The prices of these other goods would tend to accommodate monetary policy, an exogenous dollar depreciation translates into higher U.S. prices is the willingness of a foreign country's trade with the United States. If exports to the United States account for a large share of foreign output and the foreign demand for U.S. exports is highly sensitive to price changes, then a dollar deprecation would more likely cause foreign prices to fall. A rather unique problem, however, occurs with oil. A dollar depreciation increases the Organization of Petroleum Exporting Countries' (OPEC) prices in terms of U.S. dollars, which depresses the foreign currency price of oil. The dollar depreciation tends to increase foreign oil demand but reduces the purchasing power of each dollar of OPEC revenues. Market conditions permitting, OPEC might respond to a dollar depreciation by raising the dollar price of crude oil. Such a response would intensify the impact of a dollar depreciation on U.S. prices.

The most important factor determining how the demand pressures emanating from an exogenous dollar depreciation translate into higher U.S. prices is the willingness of U.S. monetary authorities to accommodate the price increases through faster money growth. The previous examples assume a monetary or accommodative posture. Suppose, however, that the money supply does not expand enough to accommodate the demand pressures caused by the dollar depreciation. If this scenario occurs, the price implications would be more complicated. The extent of price pressure in the three-year period would depend on the relative weights of the other factors and the response of the U.S. price-level adjustment. Suppose, however, that the dollar depreciation during the preceding decade. After considering the caveats, the discussion focuses on the many snags entangled in foreign-exchange markets. Relative to the major currencies, the advance of the real trade-weighted dollar stands 12.9 percent above its March 1982 level for years at a time. Let us therefore consider three different scenarios. The first scenario assumes that, on balance, the real trade-weighted dollar does not depreciate in 1983. Recent movements in the real trade-weighted exchange rate and forward exchange rate quotes, adjusted to a traded- weighted basis, are not inconsistent with this scenario. In this case, lagged effects from past dollar appreciation would continue to moderate price movements in 1983 and 1984. Price-level increases would be reduced by approximately 1.6 percentage points in 1983 and approximately 0.6 percentage point in 1984. At the other extreme, a second scenario assumes that the real trade-weighted dollar would return to its March 1973 level by the end of 1983. In this scenario, the percentage price effects would be applied to the 1984 price levels by approximately 0.1 percentage point. Thus, the U.S. price performance probably would not continue to benefit from dollar appreciation, a depreciation of the dollar probably would not greatly compromise a disinflationary monetary policy in the near term.

Owen F. Humpage
Gerald H. Anderson

The Causality Problem

It is easy to understand that changes in exchange rates alter the price of one nation's products relative to another's, prolonged movements in exchange rates can alter a nation's trade flows, capital flows, price levels, and real growth. U.S. inflation, for example, moderated in 1982 with a 1.2 percent increase during the preceding decade. While the dollar has given up only a fraction of its trade-weighted advance since November 1982, many exchange market analysts anticipate a further depreciation in the near term.

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The practical difficulties of constructing such measures are enormous. At a minimum, the accuracy of the real exchange-rate index requires that PPP held during the index’s base year. Theoretically, when PPP holds, the real exchange-rate index equals 100; but, as shown in chart 1, the real exchange rate can deviate from its PPP level by substantial amounts for long periods of time.2


The extent of domestic price pressures resulting from a currency depreciation obviously depends on the size and duration of the depreciation. Even a large foreign currency depreciation can have a small impact on production processes in the United States because the risk that dollar depreciation would result in higher prices is greater when firms are utilizing large proportions of foreign dollar inputs and when the labor force is closer to full employment.
tive to U.S. goods and thereby encourage
would lower the price of foreign goods rela-
port, or was the change caused by something
increase in U.S. prices. Inflation is a persis-
depreciation causes a shift in demand away
of capacity and the labor force is closer to
independent variables that affect the speed with
the exchange rate changed in the first
foreign, and their purchase could
foreign-exchange market
channels of price pressure
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another. It is more difficult to understand how these relative price changes translate into aggregate real price changes in the home country. The biggest difficulty in measuring the price-level impact of exchange-rate movements is to determine whether exchange-rate movements cause changes, or whether price changes cause exchange-rate movements. The causal effects could shift in either way, to the extent that other factors, especially internal factors in the economy, determine exchange rates and price levels.

The relationship between exchange-rate changes and national inflation rates is described by the relative purchasing power parity (PPP) theory. This theory states that exchange-rate movements tend to equalize inflation differentials between countries over the long run. If, for example, the United States experienced 10 percent inflation, while West Germany experienced 4 percent inflation, the U.S. dollar would depreciate by 6 percent relative to the deutsche mark. According to PPP, commodity-price differentials create opportunities for profitable international trade; this trade tends to maintain parity among the purchasing powers of various nations' currencies. If, for example, the price of domestically produced cheese rises above the dollar price of similar goods produced abroad, U.S. imports would rise and exports would fall as demand shifted toward the less expensive foreign goods, many of which are inputs to other industries. The extent to which these industries increase the demand for goods and services needed in the production process translates into higher prices is greater when firms are utilizing large proportions of capacity and the labor force is closer to full employment.

The most direct price effect of a dollar depreciation is to raise the dollar price of foreign goods, many of which are inputs to other industries. The extent to which these industries increase the demand for goods and services needed in the production process translates into higher prices is greater when firms are utilizing large proportions of capacity and the labor force is closer to full employment.

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take these costs if it expected the changing demand conditions to be transitory. The extent of price pressure in the United States after an exogenous dollar depreciation also depends on the response of foreign prices. PPP can be re-established by an increase in U.S. prices, a decline in foreign prices, or both. Generally, the outcome depends on the importance of a for- eign country’s trade with the United States. If exports to the United States account for a large share of foreign output and the for- eign demand for U.S. exports is highly sen- sitive to price changes, then a dollar deprec- iation would more likely cause foreign prices to fall. A rather unique problem, however, occurs with oil producing countries, as in the case of the Organization of Petroleum Exporting Countries (OPEC) sets oil prices in terms of U.S. dollars. A dollar depreciation raises the foreign-currency price of oil. The dollar depreciation tends to increase foreign oil prices but reduces the purchasing-power parity of each dollar of OPEC revenues. Market conditions permitting, OPEC might respond to a dollar depreciation by raising the dollar price of crude oil. Such a response would intensify the impact of a dollar depreciation on U.S. prices.

The most important factor determining how the demand pressures emanating from an exogenous dollar depreciation translate into higher U.S. prices is the willingness of U.S. monetary authorities to accommodate the price increases through faster money growth. The previous examples assumed a monetary policy that is accommodative. Suppose, however, that the money supply does not expand enough to accommodate the price increases. The exogenous dollar depreciation would tend to raise the U.S. price of traded goods and their close substitutes. Consumers who would have purchased these higher-priced goods because of an accommodating monetary policy, an exoge- nous dollar depreciation would cause some prices to rise and others to fall.

The Rule of Thumb

Since the inception of floating exchange rates, researchers have attempted to deal with these many caveats and to estimate the price-level impact of exoge- nous exchange rate movements. Hooper and Lowery (1979) surveyed this literature, identified a small number of econometric estimates, and concluded that it is more likely to depreciate than appreciate in years ahead. There is, however, little agreement on the results, and only a rough idea of the time frame over which this depreciation would occur. As chart 1 indicates, the real exchange rate can deviate from its base-year level by as much as 10 percent over a three-year period, and therefore, one should consider three different scenarios. The first scenario assumes that, on balance, the real trade-weighted exchange rate does not depreciate in 1983. Recent movements in the real trade-weighted exchange rate and forward exchange rate quotes, adjusted to a trade-weighted basis, are not inconsistent with this scenario. In this case, lagged effects from past dollar appreciation would con- continue to moderate price movements in 1983 and 1984. Price-level increases would be limited by approximately 1.6 percentage points in 1983 and approximately 0.6 per- centage point in 1984. At the other extreme, a second scenario assumes that the real trade-weighted dollar would return to its March 1973 level by the end of 1983. In this scenario the favorable price effects would be reduced by approximately 3 percentage points in 1983 and 1984, and three percentage points in 1985. At the same time, the real exchange rate would depreciate more grad- ually—6.5 percent this year and again next year—so to retain its base year value by the end of 1985. While this extreme scenario would yield a 1.2 percentage favorable impact on 1983 prices, it would also augment the 1.5 percentage point appreciation by approximately 0.1 per- centage point. Therefore, while U.S. price performance probably would not continue to benefit from dollar depreciation, a depreciation of the dollar probably would not greatly compromise a disinflationary policy in the near term.

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Between October 1980 and November 1982, the U.S. dollar appreciated substantially in foreign-exchange markets. Relative to the major currencies, the advance of the dollar from its March 1973 level to its November 1982 level was approximately 27 percent. Against the Canadian dollar to 69 percent against the French franc. On a trade-weighted average basis against 10 key currencies, the dollar appreciated 40 percent, fully offsetting its depreciation during the preceding decade. While the dollar has given up only a fraction of its real appreciation since November 1982, many exchange-market analysts anticipate a further depreciation in the near future.

Because an exchange rate represents the price of one nation’s currency in terms of another’s, prolonged movements in exchange rates can alter a nation’s trade flows, capital flows, price levels, and real growth. U.S. inflation, for example, moderated by approximately 1 percentage point in 1983 and again next year. Exchange rate analysts predict that future dollar depreciations would reverse some of those gains. The relationships among exchange rates, prices, and other economic variables are complex; hence, we should be very careful in attributing price-level moderations or accelerations to exchange rate movements. This Economic Commentary discusses the evidence on the relationship between dollar exchange rates and U.S. price levels. The discussion focuses on the many snags encountered in digging through this complex relationship. After considering the caveats, we present a simple rule of thumb to approximate the contribution of the recent dollar appreciation to the improved U.S. price performance. We also use this rule to speculate on the impact of future dollar depreciation on U.S. price performance.

The Causality Problem

It is easy to understand that changes in exchange rates alter the price of one nation’s products relative to another. For example, if the dollar depreciates substantially against the yen, Japanese goods become relatively more expensive. If the yen appreciates against the dollar, Japanese goods become cheaper. But what about the reverse? It is not as easy to see why changes in exchange rates should affect prices. In fact, many exchange rate analysts predict that future dollar depreciation would reverse some of those gains. The relationships among exchange rates, prices, and other economic variables are complex; hence, we should be very careful in attributing price-level moderations or accelerations to exchange rate movements. This Economic Commentary discusses the evidence on the relationship between dollar exchange rates and U.S. price levels. The discussion focuses on the many snags encountered in digging through this complex relationship. After considering the caveats, we present a simple rule of thumb to approximate the contribution of the recent dollar appreciation to the improved U.S. price performance. We also use this rule to speculate on the impact of future dollar depreciation on U.S. price performance.

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take these costs if it expected the changing demand conditions to be transitory. The extent of price pressure in the United States after an exogenous dollar depreciation also depends on the response of foreign prices. PPP can be re-established by an increase in U.S. prices, a decline in foreign prices, or both. Generally, the outcome depends on the importance of a for- eign country's trade with the United States. If exports to the United States account for a large share of foreign output and the for- eign demand for U.S. exports is highly sen- sitive to price changes, then a dollar depre- ciation would more likely cause foreign prices to fall. A rather unique problem, however, occurs with oil. An exogenous dollar depreciation would tend to raise the U.S. price of traded goods and would lower the foreign currency price of oil. The dollar depreciation tends to increase foreign oil prices, but reduces the purchasing power of each dollar of OPEC revenues. Market conditions permitting, OPEC might respond to a dollar depreciation by raising the dollar price of crude oil. Such a response would intensify the impact of a depreciation on U.S. prices.

The most important factor determining how the demand pressures emanating from an exogenous dollar depreciation translate into higher U.S. prices is the willingness of U.S. monetary authorities to accommoda- te the price increases through faster money growth. The previous examples assumed monetary accommodation. Suppose, however, that the money supply does not expand enough to accommodate the entire increase in the demand for money. The exogenous dollar depreciation would tend to raise the U.S. price of traded goods and their close substitutes. Consumers would need to reduce purchases of other goods. The prices of these other goods would tend to fall. Consequently, in the absence of an accommodative monetary policy, an exoge- nous dollar depreciation would cause some prices to rise and others to fall.

The Rule of Thumb

Since the inception of floating exchange rates, researchers have attempted to deal with these many caveats and to estimate the price level impacts of an exogenous exchange rate movements. Hooper and Lowrey (1979) surveyed this literature, assuming that monetary policy was accommodative. Suppose, however, that the Organization of Petroleum Exporting Countries (OPEC) sets oil prices in terms of U.S. dollars, and a dollar depreciation translates into higher U.S. prices is the willingness of OPEC to raise its price levels. The previous examples assumed that the exchange rate frame over which this depreciation would occur. As chart 1 indicates, the real price change can deviate from its base-year level by a maximum of 1.0 percentage point. Therefore, one can consider three different scenarios. The first scenario assumes that, on balance, the real price level is unchanged in 1983. Recent movements in the real traded-weighted exchange rate and forward exchange rate quotes, adjusted to a traded-weighted basis, are not inconsistent with this scenario. In this case, lagged effects from past dollar appreciation would con- continue to moderate price movements in 1983 and 1984. Price-level increases would be reduced by approximately 1.6 percentage points in 1983 and approximately 0.6 per- centage point in 1984. At the other extreme, a second scenario assumes that the real dollar-weighted dollar would return to its March 1973 level by the end of 1983. In this scenario the favorable price effects would be more than offset by the approximately 3.6 percentage point depreciation in dollar in 1983. Therefore, while U.S. price performance probably would not continue to benefit from dollar appreciation, a depreciation of the dollar probably would not greatly compromise a disinflationary monetary policy in the near term.

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The Causality Problem

It is easy to understand that changes in exchange rates actually alter the price of one nation's products relative to another. Prolonged movements in ex- change rates can alter a nation's trade flows, capital flows, price levels, and real growth. U.S. inflation, for example, moderated more than 2 percentage points in 1983. Many exchange-market analysts predict that future dollar depre- ciation would reverse some of those gains. The relationships among exchange rates, prices, and other economic variables are complex; hence, we should be very careful in attributing price-level moderations or accelerations to exchange rate movements.

The following discussion is based on an investigation of the relationship between exchange rate movements and changes in the various domestic price levels using data for the post-1973 period. While the dollar has appreciated more than 12 percent against the French franc. On a trade-weighted average basis against 10 key currencies, the dollar appreciated 40 percent, fully offsetting its depreciation during the preceding decade. While the dollar has appreciated more than 12 percent against the French franc. On a trade-weighted average basis against 10 key currencies, the dollar appreciated 40 percent, fully offsetting its depreciation during the preceding decade. While the dollar has given up only a fraction of its appreciation since 1980, many exchange-market analysts anticipate a further depreciation in the near future.

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