

NBER WORKING PAPER SERIES

MONETARY POLICY: DOMESTIC TARGETS
AND INTERNATIONAL CONSTRAINTS

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Working Paper No. 1067

NATIONAL BUREAU OF ECONOMIC RESEARCH
1050 Massachusetts Avenue
Cambridge MA 02138

January 1983

For presentation at the AEA meetings, December 28, 1982, New York, N.Y. J.A. Frenkel is indebted to the National Science Foundation, grant SES-7814480 A01 for financial support. The research reported here is part of the NBER's research programs in International Studies and Economic Fluctuations. Any opinions expressed are those of the author and not those of the National Bureau of Economic Research. Forthcoming in the American Economic Review, May 1983.

Monetary Policy: Domestic Targets and International Constraints

ABSTRACT

This paper argues that macroeconomic policies for open economies differ, in fundamentally important ways, from the corresponding policies for closed economies. The openness of the economy imposes constraints on the effectiveness and proper conduct of macroeconomic policies and it also provides policy makers with information which may be usefully exploited in the design of policy. The discussion in this paper focuses on the dependence of monetary policy on the constraints and the information that are provided by the external sector. Section I summarizes briefly the characteristics of the international constraints on monetary policy. Section II deals with intervention in the foreign-exchange market and its relation to monetary policy. In this context the distinction between sterilized and non-sterilized interventions is drawn and the implications of the various forms of interventions for the effectiveness of monetary policy are examined. Finally, Section III addresses the question of the role that exchange rates should play in the design of monetary policy. It is argued that data from the market for foreign exchange in combination with data on interest rates can provide the monetary authorities with useful information on money market conditions and thereby can contribute to the improved conduct of monetary policy.

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I. The International Constraints

The open economy is linked to the rest of the world primarily through three key linkages: through international trade in goods and services; through international mobility of capital; and through international exchanges of national monies (see Frenkel and Michael Mussa (1981) for a detailed analysis of the implications of these linkages for macro-economic policies).

International trade links prices in different national economies. While the evidence on purchasing power parities reveals that this link is not rigid,

it is evident that a country cannot choose its long-run trend in the inflation rate independent of the long-run courses of monetary policy and the exchange rate. This relation thus imposes a severe constraint on monetary policy.

International mobility of capital links interest rates on financial assets. In addition, by permitting countries to finance current-account imbalances, it provides for a channel through which macroeconomic disturbances are transmitted internationally. The international mobility of capital limits the power of monetary policy. Under a fixed exchange rate regime a monetary expansion in excess of money demand, is likely to have only a limited success in sustaining the change in the nominal money stock. Any temporary reduction in the domestic rate of interest will induce capital outflow and a loss of foreign exchange reserves, and any attempts to sterilize the monetary consequences of the loss of international reserves is unlikely to be viable in the long-run (more on this in Section II). Under a flexible exchange rate regime the monetary authority regains control over the nominal money stock but the international mobility of capital still imposes a severe limitation on the ability of monetary policy to significantly affect the evolution of output and employment. A monetary expansion is likely to induce a rapid change in the exchange rate which leads to prompt adjustment of prices and wages. The leverage of monetary policy can be somewhat enhanced if it operates in financial assets that are isolated from world capital markets since, in the short-run, the link between the rates of return on such assets with the world rates of interest is not as tight.

The international exchange of national monies and the requirement of monetary equilibrium also impose a severe limitation on the effectiveness of monetary policy. As stated before, under a fixed exchange rate regime the authorities lose control over the nominal money stock while under a flexible rate regime the requirement of monetary equilibrium ensures that in the long-run

changes in the nominal money stock lead to a proportionate change in all nominal prices and wages. Because of the rapid change in the exchange rate, the constraint on monetary policy that is implied by the homogeneity postulate is likely to be manifested much more promptly in an open economy with flexible exchange rates than in a closed economy.

An additional consideration constraining the conduct of monetary policy follows from the dynamic linkage between current exchange rates and expectations of future exchange rates (see Mussa (1976,1979)). This dynamic linkage implies that the effect of monetary policy on the exchange rate, and thereby on other economic variables, depends on its effect on expectations concerning future policies. These expectations, in turn, are influenced by the past and by the current course of policy, and it is likely that the mere recognition of this dynamic linkage will influence the conduct of policy. For the government, being aware that the effectiveness of any particular policy measure depends on the way by which it influences the public's perception of the implications of the measure for the future conduct of policy, is likely to be more constrained in employing the instrument of monetary policy.

In summary, the openness of the economy imposes constraints on monetary policy. These constraints are reflected in either a reduced ability to influence the instruments of monetary policy (like the nominal money supply under fixed exchange rates), or in a reduced ability to influence the targets of monetary policy (like the level of real output), or in an increased prudence in the use of monetary policy because of the potentially undesirable effects on expectations.

The constraints on the conduct of monetary policy depend on the exchange-rate regime. Therefore, the question of the country's choice of the optimal set of constraints on monetary policy can be answered in terms of the analysis of the choice of the optimal exchange rate regime. Such analysis reveals that the optimal exchange rate regime depends on the nature and the origin of shocks that

affect the economy. Generally, the higher is the variance of real shocks which affect the supply of goods, the larger becomes the desirability of increased fixity of exchange rates. The rationale for the implication is that the balance of payments serves as a shock absorber which mitigates the effect of real shocks on consumption. The importance of this factor diminishes the larger is the degree of international capital mobility. On the other hand, the desirability of exchange-rate flexibility increases the larger are the variances of shocks to excess supply of money, to foreign prices and to deviations from purchasing power parities (see Frenkel and Joshua Aizenman).

II. Exchange-Market Intervention

The analysis of the international constraints on monetary policy is closely related to the analysis of the questions of whether the authorities can sterilize the monetary implications of the balance of payments and the monetary implications of interventions in the market for foreign exchange. Specifically, with respect to intervention, the difficulties in analysing that question start with definitions since exchange-market intervention means different things to different people (see Henry Wallich). Some, especially in the United States interpret foreign exchange intervention to mean sterilized intervention, that is intervention which is not allowed to affect the monetary base and thus amounts to an exchange of domestic for foreign bonds. Others, especially in Europe interpret foreign intervention to mean nonsterilized intervention. Thus, for the Europeans an intervention alters the course of monetary policy, while for the Americans it does not.

The distinction between the two concepts of intervention is fundamental and the exchange rate effects of the two forms of intervention may be very different depending on the relative degree of substitution among assets. In principle, sterilized intervention may affect the exchange rate by portfolio-balance effects

(see Polly R. Allen and Peter B. Kenen, William Branson, and Dale Henderson), and by signaling to the public the government's intentions concerning future policies, thereby changing expectations, (see Mussa (1981)). To the extent that sterilized intervention is effective in managing exchange rates, the constraint on the conduct of monetary policy would not be severe since the undesirable exchange rate effects of monetary policy could be offset by policies which alter appropriately the composition of assets. In practice, however, the evidence suggests that nonsterilized intervention which alters the monetary base has a strong effect on the exchange rate while an equivalent sterilized intervention has very little effect (see Maurice Obstfeld). These findings are relevant for both the theory of exchange rate determination and the practice of exchange rate and monetary policies. As to the theory, they shed doubts on the usefulness of the portfolio-balance model. As to the practice, they demonstrate that the distinction between the two forms of intervention is critical if the authorities mean to intervene effectively, and that it may be inappropriate to assume that the open-economy constraints on monetary policy can be easily overcome by sterilization policies.

The preceding discussion defined interventions in terms of transactions involving specific pairs of assets. In evaluating these transactions it might be useful to explore the broader spectrum of possible policies. Figure 1 summarizes the various patterns of domestic and foreign monetary policies and foreign exchange interventions. These policies are divided into three groups as follows:

- I : Domestic nonsterilized foreign exchange intervention
- I* : Foreign nonsterilized foreign exchange intervention
- II : Domestic monetary policy
- II* : Foreign monetary policy
- III : Domestic sterilized foreign exchange intervention
- III* : Foreign sterilized foreign exchange intervention

This classification is based on the types of assets that are being exchanged. Thus, when the authorities exchange domestic money (M) for domestic bonds (B), the transaction is referred to as domestic monetary policy (as in II), while when the authorities exchange domestic bonds (B) for foreign bonds (B*), the transaction is being referred to as domestic sterilized foreign exchange intervention (as in III). Some have characterized pure foreign exchange intervention as an exchange of domestic money (M) for foreign money (M*) rather than the exchange of domestic money for foreign bonds. To complete the spectrum this type of exchange is indicated in Figure 1 by I' and I'*, respectively.

This general classification highlights two principles. First, it shows that the differences between the various policies depend on the different characteristics of the various assets that are being exchanged. These different characteristics are at the foundation of the portfolio-balance model. Second, it shows that domestic and foreign variables enter symmetrically into the picture. Thus, for example, a given exchange between M and B* can be effected through the policies of the home country or through a combination of policies of the foreign country. This symmetry suggests that there is room (and possibly a role) for international coordination of exchange rate policies. It also illustrates the "(n-1) problem" of the international monetary system: in a world of n currencies there are (n-1) exchange rates and only (n-1) monetary authorities need to intervene in order to attain a set of exchange rates. To ensure consistency the international monetary system needs to specify the allocation of the remaining degree of freedom (see Robert Mundell).

By and large the evidence on the effectiveness of sterilized intervention has been based on a comparison between patterns I and III within a single-country framework. It is possible that some of the findings emerging from the single-country studies may be modified once the foreign countries' behavior is taken into account. But, until presented with such evidence, it is reasonable to

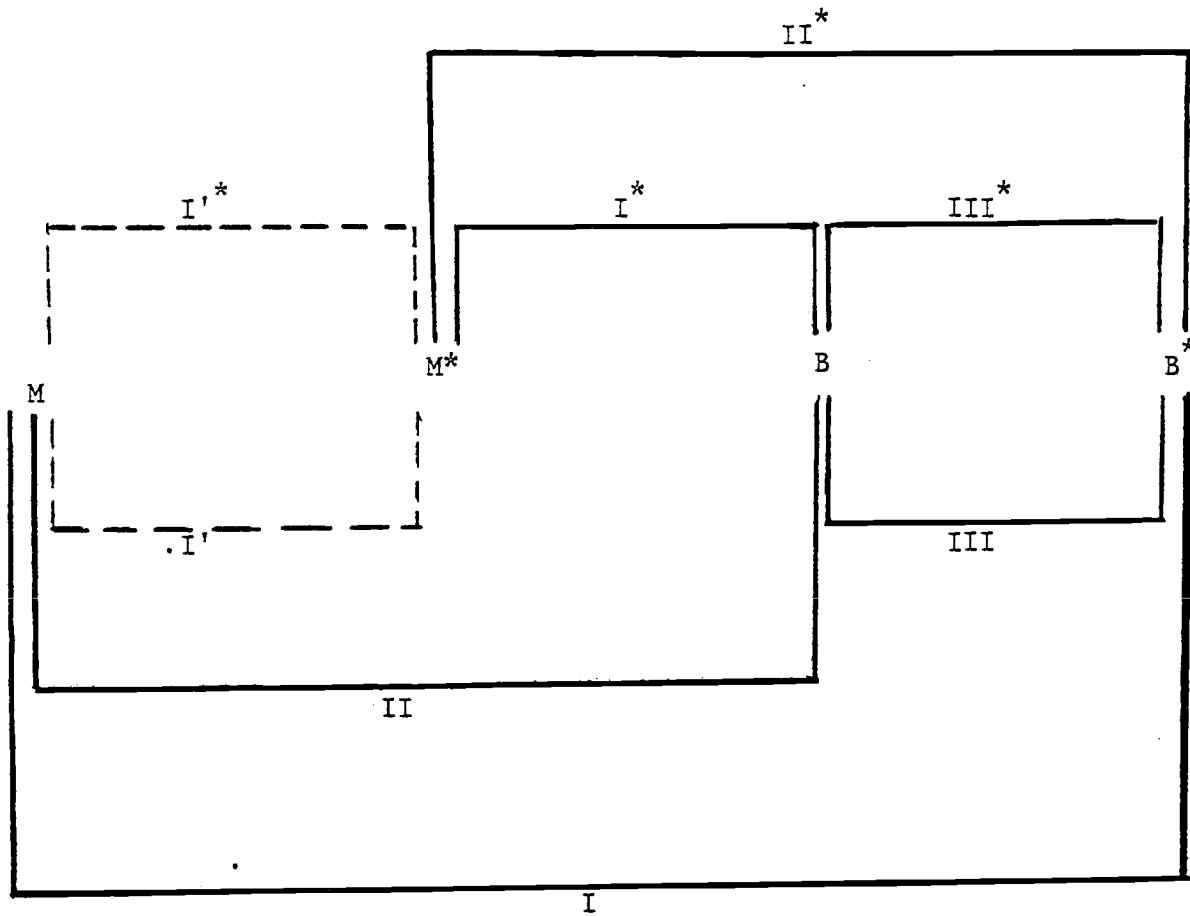


Figure 1: Patterns of domestic and foreign monetary policies and foreign exchange interventions.

conclude that it is very difficult to conduct effectively independent monetary and exchange rate policies.

III. Exchange Rates and Monetary Policy

The recent volatility of exchange rates and the large divergence from purchasing power parities have given rise to various proposals concerning rules for intervention in the foreign-exchange market. Some of these proposals are variants of a PPP rule according to which the authorities are expected to intervene so as to ensure that the path of the exchange rate conforms to the path of the relative price levels. In view of the discussion in Section II, these proposals, if effective, amount to guidelines for the conduct of monetary policy.

There are at least four difficulties with a PPP rule. First, there are intrinsic differences between the characteristics of exchange rates and the price of national outputs. These differences, which result from the much stronger dependence of exchange rates (and other asset prices) on expectations, suggest that the fact that exchange rates have moved more than the price level is not sufficient evidence that exchange-rate volatility has been excessive.

Second, the prices of national outputs do not adjust fully to shocks in the short run and thus, intervention in the foreign exchange market to ensure purchasing power parity would be a mistake. When commodity prices are slow to adjust to current and expected economic conditions, it may be desirable to allow for "excessive" adjustment in some other prices.

Third, there are continuous changes in real economic conditions that require adjustment in the equilibrium relative prices of different national outputs. Under these circumstances what seem to be divergences from purchasing power parities may really reflect equilibrating changes.

Fourth, if there is short-run stickiness of prices of domestic goods in terms of national monies, then rapid exchange-rate adjustments, which are capable of changing the relative prices of different national outputs, are a desirable response to changing real economic conditions. An intervention rule which links changes in exchange rates rigidly to changes in domestic and foreign prices in accord with purchasing power parity ignores the occasional need for equilibrating changes in relative prices.

While it might be tempting to "solve" the problem of divergences from PPP by adopting a rigid PPP rule, this would be a mistaken policy course.

What should be the role of the exchange rate in the design of monetary policy? Generally, given that monetary and exchange-rate policies should not be viewed as two independent instruments, consideration of the external value of the currency should play a relatively minor role in the design of monetary policy. The major consideration that should guide the monetary authority is that of achieving price stability.

While this prescription may seem to represent a revival of the "benign neglect" attitude the opposite is the case. In the past, one of the major arguments for the "benign neglect" attitude in the U.S. was that the U.S. economy was relatively closed and the foreign trade sector was relatively unimportant. The typical statistic which was used to justify this position was the low share of imports in GNP. This argument was inappropriate in the past and is even less appropriate under present circumstances. The U.S. has always been an open economy. The relevant measure of openness to international trade in goods and services is not the share of actual trade in GNP but rather the share of tradeable commodities in GNP (i.e., of potential trade) which is by far larger than that of actual trade. Furthermore, as stated in Section I, one of the main linkages of the U.S. to the world economy is operating through

world capital markets with which the U.S. is clearly well integrated. The same principle applies to the measures of openness of most countries.

The prescription is based on the notions that the economy is open, that the external value of the currency is important, that the restoration of price stability is an important policy goal, and that policy which views the exchange rate as an independent target or, even worse, as an independent instrument, is likely to result in unstable prices. Furthermore, if monetary policy succeeds in achieving price stability, it might be useful to allow for fluctuations of the exchange rate which provide for a partial insulation from misguided foreign monetary policies.

Even when monetary policy is not guided by exchange rate targets it might attempt to offset disturbances arising from shifts in the demand for money. Such shifts in demand may be especially pronounced under a regime of flexible exchange rates. A policy which accommodates such demand shifts by offsetting supply shifts, would reduce the need for costly adjustments of exchange rates and national price levels. The difficulty with implementing this policy is in identifying when a shift in money demand has occurred. As is obvious, the nominal rate of interest is not a reliable indicator of money market conditions. The more relevant indicators are the components of the nominal rate of interest -- the real rate of interest and the expected rate of inflation -- but these components are unobservable.

Here the exchange rate may be useful as an indicator for monetary policy especially when frequent changes in inflationary expectations make nominal interest rates an unreliable indicator of fluctuations in money demand. Accordingly, a combination of a high nominal-interest-rate differential and a depreciation of the currency, that seems to have prevailed in the U.S. during most of the 1970's may have indicated a rise in inflationary expectations, which

should obviously not have been fueled by an increase in the supply of money. On the other hand, a combination of a high nominal interest-rate differential and an appreciation of the currency that seems to have prevailed since the latter part of 1979, may indicate a rise in the demand for money, which should be accommodated by an expansionary monetary policy (this argument draws on Frenkel and Mussa (1980,1981) and Frenkel (1981)).

This prescription that is based on the relation between exchange rates and interest rates can also shed light on the recent controversy concerning the proper conduct of U.S. monetary policy in view of the high rates of interest that have prevailed since 1980. The relatively tight monetary policy which accompanied the high nominal rate of interest in the U.S. was justified on the grounds that the high nominal rate of interest was primarily due to high inflationary expectations. As a counter argument it was argued that the prime reason for the high nominal rate of interest was the high real rate rather than inflationary expectations. Obviously, the two alternative prescriptions call for fundamentally different monetary policies. To combat inflationary expectations monetary policy had to be tight but to combat high real rates of interest a case could be made for a more relaxed monetary policy.

Here again the relation between the exchange rate and the rate of interest can provide the monetary authority with information that can be helpful in solving the "signal extraction" problem. By and large, since the latter part of 1979, the high nominal rate of interest in the U.S. has been accompanied by an appreciation of the dollar. This suggests that the important factor underlying the evolution of the nominal rate of interest in the U.S. has been the evolution of the real rate of interest rather than inflationary expectations. Under such circumstances the U.S. monetary policy could have afforded to be more relaxed while paying even more attention to the underlying reasons for the high real

interest rates. Several factors have contributed to the rise in real interest rates. First, there have been large current and prospective budget deficits in the United States and in the rest of the world.

Second, stagflation lowered the hedging quality of bonds. With a weak economy and high inflation, the real interest rate on bonds declines. For bonds to be more attractive to bondholders, they must bear a higher real yield.

Third, high real interest rates represent a rise in the risk premium, attributable to several factors: (a) the projected rise in future budget deficits creates uncertainty about how these deficits will be financed; (b) the volatility of monetary policy since late 1979 may have induced a rise in the risk premium; and (c) the fragility of the world financial system, the sequence of banking crises, the increased perception of sovereign risk and increased sensitivity to large exposures, and the increased reluctance to extend additional credit have all contributed to the rise in the risk premium and in real interest rates. This rise in risk has been reflected in the increased spread between high- and low-quality bonds.

Fourth, it has been argued that changes in the laws dealing with the treatment of depreciation and in those dealing with bankruptcies have also contributed to the rise in real interest rates.

This perspective suggests that monetary policy can use the information provided by the foreign exchange market to identify the source of variations in nominal rates of interest. Thus, the external sector while imposing severe constraints on monetary policy, is also providing it with useful information.

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