



## Import Prices and the Exchange Rate

Patricia S. Pollard

Between December 2002 and December 2003, the dollar fell by almost 9 percent against a broad index of currencies. Despite this decline, prices for foreign goods sold in the United States showed little change. How is this possible?

If we ignore transport costs, the dollar price of U.S. imports ( $P^{\$}$ ) equals the foreign currency price of these goods ( $P^{FC}$ ) converted into dollars ( $e = \$/\text{foreign currency}$ ):  $P^{\$} = P^{FC} \times e$ . A depreciation of the dollar (increase in  $e$ ) must result in a rise in U.S. import prices, of the same magnitude, unless there is a decline in the prices foreign producers receive ( $P^{FC}$ ). The 9 percent fall in the dollar was accompanied by only a 1 percent rise in U.S. non-petroleum import prices, indicating that foreign producers absorbed much of the decline in the value of the dollar. Studies have shown that such behavior is common.

Why are changes in the exchange rate not fully passed-through into import prices? One possibility is that changes in import prices lag movements in the exchange rate. The prices for goods received today were contracted at some point in the past. If, as is typical, the prices in these contracts are invoiced in dollars, then a change in the exchange rate may have no immediate effect on import prices. Over time, however, firms may adjust their contract prices to reflect the change in the foreign currency value of the dollar. Even after accounting for such lags, U.S. import prices generally do not fully incorporate exchange rate movements.

Another possibility is that firms “price to market,” adjusting their markup according to local market conditions. As a result pass-through may depend on the amount of competition a firm faces in the local market, its market share, and the extent to which its product is differentiated from similar products. These factors are likely to vary not only across countries but across industries. Indeed, studies have shown that the extent to which exchange rate movements affect import prices does vary by industry.

It is also possible that firms vary their behavior depending on whether the dollar is depreciating or appreciating.

For example, a foreign firm that is attempting to increase its share of the U.S. market may pass-through much of the change in the exchange rate when the dollar is appreciating, lowering the dollar price to gain market share. When the dollar is falling, the same firm will resist passing-through the exchange rate change in an effort to maintain the dollar price of its product and keep its market share. Under this strategy, U.S. import prices should fall more during an appreciation of the dollar than they rise during a depreciation.

The opposite behavior may occur if a firm is unable to increase its sales by lowering the dollar price. For example, a firm may face import restrictions or production bottlenecks that make it difficult to increase its sales to the United States. As a result, the firm may keep the dollar price of its products constant despite a rising dollar. In this case, U.S. import prices should rise more during a depreciation of the dollar than they fall during an appreciation.

The size of the change in the exchange rate also has an effect on pricing behavior. If it is costly to change their invoice prices, firms will only raise or lower prices in response to fairly large movements in the exchange rate. Pollard and Coughlin (2003),<sup>1</sup> for example, found that U.S. import prices in many industries do not respond to small changes in the exchange rate. If, however, the dollar rises or falls by 3 percent or more in a quarter, then import prices will be adjusted to partially reflect the new value of the dollar.

These considerations suggest that the link between the exchange rate and the price of imported goods is complex, with fluctuations affecting U.S. import prices to varying degrees, depending on the industry. Moreover, the price response depends on both the size and the direction of the change in the exchange rate. More research is needed to identify exactly how and why the prices of imported goods react to changes in the value of the dollar. ■

<sup>1</sup> Pollard, Patricia and Coughlin, Cletus. “Size Matters: Asymmetric Exchange Rate Pass-Through at the Industry Level.” Federal Reserve Bank of St. Louis Working Paper 2003-029B, November 2003.