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MONETARY APPROACHES TO THE
BALANCE OF PAYMENTS AND
EXCHANGE RATES

ALAN A. RABIN
AND
LELAND B. YEAGER



INTERNATIONAL FINANCE SECTION

DEPARTMENT OF ECONOMICS

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Princeton, New Jersey

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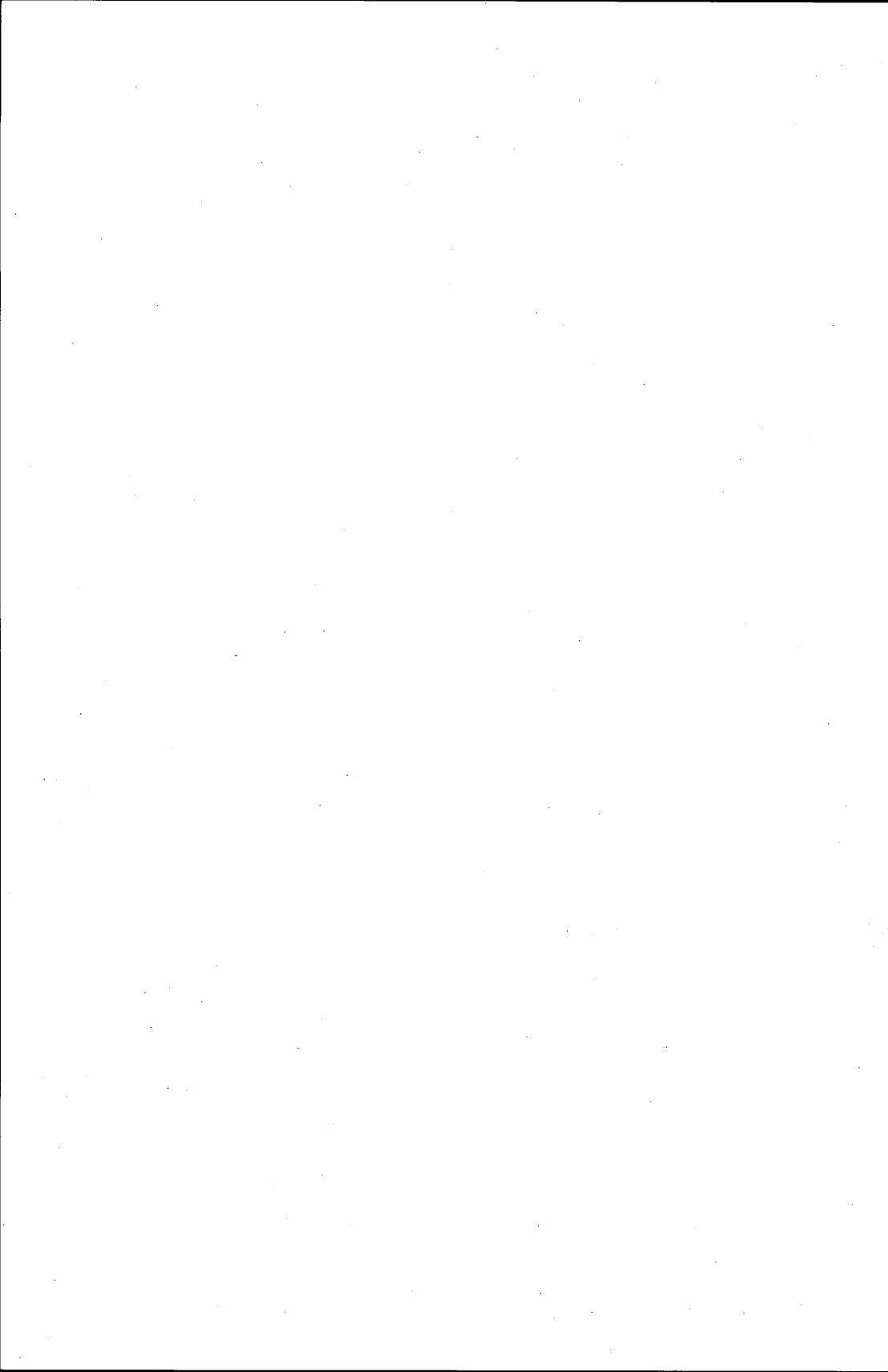
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Monetary Approaches to the Balance of Payments and Exchange Rates

For decades, the role of money suffered relative neglect in general macroeconomics and especially in the areas of balances of payments and exchange rates. Now, at last, the role of supplies of and demands for money has again become the focus of scholarly attention.¹ This development is surely welcome, and we shall illustrate the usefulness of the monetary approach for understanding current conditions and recent economic history. Nevertheless, economists can best exploit the potentialities of the monetary approach if they observe certain distinctions that are too easily neglected and avoid certain errors that have become commonplace in the literature.

1 The Monetary Approach to the Balance of Payments

The monetary approach to the balance of payments (MABP) presupposes fixed exchange rates. A version associated with Harry G. Johnson and his followers became fashionable in the early and middle 1970s. We will call it the "strong" version. It *identifies* a country's balance-of-payments surplus under fixed exchange rates with a process of satisfying a demand for domestic money to hold in excess of actual holdings, and it *identifies* a payments deficit with a process of working off a supply of domestic money in excess of desired holdings. Certainly, some such association between monetary and payments disequilibria is common and perhaps even typical. But many authors equate them strictly, and this is fallacious. Whether those authors would stick to their statements under cross-examination is another question. One purpose of this essay is to conduct such a cross-examination.

We begin with statements of the strong version. According to Johnson (1976, pp. 282-283),

The central point of the monetary approach to balance-of-payments policy theory is that balance-of-payments deficits or surpluses reflect stock disequilibrium between demand and supply in the market for money.

A version of this paper (Rabin and Yeager, 1979) was originally published in *Economic Perspectives*. We thank Maurice B. Ballabon, the editor, and Harwood Academic Publishers for giving us permission to revise and reprint it.

¹ On the point that the monetary approach to exchange rates has been resurrected rather than newly discovered, see, e.g., Humphrey (1978).

Johnson and Frenkel (1976, pp. 21-22) elaborate:

Accordingly, surpluses in the trade account and the capital account respectively represent excess flow supplies of goods and of securities, and a surplus in the money account reflects an excess domestic flow demand for money. . . . Since the money account is determined by the excess flow demand for money, it is clear why the balance of payments is regarded as a monetary phenomenon and this approach is referred to as "the monetary approach."

Again, Johnson (1977, p. 7) says:

A balance-of-payments deficit or surplus represents a transient stock-adjustment process evoked by an initial inequality between actual and desired money stocks.

Other economists interpret the MABP in a similar way. See, for example, Aghevli and Khan (1977), Connolly and Taylor (1976), Humphrey (1976), Mussa (1976), and Whitman (1975).

The theory summarized in these passages contrasts with a weak version of the MABP, which merely seeks illumination by paying explicit attention to actual and desired quantities of money and to any discrepancy between them. The distinction we are making between strong and weak approaches resembles the distinction between a theory and a framework that Leibenstein (1976) draws, in a more general context, in Chapter 2 of his *Beyond Economic Man*. The strong approach is a theory; it makes assertions, conceivably falsifiable, about correspondences or interdependencies or cause-and-effect relationships in the real world. The weak approach is a framework; it merely focuses attention on particular aspects of reality in the hope of developing warranted assertions. Approaches to understanding reality that superficially seem quite different, such as the several approaches to balance-of-payments analysis, may be compatible and indeed complementary. Each may furnish distinctive views of reality.

The weak monetary approach is compatible with the elasticities and absorption approaches to balance-of-payments analysis.² This looser approach still pays attention to actual and desired quantities of money. It suggests insights into such matters as why a balance-of-payments surplus or deficit cannot persist indefinitely, even under fixed exchange rates, and how a country can import inflation by way of monetary flows through balance-of-payments surpluses. In short, the weak version of the MABP raises certain questions about balances of payments under fixed exchange rates; it focuses

² For a reconciliation of the three approaches, see Mundell (1968) and Yeager (1976). Yeager left rather blurred the distinction between monetary theory and monetary framework, or strong and weak versions. He dealt charitably with this blurred version, presenting what he thought it should say rather than what so much of the literature actually does say. We now recognize that this charity goes too far and that the error exposed here is widespread and needs to be met head-on.

attention on certain aspects of reality. Instead of being a theory, however, it is a framework for analysis.

Counterexamples to the Strong Version

One way to refute the identification of a payments surplus with an excess demand for money and a deficit with an excess supply is to present counterexamples. The familiar dilemma cases provide two.

First is the case of a country suffering both a depression at home and a balance-of-payments deficit. The initiating disturbance might be a drop in the foreign demand for the affected country's goods that drains money out of circulation through the payments deficit. Monetary theory suggests that a depression is associated with a deficient money supply, yet the strong version of the MABP identifies the deficit with an excess supply of money. The contradiction is obvious.

The second case involves both inflation at home and a balance-of-payments surplus. The initiating disturbance might be inflation abroad. (Imported inflation is considered below in a historical context.) Inflation is usually caused by an excess supply of money, yet the strong version of the MABP identifies the surplus with the process of satisfying an excess demand for money. In these two dilemma cases, monetary theory applied to the domestic scene conflicts with the strong version of the MABP. More counterexamples could easily be given.

The Basic Errors of the Strong Version

Here is a list of the basic errors of the strong version. A fuller discussion of each point follows.

1. The strong version omits the market for nontraded goods and services in its analysis of the balance of payments. Yet excess supply or demand in that market can coexist with an excess demand for or supply of money, and this possibility breaks the supposed link between imbalance in the "money market" and in the balance of payments.
2. It is an error to assume that money actually *acquired* must also be *demanded*. Money balances can rise and fall unintentionally. Because the medium of exchange is routinely used and accepted in all markets, changes in money balances do not necessarily correspond to changes in the demand for money "to hold." There is no "money market."
3. The strong version fails to distinguish clearly between an excess demand for or supply of the home money on the foreign-exchange market and an excess demand for or supply of cash balances to hold.
4. The strong version also fails to distinguish between the demand for assets denominated in a particular currency and the demand for holdings of that currency as a medium of exchange. (This is not to deny that a

change in the demand for assets in a particular currency might influence the desired level of transactions in that currency and hence the demand for holdings of it.)

5. Holdings of cash in excess of desired holdings are the proximate cause of the increased spending that bids up nominal prices.³ The strong version disregards this mechanism in analyzing the international transmission of inflation. (This point is discussed in a separate section below.)

The first error appears to derive from sliding into two notions with Walras's Law in mind: (1) An excess demand for money must be matched by an excess supply of something else, namely goods and services and securities in the aggregate, and this excess supply is expressed in a balance-of-payments surplus. (2) Conversely, a balance-of-payments surplus, supposedly reflecting an excess supply of goods and services and securities in the aggregate, must be matched by an excess demand for something else, namely money. The strong version overlooks the distinction between goods, services, and securities that are internationally traded and those that are purely domestic and not traded, including factors of production. (Nontraded goods must not, of course, be perfect substitutes for traded goods in production or consumption.) An excess demand for or supply of money holdings need not be matched by an opposite imbalance in the markets for internationally traded goods, services, and securities. It can be matched by an opposite imbalance in the markets for nontradables. In the depression-and-deficit dilemma case, for example, an excess demand for money is matched not by excess sales abroad of traded goods but by an excess supply of (or deficient demand for) domestic goods and factors of production. (An Appendix to this essay presents a model showing that a payments surplus can be accompanied by an excess supply of money—and a deficit by an excess demand for money—when nontraded goods appear in the analysis.)

The second error is the assumption that whenever a country's residents are building up or running down their money holdings they are doing so because they consider their existing holdings too small or too large. This error comes from sliding into a causal interpretation of a tautology. It is tautologically true, given careful definitions, that a change in the net foreign assets of a country's monetary system is equal to the change in the residents' holdings of money minus the change in the system's net domestic assets.⁴ It does not necessarily follow, however, that a country's balance-of-

³ See Wicksell (1936, pp. 40-41) for the effect of an excess supply of money on the prices of goods and services.

⁴ Consider the identity $\Delta NFA = \Delta MS - \Delta DA$, where ΔNFA is the change in net foreign assets of the monetary system, ΔMS is the change in the money supply, and ΔDA is the change in domestic assets of the monetary system. If one comes to think of ΔMS as a desired change (to rectify a disequilibrium between money demand and money supply), one is slipping into a causal interpretation. The identity above is neither a behavioral equation nor an equilibrium condition.

payments surplus *is caused by* growth in the demand for money that exceeds growth in the actual money stock generated by the monetary system's domestic operations.

It is necessary to distinguish sharply between different concepts of "demand for money," particularly between supply of and demand for the home currency on the foreign-exchange market and supply of and demand for domestic money holdings. It is highly misleading to speak of the market for domestic money holdings. There is no specific market on which the money stock and the demand for money confront each other and are brought into equilibrium. Nor is there any specific price that adjusts to achieve this equilibrium. The medium of exchange, traded as it is on all markets, is distinct from other goods in not having a market and price of its own. It flows routinely *through* cash balances. People accept it and pay it out even when not intending, except passively and temporarily, to build up or run down their holdings. Money balances are pools into and out of which receipts and payments are made and so serve as buffers against short-term fluctuations in the timing and sizes of receipts and payments. Since the fluctuations are unintended, the rise or fall in money balances can be unintended too.

When Americans fled from bank deposits into currency in 1932-33, they were acting not to reduce their money holdings but rather to shift into what they considered the safer form of money. Yet the unintended consequence was that total money holdings fell as bank reserves contracted. The situation could be similar in a country running a balance-of-payments deficit at a fixed exchange rate. The money supply is shrinking, which means that the country's residents are necessarily running down their money holdings. It could sometimes be true and may even typically be true that the deficit and money-supply shrinkage are occurring because people are intentionally reducing what they consider to be excessive money balances. But it is not always true, as strong monetarism claims, because the money-stock shrinkage can be quite *undesired*.

An instructive analogy can be made between exchange-rate pegging and interest-rate or bond-price pegging in a closed economy (or one with a floating exchange rate). The central bank has committed itself to whatever open-market operations are necessary to hold interest rates at a target level. Now tastes change: people want to acquire more bonds by reducing current consumption (thus freeing resources for real investment), but they do not particularly want to change their money holdings. To keep interest rates from falling below the target level, the central bank sells bonds, with the result that money is removed from circulation. Or suppose an opposite change in tastes occurs that, again, does not directly affect desired money holdings. To keep interest rates from rising, the central bank buys bonds, incidentally creating money.

When transactors deal with the central bank, they do so because they find the bond price attractive, not necessarily because they want to change their money holdings. (They may want to change the proportions of bonds and other nonmoney assets in their portfolios.) Money is used to make or receive payments for bonds because it is the medium of exchange that routinely flows *through* their cash balances. More generally, people are not deliberately trying to reduce or increase their money holdings whenever they buy or sell something. They make the purchases and sales they find attractive at the prices confronting them. If they happen to be dealing with the central bank, the resulting changes in the total money supply and thus in their money holdings can be quite unintended.

Now suppose that the central bank revalues the home currency, cutting in half the pegged home-currency price of foreign exchange. In consequence of all the related price changes, purchases of goods and services and securities abroad become more attractive than sales abroad, the country runs a balance-of-payments deficit, and the home money supply shrinks, with painful deflationary consequences. In brief, by making foreign exchange a bargain and selling it lavishly out of its reserves, the central bank takes out of circulation the domestic money received in payment. Yet this monetary contraction in no way represents an intentional rundown of private money holdings.

Suppose instead that the central bank pegs the prices of foreign currencies too high. With the home currency undervalued, the balance of payments goes into surplus, and the money supply expands as the central bank absorbs the excess private offers of foreign currency. In this case, the surplus is *not* due to an excess *demand* for money. On the contrary, once the money has been acquired, it is in excess *supply*. [For further explanation of how money may be acquired without being fully demanded and even while being in excess supply, see Yeager (1968). Although the discussion there refers to a closed economy, it can readily be extended to an open economy.]

In summary, the strong version of the MABP misinterprets changes in the money supply as representing deliberate and desired adjustments in the money holdings of individual holders. This misinterpretation can be traced to failure to take account of the functioning of money as the medium of exchange. People will always accept money even when they do not want to go on holding it. Yet new money does not automatically go out of circulation just because people do not want to hold it; rather, it touches off an expansionary or inflationary process that tends to make it desired after all. Conversely, shrinkage of a country's money supply does not necessarily represent the deliberate and desired rundown of individual holdings. It could be the unintended consequence of the routine use of money as the

means of payment when domestic holders find purchases of foreign goods and services and securities more attractive than sales abroad.

We are not denying the existence of a well-defined demand for money to hold. Rather, we are concerned to clear up some misconceptions about the way that the demand for money operates. Additional money can be thrust onto a country without being demanded, because of money's role as a medium of exchange, the lack of a market for money, the buffer-stock role of individual money holdings, and the process whereby the nominal supply of money can create its own demand. This process is compatible with, or even presupposes, a fairly definite demand-for-money function. (Again, see Yeager, 1968.)

The third error, failure to distinguish clearly between an excess demand for or supply of the home money on the foreign-exchange market and an excess demand for or supply of cash balances, is illustrated in the following statement by Cleveland and Brittain (1976, pp. 20-21):

There is a measure of truth in singling out hedging or speculation against the dollar as a source of world inflation. Such speculative flows did enlarge the monetary base and the money supply in European countries, as well as in Japan. In fact, inflows of dollars, partly speculative in character, were responsible for much of the increase in other industrial countries' monetary bases in the years 1970-73. . . . But, it is a different question whether the inflows caused the money supply and price inflation in these countries to be greater than they otherwise would have been. Monetary theory suggests that this was probably not the case. Inflation occurs when there is an excess of money supply over the demand for money. The inflows of funds occurred in response to a new, speculative demand for marks. Thus, it was the increase in demand for marks that gave rise to the increase in the supply of marks; therefore, the inflows could not have created or contributed to creating an excess of mark money supply over demand. How, then, could they have raised German prices above the level they otherwise would have reached?

Cleveland and Brittain imply that because Europeans and others were acquiring European currencies, they must have had an excess demand for holdings of them. This does not follow. For example, German firms that had borrowed dollars abroad wanted to exchange those dollars for marks on the foreign-exchange market. Only on that market were marks in excess demand. Once the Bundesbank had created marks to satisfy the excess demand for them there at the fixed exchange rate, domestic cash balances were in excess *supply* at the old price level. The fact that Germans preferred to acquire marks rather than dollars merely reflects the role of marks as the medium of exchange in Germany. It does not mean that Germans were demanding marks as permanent additions to their cash balances. The expansion of the money supply brought about by the balance-of-payments

surplus stimulated spending on goods and services and reinforced inflationary tendencies in Germany.

The fourth error of the strong MABP, which also appears in the statement by Cleveland and Brittain, is the failure to realize that there was a speculative demand for assets denominated in marks rather than for the German medium of exchange in particular. When U.S. and German residents were switching out of assets denominated in dollars into assets denominated in marks, the demand for the domestic medium of exchange was not necessarily changing in either country, or not by an amount anywhere near as large.

The Usefulness of the Weak Version

As already mentioned, the weak version of the MABP should be regarded not as a theory but rather as a framework for analysis that can be reconciled with two other major frameworks, the elasticities and the absorption approaches. These three frameworks for analysis are not causal theories but ways of organizing discussion. Each raises certain questions and focuses attention on certain aspects of reality. Each has its tautological aspects in reference to ex post, realized changes (see footnote 4 above for the tautological core of the weak version of the MABP). Like the strong version, the weak version pays explicit attention to money supply and money demand in balance-of-payments disequilibrium and adjustment. For example, it helps us to understand why a balance-of-payments surplus or deficit cannot go on indefinitely in the absence of changes in the domestic assets of the monetary system. Thus, by using the weak version we arrive in many cases at an analysis similar to that of the strong version. But the weak version does not make the error of always associating a surplus in the balance of payments with an excess demand for money and a deficit with an excess supply of money. Moreover, it is totally compatible with the dilemma cases. Mundell (1968, pp. 150-151) summarizes the usefulness of the weak version as an approach:

It is not meaningful to question the validity of the three approaches. The terms can be defined so that they are correct and assert identical propositions, even if capital movements are included. . . . The identity of the three approaches, when they are properly interpreted, does not mean that each approach is not in itself useful. [Each approach] provides additional checks on the logic of balance-of-payments policies.

In summary, we are not offering a rival theory by supporting the weak version. Rather, we are warning against exaggerations that can make the MABP erroneous.

The International Transmission of Inflation under Fixed Exchange Rates and the MABP

While the strong monetarist theory tends to breed confusion about the international transmission of inflation, the weak version of the MABP can be helpful. It is possible, for instance, for inflation to be *generated* by a disequilibrium exchange rate. A country can import inflation even if inflation is not being exported by another country. Suppose the authorities keep the home currency artificially cheap on the foreign-exchange market and meet the excess demand for it *on that market* by creating more. They create an excess *supply* of money holdings, and spending and prices respond. Furthermore, the translation of world-market prices into domestic currency at the artificially high prices of foreign currencies makes a direct, mechanical contribution to the rise of the home price level.

This direct price linkage also operates when prices at home are linked at a fixed exchange rate with prices undergoing inflation abroad. According to strong monetarism, this direct price linkage is the overwhelmingly dominant mechanism whereby inflation is transmitted. According to the weak version, there are other explanations as well. We can imagine or recall cases in which a country suffers inflation due less to direct price transmission than to the monetary expansion imposed by an overall balance-of-payments surplus corresponding to an interest-rate-motivated or a speculative inflow of capital. [Switzerland is an example of a country whose imported inflation arose from surpluses on capital account (see Allen, 1977).] This monetary aspect of the inflation process goes far toward explaining events of the early 1970s, when other countries were generally running more extreme money and price inflations than the United States, from which they were said to be importing inflation.

More specifically, in 1971 the balance-of-payments deficit of the United States amounted to an unprecedented \$30 billion (official-settlements basis). Massive speculative capital outflows from the United States contributed to this deficit. In light of the huge surpluses experienced by other countries, it is not surprising that those countries suffered rapid monetary expansion in 1971. Nor is it surprising that they suffered from rapidly accelerating inflation two years later. Some such lag of prices behind money is quite typical and is illustrated in the accompanying table. The table also illustrates the international pervasiveness and bunching in time of money spurts followed by price spurts. It provides evidence for the international transmission of inflation, a phenomenon that the strong MABP handles very unsatisfactorily.

Three points should be emphasized regarding the acceleration of world inflation during 1973-74. First, the preceding massive U.S. balance-of-pay-

PERCENTAGE CHANGES IN MONEY SUPPLIES AND CONSUMER PRICES
IN 13 COUNTRIES, 1968-75

Country	1968	1969	1970	1971	1972	1973	1974	1975
Austria:								
Money supply	6.8	7.7	6.5	15.4	21.8	8.7	5.0	17.2
Consumer prices	2.9	3.0	4.4	4.7	6.3	7.5	9.5	8.5
Belgium:								
Money supply	7.4	2.6	8.3	11.1	14.0	8.8	8.8	14.2
Consumer prices	2.8	3.7	4.0	4.3	5.5	7.0	12.7	12.7
Canada:								
Money supply	-2.1	-3.5	5.2	13.0	11.7	9.0	0.3	18.0
Consumer prices	4.0	4.5	3.4	2.8	4.8	7.6	10.9	10.7
Denmark:								
Money supply	13.9	12.8	1.3	7.8	13.6	11.7	4.7	30.3
Consumer prices	8.0	3.6	6.5	5.8	6.6	9.3	15.2	9.6
France:								
Money supply	8.0	-1.1	11.1	11.8	14.9	9.8	15.2	12.7
Consumer prices	4.6	6.1	5.9	5.5	5.9	7.3	14.0	11.8
Germany:								
Money supply	8.3	6.0	9.6	12.8	13.9	0.8	12.2	14.0
Consumer prices	1.5	1.9	3.4	5.3	5.5	6.9	7.0	6.0
Italy:								
Money supply	11.9	15.9	27.4	19.0	24.1	17.6	9.4	13.5
Consumer prices	1.3	2.7	4.9	4.8	5.7	10.8	19.1	17.0
Japan:								
Money supply	13.4	20.6	16.8	29.7	24.7	16.8	11.5	11.1
Consumer prices	5.5	5.7	7.2	6.3	4.8	11.8	22.7	12.1
Netherlands:								
Money supply	11.4	8.1	11.8	15.0	17.6	0.1	12.2	20.0
Consumer prices	3.8	7.3	3.6	7.5	7.8	8.0	9.7	10.2
Norway:								
Money supply	15.2	8.1	12.6	11.5	16.3	15.5	11.9	16.8
Consumer prices	3.5	3.1	10.6	6.3	7.1	7.5	9.4	11.7
Sweden:								
Money supply	-1.3	-4.0	9.2	9.2	7.6	10.2	25.1	8.6
Consumer prices	2.2	2.2	7.5	7.0	6.5	7.0	9.0	9.8
Switzerland:								
Money supply	12.4	11.7	11.0	17.7	5.4	-0.2	-1.1	4.4
Consumer prices	2.3	2.6	3.6	6.6	6.7	8.7	9.8	6.7
United Kingdom:								
Money supply	4.1	0.3	9.3	15.1	14.2	5.1	10.8	18.7
Consumer prices	4.7	5.4	6.4	9.4	7.1	9.1	16.0	24.3

NOTE: Important changes are italicized.

SOURCE: Calculated from *International Financial Statistics*, various issues.

ments deficits did not correspond dollar for dollar to an excess supply of money in the narrow sense. Rather, people were acting to move out of dollar-denominated *assets in general*. To find willing holders of all those assets, price changes, including exchange-rate changes, were required. Second, at the time of the massive U.S. deficits, price inflation was not greater in the United States than in the rest of the world. Third, it was the last-ditch attempts by central banks to defend the Bretton Woods system of pegged exchange rates that not only transmitted extreme inflation but also generated it.⁵ Surpluses in foreign balances of payments helped create internal disequilibrium by creating excess supplies of cash balances.

Strong monetarism emphasizes the direct-price-transmission mechanism instead. It is direct price transmission that supposedly raises prices, rather than the spending of excess money created by a payments surplus and exchange-rate pegging. According to strong monetarism, directly transmitted increases in prices shrink the purchasing power of the victim country's nominal money supply. Its residents then go about rebuilding their deficient money holdings by running a balance-of-payments surplus, which corresponds to their excess *demand* for money.

Swoboda (1977) even forces this interpretation onto inflation imported through a surplus on capital account. Suppose that interest rates somehow fall in the outside world. By direct linkage, given high capital mobility, interest rates fall in the home country also. The quantity demanded of home money increases, as portrayed by the Keynesian liquidity-preference (demand for money) schedule. The resulting excess demand for money in the home country is satisfied through a payments surplus, while expenditures and prices rise under the stimulus of reduced interest rates. To repeat, the rise in prices is not due to an excess supply of money imposed on the victim country; on the contrary, money is created through the balance of payments to satisfy an excess demand for it.

This view is implausible in the extreme. It rests on the already mentioned failure to understand that people can acquire additional money without actually demanding it, intending to pass it along in exchange for whatever they do demand. Yet the aggregate of actual holdings can grow to exceed the aggregate of desired holdings—until prices rise enough to make the actual holdings desired after all.

How would strong monetarism handle the case of inflation caused by gold discoveries? Would it really contend that price increases occur first in the

⁵ For comprehensive studies of the generation of the worldwide inflation, see Emminger (1973) and Rabin (1977). These studies attribute the rapidly accelerating inflations primarily to the money-supply consequences of efforts to stave off the breakdown of the Bretton Woods system.

gold fields and then are transmitted by direct linkage to other places, to which gold money then flows to satisfy an excess *demand* for money generated by higher prices? It is more probable that the first holders of the newly produced money try to dispose of it both locally and elsewhere, bidding up prices everywhere as they diffuse the excess *supply* of money farther and farther afield.

Strong monetarism has overlooked an important channel for the transmission of inflation primarily because it views a surplus as a response to an excess demand for money. On this view, it is inconceivable that the surplus produces an excess supply of money. Thus Cleveland and Brittain (1976) dismiss the interpretation of the acceleration of world inflation advanced here; Swoboda (1977) omits it from his study of the transmission and generation of worldwide inflation; and Brunner (1974, p. 194) states:

... The large accelerations [of prices] observed since the end of 1971 all over Europe cannot be attributed to imported inflation. Prices in the United States decelerated over this period to an inflation rate less than half the average inflation rate emerging in the summer of 1972 in Western Europe. Recent inflation in Europe is essentially a domestic product fostered by rates of monetary expansion substantially above 10 percent a year.

Brunner fails to realize that an already accelerated price inflation in the United States was not a necessary condition for the transmission of monetary inflation and then of price inflation to other countries.

The weak version of the MABP is compatible with the analysis of the international transmission and generation of inflation presented here. It preserves the valid insights of the strong version while avoiding its confusions.

Relative Prices

The strong version of the MABP assigns a minor role to relative prices. Yet changes in relative prices do enter into balance-of-payments disequilibrium and adjustment. Suppose that, as an experiment, a country devalues even though its exchange rate is at an equilibrium level. The resulting increase in the home-currency prices of internationally traded goods tends to retard imports and promote exports. The higher prices of imported goods constitute an arithmetical, mechanical shrinkage in the purchasing power of the home money supply that may even cause an excess demand for money initially. It will be far outweighed, however, by the expansion of the money supply through the balance-of-payments surplus and will give way to an excess supply of money that puts upward pressure on the lagging prices of nontraded goods. The rise in prices of nontraded goods has a dual function: it restores relative prices to their equilibrium relationship, helping to terminate the payments surplus, and it further decreases the purchasing power

of the home currency, so that the increased money supply becomes fully demanded eventually. Until relative prices are restored to their equilibrium relationship, the payments imbalance continues.

The Imposition of Balance-of-Payments Disequilibrium on a Country

Johnson and Frenkel (1976, p. 27) maintain that a balance-of-payments surplus or deficit "must always in some sense represent a temporarily chosen equilibrium position for the nation whose aggregate behaviour it represents." According to them, the balance of payments is an equilibrating mechanism that helps remove an excess demand for or supply of money. However, they neglect the possibility that a surplus or deficit may be *imposed* on a country. For example, an increase in foreign demand for the traded goods of a country previously in equilibrium may throw its balance of payments into surplus. The monetary expansion that then results from exchange-rate pegging produces an excess supply of money and inflationary pressure. (Note that the surplus is not reflected by an excess supply of traded goods but, rather, results in an excess supply of money and excess demand for *nontraded* goods.) Germany's experience with capital inflows, particularly in 1971, and Switzerland's more chronic experience, as Allen (1977) showed, serve as reminders that the balance of payments is not always an equilibrating mechanism.

2 The Monetary Approach to Flexible Exchange Rates

The distinction between strong and weak versions of the monetary approach to the balance of payments carries over to the analysis of the determination of flexible exchange rates. What we call the strong version of the monetary approach to flexible exchange rates (MAXR) is analogous to the strong version of the MABP. As Frenkel (1978, pp. vii-viii) says:

Basically, the asset-market approach to the analysis of exchange rates may be viewed as the counterpart to the monetary approach to the balance of payments. These approaches emphasize the role of money and other assets in determining the balance of payments when the exchange rate is pegged, and in determining the exchange rate when it is flexible.

Kemp (1975, p. 21) provides the following statement of the strong version of the MAXR (and the MABP):

Balance-of-payments deficits and surpluses, or movements in freely floating exchange rates, are viewed as being simultaneously both the result of a divergence between actual and desired money balances and a mechanism by which such a divergence is corrected.

Humphrey (1977, p. 6) offers a similar interpretation:

. . . All variables affecting the exchange rate do so through monetary channels, i.e., through the demand for or supply of money. In this sense, money demand and supply may be said to constitute the *proximate* determinants of the exchange rate. The *ultimate* determinants, however, are the variables that underlie and determine the monetary factors themselves, namely income, interest rates, price expectations, money stocks and their growth rates, and other exogenous information.

Branson (1975), Fand (1975), Frenkel (1976), Mussa (1976), Swoboda (1976), and Whitman (1975) offer comparable interpretations of the strong version of the MAXR. The strong version unequivocally associates upward or downward pressures on the foreign-exchange values of a particular currency with an excess demand for or supply of cash balances in that currency. This is wrong in the same way that the liquidity-preference theory of interest rates is wrong in associating upward or downward pressures on interest rates with excess demand for or supply of cash balances.

As before, the strong version is a theory and is contradicted by the counterexamples offered below. The weak version that belongs in its place is a framework for analysis that pays appropriate attention to money demand and supply in the analysis of exchange-rate determination. For example, it helps explain why the current account in the balance of payments cannot continue to respond perversely to the depreciation of a floating currency. People cannot remain doggedly unresponsive as rising prices shrink the purchasing power of their nominal incomes and money balances. They must spend less eventually, and the balance of payments must improve. The weak approach, however, does not look mistakenly for an excess supply of money to explain every depreciation and an excess demand for money to explain every appreciation.

Counterexamples to the Strong Version

The range of counterexamples to the MAXR seems to be narrower than the range of counterexamples to the MABP. Two reasons come to mind. First, under freely floating exchange rates dilemma cases are impossible, since free floating precludes balance-of-payments surpluses and deficits. Second, under free floating money supplies are not expanded or contracted through the balance of payments, and the strong version is relieved of the need to explain why buildups or rundowns of cash balances through that mechanism reflect an excess demand for or supply of money to hold.

Nevertheless, there are counterexamples to the association of cash balances and exchange-market conditions that is central to the strong MAXR. Suppose that an autonomous wage push or the enactment of a minimum-wage law mechanically cranks up wage and price levels. (Events in France

in 1936 and again in 1968 seem to be good examples.) As a matter of arithmetic, the purchasing power of existing cash balances falls. People want increased nominal cash balances for transactions purposes. If the nominal money supply holds constant, money is in excess demand. What happens on the foreign-exchange market? The strong MAXR suggests that the excess demand for cash balances will cause an appreciation of the domestic currency. Yet considerations of purchasing-power parity point toward a depreciation. So do expectational or speculative considerations. Seeing the wage push and its transmission to prices as handwriting on the wall, people might try to get out of assets denominated in local currency. They are not trying to get out of the medium of exchange in the narrow sense, for they need more of the shrunken money units for transactions purposes, but out of near-moneys and securities. People will offer the domestic currency on the foreign-exchange market not to reduce their holdings of it but as an intermediate step in shifting from assets denominated in domestic currency to assets denominated in foreign currencies; they routinely use the medium of exchange for this and all other transactions. In short, we can readily imagine an event such as a wage push that causes both an excess demand for money and depreciation of the currency.

Monetarists might try to dispose of this counterexample by invoking other responses, perhaps involving interest rates, that would create an excess supply of money after all. Such responses are conceivable, but it is hard to see why they are necessary. The function of a counterexample is to disprove the necessity or universality of certain connections, not to establish the necessity or universality of connections of the opposite kind.

For a second counterexample, suppose that innovations raise the yield on investment in capital goods in the home country. To take advantage of this new opportunity, residents act to repatriate funds invested abroad, while foreigners also seek to transfer funds to the home country. Accordingly, the home currency strengthens on the foreign-exchange market. At the same time, the increased yield on capital goods, along with the consequent rise in the interest rate on bonds, constitutes an increased opportunity cost of holding domestic cash balances, so people want to reduce their holdings. Until other variables, including prices, adjust, money is in excess supply. (To the extent that the exchange-rate appreciation caused by the inward capital movements increases the purchasing power of domestic cash balances, the excess supply is enlarged.)

Monetarists may reject this counterexample on the grounds that it postulates two separate disturbances, a desire to move capital inward and a desire to run down cash balances. Two replies are available. First, so what? Any consistent set of circumstances in which an excess supply of cash balances coexists with upward pressure on the exchange value of a currency

will serve as a counterexample. Second, the two disturbances are not independent: they are parallel consequences of the single disturbance that raised the yield on capital investment in the first place.

Monetarists might further maintain that the inward capital movement and appreciation of the home currency improve the terms of trade and thus raise the real income of the home country. (Foreigners become more eager to exchange their goods for home-country goods in order to invest in the home country.) The increase in real income strengthens the demand for real cash balances and causes an excess demand for money to accompany the exchange appreciation. The monetarist association envisaged by such an argument is merely conceivable, however, not inevitable.

For a third counterexample, suppose that tastes change in the home country: people become more thrifty, desiring less current consumption (particularly, let us suppose, of nontraded goods) and larger holdings of both money and bonds. The strengthened demand for bonds shows up partly at the water's edge in a potential capital outflow, tending to weaken the home currency on the exchange market even while an excess demand for cash balances has developed. (The capital movements causing the home currency to depreciate may not show up in the balance-of-payments statistics. They will show up if the exchange rate is officially supported and remains unchanged. They will not show up if the exchange rate falls enough to forestall all capital movements; the depreciation will occur because of the potential for capital movements at the unchanged exchange rate.)

The hypothesized shift away from current consumption could cause a reduced desire to buy foreign goods and an increased eagerness to sell domestic goods abroad, and it would then tend to strengthen the home currency. While this current-account tendency might outweigh the opposing capital-account tendency on the foreign-exchange market, the possibility described in the counterexample remains. That possibility is even a probability if portfolios can be adjusted more rapidly than the production and consumption of goods and services; for a time the impact of capital movements on the exchange rate will outweigh the opposing impact of goods-and-services transactions. Again we see how an initial excess demand for money might coexist with an exchange-rate depreciation.

A fourth counterexample involves "perverse elasticities," as would a similar counterexample to the MABP for fixed exchange rates. The conditions in question are familiar from the theoretical literature of some three decades ago. Demands in international trade are so price-inelastic that the current account reacts perversely to a change in a floating or adjustable exchange rate (or to a change in relative national price levels under a fixed exchange rate). But since we have already made the point that counterexamples to the MABP and MAXR exist, we shall leave the working out of

perverse-elasticities counterexamples to any reader whose interest in the topic is not yet exhausted.

The Basic Errors of the Strong Version

A major source of error in the strong version of the MAXR, as of the MABP, is the failure to distinguish between the foreign-exchange market for money and the domestic (non)market for cash balances. Swoboda's (1976, p. 308) statement provides an example:

One would say, for instance, that there are more dollars demanded than offered against pounds in "the foreign-exchange market." What meaning can reasonably be attached to such a statement other than that, given the level of the exchange rate and all other relevant variables, there is an excess demand for dollar-denominated cash and an excess supply of pound-denominated cash—whether "in" the foreign-exchange market or in any other market. If so, we are really talking about excess demand or supply of money and, presumably, portfolio equilibrium conditions and relative asset supplies should play a crucial role in determining the exchange rate—among other variables.

Swoboda overlooks the fact that people may be exchanging one currency for another not to adjust their cash balances but to carry out transactions. He is ignoring the medium-of-exchange role of money and regarding the foreign-exchange market as a place where people adjust their holdings of money.

A related error is the blurring of the necessary distinction between the demand for assets denominated in particular currencies and the demand for actual balances of those currencies. Speculative or speculation-influenced holdings of "currencies" are more likely to take the form of claims denominated in those currencies than of the actual currencies, which are held predominantly for transactions purposes. Speculative influences on exchange rates cannot receive the attention they deserve if we insist on the implausible supposition that speculation works mainly through the buildup or depletion of cash holdings.

Stocks and Flows in Foreign-Exchange Analysis

The literature portrays the strong version of the MAXR as a stock theory; it maintains that the exchange rate is determined in the market for stocks.⁶ It is true, of course, that general equilibrium does not prevail unless stock supply and total demanded holdings of each currency are equal. But this obvious point does not clash with flow concepts of equilibrium and disequilibrium. In general equilibrium, by definition, exchange rates are at

⁶ For statements indicating that the strong version of the MAXR is a "stock theory," see, once again, Branson (1975), Fand (1975), Frenkel (1976), Mussa (1976), Swoboda (1976), and Whitman (1975).

levels where balance-of-payments flows are in equilibrium and stocks of national currencies are being willingly held. The two aspects of general equilibrium are consistent.

In disequilibrium situations, however, an excessive emphasis on stocks can cloud the analysis. It draws attention away from the ways in which a disequilibrium exchange rate induces flows of transactions (or attempted transactions) on the foreign-exchange market that in turn move the exchange rate toward an equilibrium level. This overemphasis on stocks in exchange-rate theory is analogous to an excessively mechanistic view of the quantity theory of money that would have the price level adjusting in some sort of mechanical, spontaneous way to a changed quantity of money.⁷ A full-fledged quantity theory of money has to show how a changed money supply—changed cash holdings—leads people to alter their flows of transactions (or desired transactions) on various markets in such a way as to bring about a change in the price level. This is part of what we mean when we say that *flows are primary*. A complete theory must consider the confrontations of desired flow transactions on the individual markets where prices are actually set. The price *level* is not determined anywhere: the prices that are averaged into the price level are the ones determined by flows of transactions, desired as well as actual, and any stock theory has to accord with a description of what happens to those flows. For the exchange rate, the relevant flows are those on the foreign-exchange market.

In summary, stock disequilibrium makes itself operational through desired and actual flows in the foreign-exchange market. If people are not content with their stocks, they will attempt transactions, and there will be flow disequilibrium. Moreover, since there is no difference between the prices that give stock equilibrium and flow equilibrium, any fundamental distinction between stock analysis and flow analysis is invalid.

The crucial distinction is not between stock and flow approaches but rather between markets—the (non)market for cash balances and the very real foreign-exchange market where the currencies used to pay for internationally traded goods, services, and securities are traded. The strong version of the MAXR focuses on the supply of and demand for money as the most immediate determinant of the exchange rate. We do not disparage attention to stocks of national moneys. Of course they are important to exchange rates. They influence the direction and value of desired transactions, international as well as domestic, not only through their effect on price levels and interest rates but even more directly. We do insist, however, that exchange rates are determined directly in the foreign-exchange

⁷ Apparently, this was Hume's error when he overlooked the direct cash-balance effect operating on international transactions (see Humphrey, 1981, on Adam Smith).

market. The exchange rate for a particular currency is in equilibrium if the inward and outward flows of desired international transactions involving that currency (including, of course, capital transactions) are equal.

Disagreement about the relevant market for the determination of the exchange rate is reminiscent of the old debate over liquidity-preference and loanable-funds theories of the interest rate. General equilibrium does not prevail, of course, unless the interest rate (along with all other variables) is at a level where not only desired lending and borrowing but also desired and actual stocks of money are equal. Outside of general equilibrium, however, it is not necessarily true that upward pressure on the interest rate corresponds to an excess demand for money and downward pressure corresponds to an excess supply of money. As partial-equilibrium theories, the liquidity-preference and loanable-funds theories of the interest rate are not equivalent, and the latter is preferable. Lutz (1968, p. 184), among others, has pointed out that "the immediate cause of a price change has to be sought in changes of supply or demand in the market of the good in question and not in other markets."⁸ Similarly, the money-stock and exchange-market theories of the exchange rate are not equivalent, and the latter is preferable, even though money-stock conditions obviously have much to do, directly and indirectly, with desired flows of transactions on the foreign-exchange market. The exchange rate is determined directly in the foreign-exchange market, just as the interest rate is determined directly in the bond or loan market.

3 Summary

The monetary approaches to the balance of payments and the exchange rate afford valuable insights; their resurrection is welcome. But these insights should not be clouded by strong monetary theories that incorrectly identify payments disequilibria under fixed rates and pressures on floating rates with imbalances between actual and desired holdings of money.⁹ Those associations are possible and probably even typical, but they are by no means necessary, as realistic counterexamples show. To avoid error, it is important to keep in mind the distinction between demands for and supplies of a currency on the foreign-exchange market and demands for and supplies of cash balances of that currency.

The failure to make these distinctions can have serious consequences. It leads, for example, to misinterpreting events in the final years of the Bretton Woods system and the ensuing speedup of world inflation around

⁸ See also Fellner and Somers (1966).

⁹ We wish to acknowledge Miller's (1976a, 1976b, 1976c, 1978) independent perception of error in what we have been calling the strong MABP.

1973-74. We are thus in danger of missing the significance of valuable lessons for which the world has paid dearly.

Although shifts in the demand for or supply of money to hold are not necessarily the immediate cause of exchange-rate movements, they can be and perhaps usually are. Not only present-day adherents of the monetary approach but also Gustav Cassel decades ago have recognized that demands for cash balances of a country's currency, for assets denominated in that currency, and for that currency on the foreign-exchange market respond to expectations of future monetary expansion and to other speculative factors. Properly formulated, the monetary approach can help explain the alternating weakness and strength of the dollar and the volatility of other exchange rates under the current regime of "dirty" floating. It also points to remedies, if only politicians would and could afford to shed their excessively short-run preoccupations and pay due attention to the long-run consequences of their policies.

APPENDIX

A MODEL SHOWING THAT A SURPLUS MAY BE ACCOMPANIED BY AN EXCESS SUPPLY OF MONEY (AND A DEFICIT BY AN EXCESS DEMAND FOR MONEY)¹

Komiya (1969) attempts to prove that a surplus is *always* equal in value to an excess demand for money. However, his analysis is incomplete because it ignores the market for nontraded goods. This Appendix demonstrates that a surplus in the balance of payments (BOP) can be accompanied by an excess *supply* of money, while a deficit can be accompanied by an excess *demand* for money. We make use of the model depicted in the accompanying figure, adapted from one used by Mundell (1976).

In the figure, P_N is the average price of nontraded goods and P_T is the average price of traded goods. P_N/P_T is therefore the relative price of nontraded goods. P_T is assumed to be exogenously given by the world level of traded-goods prices, since we assume a fixed exchange rate.

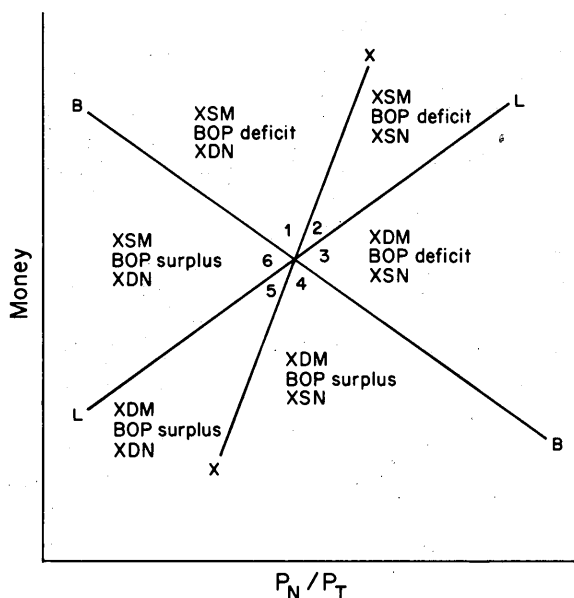
The line LL is the line along which the demand for money is equal to the supply of money. Above and to the left of LL the supply of money is greater than the demand, and below and to the right of LL the demand for money is greater than the supply. The curve is upward-sloping because an increase in the money stock will be associated with an increase in P_N so that real balances may be maintained at an equilibrium level. (Remember, P_T is assumed to be given.)

The BB line expresses the locus of combinations of the price level and the money supply that result in BOP equilibrium. Bonds and a capital account are assumed away in the analysis; consequently, BB is also the line along which the trade balance is zero. Points above and to the right of BB represent a deficit in the BOP, while points below and to the left of BB represent a surplus. The slope of BB is negative because an increase in the money supply will normally be associated with a deficit. To correct the deficit, the price of nontraded goods must be decreased to shift domestic demand from foreign products to domestic goods. At the lower P_N/P_T (and higher money supply), the balance of payments would again be in equilibrium.

Finally, the XX line is the locus of money and price levels along which there is equilibrium in the market for nontraded goods. Points to the right

¹ This Appendix appeared in somewhat different form in Rabin (1979).

DISEQUILIBRIA WITH NONTRADED GOODS



XSM = excess supply of money.
 XDM = excess demand for money.
 XSN = excess supply of nontraded goods.
 XDN = excess demand for nontraded goods.

SOURCE: Adapted from Mundell (1976, p. 73).

of XX represent an excess supply of nontraded goods, while points to the left represent an excess demand for them. This excess demand can be eliminated by an increase in the price of nontraded goods.

The figure illustrates the six possible zones. Note that there are two zones in which the strong MABP is not valid. In zone 6 there is a BOP surplus along with an excess supply of money, while in zone 3 there is a BOP deficit along with an excess demand for money. Under what conditions, then, will the strong MABP be valid? If one assumes that the market for nontraded goods always clears, the economy will always be on the XX curve and the strong version will always be valid. By making this assumption, the two zones where the strong version is invalid can be eliminated from consideration.²

² Zone 5 is somewhat of a paradox, for it rests on the assumption that people may have an excess (inflationary) demand for nontraded goods that is not matched by an excess supply of money. If there is, in fact, an excess demand for nontraded goods and if the balance of payments is in surplus, it is more likely that money is in excess supply (zone 6). We are indebted to James Cover for this point.

We conclude that the direct link between the BOP and the excess demand for money is broken if the market for nontraded goods is in disequilibrium.³ Moreover, the direct link can be broken by adding other markets as well (for example, a bond market). Finally, although the money supply may not be controllable by the monetary authorities, it is incorrect to state that the money supply is always "demand-determined."⁴

³ The link may also be broken in the following manner. Assume that the market for nontraded goods always clears, that there is inflation in the outside world, and that the prices of traded and nontraded goods are rising together. It is conceivable for the domestic inflation to be continually validated by a BOP surplus that increases the money supply. In that case, money demand (which continually grows owing to the rise in prices of *all* goods) may continuously equal money supply (which increases owing to the BOP surplus). In other words, money supply and money demand may be rising together so that they are equal at the same time that the BOP is in surplus. This appears to be a counterexample to the strong MABP, and yet the market for nontraded goods is clearing. Monetarists may argue that there is a *potential* or *incipient* excess demand for money. Yet the fact remains that a BOP surplus can occur without the presence of an *actual* excess demand for money.

⁴ Dornbusch (1973) did distinguish between traded and nontraded goods. However, he required the market for nontraded goods to clear instantaneously, thus avoiding the issues raised here.

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Some earlier issues are still in print. Write the Section for information.

ESSAYS IN INTERNATIONAL FINANCE

111. Gerald A. Pollack, *Are the Oil-Payments Deficits Manageable?* (June 1975)
112. Wilfred Ethier and Arthur I. Bloomfield, *Managing the Managed Float.* (Oct. 1975)
113. Thomas D. Willett, *The Oil-Transfer Problem and International Economic Stability.* (Dec. 1975)
114. Joseph Aschheim and Y. S. Park, *Artificial Currency Units: The Formation of Functional Currency Areas.* (April 1976)
- *115. Edward M. Bernstein *et al.*, *Reflections on Jamaica.* (April 1976)
116. Weir M. Brown, *World Afloat: National Policies Ruling the Waves.* (May 1976)
117. Herbert G. Grubel, *Domestic Origins of the Monetary Approach to the Balance of Payments.* (June 1976)
118. Alexandre Kafka, *The International Monetary Fund: Reform without Reconstruction?* (Oct. 1976)
119. Stanley W. Black, *Exchange Policies for Less Developed Countries in a World of Floating Rates.* (Nov. 1976)
120. George N. Halm, *Jamaica and the Par-Value System.* (March 1977)
121. Marina v. N. Whitman, *Sustaining the International Economic System: Issues for U.S. Policy.* (June 1977)
122. Otmar Emminger, *The D-Mark in the Conflict between Internal and External Equilibrium, 1948-75.* (June 1977)
123. Robert M. Stern, Charles F. Schwartz, Robert Triffin, Edward M. Bernstein, and Walther Lederer, *The Presentation of the Balance of Payments: A Symposium.* (Aug. 1977)
- *124. Harry G. Johnson, *Money, Balance-of-Payments Theory, and the International Monetary Problem.* (Nov. 1977)
- *125. Ronald I. McKinnon, *The Eurocurrency Market.* (Dec. 1977)
126. Paula A. Tosini, *Leaning Against the Wind: A Standard for Managed Floating.* (Dec. 1977)
127. Jacques R. Artus and Andrew D. Crockett, *Floating Exchange Rates and the Need for Surveillance.* (May 1978)
128. K. Alec Chrystal, *International Money and the Future of the SDR.* (June 1978)
129. Charles P. Kindleberger, *Government and International Trade.* (July 1978)
130. Franco Modigliani and Tommaso Padoa-Schioppa, *The Management of an Open Economy with "100% Plus" Wage Indexation.* (Dec. 1978)
131. H. Robert Heller and Malcolm Knight, *Reserve-Currency Preferences of Central Banks.* (Dec. 1978)
132. Robert Triffin, *Gold and the Dollar Crisis: Yesterday and Tomorrow.* (Dec. 1978)

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133. Herbert G. Grubel, *A Proposal for the Establishment of an International Deposit Insurance Corporation*. (July 1979)
134. Bertil Ohlin, *Some Insufficiencies in the Theories of International Economic Relations*. (Sept. 1979)
135. Frank A. Southard, Jr., *The Evolution of the International Monetary Fund*. (Dec. 1979)
136. Niels Thygesen, *Exchange-Rate Experiences and Policies of Small Countries: Some European Examples in the 1970s*. (Dec. 1979)
137. Robert M. Dunn, Jr., *Exchange Rates, Payments Adjustments, and OPEC: Why Oil Deficits Persist*. (Dec. 1979)
138. Tom de Vries, *On the Meaning and Future of the European Monetary System*. (Sept. 1980)
139. Deepak Lal, *A Liberal International Economic Order: The International Monetary System and Economic Development*. (Oct. 1980)
140. Pieter Korteweg, *Exchange-Rate Policy, Monetary Policy, and Real Exchange-Rate Variability*. (Dec. 1980)
141. Bela Balassa, *The Process of Industrial Development and Alternative Development Strategies*. (Dec. 1980)
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146. Bahram Nowzad, *The IMF and Its Critics*. (Dec. 1981)
147. Edmar Lisboa Bacha and Carlos F. Díaz Alejandro, *International Financial Intermediation: A Long and Tropical View*. (May 1982)
148. Alan A. Rabin and Leland B. Yeager, *Monetary Approaches to the Balance of Payments and Exchange Rates*. (Nov. 1982)

PRINCETON STUDIES IN INTERNATIONAL FINANCE

40. Anne O. Krueger, *Growth, Distortions, and Patterns of Trade among Many Countries*. (Feb. 1977)
41. Stephen V. O. Clarke, *Exchange-Rate Stabilization in the Mid-1930s: Negotiating the Tripartite Agreement*. (Sept. 1977)
- *42. Peter Isard, *Exchange-Rate Determination: A Survey of Popular Views and Recent Models*. (May 1978)
- *43. Mordechai E. Kreinin and Lawrence H. Officer, *The Monetary Approach to the Balance of Payments: A Survey*. (Nov. 1978)
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49. Peter Bernholz, *Flexible Exchange Rates in Historical Perspective*. (July 1982)
50. Victor Argy, *Exchange-Rate Management in Theory and Practice*. (Oct. 1982)

SPECIAL PAPERS IN INTERNATIONAL ECONOMICS

8. Jagdish Bhagwati, *The Theory and Practice of Commercial Policy: Departures from Unified Exchange Rates*. (Jan. 1968)
9. Marina von Neumann Whitman, *Policies for Internal and External Balance*. (Dec. 1970)
10. Richard E. Caves, *International Trade, International Investment, and Imperfect Markets*. (Nov. 1974)
- *11. Edward Tower and Thomas D. Willett, *The Theory of Optimum Currency Areas and Exchange-Rate Flexibility*. (May 1976)
12. Ronald W. Jones, "Two-ness" in Trade Theory: Costs and Benefits. (April 1977)
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14. Morris Goldstein, *Have Flexible Exchange Rates Handicapped Macroeconomic Policy?* (June 1980)

REPRINTS IN INTERNATIONAL FINANCE

18. Peter B. Kenen, *Floats, Glides and Indicators: A Comparison of Methods for Changing Exchange Rates*. [Reprinted from *Journal of International Economics*, 5 (May 1975).] (June 1975)
19. Polly R. Allen and Peter B. Kenen, *The Balance of Payments, Exchange Rates, and Economic Policy: A Survey and Synthesis of Recent Developments*. [Reprinted from Center of Planning and Economic Research, Occasional Paper 33, Athens, Greece, 1978.] (April 1979)
20. William H. Branson, *Asset Markets and Relative Prices in Exchange Rate Determination*. [Reprinted from *Sozialwissenschaftliche Annalen*, Vol. 1, 1977.] (June 1980)
21. Peter B. Kenen, *The Analytics of a Substitution Account*. [Reprinted from *Banca Nazionale del Lavoro Quarterly Review*, No. 139 (Dec. 1981).] (Dec. 1981)
22. Jorge Braga de Macedo, *Exchange Rate Behavior with Currency Inconvertibility*. [Reprinted from *Journal of International Economics*, 12 (Feb. 1982).] (Sept. 1982)

