

# Alternative Views Of Exchange-Rate Determination

By Douglas K. Pearce

The foreign-exchange value of the U.S. dollar has fluctuated widely since fixed exchange rates were abandoned in the early 1970s. The variation in exchange rates under the regime of flexible (floating) rates has been a matter of concern to policymakers because of the fear that uncertainties could have deleterious effects on world trade. Large changes in exchange rates are also thought to have significant impacts on the level and composition of U.S. production by changing the relative prices of exports and **import-competing** goods. Some analysts attribute a substantial part of the current U.S. recession to the impact of the recent rise in the exchange value of the dollar on the manufacturing sector, which exports 20 percent of its output. A stronger U.S. dollar, on the other hand, has a beneficial effect on U.S. inflation in the short run by reducing the domestic prices of imports.<sup>1</sup>

---

<sup>1</sup> Empirical support for the view that exchange-rate volatility has a significantly negative effect on trade flows was

---

Douglas K. Pearce is an associate professor of economics at the University of Missouri-Columbia and a visiting scholar at the Federal Reserve Bank of Kansas City. The author would like to thank Dan Vrabac for research assistance and Don Schilling for helpful comments. The views expressed here are those of the author and do not necessarily reflect the views of the Federal Reserve Bank of Kansas City or the Federal Reserve System.

While much research has been devoted to providing an explanation for the fluctuations in exchange rates, no single theoretical model has emerged predominate. In the beginning of the flexible-rate era, exchange-rate movements were usually analyzed in terms of the demands for and supplies of currencies in the **foreign-exchange** market, with emphasis on the transactions originating from international trade flows. The large short-run movements in exchange rates, however, cast considerable doubt on the adequacy of this approach and led to "asset models" that view the determination of the exchange rate as the outcome of the portfolio behavior of **wealthholders**.<sup>2</sup> One asset model, labeled the "monetary" model, explains exchange-rate fluctuations largely in

---

found by Richard K **Abrams**, "International Trade Flows Under Flexible Exchange Rates," *Economic Review*, Federal Reserve Bank of Kansas City, March 1980, pp. 3-10. For analyses of the economic impacts of the rise of the dollar, see C. Fred Bergsten, "The Villain is an Overvalued Dollar," *Challenge*, March-April 1982, pp. 25-32, and Robert A. Feldman, "Dollar Appreciation, Foreign Trade, and the U.S. Economy," *Quarterly Review*, Federal Reserve Bank of New York, Summer 1982, pp. 1-9.

<sup>2</sup> For a critique of the flow model, see Michael **Mussa**, "Empirical Regularities in the Behavior of Exchange Rates and Theories of the Foreign Exchange Market," in *Policies for Employment, Prices, and Exchange Rates*, Carnegie-Rochester Conference Series on Public Policy, Volume 11, ed. by Karl Brunner and **Allan H. Meltzer**, pp. 9-57.

terms of changes in the supplies of or demands for respective money stocks. According to this model, a fall in a country's exchange rate reflects excessive growth in its money stock. Another asset model, the "portfolio-balance" model, extends the analysis to consider a wider range of financial assets. In this framework, interest rates and exchange rates are determined simultaneously as wealthholders adjust their financial portfolios. Consequently, imbalances in government budgets and current accounts affect exchange rates by changing the size and distribution of financial-asset **stocks**.<sup>3</sup> The lack of consensus on which analytical framework is appropriate is an important problem for policymakers since the predicted effects of domestic economic policy on the exchange rate, and hence on the trade sector, differ across these models.

This article reviews the factors considered important in determining exchange rates and examines the integration of these factors into the exchange-rate models. The first section provides background on the distinctions between fixed and flexible exchange-rate policies along with a brief history of the U.S. dollar exchange

rate since the adoption of floating rates. The second section discusses the influences of such variables as inflation, real income, and the interest rate on the exchange rate. The third section describes specific models of exchange-rate determination. The fourth section reports how well these models explain movements in the **U.S.-Canadian** exchange rate. The final section summarizes the findings of the article.

## EXCHANGE-RATE POLICIES AND RECENT DOLLAR MOVEMENTS

The choice of exchange-rate policy is an important decision for any country. This section reviews the differences in policies, discusses how policies affect a country's international balance of payments and its domestic money supply, and describes the recent behavior of the U.S. dollar under a flexible exchange-rate policy.

### Alternative exchange rate policies

A country has a choice of three major exchange-rate policies—flexible, fixed, or managed—which are distinguished by the extent to which the government, usually through its central bank, intervenes in the foreign-exchange market to affect the exchange rate of its currency.<sup>4</sup> If a country adopts a flexible (floating) exchange-rate policy, its central bank does not participate in the foreign-exchange market. Instead, the price of the country's currency relative to foreign currencies is determined by supply and demand in the foreign-exchange market. The supply comes from

---

<sup>3</sup> One version of the flow model is given in Robert A. Mundell, "The Monetary Dynamics of International Adjustment Under **Fixed** and Flexible Exchange Rates," *Quarterly Journal of Economics*, May 1960, pp. 227-57. For a discussion of the origins of the monetary model, see Jacob A. Frenkel, "A Monetary Approach to the Exchange Rate: Doctrinal Aspects and Empirical Evidence," *Scandinavian Journal of Economics*, May 1976, pp. 200-24. Several studies employing this framework are collected in *The Economics of Exchange Rates: Selected Studies*, ed. by Jacob A. Frenkel and Harry G. Johnson, Addison-Wesley, 1978. For analyses using the portfolio-balance model, see William H. Branson, Hanna Halttunen, and Paul Masson, "Exchange Rates in the Short Run," *European Economic Review*, December 1977, pp. 303-24, and Joseph Bisignano and Kevin Hoover, "Some Suggested Improvements to a Simple Portfolio Balance Model of Exchange Rate Determination with Special Reference to the U.S. Dollar/Canadian Dollar Rate," *Weltwirtschaftliches Archiv*, Heft 1, 1982, pp. 19-37.

---

<sup>4</sup> The foreign-exchange market is not in any one location, as is, say, the New York Stock Exchange. Rather, it is a worldwide market connected by electronic communications. This market is essentially never closed and has the largest trading volume of any financial market. See Robert Z. Aliber, *The International Money Game*, 3rd ed., New York: Basic Books, 1979, pp. 54-55.

holders of domestic currency that need foreign currency to buy foreign goods and services (imports) or assets denominated in foreign currencies. The demand comes from foreigners that want to buy domestic goods and services (exports) or assets denominated in the domestic currency. Under this policy, the exchange rate moves to keep the amount of currency demanded just equal to the amount supplied.<sup>5</sup> An increase in the demand for (supply of) domestic currency, arising, say, from an increase in demand for domestic (foreign) goods by foreigners (domestic residents), causes an immediate appreciation (depreciation) in the exchange rate. The exchange rate, then, reflects the activities of private economic agents or foreign central banks but not the direct actions of the domestic central bank.<sup>6</sup>

If a country adopts a fixed exchange-rate policy, its government or central bank is active in the foreign-exchange market, buying or selling the country's currency when its exchange rate starts to deviate from the fixed or pegged value.<sup>7</sup> If there is an excess demand for the country's currency at the fixed rate, the central bank must satisfy the excess demand by buying foreign exchange—that is, by supplying its own currency—to keep the exchange rate from rising. If there is an excess supply of the country's currency, the central bank must purchase its own currency to prevent the exchange rate from falling. This is done by supplying foreign exchange. Hence, shifts in the private supply of

domestic currency, or shifts in the private demand for the currency, cause fluctuations in the central bank's holdings of foreign exchange rather than fluctuations in the exchange rate.

If a country adopts a managed exchange-rate policy, its central bank participates in the foreign-exchange market when it decides a movement in its exchange rate is undesirable. There is no formal commitment to defend a specific exchange rate. Under a managed exchange-rate policy, the effect of a shift in the supply of domestic currency, or the demand for it, is uncertain. If the central bank wants the exchange rate change that would result from the shift, it takes no action and the exchange rate is allowed to move to its new equilibrium value. If the central bank does not want the change, it enters the market to keep the rate constant. If the central bank merely wants to smooth the movement in the exchange rate, as is often the case, it buys or sells just enough currency for the exchange rate to adjust slowly to its new equilibrium value.

### **Exchange rate policy, the balance of payments, and the money supply**

A country's transactions with the rest of the world are reported for specific periods as its balance of payments statistics. Private transactions are classified either as current or capital transactions. Included in the current account are purchases or sales of goods and services and transactions involving interest payments. Transactions involving the exchange of financial claims appear in the capital account.<sup>8</sup> The

---

<sup>5</sup> The exchange rate discussed in this paper is the spot rate, the price of foreign exchange for immediate delivery. The forward exchange rate is the price of foreign currency that will be delivered at a specific date in the future.

<sup>6</sup> Domestic monetary policies that affect interest rates, inflation, or real incomes may, of course, lead to exchange-rate changes.

<sup>7</sup> In practice, there is usually a narrow band in which the exchange rate can fluctuate without the central bank intervening.

---

<sup>8</sup> The current account is essentially the sum of the trade balance (the value of exports minus imports) and net interest income (interest earned from foreign assets less interest paid to foreigners). For a description of alternative methods of reporting the international balance of payments, see Leland B. Yeager, *International Monetary Relations: Theory, History, and Policy*, 2nd ed., New York: Harper & Row, 1976, chap. 3.



























