exchange rate stability, rapid economic growth, and the growth of world trade. From 1949 to the sixties, only France and Canada among the major countries adjusted their exchange rates. In 1958 the major countries moved to convertibility, with Japan following in 1964. The dollar had become the world's main reserve currency; the dollar shortage was by the end of the fifties giving way to concerns about the U.S. balance of payments deficit. Triffin (1960) had begun to warn of the need for a more systematic basis for regulating reserve creation than U.S. balance of payments deficits. Despite the omens, the system had given the world economy one of its most impressive periods of growth.

In the early sixties the United States built up a set of measures to defend the dollar, including swaps with other central banks, the issue of foreign-currency denominated bonds, and the Interest Equalization Tax. The U.S. current account deficit declined during that period, and went into surplus, but capital outflows and later foreign (mainly French) gold purchases kept up the pressure. Domestic policy was affected by the

position of the dollar: expansionary policy was inhibited at the beginning of the Kennedy administration, and monetary policy's "Operation Twist" intended to raise the short rate relative to the long was an attempt to encourage investment without causing a capital outflow. The investment tax credit had the same aim.

The sixties also saw the development of regular consultation on economic policy among the OECD countries, outside the framework of the IMF. The OECD's Economic Policy Committee meets three times a year, with senior officials (from the U.S. the Chairman of the Council of Economic Advisers) in attendance. Working Party 3, to which the ten largest members of the OECD (G-10) belong, meets even more frequently. There is no lack of discussion or information about their current economic policies among the major industrialized economies--although countries are less likely to discuss future policy changes in these forums.

The shift of consultations to the OECD reflected both the increase in the membership of the IMF and the European countries' desire to meet on more equal terms with the Americans. The possibility arose in the early sixties that the U.S. would have to borrow from the IMF to support the dollar, but IMF resources were inadequate. The G-10 was the locus for discussions that set up the General Arrangements to Borrow, which would provide--with G-10 approval--loans to the IMF.

In the sixties the Europeans used Working Party 3 meetings to pressure the United States to deal with the dollar problem. The Europeans attributed the problem to expansionary U.S. monetary policy, which was argued to be exporting inflation to Europe. Robert Solomon (1977)



emphasizes that there was remarkably little discussion of possible exchange rate adjustments. Americans believed the dollar could not be devalued against gold without completely changing the nature of the monetary system by putting the reserve currency role of the dollar in doubt. The Europeans did not want to revalue because the U.S. had a current account surplus; the problem was one of capital flows, not at that stage the current account.

The discipline imposed by the fixed exchange rate system in the sixties is worth emphasizing. Germany and the Netherlands revalued in 1961. The next major adjustment was the British devaluation in 1967. That came after a three year struggle by the Labor government to avoid the stigma of devaluation. A massive loan package assembled from the GAB, IMF, U.S. and other sources in 1964 preserved the \$2.80 parity, but crises recurred in the next two years. Despite cooperative attempts to stave off the devaluation, including both intervention by and loans from the Fed and other central banks, and restrictive domestic policies, Britain in the end succumbed. The Bretton Woods system unquestionably enforced policy coordination--though not to the benefit of the British economy at the time.

Purchases of gold from the London gold pool accelerated after the British devaluation, culminating in the closing of the pool and the institution of the two-tier price system. The United States remained committed to buy and sell gold at the official price in inter-central bank dealings, but not to sell to private buyers. Dollar reserves were still claims on gold, but the agreement was that those claims would not be

pursued. Negotiations for the establishment of the SDR were proceeding at the same time.<sup>31</sup> The first SDR's were created in 1970, giving the IMF the ability to create a reserve asset, and opening the possibility of the Fund developing eventually into a world central bank, as the Keynes plan had envisaged.<sup>32</sup>

Exchange crises became more regular from 1968. Capital flowed into Germany, creating pressure for revaluation. French political problems created pressures for devaluation. In an Alphonse and Gerhardt routine repeated in 1987, each preferred the other to act. Both acted in 1969, when the mark was allowed to float for a time before a new parity was set. In 1970 the Canadian dollar was set afloat. Despite a current account surplus of \$2 billion, capital outflows produced a U.S. balance of payments deficit (before official transfers) of \$10 billion, 1% of GNP.

The Bretton Woods system succumbed in 1971. Massive capital flows forced the mark to float in May. In August the United States imposed the wage-price freeze, a 10% import surcharge, and suspended gold convertibility. In subsequent negotiations, the U.S. agreed to raise the price of gold as part of a package leading the return to fixed rates. The December 1971 Smithsonian agreement established a new set of parities, which lasted, with strains, for the next fifteen months. During that period the European currency snake, the forerunner of the European Monetary System, was established.

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<sup>31</sup>The creation of the SDR was the culmination of a process that started with a G-10 group set up in 1964 to study the creation of reserve assets.

<sup>32</sup>Fischer (1984) discusses this possibility.

In February 1973, Japan, Italy and Switzerland floated their currencies. The snake currencies followed, and the worldwide fixed exchange rate system was dead. It had operated successfully until the mid-sixties, and had continued to put pressure on domestic policies into the seventies. It was a victim fundamentally of the failure of countries fully to coordinate their macroeconomic policies. The system imposed discipline on countries in deficit as they faced an increasing probability of running out of reserves. But because its liabilities were the main reserve currency, there was not the same discipline on the United States when it ran deficits. The surplus countries were unwilling to expand at a rate sufficient to make revaluations unnecessary; alternatively, they were unwilling to accept foreign rates of inflation. Nor were the deficit countries willing to accept the contractionary policies that would have been needed for them to protect the exchange rate.

Proximately the Bretton Woods system succumbed to massive international capital flows. Capital flows fast in the international monetary system, and it is doubtful that macroeconomic policies to cure the imbalances of the early 1970's would have taken effect quickly enough to maintain the exchange rate. Perhaps a firm commitment by all countries to pursue exchange rate targets, firmly believed, would have been self-sustaining. But it is hard to imagine that all the major countries will ever firmly commit themselves to exchange rate targets unless they use the same money--and thus it is difficult to see among the major countries the successful return of a fixed exchange rate system with free capital flows.

The fact that the capital flows precipitated exchange rate changes does not establish that they were destabilizing. They may rather have recognized the inevitable. In some cases capital flows were beaten back. In 1964 Italy refused to devalue despite capital outflows, obtained international loans, and prevailed. So for a time did Britain. The Italian refusal to devalue, followed by rapid growth, was probably wise; the British decision followed by three years of slow growth was not. It can be concluded neither that speculative capital flows should always be resisted, nor that they should always be succumbed to.

The outstanding feature and the major surprise of the new era that began in 1973 is the volatility of both nominal and real exchange rates, seen in Figure 1. Exchange rates fluctuate more than prices of goods, but less than stock prices. Table 3 presents measures of the variability

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 Table 3: EXCHANGE RATE VARIABILITY.  
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	Exchange rate	CPI	New York Stock Exchange
U.S.	22.8	5.0	53.9
Germany	19.3	3.9	
Japan	33.1	35.3	

Notes: 1. Data are standard deviations of monthly change in the variable, expressed as a percentage at an annual rate, 1973:7 to 1986:12.

2. Exchange rate is a trade-weighted (MERM) index, from International Financial Statistics.

3. Standard deviation of Japanese CPI inflation is very high in part because of high and variable Japanese inflation up to 1975. The standard deviation of Japanese CPI inflation for the period starting 1976:7 is only 8.3.

4. The stock exchange index is the Standard and Poor's 500.

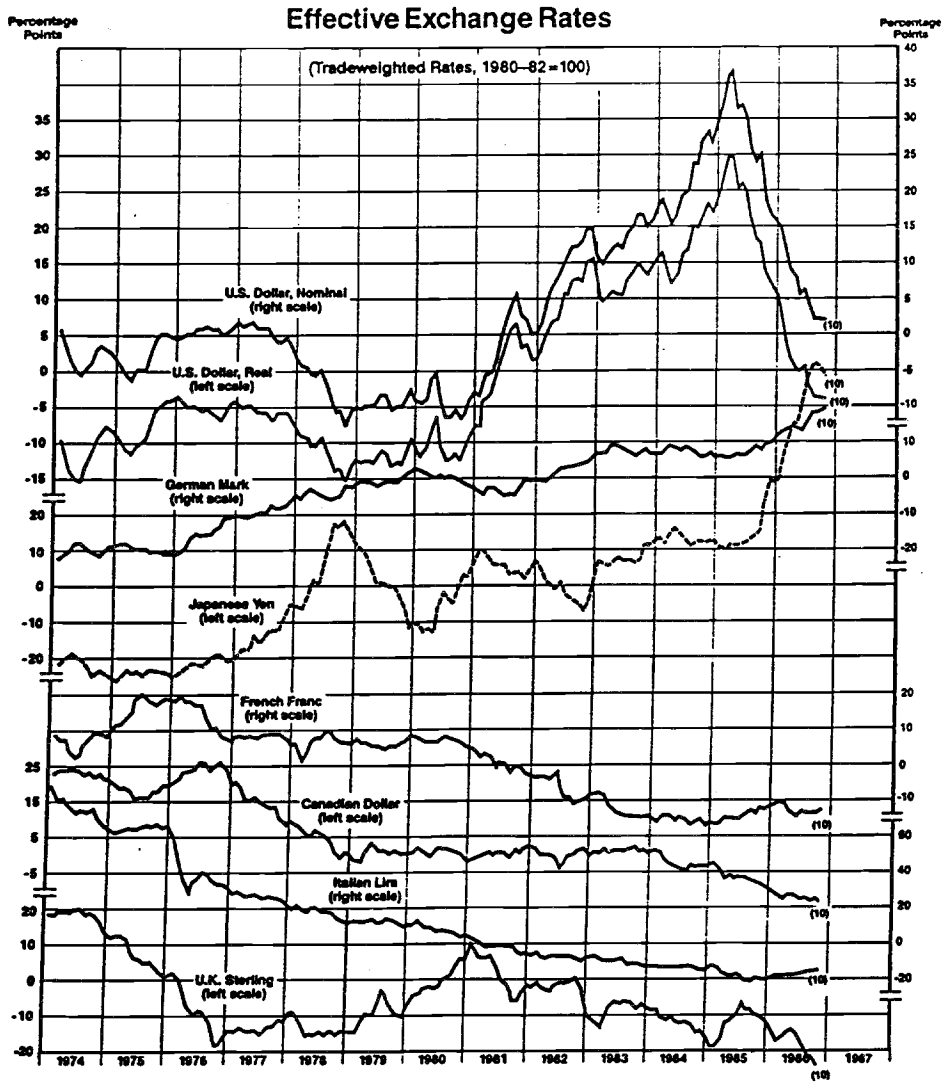


Figure 1: Exchange Rates, 1974-1987.

(Source: Goldman Sachs Economic Research)

of the month to month changes in the exchange rate.<sup>33</sup> Equally surprising have been the massive cumulative, and ultimately reversed, movements in the dollar, dominated of course by its movements in the eighties. Note though that the real value of the dollar is only now returning to its value at the start of the decade.

The issue of whether exchange rates fluctuate excessively has been extensively though inconclusively researched.<sup>34</sup> Pre-seventies theoretical discussion argued that speculation was inherently stabilizing, because successful speculators would have to buy low and sell high. More recently it has been shown that speculative bubbles can exist without anyone necessarily losing money. Excessive volatility of exchange rates is thus a theoretical possibility, but empirical research has not been able to show that rates have fluctuated more than they should have, given economic policies, the shocks hitting the economy, and the information available to market participants. In particular, the system had to deal with the strains of two massive oil shocks and unprecedented divergences between fiscal policies in the United States and the rest of the world.<sup>35</sup>

Exchange rate movements in 1973 and 1974 led to discussions of intervention among the central banks, which agreed to maintain orderly conditions in the markets. It was already becoming clear that floating rates did not insulate countries from each other's policies, and that the

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<sup>33</sup>In Table 2 of his paper for the conference, Richard Marston presents related data. Apparent differences are a result of my expressing the rates of change as percentages at annual rates.

<sup>34</sup>Richard Marston discusses the possible excess volatility of exchange rates in Section 1 of his paper.

<sup>35</sup>I take up in the next section the question of whether the floating rate system itself made these divergent policies possible.

same conflicts that had led to the breakdown of Bretton Woods could reappear in the new floating rate world.

Policy discussions and the sharing of information continued in the OECD forums and in the IMF. Policy coordination continued to be discussed, and little acted upon. It was during this period that the Economic Summits emerged as vehicles for policy discussions and decisions.<sup>36</sup> Participants in the first summit, at Rambouillet in 1975, accepted floating exchange rates, giving up the notion that a restoration of fixed parities was likely, and agreed to intervene to maintain orderly markets.

After remaining reasonably stable in the first year of the Carter administration, the dollar began to slide in 1978 as the U.S. economy, with the aid of active fiscal and monetary policy, continued its rapid recovery from the 1974-75 recession. With the United States' expansion helping other countries, but the dollar under pressure, the call for international coordination began to be heard. Germany, the strongest economy in Europe, and the leader of its currency bloc, was the main focus of attention, seen as the potential locomotive for the world recovery. Japan was under less pressure because it had agreed at the 1977 summit to seek annual growth of 7%, and had introduced an expansionary budget.

The Europeans in turn regarded United States policy as too expansionary. In addition, they argued that the United States' failure to adjust the price of oil to world levels was worsening its balance of

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<sup>36</sup>The six largest countries in the OECD participated in the first two summits; since then, Canada has become a member of the group. De Menil and Solomon (1983) describe and analyze the summits through 1982.

payments and strengthening OPEC. As the 1978 Bonn summit approached, the dimensions of a deal could be seen. The deal was that Germany would increase government spending by 1% of GNP, while the United States would put in place a program to reduce oil imports. In addition, the United States agreed to undertake anti-inflationary measures, including a reduction in a planned 1979 tax cut.

In their analysis of the bargain reached in Bonn, Putnam and Henning (1978) point to domestic disagreements on policy as an important reason for success of the international agreements. In neither Germany nor the United States was there a consensus for the policies agreed to by the government at the summit. Oil price decontrol was unpopular in the Congress; expansion was opposed by important segments of the German political and economic system. Putnam and Henning argue that the domestic proponents of the policies were able to use the summit process to move the decision their way, inviting the pressure exerted by foreign governments. They suggest that Chancellor Schmidt may have been quite willing to expand, but preferred to conceal his preferences for domestic political reasons. This analysis is not encouraging of the view that coordination can easily be achieved on a regular basis.

Whereas the previous London summit had reached agreed but not plausible growth targets, the Bonn summit agreement was more specific, and thus verifiable and credible, in specifying policy actions for the United States and Germany.<sup>37</sup> Japan was specific in agreeing to hold exports to

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<sup>37</sup>The appendix of de Menil and Solomon (1983) summarizes the communiqués of the first eight summits.



no growth, a commitment that was achieved, but the communique again specified a Japanese growth target rather than specific fiscal or monetary actions. Germany passed the expansionary budget package within a month of the summit. The United States was slower in following through, but the commitment was an important factor in strengthening the resolve of the administration to decontrol oil prices.

The Bonn summit is credited by de Menil and Solomon (1983) with contributing also to the successful conclusion of the Tokyo round of tariff negotiations. The London summit had expressed the desire of the participants for a prompt and positive conclusion of the tariff negotiations, a commitment that was exploited by the United States representative to force final agreement by the time of the Bonn summit.

The second oil shock struck between the Bonn and Tokyo (1979) summits. Both Tokyo and the 1980 Venice summits were dominated by the energy problem, and no macroeconomic policy agreements were reached. This was not only because the Germans had begun to regard the Bonn agreement as a mistake, but also because there were no obvious macroeconomic bargains to be reached.

Despite the German expansion, the dollar continued to fall after the Bonn summit. U.S. inflation was rising. The United States pressured Germany to intervene in support of the dollar, but the Bundesbank resisted, pushing instead for a change in U.S. domestic policy. In October the President announced an anti-inflationary package that included voluntary wage-price restraints. In response the dollar declined sharply. By November the Fed had assembled an announced \$30 billion fund which it

would use in support of the dollar. This time the dollar responded favorably, and continued to rise through the middle of 1979.

In November 1979 the United States made the basic decision to fight inflation through restrictive monetary policy. Although the decision commanded wide international support, it was made largely for domestic reasons as inflation was increasingly recognized as the number one problem facing the nation.

The cast of summit characters changed in the eighties. With widespread agreement that the fight against inflation was first priority, there was at first little need to discuss macroeconomic policy. At the beginning of the Reagan administration the United States adopted a hands-off policy on the exchange rate, showing remarkable equanimity about the rise of the dollar. The vigor of the 1984 recovery kept the dollar problem concealed from the political process through that year. But as the nature of the U.S. twin deficit problem became clearer, and the political pressures of declining exports and rising imports mounted, echoes of the 1976-78 debate were heard.

With the change of Treasury secretary in 1985, and growing protectionist pressure in Congress, the U.S. administration began to look for ways to reduce the trade deficit and to move the dollar down. Japan-bashing became a popular if ineffective political activity. The administration was unwilling to raise taxes and unable to cut spending. Unable to attack the trade deficit through fiscal policy,<sup>38</sup> it was

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<sup>38</sup>Unless one counts the 1984 Economic Report of the President as an administration document, there was no administration recognition through the end of 1986 that the trade deficit is linked to the budget deficit.

constrained to fight for the opening of foreign markets and attempts to push down the dollar. The dollar slide that had begun in February 1985 was briefly accelerated by the announcement of the Plaza G-5 agreement of September 1985 that agreed to intervene to push down the dollar. The dollar continued its decline into 1986.

Deja vu arrived in 1986. Germany and Japan were being pressured to expand to help the United States. Neither wanted to expand, putting the onus for the problem on United States fiscal policy. Economists could see a clear bargain: U.S. fiscal contraction offset by domestic monetary expansion and Japanese and German expansion. But the United States administration was not taking that route. There were of course differences between the 1986 and 1976-78 debates. Among them: the inflation rate was low, and close to zero in Germany and Japan; the United Kingdom was far less expansionary than it had been a decade earlier.

Talk of policy coordination increased. The 1986 Tokyo summit agreed that the G-7 finance ministers would meet at least once a year to review the compatibility of their economic objectives. They were to consult a large set of indicators, including policy variables. And the finance ministers were "to make their best efforts to reach an understanding on appropriate remedial measures whenever there are significant deviations from an intended course." The significance of the agreement is discussed in the next section.

There was also some action. In October 1986 the Finance Ministers of the U.S. and Japan agreed that Japan would reduce its discount rate, in that the United States would continue to fight protectionism and that the

then current yen-dollar exchange rate [154 yen to the dollar] was "broadly consistent with the present underlying fundamentals". The agreement noted and strengthened the fiscal expansion package Japan was undertaking, and recorded the U.S. tax reform act. The agreement was thought also to be a signal to the Germans that they might lose their seat at the very top levels if they failed to cooperate.

In February 1987 the G-7 met in Paris and issued a communique stating that exchange rates were currently appropriate given the economic policies being followed. The Germans agreed to increase slightly the tax cut they were planning for 1987 and the Japanese pledged to pursue fiscal expansion, as previously agreed. The U.S. for its part would attempt to bring its budget deficit down. There was no explicit mention of intervention to attempt to enforce the current levels of exchange rates.

The concentration on U.S.-Europe-Japan relations should not be allowed to obscure the importance of the EMS, set up in 1978. The EMS can be viewed as an agreement by France and Italy to accept German leadership in monetary policy, imposing constraints on their domestic monetary and fiscal policies. The EMS has been surprisingly successful, withstanding even the Mitterand expansion in 1981-82. With the announcement in 1986 that Italy and France plan to lift capital controls, the EMS now faces a crucial test.<sup>39</sup> British membership, which appears increasingly likely, would also significantly change the nature of the organization by adding another capital control free currency to the system. British and German

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<sup>39</sup>Giavazzi and Giovannini (1985) argue that capital controls have been essential to the success of the EMS.

policies would have to be closely coordinated if the fixed exchange rate within the EMS was to hold for any length of time; otherwise capital flows between the two currencies would quickly force changes in the parity.

Discussions of economic policy take place also in the framework of the IMF, under the general heading of surveillance. The end of the Bretton Woods system left the Fund's responsibilities for dealing with exchange rates undefined. The Fund's Article IV, dealing with exchange rates, was amended in 1978. Members recognized their obligation not to manipulate exchange rates unfairly, and the Fund was given the responsibility of exercising "firm surveillance over the exchange rate policies of members". Bilateral Article IV discussions between the Fund and members take place annually, but the Article IV reports are not published.

Multilateral surveillance is less regular and formalized. The Managing Director attends some G-5 meetings, but is not apparently in a position to exercise influence. The World Economic Outlook, published since 1980, is discussed at Executive Board meetings, but is not known to influence policy in individual countries. In 1985 both the G-10 and the Group of 24 developing countries published proposals for multilateral surveillance, with a greater emphasis on the international economy and policy coordination. With the Tokyo summit agreement, these proposals are presumably moving towards implementation.<sup>40</sup>

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<sup>40</sup>Kenen (1986) and Solomon (1986) contain insightful discussions and proposals on the prospects of multilateral surveillance.

#### IV. The Prospects for Coordination.

The historical record suggests these generalizations:

- . The Bretton Woods system imposed significant constraints on domestic policies, including on occasion policy in the United States.
- . Under Bretton Woods countries were not willing to subordinate domestic policy entirely to maintenance of the exchange rate. The same was true under the gold exchange standard of the inter-War period.
- . Increasingly massive capital flows made maintenance of fixed rates progressively more difficult, perhaps because it was clear countries were not absolutely committed to maintaining the exchange rate.
- . Information sharing about economic policy has been extensive since the sixties, and has moved to increasingly authoritative levels of government.
- . Interdependence among economies did not markedly decline as a result of the move to floating rates. Countries were revealed not to be indifferent to the behavior of their exchange rates, and sometimes took domestic policy actions in response. Exchange rate crises occurred, not in the form of an attack on a fixed rate, but rather as a rapid shift out of a currency and rapid depreciation.
- . Policy coordination under the Bretton Woods system occurred more as a result of the constraints imposed by the system than by explicit agreement.
- . Explicit coordination has been rare in the post-Bretton Woods period. The Bonn summit is a clear example of such coordination. International political pressures to change economic policy have been common, especially

in the last few years as the magnitude of the United States trade deficit problem became clear. Apparent agreements on policy coordination were reached in October 1986 and February 1987 but it is not yet clear whether any policy actions will follow.

The bewildering array of organizations, meetings, plans, and activities described in the previous section should not be allowed to obscure the basic question of what is to be gained by international coordination. The evidence of Section II is that the gains would be modest, and there is a possibility that the gains would be negative.

I discuss the prospects for four different types of coordination, in increasing order of the constraints imposed on individual countries.

1. Surveillance and Information Exchange: Information exchanges already take place on a broad scale. The shift to regular consultation among finance ministers envisaged in the Tokyo summit agreement makes it more likely that the international implications of domestic policy decisions will be weighed, as the finance minister contemplates explaining the decision to his counterparts at the next meeting.

Multilateral surveillance can bring an outside perspective to economic discussions that may be clouded by domestic political considerations. In this connection, it could be helpful if a way were found to publish some version of the IMF's Article IV reports, which are of a generally high standard and could serve as an outside technical evaluation of domestic policies. These reports could eventually exercise some influence over domestic policy decisions if they turned out over the years to provide a good analysis of the state of the economy.

Useful as this type of information exchange is, it cannot be expected to exert more than a marginal influence on policy.

2. Discretionary Policy Deals: Occasionally there is a clear international policy deal to be made. That was true in 1978; it appears to be true in 1987. Regularly scheduled OECD meetings, those among finance ministers set up at Tokyo, special meetings such as that in Paris in February 1987, and the summits are the appropriate places for such deals to be made. They will and should continue to occur.

It is doubtful though that continuing coordination, "significant modification of national policies in recognition of international economic interdependence" will emerge from these meetings. The domestic political process is sufficiently complicated that the international input cannot be more than a small factor in regular policymaking. Putnam and Henning's analysis of the Bonn agreement suggests the importance of the domestic political configurations in that case.

In both the Bonn summit case, and the possible February 1987 trade of German and Japanese expansion for a reduction in the U.S. budget deficit, and resistance to protection, the proposals involve a change in American policy that looks untenable in the long run. The supporters of coordination in the United States call on the international factor to help change American policy of which they disapprove. It is doubtful that they would be as enthusiastic if in 1982 coordination had required them to accept the current German view that there is very little to be done about high unemployment and that budget balance is the main criterion for good policy.



There is nothing in either the Bonn summit and the 1987 examples to refute the view that there would be little need for coordination if each country were taking good care of its domestic policies.

3. Policy Harmonization through Rule Changes: The rules of the Bretton Woods system enforced more coordination than the successor regime. A return to fixed exchange rates among all the major economies now looks unlikely, but suggestions for changes in the international rules are frequent. I briefly discuss two proposals.

. The McKinnon Monetary Rule: Ronald McKinnon (1984) has suggested that money growth rates be coordinated among the U.S., Japan, and Germany. His proposal can be phrased alternatively as tying national money growth rates to the behavior of the exchange rate. An appreciation of a currency is a cause for greater money growth in that country and less money growth elsewhere. The assumption underlying this rule is that international shifts in the demand for money are the main causes of exchange rate changes. The rule could have unfortunate consequences, for instance expansionary fiscal policy would induce an increase in the money stock.

The rule approach to monetary and fiscal policy, exemplified by the McKinnon monetary rule, is attractive in providing certainty about policy. If optimal rules for all countries could be calculated, taking into account the interactions among economies, it would be sensible to implement them, perhaps even by law. The Bretton Woods system can be seen as an example of such a system, which while not prescribing policy, put in place an immediate target of policy--maintenance of the exchange rate--

that tightly constrained policy choices. That system ultimately broke down, there has been no similar simple replacement suggested, and the state of knowledge about the effects of monetary and fiscal policies is not such as to commend the implementation of monetary and fiscal policy rules any time soon.

. The Target Zone Proposal: Seeking to combine the virtues of floating with the benefits of fixed rates, John Williamson (1983) has proposed target zones for exchange rates. Countries would announce wide bands within which the exchange rate could move, but would have to take corrective action as the exchange rate approached the limits of the bands. Williamson's proposals have received widespread attention<sup>41</sup>. The elusive character of the zones suggests they will not much constrain domestic policies, unless the exchange rate reaches the limits of the zone. At that point countries will face the same choices they faced in the Bretton Woods system--and it is not clear why they will not then move their zones. The proposal is a subtle and probably ineffective one to introduce gentle discipline on players who have been impervious to rigorous discipline in the past.

4. A Three-Currency Bloc World: The international economy appears increasingly to be evolving into three currency blocs: the yen, the dollar, and the mark or the EMS currency. There are fixed rates within each bloc, implying coordination of fiscal and monetary policies within the blocs, and flexible rates between them.

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<sup>41</sup>See for instance the symposium in Brookings Papers on Economic Activity, 1986:1.

Those countries that are willing to coordinate their policies sufficiently to maintain a fixed exchange rate indicate their willingness by joining the bloc. That is what the decision to join the EMS means-- and, if it continues to develop successfully, it may eventually evolve into a truly fixed exchange rate regime.

The three-bloc system is very close to the notion of optimal currency areas discussed by Robert Mundell (1961). Mundell asked what characteristic defined an area or group of countries in which it was optimal to maintain a fixed exchange rate. He argued that the key was the mobility within that area of factors of production (i.e capital and labor).

Consider for instance the United States. If each state had its own currency, the Texas dollar would have appreciated in the seventies and depreciated in the eighties. Because there is factor mobility in the United States, the adjustment came instead by labor and capital moving into Texas in the seventies and out in the eighties. So long as factors are mobile, adjustment can come through movements of factors rather than changes in the real exchange rate.

Why would adjustment through factor mobility be preferable to adjustment through exchange rate changes? Ultimately the argument comes down to risk sharing. If every region in the country were an independent currency area with no factor mobility, individuals' incomes would fluctuate with the state of the local economy. They would do better than average sometimes and less well at other times. With factor mobility, individuals reduce the variability of their incomes by retaining the right to move on to other markets when the local economy shrinks.

On the basis of the mobility of factors of production, Europe may eventually become a natural currency area. Japan and the United States already are. It seems unlikely that full freedom of factor movements, including labor, will develop among the three areas. That is the reason why the world is more likely to see three currency blocs than just one, and why exchange rates among them are likely to remain flexible.

#### Concluding Comments.

The notion of international policy coordination is an appealing one, that appears to hold out the promise of major improvements in economic performance. However, estimates of the quantitative impacts of policy decisions in one economy on other economies are quite small. These results, together with explicit calculations of the benefits of coordination, suggest the gains will rarely be significant. Further, theoretical analysis finds many circumstances under which coordination worsens rather than improves economic performance.

The interest in policy coordination in the United States has been strongest when advocates of coordination were hoping to use international policy agreements to bring about changes in domestic policies that they regarded as either undesirable or eventually untenable. It is entirely possible though that formal coordination would sometimes require a country to undertake policy actions of which it disapproved.

So long as exchange rates remain flexible--and they will likely remain flexible among the three major currency areas--macroeconomic policy coordination among the major blocs is unlikely to advance beyond the

provision of mutual information and occasional agreements for specific policy tradeoffs. Both information interchanges and occasional policy agreements when the circumstances are right are useful, and should be encouraged.

But more consistent ongoing policy coordination in which countries including the United States "significantly modify national policies in recognition of international policy interdependence" is not on the near horizon. Fortunately the evidence suggests that the potential gains from coordination are in any event small: the best that each country can do for other countries is to keep its own economy in shape.

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