

# Economic Review



FEDERAL RESERVE BANK OF KANSAS CITY

July/August 1984

Rising Protectionism  
and U.S. International Trade Policy

Exchange Rate Volatility  
and Federal Reserve Policy

The 1978-83 Increase in  
U.S. Business Failures

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## Rising Protectionism and U.S. International Trade Policy 3

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# Rising Protectionism and U.S. International Trade Policy

*By Keith E. Maskus*

Protectionist sentiment has become popular again. Calls for increased government intervention in international trade are now common, ranging from pleas for isolated policies to cope with the problems of specific groups to proposals for comprehensive programs to manage trade.

Formulating international trade policy is difficult in such an atmosphere. Free trade yields substantial benefits to most of the economy through lower prices and improved productivity. Yet specific groups would gain if the government gave them some protection from import competition. Policymakers must consider these varied interests in determining the best course for U.S. trade policy.

This article argues that enacting more protectionist policies would substantially reduce both the welfare of U.S. citizens and the efficiency of the world economy. The first section

puts the current protectionist movement in perspective by reviewing the reasons for its resurgence. The second section discusses the costliness of protectionist policies and argues that these policies are inappropriate for dealing with trade problems. The third section then critically examines some current arguments for protectionism. The fourth section suggests that short-term policy be aimed at reducing the federal budget deficit to help restore the international value of the dollar to sustainable levels and that long-term policy continue to be aimed at liberalizing world trade and providing for effective economic adjustment.

## **Reasons for increased protectionism**

Demands for relief from imports have been on the rise for several years. Several factors have contributed to the increase in protectionist sentiment. Among the most important are the increased number of workers and firms affected by international trade, recent macroeconomic performance, and the belief that other countries are engaging in unfair trade practices.

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## *Rising dependence on trade*

One reason for the concern over import competition is that the United States is becoming more dependent on world trade. From 1960 to 1983, the ratio of imports to GNP rose from 4.6 percent to 10.4 percent while the share of exports in GNP increased from 5.7 percent to 10.2 percent.<sup>1</sup> These trends were part of a rising global economic interdependence as virtually all countries are engaging more intensively in trade.

One implication of this growing international orientation is the increase in the proportion of the labor force that depends on international trade for employment and income. Specifically, the proportion of manufacturing employment facing import competition rose from 8.4 percent in 1970 to 14.7 percent in 1980, and the proportion of manufacturing employment related directly and indirectly to exports rose from 8.1 percent to 14.5 percent. Other productive factors also have an increasing stake in foreign trade. The import-related share of manufacturing value added increased from 8.3 percent to 14.4 percent, and the export-related share increased from 8.5 percent to 15.1 percent.<sup>2</sup>

Moreover, increasing trade has had a disproportionate impact on certain sectors of the economy. The effects have been concentrated in the tradable goods sectors—industries that export a sizable portion of output, industries that compete with imports, and their suppliers. Thus, many of the recent calls for protection can be traced directly to the difficulties experi-

enced by several major industries.

These difficulties stem largely from long-run losses in international competitiveness due to shifts in comparative advantage. While such shifts benefit the general economy by allocating resources to more productive uses, they are difficult and costly in the short run. Protectionist pressures arise to forestall these costs.

The importance of changes in comparative advantage can be seen by examining changes in sectoral trade balances over time. Table 1 shows the difference between U.S. exports and imports for selected sectors in 1958 and 1980. Even though adjusted for inflation, both exports and imports generally increased over the period in a way that increased the magnitudes of sectoral trade balances. More important, though, the changing trade balances demonstrate that increasing dependence on trade has had uneven impacts across sectors.

Some sectors have benefited substantially from increased international trade. Those sectors in which the United States has a clear comparative advantage have seen exports rise faster than imports. Thus, the United States has attained a marked advantage in agricultural trade, due to the abundance of U.S. farmland and the technology used in U.S. agriculture. The country's growing advantages in chemicals, industrial machinery, and scientific instruments are due to the highly trained workers and innovative technologies used in these industries. The United States is also quite competitive at providing international services, as is clear from the growing surpluses on this account, which includes not only net receipts for services but also income on past foreign investments.

Industries that have lost comparative advantage have suffered from increasing trade. Growing disadvantages have occurred in the following industries: footwear, apparel and

<sup>1</sup> Department of Commerce, *Survey of Current Business*, various issues.

<sup>2</sup> Robert Z. Lawrence, "Is Trade Deindustrializing America? A Medium-Term Perspective," *Brookings Papers on Economic Activity*, 1983:1, pp. 129-61. While these figures relate to manufacturing, it is clear that the trade orientations of agriculture, primary commodities, and services also have increased.

**TABLE 1**  
**U.S. real trade balances**  
**by selected sectors, 1958 and 1980**

| <u>Sector</u>                   | <u>Exports minus imports</u><br><u>(millions of 1967 dollars)</u> |             |
|---------------------------------|---|-------------|
|                                 | <u>1958</u>   | <u>1980</u> |
| Services and Investment Income  | 351   | 26,081      |
| Agriculture                     | 1,808   | 11,230      |
| Industrial Machinery            | 2,298   | 4,623       |
| Chemicals                       | 311   | 2,928       |
| Scientific Instruments          | 204   | 1,157       |
| Electronic Goods                | 346   | -1,527      |
| Basic Iron and Steel            | 351   | -1,721      |
| Footwear, Apparel, and Textiles | -171  | -4,337      |
| Motor Vehicles                  | 728   | -6,649      |

SOURCES: Developed from various issues of *Survey of Current Business*, *U.S. Commodity Exports and Imports as Related to Output*, Department of Commerce, and *Wholesale Prices and Price Indexes*, Bureau of Labor Statistics.

textiles, basic iron and steel, electronic goods, and motor vehicles. The growing trade deficits in these sectors largely reflect shifts in comparative advantage to other countries. Production techniques in these industries have become fairly standardized, with the result that these goods can be produced by relatively unskilled workers. Over time, the higher productivity of U.S. workers producing these goods has disappeared and high domestic wages have made U.S. costs uncompetitive. Capital, therefore, has moved to countries with comparatively low wages. As a result, imports now claim a significant part of U.S. markets for these products.

The losses in comparative advantage in these industries have prompted protectionist initiatives on their behalf. Government has acted to protect workers and firms in several specific products within these industries. The government's receptivity to such action reflects the historical importance of these industries in domestic employment and the

disproportionate public attention they command. Because long-run import competition will continue to change the structure of U.S. industry, additional pressures for trade restraints are inevitable.

#### *Macroeconomic factors*

Another reason for resurgent protectionism is the effect economic downturns have on employment. Recessions encourage calls to "save American jobs" by restricting imports. The belief is that higher trade barriers will promote domestic employment by substituting domestic production for imports without restricting export-related employment through foreign retaliation. If all countries tried to export their unemployment, of course, the result would be stagnation in world trade and even higher unemployment.

Much of the recent protectionist pressure is undoubtedly related to the high unemployment in 1981 and 1982 and to subsequent macro-

economic events. Due in part to U.S. policy-makers' efforts to reduce inflation, significant slack developed in the economy in 1981. Widespread unemployment created protectionist sentiment across an array of industries and intensified pressures for import relief in steel and automobiles.

Moreover, the recession was accompanied by rapid appreciation of the dollar, which induced more stagnation in the tradable goods sectors than in the general economy and generated further protectionism. Success in reducing both actual and expected inflation in the United States attracted significant increases in foreign purchases of dollar-denominated assets, forcing up the dollar. The counterpart of these rising net capital inflows was growing trade deficits. The real trade-weighted exchange value of the dollar rose 32 percent from the beginning of 1981 to the end of the recession in late 1982, making imports cheaper and U.S. exports more expensive.

The recent recovery has not moderated protectionist pressures because the dollar has continued to appreciate. Early this year, the dollar was up another 6.5 percent in real terms over its previous high in November 1982. This added strength, due primarily to relatively high real interest rates in the United States, further eroded U.S. price and labor cost competitiveness. As a result, tradable goods sectors have not shared equally in the recovery.<sup>3</sup> Despite the buoyant general economy, several import-sensitive industries are seeking trade relief.

Two other macroeconomic influences also have helped shape recent trade performance.

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<sup>3</sup> One analyst reports that U.S. price competitiveness deteriorated 27 percent between 1980 and the third quarter of 1983, while labor cost competitiveness declined 36 percent. Shafiqul Islam, "Currency Misalignments: The Case of the Dollar and the Yen," *Quarterly Review*, Federal Reserve Bank of New York, Winter 1983-84, pp. 40-60.

One is that the recovery began earlier in the United States than in the other industrial countries and has been stronger, causing a relative increase in U.S. import demand. The other is that high interest rates made debt financing more difficult for some developing countries, forcing them to reduce imports. Because these countries, particularly in Latin America, have been an important market for U.S. exports, the problem presents another instance of trade restricted by high interest rates.<sup>4</sup>

If current trends continue, the combination of these macroeconomic factors points to further increases in the trade deficit. Since large trade deficits are often seen as indicating stress in tradable goods sectors, it becomes more likely that long-term trade policy may be used to offset short-term macroeconomic effects.

#### *Unfair trade*

Still another reason for protectionist sentiment is the view that other countries are not fair in promoting their exports and restricting their imports. Those holding this view advocate explicit protectionist threats to force other countries to remove or forestall their trade restrictions.<sup>5</sup> Since such threats are against specific countries or on specific commodities, they represent a retreat from the tradition of multilateral trade relations. For many, the ideal of free trade has been replaced by the

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<sup>4</sup> The U.S. trade balance with Latin America shifted from a \$7.5 billion surplus in 1981 to an estimated \$13.9 billion deficit in 1983. *Economic Report of the President*, Washington, February 1984, p. 49.

<sup>5</sup> Some go beyond this to suggest using trade restrictions as a tool for achieving political or military objectives. Obvious examples include the embargo on Soviet wheat purchases and restrictions on exports of sensitive technologies to certain countries. Whatever their political merits, such actions are clearly distortionary in an economic sense and may heighten fears about the reliability of the United States as a supplier.

idea of "fair trade," which would make the government responsible for forcing other countries to provide a "level playing field."

### **Evaluating protectionism**

The factors discussed above have rekindled interest in protectionism. As this section demonstrates, however, trade restrictions are harmful to the general economy.

#### *Benefits of free trade*

Free trade is generally best for the economy as a whole. The benefits of free trade are the benefits of competition. Whether from domestic or foreign sources, competition forces firms to follow lowest cost, highest productivity practices to satisfy consumers at the lowest prices. Competition also allows the price mechanism to allocate resources by drawing labor, capital, and other resources into their most productive uses. By extension, free trade induces every country to export the goods it is comparatively most suited to produce and import the goods it is least suited to produce. Society as a whole gains because free trade increases both the quantity and quality of the goods available for consumption.

Not only is economic welfare greatest under free trade, but free trade is also fundamentally a growth policy. The need to compete at world prices dictates the need to be efficient and innovative. In contrast, by shielding domestic producers from foreign competition, trade barriers block effective resource allocation, restrict choices, make products more expensive, and reduce economic growth. Society is correspondingly worse off.

#### *Costs to individual groups*

If the situation were as simple as this

description, there would be little dispute with the desirability of free trade. Unfortunately, important problems of income distribution arise from efforts to promote free (or freer) trade.

Workers in industries facing stiffer import competition due to freer trade find their living standards lowered, both through higher unemployment and lower real wages.<sup>6</sup> Although consumers and workers in other industries become better off, workers in these industries suffer a reduction in living standards.

That there are both losers and gainers from a reduction (or increase) in trade barriers poses a problem. Proponents of protectionist policies are not impressed by the fact that freer trade generates benefits to consumers greater than costs to some producers and workers. They do not accept an ethical standard in which the benefits of one group are weighted equally with the costs of another in a social cost-benefit calculation. Thus, for example, advocates of textile quotas discount the interests of exporters and textile consumers. From the standpoint of equity, it is impossible to refute such a position. There is no "correct" standard of equity.

The difficulty with this argument is that while import restrictions may, for a while, protect certain industries from making painful economic adjustments, the delay comes at high cost to society. It would be cheaper to secure the benefits of free trade and promote rapid adjustment of displaced workers through manpower policies. This means that free trade generates enough extra output that the gainers

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<sup>6</sup> Actually, those displaced skilled workers that are well suited for producing in the export industries, which would expand under free trade, would suffer only short-run costs and would be permanently better off after absorption into the expanding sectors. Relatively unskilled workers would suffer a permanent decline in real income, however, unless they obtain training for higher paying jobs.

could compensate the losers enough through income grants so that no group suffered a loss of income. In other words, trade barriers are so costly that dismantling them and coupling their removal with adjustment grants would raise incomes in all groups.

### *Weighing the benefits and costs*

The costs to society of trade barriers outweigh the benefits to individual groups because restricting free trade causes substantial economic inefficiency. The costs are the higher prices domestic consumers must pay for goods shielded from foreign competition. These higher prices are, in effect, hidden taxes. Part of the hidden tax goes to domestic workers and firms that produce the protected goods in the form of higher profits, wages, and employment. Some of the tax, however, is dissipated in lower economic efficiency, which benefits no one. Because only a portion of the cost to consumers benefits workers and producers, the costs of trade barriers are bound to exceed their benefits.

Empirical estimates show that recent U.S. trade barriers have indeed been inefficient means of increasing the incomes of workers in tradable goods sectors. As shown in Table 2, the estimated ratio of costs to benefits ranges from 3.5 for barriers on carbon steel to 10.1 for those on citizens' band transceivers.<sup>7</sup> These estimates show that eliminating the trade barriers and compensating the workers in the affected industries for their lost income would be cheaper for the economy. For example, both consumers and workers would be better off if import restrictions on footwear were replaced by an explicit tax on footwear purchases, the proceeds of which were used to compensate workers who lost their jobs as a result of increased footwear imports. Assume, for instance, that the explicit tax is set high

enough to pay all displaced workers \$10,000 per year. The workers would benefit from the increase in income from \$8,340 to \$10,000; consumers would benefit because lower footwear prices would reduce their costs per job from \$77,714 to \$10,000. Thus, such an explicit tax would be lower than the implicit tax associated with trade barriers. Improved economic efficiency from elimination of trade barriers can, therefore, benefit everyone if the resulting gains are distributed between consumers and workers.<sup>8</sup>

It might be argued that increased income is not the only relevant consideration, though. Jobs themselves are important beyond the income they furnish workers. Even on this score, however, trade barriers are ineffective

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<sup>7</sup> No estimates have been made of the benefits of avoiding idle capacity in these industries. In Table 2, the benefits to workers are clearly overstated since workers displaced by free trade eventually find jobs. The true benefit per worker would be the difference between his protected earnings and his new earnings, plus net unemployment costs. Costs, on the other hand, are understated. A tariff or quota raises the domestic price of imported goods over their world price, which, in turn, pushes up the prices of competing domestic goods. Consumer costs, therefore, include income transfers from consumers first to producers and workers through higher prices and then to government through tariff revenues. (If the restriction is not a tariff, the revenues are likely to go to groups other than the government, such as foreign exporters in a voluntary export restraint program.) They also incorporate so-called "deadweight efficiency losses," which reflect national wealth that is sacrificed for protection. (Some economists focus strictly on the deadweight losses in computing the costs of protection, since the other components are simply transfers among groups within the economy. These transfers are, however, generated artificially by the trade restrictions and consumers should be made aware of the implicit tax they represent, so this article considers total consumer costs. In any event, deadweight losses per job protected are still typically larger than average earnings.) These static welfare costs, however, do not include the dynamic costs that build up over time through losses in productivity, innovation, and economic growth. If protection lasts long, as it usually does, these dynamic costs exceed the typical cost estimates.

<sup>8</sup> By one estimate, the total static costs of protectionism to U.S. consumers in 1980 were \$58.5 billion, or \$1,020 per family of four. M. Weidenbaum and M. Munger, "Protection at Any Price?" *Regulation*, July/August 1983, pp. 14-18.

**TABLE 2**  
**Estimated annual costs to consumers per**  
**job protected by various trade barriers**

| <u>Product and Restriction</u>                 | <u>Jobs Protected</u> | <u>Average Earnings</u> | <u>Cost Per Job</u> | <u>Ratio of Cost to Earnings</u> |
|--|-----------------------|-------------------------|---------------------|----------------------------------|
| Citizens' Band Transceivers (tariffs, 1978-81) | 587                   | \$ 8,500                | \$85,539            | 10.1                             |
| Apparel (tariffs, 1977-81)                     | 116,188               | 6,669                   | 45,549              | 6.8                              |
| Footwear* (tariffs and quotas, 1977)           | 21,000                | 8,340                   | 77,714              | 9.3                              |
| Carbon Steel* (tariffs and quotas, 1977)       | 20,000                | 24,329                  | 85,272              | 3.5                              |
| Autos* (proposed local content law, 1986-91)   | 58,000                | 23,566                  | 85,400              | 3.6                              |

\*In 1980 dollars.

SOURCES: Figures for transceivers and apparel adapted from M. E. Markre and D. G. Tarr, *Effects of Restrictions on United States Imports: Five Case Studies and Theory*, Federal Trade Commission, Washington, 1980. Figures for footwear and carbon steel from M. Weidenbaum and M. Munger, "Protection at Any Price?" *Regulation*, July/August 1983, p. 16, and R. W. Crandall, "Federal Government Initiatives to Reduce the Price Level," *Brookings Papers on Economic Activity*, 1978:2, p. 431. Figure for jobs protected in autos adapted from "Impact of Local Content Legislation on U.S. and World Economies," Wharton Econometric Forecasting Associates, July 1983. Compensation and consumer costs taken from Weidenbaum and Munger, "Protection at Any Price?" *Regulation*, July/August 1983. The years listed refer to periods over which the estimations were made. In most cases, some form of restriction continues.

because they typically eliminate more jobs than they save. One study estimates that by 1991 the proposed domestic content law for automobiles would eliminate 88,000 U.S. jobs in the importing, servicing, and selling of imported cars—with another 335,000 jobs lost to the effects of inflation, restricted growth, and reduced exports. Accounting for the 58,000 jobs protected, the content law would eliminate a net 365,000 jobs.<sup>9</sup>

One import restriction of current interest is the voluntary export restraint (VER) agree-

ment on Japanese cars. This agreement has been quite costly in terms of its price effects. A recent study estimates that VER's raised the average price of imported cars by \$851 (and of domestic cars by \$324) over 1981-82, with even larger price increases forecast for 1983.<sup>10</sup>

<sup>9</sup> "Impact of Local Content Legislation on U.S. and World Economies," Wharton Econometric Forecasting Associates, July 1983.

<sup>10</sup> No estimates are available of the jobs saved by the program. "Special Analysis: The Japanese Quota," Wharton Econometric Forecasting Associates, January 1983.

These price hikes amount to significant income transfers from car buyers to producers here and in Japan. Moreover, since VER's restrain the quantity of cars that can enter the United States, Japanese automakers have shifted the composition of their exports to more expensive models, making their cheaper cars more scarce.

With all the disadvantages of trade intervention, it is sometimes difficult to understand why it is used. Those benefiting from intervention, however, argue that their livelihoods depend on import relief. Consumers do not strongly resist the argument in part because, being diffuse, they are not affected much by conditions in a particular industry. Moreover, the costs of protectionism are hidden because tariffs and quotas are embedded in the prices of goods. Policymakers, therefore, face few political restraints in responding to demands for protection.

### **Some current arguments for protectionism**

Beyond the basic desire to avoid painful adjustments to freer trade, several more subtle protectionist arguments have recently been advanced. These arguments, which are examined below, are generally ill founded.

#### *Noneconomic objectives*

The government may wish to support a high level of domestic production in particular industries for noneconomic reasons. Because the steel industry, for example, is considered important to national security, it is argued that domestic steel production above what would result from free trade is in the national interest. Even if true, this does not make costly tariffs or quotas on steel imports valid. A better policy would be a direct subsidy to the U.S. steel industry. A direct subsidy could be

devised that would induce the same level of production as would occur under import protection. This would have the advantage of not simultaneously raising steel prices to automakers and other steel users.

This explicit subsidy—financed by an explicit tax—would, therefore, be smaller than the implicit subsidy in a tariff or quota. If a subsidy would not be acceptable to taxpayers, there is no evidence that the public prefers to absorb the higher implicit costs associated with import protection. In other cases where import protection has been suggested as a way of promoting noneconomic objectives or offsetting market failures, a tax and subsidy scheme is nearly always better than a tariff or quota.<sup>11</sup>

#### *Overvalued dollar*

Many tradable goods sectors claim they deserve import relief or help in exporting because they have been unfairly penalized by the high value of the dollar. Their complaint is that the dollar is “overvalued” because of an inappropriate domestic fiscal-monetary policy mix or a conscious effort by foreign governments to undervalue their currencies, most notably the yen. As a result, those in tradable goods sectors argue they have unfairly borne the brunt of government policies. They advocate trade actions to offset their loss of competitiveness.

Most analysts agree that the dollar has appreciated well above the long-run equilib-

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<sup>11</sup> Proponents of tariff protection fear that voters would be unwilling to accept higher taxes (or budget deficits) in order to provide direct subsidies. But if voters will not finance a relatively low-cost but explicit means of achieving a goal, it is wrong to claim they are willing to finance it at higher cost through hidden means. That consumers tolerate trade intervention means that its effects are less well understood than the effects of direct taxes and subsidies.

rium level suggested by underlying exchange market fundamentals.<sup>12</sup> In large part, the strength of the dollar has resulted from higher real interest rates in the United States, which have attracted huge capital inflows from abroad. The consensus among economists is that high real interest rates reflect success in bringing down inflation and upward pressure on nominal rates resulting from large structural federal budget deficits.<sup>13</sup>

One unfortunate result of the rising dollar is that tradable goods sectors have been hurt. The stronger dollar has reduced the prices of U.S. imports and raised the prices of U.S. exports. As a result, both import-competing sectors and export sectors have suffered considerably. For example, the volume of U.S. merchandise exports fell more than 15 percent from the fourth quarter of 1980 to the fourth quarter of 1983. Much of this decline reflected losses in competitiveness brought on by appreciation of the dollar.<sup>14</sup> The reduction in exports was spread across a range of goods, including agricultural products. Unfortunately, the longer exports remain depressed the more dif-

ficult it becomes to regain the markets to which the exports were shipped previously.

Using protectionist trade policies, however, to address the problems resulting from dollar appreciation would be a mistake. Rather than attacking the problem directly, import restrictions and export subsidies would cause further distortions in the economy. They would only redistribute production and income from other sectors of the economy and impede future growth. The redistribution would come about through price distortions and through a decline in foreign capital inflow, which would remove some of the savings available to finance budget deficits. The resulting increase in interest rates would substitute crowding out of investment and other domestic spending for the implicit crowding out of tradable goods sectors that has already occurred.<sup>15</sup> For these reasons, use of long-term trade policy to remedy short-run macroeconomic problems makes little sense.

The appropriate policy action is, rather, to reduce structural budget deficits, which would allow both declining real interest rates and a depreciating dollar. "Measures to reduce the budget deficit would...lower the real value of the dollar and thus allow the exporting and import-competing sectors to share in the recovery as well."<sup>16</sup> All other policy options force a choice between rising interest rates and a declining dollar, which amounts to choosing between relative stagnation in the domestic versus the tradable goods sectors. The worst choice would be trade restraints.

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<sup>12</sup> For a discussion of market fundamentals and why exchange rates may diverge from their suggested values due to short-run market conditions, see Craig S. Hakkio, "Exchange Rate Volatility and Federal Reserve Policy," *Economic Review*, Federal Reserve Bank of Kansas City, this issue.

<sup>13</sup> See, for example, *Economic Report of the President*, pp. 51-62. A few economists question the link between budget deficits, interest rates, and the dollar. See Paul Craig Roberts, "Economic Watch," *Business Week*, May 21, 1984, p. 22.

<sup>14</sup> By one estimate, more than half of the deterioration in the U.S. current account balance was caused by dollar appreciation. "Our Internal and External Deficits and the Relationship Between Them," remarks by Lyle E. Gramley, Member of the Board of Governors of the Federal Reserve System, June 14, 1984. It should be noted that there is no evidence the Japanese have intervened to depreciate the yen relative to the dollar. The yen has appreciated notably against the German mark and the French franc. Thus, dollar appreciation against the yen reflects U.S. circumstances, not active Japanese yen sales. See Shafiqul Islam.

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<sup>15</sup> Similar comments apply to efforts to use international capital controls to reduce capital inflows and depreciate the dollar. These would impose a distortion on the economy that would penalize domestic investment without attacking the fundamental problem of budget deficits.

<sup>16</sup> *Economic Report of the President*, p. 62.

## *Deindustrialization*

Another current argument for protectionism is based on fear that manufacturing is on the decline in the United States—that the country is becoming “deindustrialized.” Because manufactured imports have displaced a portion of domestic production in certain industries, some argue that further loss of industrial capacity could be prevented by reducing imports.

Figures show, however, that the United States is not deindustrializing. Real manufacturing output doubled from 1960 to 1980 and increased from 23.3 percent of total production to 23.8 percent. Employment and capital stock in manufacturing also rose. As a proportion of the total stock, capital in manufacturing declined only marginally. Manufacturing employment fell from 31.0 percent of the total in 1960 to 22.4 percent in 1980, but this drop was well within the bounds of typical declines due to productivity growth. Thus, rising imports over this period simply did not reduce the size or strength of aggregate U.S. manufacturing.

There have been important shifts in the composition of manufacturing, however, as Table 1 implies. Production has shifted away from heavily capital-intensive industries using relatively unskilled labor, such as basic iron and steel, toward industries using advanced technology, such as scientific instruments. Between 1960 and 1980, the “high-tech” industries increased their share of manufacturing value added by 41 percent and their share of manufacturing employment by 22 percent.<sup>17</sup> They also accounted for a significantly higher share of manufacturing exports. These trends were to be expected, because high-tech indus-

tries make heavy use of the well educated U.S. workers. Viewed in this way, the increase in trade over the past two decades has actually been a positive force for U.S. manufacturing by providing export markets for highly productive sectors.

Fears about deindustrialization rest on a misconception of current U.S. industry. The popular notion is apparently that manufacturing is limited to huge plants where tremendous amounts of physical capital are combined with unskilled labor to produce such basic items as autos and steel. Such plants in the United States, however, can no longer compete effectively on an international basis. Efforts to prevent their decline through intervention in trade would be costly to the economy as a whole. Indeed, to prevent scale reductions in basic sectors through trade restrictions could contribute to aggregate deindustrialization in the long run by limiting growth of more efficient and, therefore, more dynamic sectors.

### *Bilateral reciprocity to ensure fair trade*

Some argue that protectionism is warranted because international trade is currently conducted under unfair rules. Amid allegations that other countries interfere to capture or preserve markets they would lose under free trade, some policymakers advocate a tough negotiating posture to place trading conditions on a more equal footing. This primary source of current protectionism is reflected in calls for bilateral reciprocity.

Bilateral reciprocity means that the markets of a foreign country should be as open to U.S. products as U.S. markets are open to the products of that country. If a comparable degree of access is not granted through lower import barriers in a given country, the United States would enforce comparability by raising its own import barriers. This type of reciprocity

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<sup>17</sup> *Economic Report of the President*, p. 89.

would be sought either on a sectoral basis or on an aggregate trade basis, focusing on countries running large trade surpluses with the United States.

Much of the impetus for reciprocity stems from frustration over the U.S. trade deficit with Japan. Some observers accept this deficit as evidence that the Japanese market is closed to U.S. products. There is little evidence that this is true, however, except for some agricultural products and for a few other goods. Indeed, several studies have found that, on average, Japanese markets are at least as open to imports as markets in the United States and Western Europe.<sup>18</sup> These studies have found that the Japanese trade surplus results from basic economic factors, such as dollar appreciation and relative cost advantages in many Japanese manufacturing sectors.

In any case, trade policy based on bilateral trade balances makes little sense. The United States typically runs a large surplus with Western Europe, but this country would strongly object to European accusations that the U.S. market is unduly closed based on this evidence. Bilateral trade balances imply very little about relative protectionism. Instead, they reflect fundamental international economic relationships. Trying to achieve balanced trade with each trading partner would sacrifice the considerable welfare gains from liberal multilateral exchange in favor of the much smaller benefits of highly restricted trade.

Reciprocity is more commonly sought in the trade of a specific range of products. For example, much of the recently proposed legislation seeks reciprocal Japanese treatment of

U.S. telecommunications equipment and other high-tech goods. The basis for this legislation is the perception that the Japanese telecommunications industry unfairly discriminates in its purchasing practices and that official Japanese subsidies to research and development give Japanese firms a competitive edge. In retaliation, the United States would close its markets to similar Japanese products and perhaps also to other products in which Japan is competitive.

On the surface such sectoral reciprocity seems reasonable. It is dismaying when U.S. industries face roadblocks in potential export markets and also experience import competition from firms in the same countries. Credible threats of reciprocity may cause foreign countries to reduce their barriers rather than risk losing important export markets.<sup>19</sup>

Nevertheless, there are significant problems with reciprocity. First, the uncertain benefits to exporters from reciprocity threats must be weighed against the high consumer costs resulting from any trade barriers enacted. Moreover, since the reciprocation is limited to a target country, say, Japan, production for export to the United States may be diverted to higher cost third countries, such as Taiwan. If so, imports would cost more, with little or no benefit to U.S. exporters.

Second, reciprocity is not likely to work. To be credible, the threat of reciprocity must be carried out automatically when the target country does not comply. The country being threatened has three choices. It can capitulate, not respond, or counterretaliate. Only in the first case can the protection be avoided. The

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<sup>18</sup> See, for example, Gary R. Saxonhouse, "The Micro- and Macroeconomics of Foreign Sales to Japan," in William R. Cline, ed., *Trade Policy in the 1980s*, Institute for International Economics, Washington, pp. 259-304.

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<sup>19</sup> Japan announced several significant unilateral trade liberalization measures in 1982 and 1983, due mainly to the Nakasone administration's sensitivity to criticism of Japanese practices. Since reciprocity is not yet officially part of U.S. trade policy, it is not clear what role it played in these decisions.

other cases, which are more likely than the first because of political pressures to respond to the unilateral U.S. warning, force the United States to carry out its threat. The result would be reductions in the welfare of both the United States and the target country and greater chances for further escalation of trade barriers. Japan, for example, has considerable latitude for retaliation since it is the largest individual foreign market for U.S. agricultural products.

Third, reciprocity invites third-country participation. If reciprocity directed at Japan diverted U.S. agricultural exports to European countries, for example, those countries would be certain to retaliate with higher import barriers. More fundamentally, passage of U.S. reciprocity legislation would signal this country's abandonment of multilateral trade relations in favor of aggressive unilateral actions. Other countries would undoubtedly follow suit.

### *Industrial policy*

Protectionist arguments form a central component of calls for more pervasive government intervention in the economy. Such intervention is frequently termed industrial policy. Industrial policy, if targeted at specific industries, would provide incentives for selected industries to grow or contract, depending on the overall policy objectives.

Industrial policy is most visible in the proliferation of government subsidies affecting trade. For example, Japanese support of research and development is commonly thought to have helped Japanese high-tech companies compete with U.S. and European firms. Furthermore, the European Community subsidizes agricultural exports to dispose of surplus production. These exports have displaced U.S. farm products in several countries, causing U.S. policymakers to threaten

retaliation. Such actions have clearly complicated international economic relations by helping unravel the international integration and cooperation that have developed over the last few decades.<sup>20</sup>

Considerations of unilateral industrial policy have spurred an increasing tendency for countries to impose trade restrictions that lie outside the guidelines of the General Agreement on Tariffs and Trade (GATT). The fundamental principle of postwar trade under GATT has been the equal treatment of all countries under the Most Favored Nation (MFN) provision. For example, U.S. tariff concessions to Japan would automatically be extended to all other MFN countries. In contrast to the principle of equal treatment of all countries—a principle that has been a major stimulus to world trade—current trade policies tend to target specific countries and specific commodities. Such targeting, moreover, is concentrated in nontariff barriers rather than tariffs because tariff changes require MFN action. The VER's on Japanese autos and the quotas on European steel are cases in point. Nontariff barriers tend to be more restrictive over time than tariffs because they impose limits on the quantity of trade. Because both the frequency and restrictiveness of trade distortions are rising, the consequent welfare costs will be correspondingly greater.

### **Recommended policy approaches**

The rising pressures for protectionist policies pose difficult problems. The United States must decide where it wants to be on a spectrum from complete passivity toward world

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<sup>20</sup> No country can be overly accusatory. Every nation has policies that distort trade. Other governments are quick to note that the traditional U.S. policy of subsidizing higher education has "unfairly" promoted U.S. technology-based advantages.

trade at one extreme to total management of foreign trade and investment at the other. Passivity is different from free trade. It means keeping all U.S. markets open but allowing foreign distortionary actions. A policy of open markets regardless of foreign actions does have advantages. For example, a foreign subsidy that drives down the price of a good shipped here amounts to an income transfer from foreign taxpayers to U.S. consumers. But support for passivity can hardly be expected, since it allows foreign governments to use trade policy with impunity, often to the detriment of U.S. interests. Totally managed trade, on the other hand, is often simply a euphemism for highly restricted trade, the costs of which are high.

Rather than either of these extremes, the aim should be a realistic policy that allows for adjustments to changing international conditions, but does not retreat too much from the goal of freer trade. A balance must be struck between the domestic and foreign interests that influence trade policy. Some general suggestions are offered here for basic principles that could guide the formulation of specific policies.

The most important step to be taken in the short run is to relieve protectionist pressures by reducing budget deficits. This is the only policy that allows both depreciation of the dollar and declines in real interest rates. Reduction of deficits would allow a more balanced recovery, including tradable as well as nontradable sectors of the economy, and would give export-oriented sectors an opportunity to begin regaining foreign markets. Lower interest rates and a depreciated dollar would also ease the debt burdens of several developing countries, enabling them again to become large and growing markets for U.S. exports.

Over the longer term, the government should resist costly protectionist policies. The

United States, therefore, needs to pursue ongoing negotiations with its trading partners to ease tensions that could further restrict trade. There are several critical components of such negotiations. Because frequent multilateral negotiations are difficult, more limited bilateral and trilateral talks could be pursued, as long as they do not unduly controvert the MFN principle. Discussions focusing on why countries impose trade-distorting policies would allow other countries to determine how to respond. In particular, official distinction could be made between policies that raise potential world real income, such as temporary subsidies to facilitate adjustment, and policies that worsen resource allocation for nationalistic purposes. Discussions could also determine acceptable responses by countries that feel they have been unfairly harmed by the trade policies of foreign governments. Ideally, such responses would be temporary and well publicized.<sup>21</sup> Most important, the trend toward adoption of quantitative trade restrictions outside the GATT mechanism should be discouraged. To the extent that current GATT procedures are not adequate, a new agreement should be negotiated to establish guidelines for future trade policy.

If negotiations succeed in keeping markets substantially open to international trade, ways need to be found to ease domestic adjustments to continuing displacements from import competition. Such adjustments in an economy are desirable.<sup>22</sup> Effective reallocation of resources

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<sup>21</sup> One suggestion is to allow countries to respond with tariffs limited to three to five years, with the severity of the tariffs declining over time. Robert Baldwin and T. Scott Thompson, "Responding to Trade-Distorting Policies of Other Countries," *American Economic Review*, May 1984, pp. 271-76.

<sup>22</sup> Despite existing protection, the U.S. steel industry has achieved notable successes in transforming itself into a smaller, more cost-efficient industry specializing in high-value-added products with significant high-technology content.

is crucial to growth in income and employment. Government may, therefore, have a legitimate role in easing economic adjustments to dislocations resulting from changes in trade patterns. Government programs can be justified on the grounds of both equity and efficiency.

From the standpoint of equity, policies can be devised to provide temporary support to workers who lose their jobs because of import competition. Equity considerations come into play because these workers tend to be members of disadvantaged groups; they are for the most part less educated, older, and less well paid than the average U.S. worker. A disproportionate number are blacks or women. Because of these demographic factors, displaced workers may have difficulty in finding other jobs. As a result, social goals regarding equitable income distribution could be promoted by manpower policies to help workers who suffer from import competition.

Government policies to facilitate adjustment can also be justified as a means of promoting economic efficiency. Labor and capital markets are imperfect. For a variety of institutional reasons, workers laid off from their jobs are often unwilling to take employment paying less than they had been making. The downward rigidity of wages is itself the ultimate cause of extended unemployment, not foreign competition.<sup>23</sup> In such cases, it may be cheaper for the economy to provide temporary retraining and relocation subsidies that allow displaced workers to move into new jobs than to accept the costs of substantial unemployment.

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<sup>23</sup> Wage-price rigidity is only one private impediment to market adjustments. Others include imperfect information about opportunities, uncertainty, imperfect factor mobility based on geographic or other ties, and insufficient access to capital markets that would finance acquisition of efficient human and physical capital.

There also could be benefits to promoting capital mobility by subsidizing reductions in uneconomic capacity, as the English and French claim to be doing in their inefficient steel industries.

The United States has extensive experience with only one such adjustment policy, the Trade Adjustment Assistance (TAA) Program. Adopted in 1962, TAA pays temporary income supplements to workers whose job losses have been certified to be substantially related to reductions in import barriers. Foremost among the objectives of the program was to facilitate adjustment in the economy.<sup>24</sup>

TAA has generally not been effective in promoting adjustment, however. This failure has been due to the benefits not being tied closely to adjustment activities. Payments typically have been cash grants to supplement unemployment compensation without providing for retraining and relocation. Rather than complementing pressures to adjust, TAA moderated them.<sup>25</sup>

Despite shortcomings in TAA, some form of manpower program deserves reconsideration as a means of promoting labor adjustment in a broader framework of fostering efficient resource allocation. Such a framework could be constructed to aid in overcoming impediments to efficient resource allocation caused by market imperfections, without counteracting the basic signaling pressures of market

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<sup>24</sup> Other objectives were to gain support of import-sensitive sectors for trade liberalization by providing potential cash subsidies to those that might suffer from the liberalization and to compensate those injured by freer trade policy on equity grounds. The TAA program was generally successful in meeting these two objectives through the 1970s. Political problems have resulted in a vastly reduced budget in the 1980s, however, and the program is slated to expire soon.

<sup>25</sup> There are many studies of the TAA program. See especially C. Michael Aho and Thomas O. Bayard, "American Trade Adjustment Assistance After Five Years," *The World Economy*, November 1980, pp. 359-76.

prices. While this can be done many ways, the basic thrust of the programs should be to tie benefits to adjustment. Workers certified for TAA, for example, could receive temporary income supplements but more long-lasting education grants. Employers could be given tax advantages to cover the costs of recruiting employees from areas that have suffered from imports. The program could also promote equity—for example, through grants to displaced workers that because of age have no prospects for adjustment—but these could be formulated in a way that did not worsen resource allocation.

If such policies were adopted, they should be clearly articulated and defended before the international community. Subsidies for adjustment or equity purposes may be misconstrued as official efforts to improve the price competitiveness of domestic producers at the expense of foreign interests. For example, GATT guidelines allow for countervailing tariffs in the importing country to offset foreign export subsidies. While this response might be legitimate if the subsidy is an unfair and distortionary scheme to promote exports, it would impede any adjustment the subsidy was designed to encourage. Unfortunately, because official explanations for trade-distorting subsidies are rarely given, it is difficult to determine which subsidies are intended to promote adjustment. At a minimum, therefore, the United States and its trading partners need to adhere to well understood guidelines in formulating adjustment policies.<sup>26</sup>

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<sup>26</sup> Agreement on the Subsidies Code in the Tokyo Round of multilateral negotiations was a start, but much remains to be done in the defining of offensive subsidies and the appropriate policies for redress. See Gary C. Hufbauer, "Subsidy Issues After the Tokyo Round," in William R. Cline, ed., *Trade Policy in the 1980s*, pp. 327-61.

The need for effective economic adjustment is especially important today because international trade is increasingly a source of instability as comparative advantage and currency values shift rapidly among countries. The result is often sudden surges in imports, which are more difficult to cope with than are gradual movements in production and trade. In this sense, government adjustment policies can be considered special insurance programs against the riskiness of international trade. These social insurance benefits could be at least partially funded through payroll taxes.<sup>27</sup>

## Conclusions

The primary objective of trade policy should be to keep world markets open to international specialization and exchange. The benefits of free international trade far outweigh the advantages that narrow sectors gain through protectionism. Economic change is not to be feared but welcomed as a natural consequence of healthy growth. The U.S. economy is increasingly producing high-value output based on technical advantages and providing valuable services to other countries in such forms as engineering and finance. Economic welfare will be greater if the changes are allowed without government restrictions based on an outmoded view of the economy. The government does, however, have a legitimate role in distributing the gains from free trade among workers in a way that promotes both equity and efficiency.

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<sup>27</sup> An alternative is to levy a temporary tariff on the affected product and use the proceeds to fund adjustment. While this has the advantage of directly linking adjustment to its source of funding, the welfare costs of a tariff are much higher than a visible tax and subsidy scheme. Besides, tariffs are rarely temporary once they have been imposed.

# Exchange Rate Volatility and Federal Reserve Policy

By Craig S. Hakkio

There has been widespread concern in recent years over the volatility in foreign exchange rates. Much of this concern stems from the adverse effects of exchange rate volatility on international trade and capital flows.<sup>1</sup> By increasing the risk of importing and exporting, unpredictable changes in exchange rates may reduce international trade. Similarly, by increasing the risk of investing in foreign assets, exchange rate volatility may retard the flow of capital between countries. Because international trade and capital flows contribute to the smooth functioning of the world economy, exchange rate volatility can impair economic welfare.

Several proposals have been offered for reducing exchange rate volatility. Some would require a fundamental restructuring of the international financial system by returning to a gold standard or a fixed exchange rate system. Other, less extreme, proposals call for monetary authorities to limit fluctuations in exchange rates. Because the U.S. dollar is the

primary currency used in international transactions, these proposals have focused on the role of the Federal Reserve in reducing volatility in the exchange value of the dollar.

This article argues that pursuit of domestic price stability is the most effective contribution the Federal Reserve can make to exchange rate stability. The first section documents that exchange rates have been both variable and unpredictable since a flexible exchange rate system was adopted in 1973. The second section analyzes the sources of this volatility. The third section discusses the role of the Federal Reserve in eliminating the sources of exchange rate volatility. In particular, the article argues that domestic monetary policy actions to keep the price level stable are likely to be more effective in reducing

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<sup>1</sup> For evidence concerning the effect of exchange rate volatility on international trade, see Richard K. Abrams, "International Trade Flows Under Flexible Exchange Rates," *Economic Review*, Federal Reserve Bank of Kansas City, March 1980, pp. 3-10, and M. A. Akhtar and R. Spence Hilton, "Effects of Exchange Rate Uncertainty on German and U.S. Trade," *Quarterly Review*, Federal Reserve Bank of New York, Spring 1984, pp. 7-16.

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exchange rate volatility than direct intervention in foreign exchange markets.

### Degree of exchange rate volatility

Foreign exchange transactions are exchanges of one country's money for another country's money. They arise from international trade and investment. A foreign exchange rate, then, is the price of one country's money in terms of another's. For example, an exchange rate of 2.50 between the German deutsche mark (DM) and the U.S. dollar means that U.S. dollars can be bought at a price of DM 2.50 each in the foreign exchange market.

Under the fixed exchange rate system that prevailed from 1944 to 1973, exchange rates were essentially stable and predictable. The system established at the Bretton Woods Conference in 1944 required that the United States maintain a fixed relationship between the international value of the dollar and the official price of gold. It required that other countries maintain a fixed relationship between their currencies and the dollar. The system, then, required stable exchange rates. These requirements could be met only if all governments prevented high domestic inflation—and thereby chronic balance of payments deficits—and actively bought and sold their currencies in foreign exchange markets as needed to maintain a balance between supply and demand at the prevailing fixed exchange rate. Although some countries had to devalue their currencies occasionally, the system worked reasonably well through the mid-1960s. However, recurring balance of payments crises and rising inflation in the United States in the late 1960s and early 1970s led to the collapse of the Bretton Woods system. It was replaced by a flexible—or floating—exchange rate system in 1973.

The essential feature of a flexible exchange rate system is that market forces determine exchange rates. Instead of central banks maintaining balance between supply and demand by buying and selling foreign currencies at fixed exchange rates, the exchange rates themselves are allowed to adjust to market forces. If the foreign demand for dollars exceeds the supply, the price increases—the exchange rate rises. Similarly, an excess supply of dollars leads to depreciation of the dollar, a decline in the exchange rate.

Many economists expected exchange rates to be fairly stable under the flexible exchange rate system. Because most market-determined prices are not volatile, it was believed that the market-determined price of foreign exchange would not be volatile.<sup>2</sup> Earlier experience with floating rates seemed consistent with this reasoning. Canada had allowed its exchange rate to float from 1950 to 1962. Over that time, the value of the Canadian dollar in foreign exchange markets was reasonably stable. Several influential economists argued that, in light of theory and practical experience, adoption of a flexible exchange rate system would not increase exchange rate volatility significantly. For example, Harry Johnson said, "The freedom of [exchange] rates to move in response to market forces does not imply that they will in fact move significantly or erratically."<sup>3</sup>

Instead of being stable, however, exchange rates have been highly variable under the flex-

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<sup>2</sup> Exchange rates, for the 1973-83 period, have been found to be less volatile than stock market price indexes, short-term interest rates, most long-term bond yields, commodity prices (such as gold, cotton, and wheat) and primary commodity price indexes (such as food, beverages, and metals). See Jeffrey H. Bergstrand, "Is Exchange Rate Volatility 'Excessive'?" *New England Economic Review*, September/October 1983, pp. 5-14.

<sup>3</sup> Harry G. Johnson, "The Case for Flexible Exchange Rates, 1969," *Federal Reserve Bank of St. Louis Review*, June 1969, p. 12.

ible exchange rate system. One measure of variability for the exchange value of the dollar against the German deutsche mark is shown in Table 1 for the period from July 1973 to April 1984.<sup>4</sup> According to this variability measure, the annual average absolute percentage change, the monthly and daily changes in exchange rates since July 1973 have been very large—29.8 percent on a monthly basis and 107.4 percent on a daily basis. The exchange rate has been appreciably more variable since October 1979, when the Federal Reserve changed its operating procedures to allow more fluctuation in short-term interest rates.<sup>5</sup>

Variability in itself is not a serious problem. Changes in exchange rates would not have significant adverse consequences if the changes were predictable. Exporters, importers, and

investors could take account of the predicted changes in the exchange rate by adjusting the agreed-on prices. Even if quite large, predictable changes in exchange rates would not impede international trade or capital flows.

Exchange rate changes have not been predictable, though. To support this assertion, actual exchange rate changes must be compared with some measure of expected changes. One measure of expected exchange rate changes is related to the forward premium. In contrast to spot market transactions where currencies are exchanged immediately, forward exchange market transactions are agreements to buy or sell currencies at a specified exchange rate in the future. This specified rate is the forward rate. Anyone needing foreign currency in the future can either wait until the currency is needed and buy it on the spot market or buy it beforehand in the forward market. The forward exchange rate, therefore, must adjust until the expected cost of obtaining foreign currency is the same in both markets. Since it is risky to wait until the foreign currency is needed, part of the expected cost of waiting includes compensation for bearing this risk—the risk premium.<sup>6</sup> The forward premium—the percentage difference between the forward rate and the spot rate—incorporates the expected percentage change in the spot rate and the risk premium. Therefore, one measure of the expected change in the spot rate is the forward premium minus the risk premium. Using this measure of expected change, Chart 1 shows that actual

<sup>4</sup> Volatility is measured by the average value of the absolute percentage change in the exchange rate. The average value of the absolute percentage change of a data series  $X_t(t=1, \dots, N)$  is defined as

$$(1/N) \sum_{t=2}^N |\ln X_t - \ln X_{t-1}|$$

where  $|a| = a$  (if  $a$  is positive) and  $|a| = -a$  (if  $a$  is negative).  $\ln X_t - \ln X_{t-1}$  approximates the percentage change in  $X$ . That is,

$$\ln X_t - \ln X_{t-1} \cong \frac{X_t - X_{t-1}}{X_{t-1}}$$

Consider two series of exchange rates: series A = [100, 101, 100, 99, 100] and series B = [100, 110, 100, 90, 100]. Then, the percentage changes for series A are [1, -1, -1, 1] and for the series B are [10, -10, -10, 10]. Therefore, the average absolute percentage change for series A is 1 and for series B is 10. The absolute value ensures that increases or decreases in the exchange rate are equally bad and that a percentage change equal to 10 is ten times as bad as a percentage change equal to 1. This is the measure proposed by Jacob A. Frenkel and Michael L. Mussa, "The Efficiency of Foreign Exchange Markets and Measures of Turbulence," *American Economic Review*, 70, May 1980, p. 374.

<sup>5</sup> Until October 6, 1979, the Federal Reserve focused on controlling short-term interest rates in an effort to achieve its monetary growth objectives. Since then, it has focused on the availability of reserves to financial institutions. For a further description of the change in operating procedures, see J. A. Cacy, "Monetary Policy in 1980 and 1981," *Economic Review*, Federal Reserve Bank of Kansas City, December 1980, pp. 18-25.

<sup>6</sup> The forward exchange rate will equal the expected future spot exchange rate if market participants are risk neutral. If market participants are risk averse, a risk premium will separate the forward rate from the expected future spot rate. The empirical evidence on this hypothesis is mixed. Richard Levich, "Empirical Studies of Exchange Rates: Price Behavior, Rate Determination and Market Efficiency," NBER Working Paper No. 1112, April 1983, pp. 68-70, provides a summary of recent evidence.

**TABLE 1**  
**Absolute percentage change in the U.S.-German exchange rate**  
 (Average annual rate)

| <u>Period</u>              | <u>Monthly Change</u> | <u>Daily Change</u> |
|----------------------------|-----------------------|---------------------|
| June 1973 - April 1984     | 29.8                  | 107.4               |
| June 1973 - September 1979 | 27.6                  | 95.3                |
| December 1979 - April 1984 | 32.6                  | 126.0               |

Note: Monthly change refers to the average absolute percentage change in the exchange rate from the beginning of the previous month to the beginning of the current month. Daily change refers to the day-to-day average absolute percentage change in the exchange rate. Both are expressed at an annual rate.

changes in the spot exchange rate have been much larger than expected.<sup>7</sup> By this measure, exchange rate changes have been unpredictable.

#### Determinants of exchange rate volatility

Dollar exchange rates are defined to be volatile when changes in the value of the dollar are unpredictable. Since the exchange rate under a flexible exchange rate system is determined by market forces, all the factors affecting the supply of and demand for dollars influence the equilibrium exchange rate. These factors are called the market fundamentals. Unexpected changes in current or expected future values of the market fundamentals cause unpredictable changes in the exchange rate and contribute to exchange rate volatility. In addition, volatility can be magnified by short-run overshooting of long-run equilibrium exchange rates. A model of exchange rates is useful to understand how market fundamentals affect exchange rates.

<sup>7</sup> An estimate of the risk premium is given by the average value of  $\ln S_{t+1} - \ln F_t$  (where  $S_{t+1}$  = spot exchange rate at time  $t+1$  and  $F_t$  = forward exchange rate at time  $t$ ). This equals 0.0027 for the period from June 1973 to April 1984. There is some evidence, however, indicating that the risk premium is not constant.

#### *The monetary theory of exchange rates*

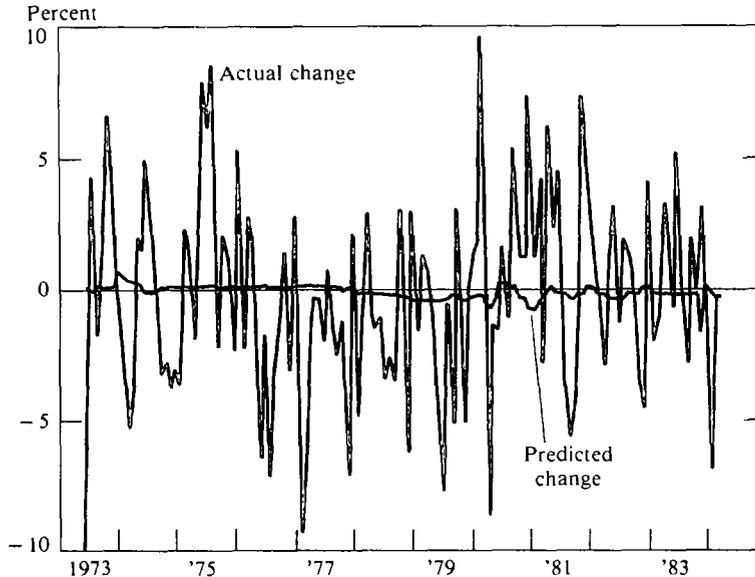
The monetary theory of exchange rates assumes that movements in the exchange rate between two currencies are explained by changes in the demand for or supply of money in the two countries.<sup>8</sup> Two major premises underlie the theory. First, the exchange rate is assumed to be equal to the ratio of the domestic price levels in the two countries. Second, domestic price levels are assumed to be determined by the supply of and demand for money in each country.

The assumption that the exchange rate between two currencies is equal to the ratio of the countries' price levels is based on the purchasing power parity (PPP) condition, which is shown as equation 1 of Table 2.<sup>9</sup> According to PPP, the amount of goods that can be

<sup>8</sup> For alternative views of exchange rate determination, see Douglas K. Pearce, "Alternative Views of Exchange Rate Determination," *Economic Review*, Federal Reserve Bank of Kansas City, February 1983, pp. 16-30.

<sup>9</sup> The literature on PPP is extensive. See, for example, Jacob A. Frenkel, "Purchasing Power Parity: Doctrinal Perspective and Evidence from the 1920's," *Journal of International Economics*, May 1976, pp. 169-91, and Lawrence H. Officer, "The Purchasing Power-Parity Theory of Exchange Rates: A Review Article," *Staff Papers*, International Monetary Fund, March 1976, pp. 1-61.

**CHART 1**  
**Volatility in the U.S. dollar relative to the German DM**  
 (June 1973-April 1984)



bought with a given amount of money balances must be equal in both countries, when the money balances are both expressed in the same currency unit.<sup>10</sup> This condition is met if firms and households buy goods where they are cheapest.

Why this is so can be shown by considering what would happen if the PPP condition were not met. Suppose, for example, that the price of wheat is \$4 a bushel in the United States and DM 10 in Germany and that the exchange rate is DM 2

per dollar. This situation does not fulfill the PPP condition because a given amount of money, say, \$80, would buy more wheat in the United States

[ $20 \text{ bu} = \frac{\$80}{\$4/\text{bu}}$ ] than in Germany [16 bu

$= \frac{\$80 \times \text{DM } 2/\$1}{\text{DM } 10/\text{bu}}$ ]. At an exchange rate of DM 2

per dollar, German wheat would not be competitive in world markets. Millers in Germany and elsewhere would begin exchanging deutsche marks for dollars and using dollars to buy U.S. wheat. The increased demand for dollars would drive the exchange rate up to its equilibrium value of DM 2.50 per dollar. At this exchange rate and existing wheat prices, the given money balances would buy 20 bushels of wheat in either

<sup>10</sup> It is assumed here that terms of trade—the relative price of domestic goods in terms of foreign goods—is fixed at 1.0. Changes in the terms of trade can also lead to changes in the exchange rate. For example, an increase in the demand for U.S. goods would lead to an increase in the terms of trade. Since an increase in the demand for goods will lead to an increase in the demand for dollars, the exchange rate will rise.

**TABLE 2**  
**Model of exchange rate determination**

$$(1) E = \frac{P^*}{P}$$

$$(2) MV = PQ$$

$$(3) E = \frac{QP^*}{MV}$$

Definitions:

E = exchange rate, price of dollars in terms of foreign currency  
P = domestic price level  
P\* = foreign price level  
M = money stock  
V = velocity of money  
Q = real income

the United States or Germany. A 10 percent increase in the U.S. price level that caused a 10 percent increase in the dollar price of wheat would cause a 10 percent decline in the equilibrium exchange rate, bringing it down to DM 2.25 per dollar to maintain purchasing power parity. Similarly, an increase in the German price level would increase the exchange rate to maintain the purchasing power parity condition.

The assumption that the price level in each country is determined by the demand for and supply of its money is based on the quantity theory of money, which is shown as equation 2 of Table 2. The velocity of money, defined as the ratio of nominal income to the money stock, measures the amount of money relative to income that individuals and firms want to hold. Thus, the dollar flow of expenditures—the money supply times the velocity of money—must equal the market value of output—the price level times the level of real output. Assuming that real output is independent of monetary factors, the price level is directly related to both the money stock and the velocity of money.<sup>11</sup>

Combining the quantity theory with the PPP condition shows that the exchange rate is inversely related to both the money stock and velocity. This inverse relation is shown by equation 3 in Table 2. If both the foreign price level and the level of domestic real output are assumed fixed, an increase in the domestic money supply, with no offsetting change in velocity, would cause a proportionate decrease in the price of the dollar.

The reason for the decrease in the exchange rate follows from the theory just developed. With no change in the demand for money relative to income, the increase in the money stock would lead to a proportionate increase in total spending (PQ in equation 2). If no change in real output is assumed, the higher spending will cause a proportionate change in the domestic price level (P in equation 2). The increase in domestic prices relative to foreign prices will cause a proportionate decline in the exchange rate to maintain PPP (since  $E = P^*/P$  in equation 1). A similar line of reasoning leads to the conclusion that a decline in demand for money relative to income will increase velocity, causing proportionate increases in spending (PQ) and prices (P) and a proportionate decline in the exchange rate. Thus, according to the monetary theory of exchange rates, market fundamentals include all of the factors that affect either the supply of money or the demand for money.<sup>12</sup>

<sup>11</sup> It is assumed that real output is equal to its full employment level. The full employment level is determined by real factors and is independent of monetary factors. See George A. Kahn, "Theories of Price Determination," *Economic Review*, Federal Reserve Bank of Kansas City, April 1984, pp. 16-28. This assumption ignores the short-run effects of money surprises on real activity.

<sup>12</sup> While not discussed in the text, the current account also affects the exchange rate. A deficit in the current account leads to a dollar depreciation, for two reasons. First, a deficit can be offset by a depreciation of the dollar, which reduces the price of imports, raises the price of exports, and leads to an offsetting sur-

## Changes in current market fundamentals

Unexpected changes in the U.S. money stock can make exchange rates more volatile. Recognizing the links between monetary growth and inflation and between inflation and the value of the dollar, foreign exchange dealers base their quotations for dollar exchange rates partly on their reading of the implications of current monetary growth for U.S. inflation. They scrutinize Federal Reserve data—including growth in reserves, changes in the discount rate, and money market conditions—and interpret these data in the context of statements by Federal Reserve officials to determine whether monetary policy actions are likely to cause an increase or decrease in inflation. Accordingly, current exchange rates reflect market participants' expectations of current monetary growth.

If the Federal Reserve announces a change in the money stock different from what exchange market participants expected, the announcement will lead to a change in exchange rates. For example, suppose exchange market participants expect no change in the M1 measure of the money stock in a given week, but the Federal Reserve announces that M1 jumped \$5 billion that week. If market participants interpret this as resulting from an easing of Federal Reserve policy and believe the easing will cause faster inflation, the exchange rate will decline.<sup>13</sup> In

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plus. Second, a current account deficit can also be balanced by a capital account surplus, which represents a fall in domestic wealth. A fall in wealth leads to a fall in the demand for money and a fall in the dollar.

<sup>13</sup> If market participants expect the Federal Reserve to react to the increase in the money stock by increasing reserve restraint in the future, the dollar will rise. The dollar rises because the money stock is expected to fall in the future (due to reserve restraint) and because the reserve restraint is expected to lead to an increase in real interest rates.

this way, unexpected changes in the money stock contribute to exchange rate volatility.

However, even if unexpected, changes in the money stock do not always lead to changes in exchange rates. As shown in equation 3, the combination of the money stock and its velocity affects exchange rates. Both the supply of money and the demand for money matter. An unexpected change in the money stock, accompanied by an offsetting unexpected change in velocity, would be interpreted as having no inflationary consequence and would, therefore, have no effect on exchange rates. This may have been the case in the second half of 1982 and the first half of 1983. Despite an increase in M1 growth that was not generally expected, the exchange value of the dollar continued to climb. This seemingly paradoxical situation could have been due to a simultaneous unexpected decline in velocity of almost 5 percent. Whether because of a buildup of precautionary balances resulting from the severity of the recession or a sharp reduction in the opportunity cost of holding money resulting from the sharp drop in market interest rates beginning in mid-1982, the demand for money relative to income increased sharply. The resulting unexpected drop in velocity may have convinced market participants that rapid monetary growth would not boost inflation. Therefore, the unexpectedly rapid growth in the money stock over this period did not cause a decline in dollar exchange rates.<sup>14</sup> In such cases, unexpected changes in the money stock do not lead to exchange rate volatility.

Unexpected changes in the size of the government's budget deficit also contribute to exchange rate volatility. Though budget defi-

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<sup>14</sup> For further evidence on the effects of the change in velocity, see the *Economic Report of the President*, 1983, pp. 21-26, and the *Economic Report of the President*, 1984, pp. 24-26.

cits do not fit neatly into the monetary theory presented above, they affect exchange rates by leading to higher real interest rates.<sup>15</sup> Higher real interest rates cause an increase in the demand for U.S. assets—an inflow of capital from other countries. The capital inflow affects the exchange rate in two ways. First, because dollars must be acquired to purchase U.S. assets, the higher foreign demand for U.S. securities increases the demand for dollars in foreign exchange markets. This higher demand for dollars causes the price of dollars to rise. Second, a surplus on the capital account portion of the balance of payments must be counterbalanced by a deficit on the current account, which includes the balance of trade.<sup>16</sup> To produce the necessary trade deficit, the value of the dollar must rise to reduce exports and increase imports. Because the size of the budget deficit affects the exchange rate two ways, unexpected changes in the budget deficit contribute to exchange rate volatility. For example, information indicating that government spending is running ahead of expectations would cause an unpredicted increase in the exchange rate.

### *Changes in expected future market fundamentals*

Changes in expected future values of market fundamentals also contribute to exchange rate

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<sup>15</sup> The consensus among economists is that large budget deficits lead to high real interest rates. See, for example, the *Economic Report of the President, 1984*, pp. 51-62. However, some economists dispute this link. See, for example, Paul Craig Roberts, "Economic Watch," *Business Week*, May 21, 1984, p. 22.

<sup>16</sup> The current account equals the balance of trade plus the service account plus remittances, pensions, and other unilateral transfers. Since the largest component of the service account is interest income earned on past investments and since remittances, pensions, and transfers are largely exogenous, a current account deficit is most easily achieved through a trade balance deficit.

volatility. A major characteristic of any asset price is its reflection of expectations regarding future supply and demand conditions for the asset. The price at which government bonds sell, for example, reflects investors' expectations for future interest rates and, therefore, the price at which government bonds will sell in the future. Similarly, the current price of foreign exchange reflects expectations of future exchange rates. Since exchange rates in the future will be influenced by the future value of market fundamentals, the expected values of future market fundamentals also affect the current exchange rate. For example, a change in expected future market fundamentals that caused market participants to reduce their estimate of the future exchange rate would cause the current exchange rate to drop immediately. If those buying dollars in the exchange market expect the dollar to decline, they will postpone their purchases in hope of buying dollars at a lower price. Thus, a depreciation expected in the future causes a reduction in current demand for dollars on foreign exchange markets, leading to a drop in the current exchange rate. In this way, changes in expected future market fundamentals can make exchange rates volatile.

Changes in expectations of future monetary growth can make exchange rates volatile. For example, unless faster monetary growth is expected to be accompanied by an offsetting change in velocity, faster future money growth will cause faster inflation to be expected in the future. Higher expected inflation would cause an immediate increase in market interest rates. If the demand for money relative to income depends on interest rates, the rise in current market rates would cause a rise in velocity, causing a jump in inflation and a fall in the exchange rate. Consequently, changes in expectations of future money growth can increase exchange rate volatility.

Changes in expectations of future budget deficits can also make exchange rates more volatile. Higher expected budget deficits, for example, cause market participants to raise their expectations of future real interest rates and, therefore, the future exchange rate. By raising the current demand for dollars in the exchange market, a higher expected future exchange rate will cause the exchange rate to rise immediately.

What would cause market participants to alter expectations of future market fundamentals? Knowing that future market fundamentals affect current exchange rates, exchange market participants have an incentive to base their decisions on all the available information. Only when new information becomes available will they change their expectations of future market fundamentals. Announcements of policy changes are an important source of such new information. For example, announcements by the Federal Reserve of changes in monetary growth targets or by Congress or the administration of changes in spending or tax programs would cause changes in expectations of future exchange rates and would therefore lead to immediate changes in equilibrium exchange rates. In this way, frequent changes in policy can make exchange rates volatile.

### *Exchange rate volatility and overshooting*

Exchange rate volatility may be magnified by "overshooting" the equilibrium value.<sup>17</sup> Overshooting occurs because exchange rates are more flexible than some other prices. Wages, for example, tend to be inflexible in the short run because many of them are fixed

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<sup>17</sup> This explanation was proposed by Rudiger Dornbush. "Expectations and Exchange Rate Dynamics." *Journal of Political Economy*, 84, December 1976. pp. 1161-76.

by long-term contracts. Prices of many goods and services are also somewhat inflexible.<sup>18</sup> In contrast, exchange rates, like most asset prices, are highly responsive to current supply and demand conditions. As a result, changes in market fundamentals have a disproportionately large short-run impact on exchange rates. Actual exchange rates, then, change more than equilibrium exchange rates to compensate for the other prices that are slower to adjust to their equilibrium values. As the general price level adjusts to its equilibrium level, the amount of overshooting subsides and the exchange rate approaches its equilibrium level.

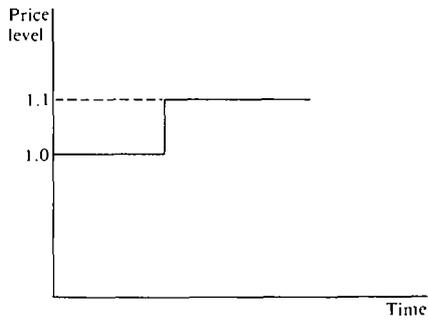
An unexpected increase in the money stock, for example, may cause the exchange rate to decline more in the short run than the model in Table 2 predicts. According to that model, a 10 percent increase in the money stock changes the equilibrium price level and the equilibrium exchange rate by 10 percent. However, if the aggregate price level does not adjust immediately to its higher equilibrium level, the exchange rate will compensate by falling more than the equilibrium amount. This overshooting leads to greater exchange rate volatility than if wages and the overall price level were completely flexible. In Figure 1, Panel A shows how the price level and the exchange rate would respond to an unexpected 10 percent increase in the money stock if wages and prices were totally flexible. In this case, the exchange rate drops immediately to its new equilibrium level and stays there. In contrast, the adjustment is much more protracted when wages and prices are inflexible,

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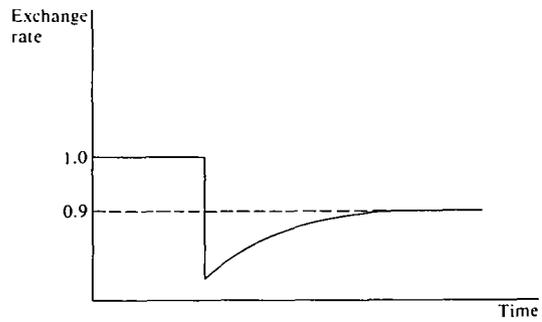
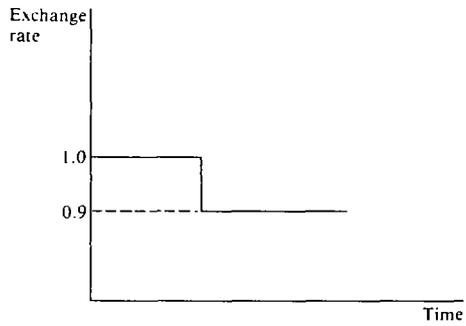
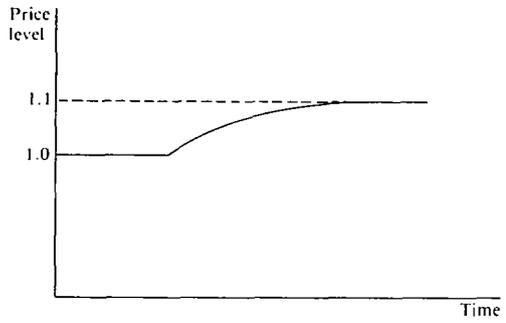
<sup>18</sup> For further explanations of wage inflexibility, see George A. Kahn, "Wage Behavior in the United States: 1907-1970." *Economic Review*, Federal Reserve Bank of Kansas City, April 1983, pp. 16-26. For further explanations of price inflexibility, see Kahn, "Theories of Price Determination."

**FIGURE 1**  
**Example of exchange rate overshooting**

**Panel A: Flexible Prices**



**Panel B: Inflexible Prices**



as shown in Panel B of Figure 1. With little initial change in the price level, the exchange rate overshoots its new, lower equilibrium. Moreover, the exchange rate subsequently rises gradually as the price level adjusts. Because of both the initial overshooting and the subsequent move toward equilibrium, exchange rate overshooting magnifies the impact of changes in market fundamentals on exchange rate volatility.

### Implications for Federal Reserve policy

Federal Reserve actions affect exchange rate volatility. As explained above, the Federal Reserve's implementation of domestic monetary policy by controlling money growth influences actual and expected inflation rates, thereby affecting exchange rate volatility. Even under floating exchange rates, the Federal Reserve may sometimes also intervene directly in foreign exchange markets to reduce exchange rate volatility.

#### *Domestic monetary policy*

The Federal Reserve can contribute to exchange rate stability by conducting monetary policy to ensure a predictable domestic price level. Although monetary policy does not appreciably affect most of the market fundamentals, it has major effects on the general level of prices. According to the quantity theory, the domestic price level is directly related to monetary growth. The Federal Reserve can influence monetary growth by using open market operations to control the amount of reserves available to support deposit expansion by banks and thrifts. By avoiding unpredictable swings in monetary growth, the Federal Reserve can help make prices more predictable.

Experience suggests that price level stability

is the most effective means of producing a predictable price level. In principle, predictable price levels could be accompanied by any rate of inflation, as long as it is anticipated. In practice, however, predictability tends to be inversely related to the level of inflation.<sup>19</sup> For example, inflation in the 1970s was not only higher than in the 1960s but was also more variable and less predictable. Thus, Federal Reserve policy geared to stabilizing the price level will also reduce exchange rate volatility.

Constant growth in the money stock could produce stable prices in some conditions. Price level stability requires that aggregate demand increase at the same rate as aggregate supply. If the "natural" level of real output grows at a constant rate, constant growth in aggregate demand would result in price stability. The growth in aggregate demand is determined by the growth of money and the growth in velocity. If the demand for money relative to income were constant, velocity growth would be constant and constant money growth would yield price level stability. Thus, a constant money growth rule would ensure price level stability and therefore contribute to exchange rate stability if velocity growth and real output growth were also constant.<sup>20</sup>

Adjustments to constant money growth targets would be required if these conditions

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<sup>19</sup> See Stanley Fischer, "Towards an Understanding of the Costs of Inflation, II," in *Theory, Policy, Institutions: Papers from the Carnegie-Rochester Conferences on Public Policy*, by Karl Brunner and Allan H. Meltzer, eds., North-Holland, Amsterdam, 1983, for evidence on a positive relationship between inflation and inflation variability.

<sup>20</sup> This result can be derived from equation 2 of Table 2. Converting equation 2 to growth rate form (a dot over a variable denotes growth rate) yields  $\dot{M} + \dot{V} = \dot{P} + \dot{Q}$ . A policy of price level stability means  $\dot{P} = 0$ . Substituting  $\dot{P} = 0$  and solving for the rate of monetary expansion yields  $\dot{M} = \dot{Q} - \dot{V}$ . If velocity is predictable, then setting  $\dot{M} = \dot{Q} - \dot{V}$  is the desired money growth rule. If  $\dot{Q}$  and  $\dot{V}$  are constant, then the desired money growth rule is also a constant money growth rule.

were not met. Variability of growth in the natural level of real output due, for example, to variability in the growth of the work force or the growth of productivity, would require offsetting changes in money growth targets to ensure price stability. So too would variability in velocity growth.<sup>21</sup> For example, the Federal Reserve's adjustments to monetary growth targets in 1982 and 1983 in response to the unusual behavior of velocity may have improved prospects for stability of both the price level and the exchange rate. For monetary growth targets to contribute to exchange rate stability, they must be reevaluated when information suggests that other factors have changed unexpectedly.

### *Exchange market intervention*

The Federal Reserve sometimes intervenes directly in foreign exchange markets to affect exchange rates. This intervention is conducted by the foreign exchange desk at the Federal Reserve Bank of New York through the purchase and sale of foreign currency. The ultimate effect of intervention is a change in the composition of the Federal Reserve's and the public's portfolio of domestic and foreign securities. Conditions in which exchange market intervention should be undertaken are established by the Federal Open Market Com-

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<sup>21</sup> A policy of accommodating unexpected changes in velocity to reduce exchange rate volatility rests on several assumptions. First, since the Federal Reserve observes velocity with a lag, current changes in velocity must be inferred from observing changes in other variables. That is, there must be some observable variable that indicates velocity has changed. Although interest rates have often been suggested as an indicator, they may not be a good indicator. Second, the argument depends on the Federal Reserve being able to react to changes in velocity before market participants do. Third, such actions by the Federal Reserve must be clearly understood by market participants. If participants do not understand, they may believe that there has been a change in monetary policy. Such a misunderstanding would lead to changes in the exchange rate.

mittee (FOMC), in consultation with the Secretary of the Treasury. The FOMC's most recent directive specifies that "System operations in foreign currencies shall generally be directed at countering disorderly market conditions. . . ."<sup>22</sup>

Exchange market intervention as conducted by the Federal Reserve is said to be sterilized because it has no effect on the money supply.<sup>23</sup> Sterilized intervention occurs when the Federal Reserve sells foreign currency for dollars and then buys U.S. securities in order to put dollars back into circulation. Sterilized intervention influences exchange rates through its effect on the supplies of domestic and foreign securities available to the public.

The effectiveness of sterilized exchange market intervention in influencing exchange rates depends on the extent to which investors consider foreign and domestic securities to be substitutes. If foreign securities are viewed as perfect substitutes for U.S. securities, exchange market intervention will have no effect on exchange rates. The reason is that investors will willingly hold the new supplies at unchanged interest rates and exchange rates. But if the foreign securities are viewed as imperfect substitutes, a change in their relative supplies caused by exchange market intervention will have some impact on exchange rates.<sup>24</sup> Even in this case, though, the resulting

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<sup>22</sup> *Annual Report, 1983*, Board of Governors of the Federal Reserve System, p. 84.

<sup>23</sup> A useful statement on exchange market intervention appears in the report of the Working Group on Exchange Market Intervention Established at the Versailles Summit of the Heads of State and Government, June 4-6, 1982, mimeograph, March 1983.

<sup>24</sup> The explanation follows from the portfolio balance theory of exchange rate determination, a generalization of the monetary approach developed in the previous section. According to this view, the relative supply of domestic to foreign securities determines the exchange rate. The exchange rate determines the cur-

change in exchange rates is only temporary and relatively small.<sup>25</sup>

Exchange market intervention cannot offset the exchange rate volatility arising from changes in market fundamentals. A change in market fundamentals causes a permanent change in the equilibrium exchange rate. Since exchange market intervention has no lasting effect on exchange rates, intervention to offset the effects of changes in market fundamentals would at most only delay the necessary adjustment to the new equilibrium. Although intervention might be thought a useful device to avoid overshooting of equilibrium, which itself is temporary, this too is likely to be inef-

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rent account, which equals the capital inflow. The capital inflow determines the expected rate of change of the exchange rate. A reduction in the relative supply of U.S. assets leads to a fall in U.S. interest rates and a rise in foreign interests. In addition, the fall in U.S. assets relative to foreign assets means that investors' desired portfolio is out of balance—they have too much of their wealth in foreign securities. However, a rise in the dollar will reduce the dollar value of foreign securities and act to achieve portfolio balance. The appreciation of the dollar leads to a current account deficit and a capital inflow. The capital inflow occurs over time and implies an expected fall in wealth. The expected fall in wealth reduces the demand for money and leads to an expected depreciation of the dollar.

<sup>25</sup> The change is temporary for two reasons. First, if there is a cost to changing one's portfolio of securities, securities may be imperfect substitutes in the short run but perfect substitutes in the long run. Second, since the ultimate effect of intervention is a change in the security composition of the Federal Reserve's and the public's portfolio, unless the Federal Reserve continues to intervene to maintain the new composition, the supplies will eventually return to their original levels as the securities mature. At that point, the exchange rate will return to its original level. The change is small for two reasons. First, empirical evidence suggests that securities are close to perfect substitutes. Second, the size of an intervention operation is small. The 1983 summer intervention was only 1 percent of the flow through the U.S. interbank foreign exchange market (*Economic Report of the President, 1984*, p. 60). Such reasoning led Henry Wallich (Member, Board of Governors of the Federal Reserve System) to state in testimony before the House Subcommittee on Domestic Monetary Policy on October 5, 1983, that "Intervention in the exchange market, if sterilized, as U.S. intervention routinely is, would have only limited effects, unless undertaken on an enormous scale."

fective. First, overshooting persists until wages and prices have fully adjusted to their equilibrium levels. With three-year union labor contracts common, overshooting could last several years, much longer than the effect of intervention. Second, because the effect of intervention is relatively small, offsetting a large overshoot would require massive intervention. Moreover, even if effective to some extent, efforts to offset overshooting by intervention might not be appropriate because of the difficulty of determining the extent of any given change in exchange rates that is due to overshooting. For all of these reasons, most economists agree with President Reagan's assessment that "Pure [sterilized] exchange market intervention cannot offset the fundamental factors that determine the dollar's value."<sup>26</sup>

There is less consensus regarding the appropriateness of using exchange market intervention to counter "disorderly" markets. Some deny that free markets can be disorderly in any meaningful sense. Even those that think disorderly markets can be a problem admit that providing an operational definition of disorderly markets is difficult. The definition provided by the Working Group on Exchange Market Intervention is that disorderly markets are characterized by "a substantial widening of bid-asked spreads, large extra-day exchange rate movements, perceptions that trading has become 'thin' or highly uncertain, and, at times, judgments that market psychology was beginning to generate self-sustaining exchange rate movements."<sup>27</sup> The same group found intervention was sometimes successful in countering disorderly markets but stressed that intervention was not a substitute for effective

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<sup>26</sup> *Economic Report of the President, 1984*, p. 5.

<sup>27</sup> "Report of the Working Group on Exchange Market Intervention," pp. 8-11.

domestic policies in achieving stable exchange rates.

## Conclusion

Rising inflation and prolonged periods of world recession have been accompanied by severe exchange rate volatility since 1973. Uncertainty about exchange rates has made business and investment decisions more difficult at a time when the world economy and financial system were becoming more integrated. To reduce uncertainty, many have called for government action to smooth exchange rate movements. But there are limits to what government policy can do to dampen exchange rate volatility.

The most effective role the government can play in reducing uncertainty is to provide a stable policy environment. Fiscal policy can contribute to a stable environment by avoiding large, unpredictable swings in the size of the budget deficit. Monetary policy can contribute by ensuring that monetary growth is consistent

with a stable domestic price level. To the extent that growth in real output and velocity is constant, a constant growth rate rule for the money stock could be devised that would yield price stability. In most cases, however, the Federal Reserve must take account of prospective output and velocity changes in setting monetary growth targets.

A stable policy environment would not eliminate all exchange rate volatility, however. Unexpected changes in the market fundamentals that the Federal Reserve or other U.S. policymakers cannot control—such as foreign inflation rates and the real terms of trade—will continue to cause some volatility in exchange rates. Moreover, short-run market psychology may occasionally lead to disorderly exchange markets. Direct intervention in exchange markets on these occasions may reduce the extent of the resulting exchange rate volatility. Although perhaps a useful complement, exchange market intervention is no substitute for stable, predictable macroeconomic policies in limiting exchange rate volatility.

# The 1978-83 Increase in U.S. Business Failures

By Dale N. Allman

Since 1978 there has been a dramatic increase in the number of business failures in the United States. Some of these failures have been highly publicized as press accounts have focused attention on problems faced by individual firms such as Wilson Foods, Braniff Airlines, and the Manville Corporation.<sup>1</sup> While useful in drawing attention to the problem of business failures, this narrow emphasis on the problems of individual companies may be misleading because it gives the impression that business failures are isolated phenomena impacting a small number of large firms and that the causes of business failures—and possible remedies—are specific to individual firms.

This article examines the recent surge in business failures from a broader perspective. The increase in business failures is found to be widespread across the spectrum of U.S. industry, affecting small, medium, and large firms

alike. The pervasiveness of the problem suggests that the increase in business failures has been caused by such broad factors as the state of the economy, the level of interest rates, and changes in the legal and regulatory environment affecting industry generally.

The article is divided into three sections. The first section describes the behavior of business failures in the postwar period from 1952 through 1983. The second section discusses possible explanations for the recent sharp rise in failures. The final section examines whether the recent rise in failures is a temporary phenomenon or a longer term structural problem that may require new policy initiatives.

## Dimensions of the problem

Some might wonder why business failures should be a cause for concern. After all, in a

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<sup>1</sup> For example, see R. Winter, "Up in Smoke?" *The Wall Street Journal*, November 17, 1982; "Bankers' Bedside Manners," *The Economist*, August 7, 1982; Peter Trenholm, "The Four Horsemen: Three Good Prospects and a Puzzlement," *Bank Administration*, August 1982; and Anna Cifelli, "Management by Bankruptcy," *Fortune*, October 31, 1983.

dynamic, growing economy, some business failures are to be expected and may simply reflect the normal reallocation of resources in a market economy. Business failures are costly, however, both to the companies directly involved and to other firms whose operations depend upon businesses that fail. Business failures may also be concentrated in certain geographic areas, creating or worsening problems of structural unemployment and adversely affecting the tax base and revenue structure of particular regions. Thus, legitimate concern can be expressed when business failures deviate from their long-run trend.

As shown in Chart 1, there has been a sharp increase in business failures since 1978, an increase that represents a dramatic deviation from earlier U.S. postwar experience.<sup>2</sup> After rising in the 1950s and gradually declining during the 1960s and 1970s, the number of business failures reached a postwar low of 6,619 in 1978. This downward trend was reversed after 1978, however, and failures rose sharply to a level of 31,334 in 1983.

The increase in the number of business failures is mirrored in Chart 2 by a sharp rise in the failure rate for U.S. businesses. The failure rate measures the number of failures relative to the number of businesses in existence.<sup>3</sup> For example, if the number of failures were to increase but the number of businesses in existence were to increase at the same pace, the failure rate would be unchanged. In this situa-

tion, the increase in the number of failures might not be a cause for concern. Chart 2 clearly shows, however, that business formation has not kept pace with the rise in business failures. Thus, the sharp increase in business failures since 1978 deserves further study.<sup>4</sup>

An understanding of the recent business failure experience is enhanced by disaggregating the data by size of firm and by business sector. When the failure data are examined in this way, several patterns emerge.

First, the increase in failures has not been entirely concentrated in large firms but has been widespread across different size categories. Thus, small business failures increased from 3,712 in 1978 to 10,480 in 1982, medium-sized business failures rose from 2,593 in 1978 to 10,452 in 1982, and large-sized business failures expanded from 314 in 1978 to 1,387 in 1982.<sup>5</sup>

Second, the pattern of failures for different size firms shows distinct contrasts in the postwar period. From 1952 to 1978, as shown in Chart 3, failures of medium and large-sized firms trended upward slightly. In contrast, from the early 1960s to 1978, failures of small businesses showed a pronounced downward trend. Thus, while failures in all three size categories increased sharply after 1978, the pattern of small business failures is sufficiently distinct to suggest that disaggregation

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<sup>2</sup> A firm that either files for bankruptcy in U.S. courts or voluntarily suspends operations without paying creditors is counted as a business failure. Annual failure data are published in *The Dun and Bradstreet Business Failure Record* and monthly data are published in *News from Dun and Bradstreet, Monthly Failures*.

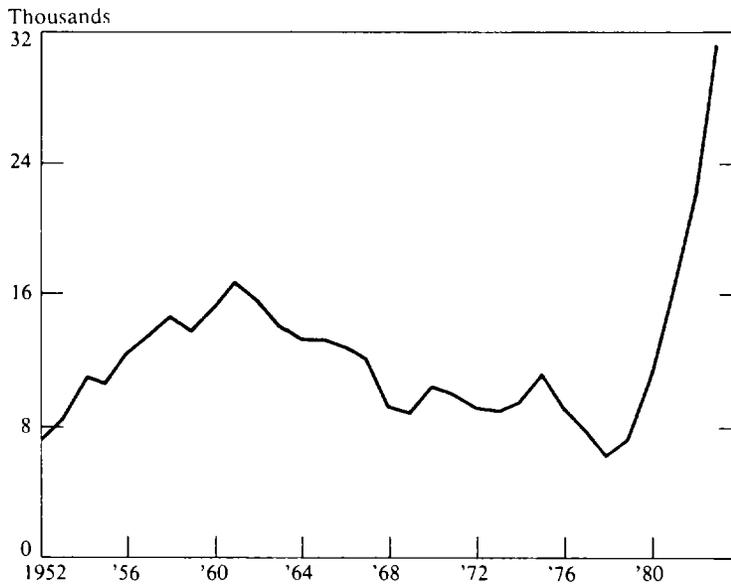
<sup>3</sup> This information is available in Dun and Bradstreet, *Reference Book*. The book includes data for mining, manufacturing, retail, wholesale, construction, and commercial service firms. The types of companies not included are financial, insurance, real estate, railroad, amusement, professional, and farm.

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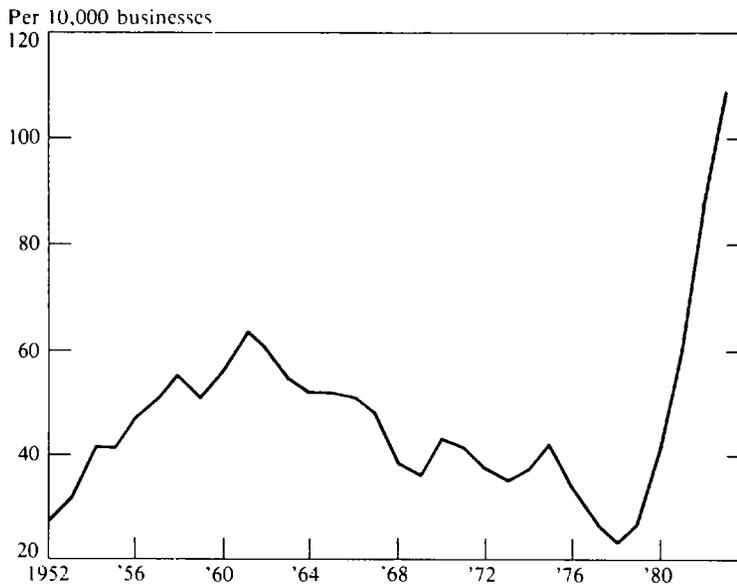
<sup>4</sup> It is interesting to note that despite the moderate increase in the number of firms in existence, the number of new business incorporations (as reported by Dun and Bradstreet) has increased dramatically since 1974. Since historically about half of business failures has been among firms in business five years or less, such growth in incorporations suggests increased business vulnerability to adverse economic and financial conditions.

<sup>5</sup> Small businesses are defined here as having less than \$100,000 in current liabilities at the time of failure, medium-sized firms have between \$100,000 and \$1 million in liabilities, and large firms have more than \$1 million in liabilities. At the time that this article was prepared, a detailed breakdown of the 1983 data by size of firm was not available.

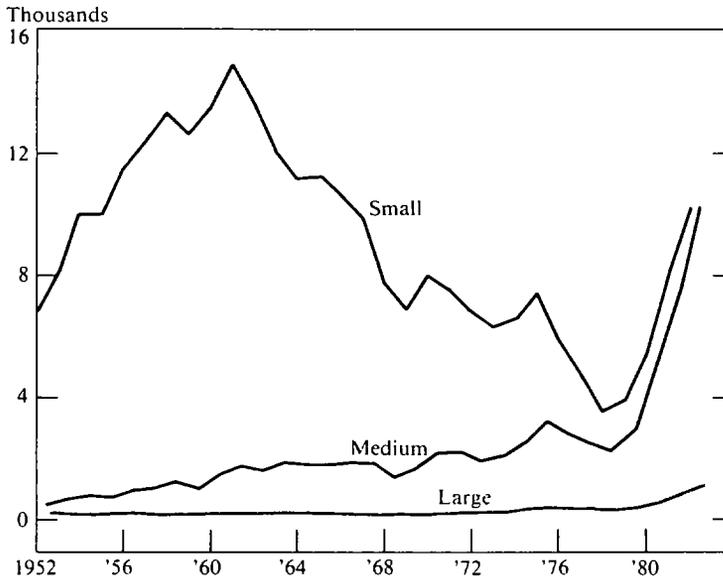
**CHART 1**  
**Business failures annually, 1952-83**



**CHART 2**  
**Business failure rate annually, 1952-83**



**CHART 3**  
**Failures by size of business annually, 1952-82**



is important in understanding the recent failure experience.

Third, failures in all business sectors for which data are available increased sharply between 1978 and 1983. As shown in Table 1, the growth in failures was especially pronounced in the commercial service sector, which includes such businesses as passenger and freight transportation, hotels, laundries, funeral homes, and other service firms. Failures in this sector increased at a 54.6 percent annual rate from 1978 to 1983, far above the 36.5 percent rate of increase for all businesses included in Table 1.

Examination of the failure data by size of firm and by business sector thus confirms the casual impression that the problem of business failures has worsened dramatically in the 1978-83 period. The pervasiveness of the problem, however, suggests that a number of

economywide causal factors may be at work. The following section identifies some of the more important factors that might be relevant in explaining the recent rise in failures.

### **Possible explanations for increasing failures**

Explanations for the recent increase in business failures can be divided into three broad categories: the influence of the business cycle, changes in interest rates and other financial market conditions, and the reform of the bankruptcy laws. While these explanations do not constitute an exhaustive list, they do represent some of the more significant factors that might account for the increase in business failures.

Part of the recent rise in U.S. business failures no doubt reflects variation due to changes in economic activity associated with the busi-

**TABLE 1**  
**Business failures by sector, 1978 and 1983**

|                          | <u>1978</u> | <u>1983</u> | <u>Average Annual<br/>Percentage<br/>Increase</u> |
|--------------------------|-------------|-------------|---|
| Retail trade             | 2,889       | 11,076      | 30.8  |
| Wholesale trade          | 740         | 3,525       | 36.6  |
| Mining and manufacturing | 1,013       | 4,632       | 35.5  |
| Construction             | 1,204       | 5,262       | 34.3  |
| Commercial services      | 773         | 6,839       | 54.6  |
| Total                    | 6,619       | 31,334      | 36.5  |

ness cycle. Failures tend to increase during recession and decrease during expansion phases of the cycle.<sup>6</sup> For example, during the 1970s, the number of business failures peaked at 11,432 in the midst of the 1974-75 recession and then fell steadily until 1978 in the subsequent recovery. There have been two recessions since 1978, one in 1980 and another in 1981-82. The postwar behavior of failures in recessionary periods suggests that failures would be expected to increase during both of those recent contractions in economic activity.

Business failures in recent years could also be expected to increase more than the postwar average because of the severity of the 1981-82 recession. For example, from 1981 to 1982 the U.S. industrial production index fell by 8.2 percent, the largest decline since the 1974-75 recession. By December 1982, the unem-

ployment rate had risen to 10.7 percent and the rate of capacity utilization in manufacturing had fallen to 67 percent, setting new postwar records. Thus, the severity of that recent recession period suggests that more firms were susceptible to failure than in previous postwar recessions.

The 1981-82 recession also followed a short and weak recovery period, which lasted from mid-1980 to mid-1981 and came after a prolonged period of economic weakness beginning in 1978.<sup>7</sup> Over the period from 1978 through 1982, there was practically no real economic growth. With U.S. businesses having to deal with declining sales due to lackluster output growth, more marginal firms were susceptible to failure than during earlier postwar years.

A second major factor contributing to the rise in business failures was the changes that occurred in U.S. credit market conditions and interest rates. Both nominal and real interest rates rose to unusual heights between 1978

<sup>6</sup> See Victor Zarnowitz and Lionel Lerner, "Cyclical Changes in Business Failures and Corporate Profits," in *Business Cycle Indicators*, Vol. 1, by Geoffrey Moore, ed., National Bureau of Economic Research, New York, 1961; Edward Altman, *Corporate Bankruptcy in America*, Heath Lexington, Lexington, Mass., 1971; and Edward Altman, *Corporate Financial Distress*, John Wiley & Sons, New York, 1983, for discussions of the influence of U.S. business cycles on failures.

<sup>7</sup> See Glenn H. Miller, Jr., "Inflation and Recession, 1979-82: Supply Shocks and Economic Policy," *Economic Review*, Federal Reserve Bank of Kansas City, June 1983, for a characterization of U.S. economic activity in the 1978-82 period.

and 1983.<sup>8</sup> For example, the prime lending rate of U.S. commercial banks rose to almost 19 percent in 1981. The prime rate was still at a relatively high level of almost 15 percent in 1982. Other indicators confirm the greater vulnerability of businesses to high interest rates over the 1978-83 period.<sup>9</sup> Increasing failures since 1978 may reflect the fact that U.S. businesses had to contend with these higher rates and the greater debt burden that resulted from those higher rates.

The process of deregulation of financial markets also may have played a role in explaining increased business failures. With the deregulation of deposit rates, financial institutions have faced increasing pressure to ensure the profitability of loans. Thus, lending institutions may have been less willing to make loans to marginal firms, those most susceptible to failure. In addition, with the widespread use of variable-rate loans, firms without adequate cash flow may have found themselves in a liquidity bind when interest rates rose sharply.

Finally, some of the increase in business failures is no doubt linked to changes in the legal environment in which businesses operate. The reform and liberalization of bankruptcy laws in 1978 made bankruptcy filing, and hence failure, easier for U.S. businesses.<sup>10</sup> In fact, a recent analysis suggests that bankruptcy may be used by U.S. businesses as part

of their management strategy.<sup>11</sup> The introduction of future potential liabilities into consideration of business solvency is a direct result of the 1978 change in bankruptcy laws. Until then, in order to file for bankruptcy, a business had to prove that current liabilities exceeded the value of assets. The reform in bankruptcy laws removed that insolvency test and allowed businesses to file for bankruptcy before they were actually insolvent. Thus, the Bankruptcy Act of 1978 made it easier for firms to continue to operate while in bankruptcy proceedings.<sup>12</sup> These changes in legal attitudes toward business failures have undoubtedly played a role in explaining the recent rise in failures.

### Summary and conclusions

This article has examined several dimensions of the recent increase in business failures in the United States. The article shows that the problem of business failures is not localized in a few large firms but rather affects small, medium, and large firms across the spectrum of U.S. industry. The broad nature of the problem suggests that economywide influences such as the business cycle, interest rates, and bankruptcy laws are important causal factors behind this phenomenon.

The extent to which policymakers should be concerned with the problem depends upon whether the recent surge in failures is viewed as temporary or permanent in nature. If the

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<sup>8</sup> Raymond E. Lombra, "The Changing Role of Real and Nominal Interest Rates," *Economic Review*, Federal Reserve Bank of Kansas City, February 1984.

<sup>9</sup> Edward Altman, *Corporate Financial Distress*, John Wiley & Sons, New York, 1983, pp. 42-45, and Karlyn Mitchell, "Trends in Corporation Finance," *Economic Review*, Federal Reserve Bank of Kansas City, March 1983.

<sup>10</sup> See Edward Altman, *Corporate Financial Distress*, pp. 13-27, for a detailed description of the changes in bankruptcy laws enacted in the Bankruptcy Reform Act of 1978.

<sup>11</sup> Anna Cifelli, "Management by Bankruptcy," *Fortune*, October 31, 1983.

<sup>12</sup> In response to some of the problems created by the 1978 Bankruptcy Act, recent legislation modifies some of the act's provisions. In particular, the Bankruptcy Amendments of 1984 limit the ability of businesses to unilaterally terminate labor contracts as part of bankruptcy proceedings. In 1983, the Supreme Court had ruled that such actions were permissible under provisions of the 1978 act.

increase in failures is a result of the chance occurrence of a number of temporary factors, failures might be expected to decline to normal levels in the near future. However, if there has been a permanent increase in the number of failures, policymakers might need to consider legislative or macroeconomic policy remedies.

Examination of the three types of factors identified as contributing to the increase in failures suggests that both temporary and permanent factors are at work. On the one hand, the effect of the business cycle on the number of failures should prove to be temporary in nature. The strong economic recovery that began in 1983 should help to alleviate the failure problem over time by improving the sales and cash-flow prospects of U.S. business. On the other hand, financial developments may continue to keep failures abnormally high. Financial markets are clouded by uncertainty and interest rates remain relatively high due mainly to the spectre of large structural deficits in the federal budget for years to come. In

addition, the overhang of problem loans in the banking system and ongoing financial deregulation may continue to limit the access of small and marginal firms to adequate financing. Finally, to the extent that liberalized bankruptcy laws have contributed to the problem, business failures in the United States may remain at historically high levels for the foreseeable future.

Consideration of the three major factors affecting business failures suggests that business failures may remain permanently higher unless policymakers undertake macroeconomic and legislative initiatives. In the Bankruptcy Amendments of 1984, Congress has already taken legislative action to remedy some of the weaknesses in the 1978 bankruptcy law. Thus, the most useful initiative for policymakers to take would be to reduce the large structural deficits in the federal budget. Such action would contribute to an improvement in the outlook for financial markets and, thereby, augment the beneficial effects of the economic recovery in reducing business failures.

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