

**Let It Fall:**  
**The Effects of the Overvalued Dollar**  
**on U.S. Manufacturing and the Steel Industry**

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## Executive Summary

The fall in the U.S. dollar between February and July 2002 reversed only a small part of the more than 30 percent rise in the value of the dollar since mid-1995. This overvaluation of the dollar has caused massive damage to the U.S. manufacturing sector as a whole, and was an important contributing factor in the surge of imports that caused a crisis for the U.S. steel industry in the late 1990s and early 2000s. The level the dollar reached by early 2002 was clearly unsustainable, due to the large trade deficits and growing international debts that it created. Nevertheless, the dollar lost only a fraction of the value it gained since 1995 relative to the major currencies (especially the euro and its predecessors as well as the yen) before stabilizing in August-September of this year, and the dollar has been rising rather than falling against the currencies of the developing countries that now account for nearly half of U.S. trade.

While many factors accounted for the dollar's rise, the primary cause was the relative economic strength of the United States compared with other countries in the late 1990s. To varying degrees, most major U.S. trading partners in Europe, Asia, and Latin America have experienced economic difficulties ranging from slow growth to financial crises to severe recessions since 1995, resulting in depreciations of their currencies (sometimes in dramatic collapses, sometimes more gradually) and corresponding appreciations of the dollar. Specific factors that contributed to this trend included the Asian financial crisis, Japanese economic stagnation, and the misguided policies of the European Monetary Union. In response to these types of problems, massive amounts of financial capital came into U.S. financial markets seeking attractive investment outlets or a "safe haven." The result has been the accumulation of huge U.S. liabilities (debts) to foreigners that make us vulnerable to a sudden withdrawal of even a small percentage of the foreign funds in the United States. In addition, deliberate currency manipulation by some governments in Asia and elsewhere has further exacerbated the overvaluation of the U.S. dollar.

The overvaluation of the dollar has had its most severe impact on the sectors of the economy that produce internationally traded goods, notably manufacturing. Although U.S. manufacturing firms have made massive investments in new technologies and vast improvements in their productivity, they have been unable to make those achievements pay off in the face of foreign products that are roughly 30 percent cheaper as a result of the overvalued dollar. Thus, export sales have slowed down while imports have surged, both taking away market share from U.S. producers.

The effect of the rising dollar on the corporate bottom line was a severe depression of profits in the domestic manufacturing sector: manufacturing profits peaked in 1997, while the rest of the economy was still booming, and began falling four years before the rest of the economy went into a recession. According to the estimates in this report, by the first quarter of 2002, manufacturing profits were nearly \$100 billion lower (at an annual rate) as a result of the dollar's appreciation since the second quarter of 1995. Moreover, the high dollar reduced investment in the domestic manufacturing sector by discouraging firms from increasing production at U.S. sites as well as by tightening financial constraints on current investment spending. This report estimates that investment in domestic manufacturing was reduced by about \$37 billion in 2001 as a result of the rise in the dollar since 1995.

Manufacturing workers were also hurt by the overvalued dollar. Hours and employment in the manufacturing sector peaked in 1998, three years before the overall recession, and have trended downward ever since. The statistical estimates in this report show that about three-quarters of a million jobs were lost in the manufacturing sector as a result of the rise in the dollar, representing nearly half of the 1.6 million jobs lost in manufacturing since 1995 (the rest are attributed mostly to the recession of 2001 and the sluggish recovery therefrom).

The crisis of rising steel imports and the ensuing trade dispute are important examples of the damage to U.S. domestic industries and U.S. trade relations that has resulted, at least in part, from the high dollar. Exchange rates have a significant impact on cost competitiveness in the steel industry, and U.S. steel producers have borne the brunt of artificially cheap imports due to the high dollar in the form of lower prices that have slashed profit margins and reduced sales that have lowered capacity utilization. The overvalued dollar has also led to indirect damage in the form of increased imports of steel-containing goods and decreased exports of steel-containing goods.

The high dollar is not the only factor that led to the surge in steel imports in the late 1990s and early 2000s. Other major causes include foreign government policies that have maintained excess capacity and protected inefficient firms in steel exporting countries, closed foreign markets, and the collapse of demand in global steel markets due to weak economic conditions in most major steel producers outside the United States (including Japan, other Asian countries, Russia and other former Soviet bloc countries, western Europe, and Latin America). These conditions exacerbated the glut of excess supply in the global steel market, which depressed world steel prices to unsustainably low levels and led to increased exporting to the U.S. market. The high dollar magnifies the problem of dumping generated by this global excess capacity.

This report does not seek to examine in detail all the different factors that contributed to the sharp increase in steel imports in the late 1990s and early 2000s; this report simply estimates the extent to which the appreciation of the dollar contributed to the rise in steel imports at that time. According to the estimates in this report, between 1995 and 2000—the peak year of the U.S. business cycle and the time when domestic steel demand also peaked—the rising dollar caused an increase in steel imports of 6.0 million tons, which accounts for about 44 percent of the actual increase in steel imports of 13.5 million tons during that period (the rest can be attributed to the other causes mentioned above).

The increased volume of low-priced steel imports in the late 1990s and early 2000s (caused by both the high dollar and other factors) led to massive financial losses in the domestic steel industry and numerous bankruptcies affecting roughly one-third of all steel employees. That these losses resulted from increased volumes of undervalued imports can be seen from the fact that the injury to steel producers occurred in the midst of a booming economy, in which overall demand for steel reached its highest level in U.S. history in the 1998-2000 period. Also, the injury occurred in spite of the fact that the domestic steel industry increased its efficiency dramatically, with rapid productivity growth and falling unit labor costs throughout the 1990s.

The controversy over the partial import relief recently granted by President Bush to segments of the steel industry under the escape clause or “safeguard” provision of U.S. trade law

illustrates why a fall in the dollar is a necessary part of the solution to the problems of the steel industry. The foreign countries that are complaining loudly about U.S. steel tariffs forget that their own policies that have depressed domestic demand in their economies and caused their currencies to depreciate are partly responsible (along with subsidized excess steel capacity and protected home markets in many cases) for why they had excess supplies of steel that they could sell at artificially depressed prices in the U.S. market. If they were to institute domestic economic stimuli and allow their currencies to appreciate, one factor contributing to the steel import crisis would be addressed. Nevertheless, action would still be needed in regard to micro-level policies that maintain excess (and often inefficient) steel exporting capacity, policies that artificially limit steel trade between other major markets and thus result in increased steel imports into the U.S. market, often at dumped and subsidized prices.

Domestically, steel-consuming industries have complained that the tariffs are making steel more expensive in the U.S. market and put them at a disadvantage relative to foreign competitors who can obtain steel more cheaply abroad. Although these claims are clearly exaggerated, this report points out that a significant depreciation of the dollar would help steel producers and steel consumers alike. Indeed, the high dollar has been a much more significant competitive problem for U.S. steel consuming industries than any variations in steel input prices. With a lower dollar, steel-consuming industries would be more competitive both in relation to imports and in export markets. Indeed, a lower dollar would help all domestic manufacturers to recuperate the lost profits, investments, and jobs caused by the overvaluation of the past several years.

After the dollar's partial fall in the first half of 2002, it is now clear that the dollar had reached an unsustainable level by February of this year. However, some U.S. economic officials now claim that the dollar has fallen far enough and is currently trading in a realistic range. The evidence in this report shows clearly that the dollar is still far too high and needs to fall significantly further in order to remedy the problems that the overvalued dollar has created, both for the manufacturing sector and for the U.S. economy as a whole (including the large trade deficit, dependence on massive capital inflows, and growing foreign debt).

It is therefore time for the U.S. government to abandon the flawed policy of supporting a high dollar. U.S. economic officials should announce a desire for a further decline in the dollar, but set a lower target range for the dollar's level in order to encourage an orderly and limited depreciation against the other flexible rate currencies (euro, yen, British pound, etc.). Monetary policy (i.e., the Fed's interest rate targets) and occasional foreign exchange market intervention (coordinated with other major countries) should be used to nudge the dollar down and then to maintain it at a more stable and sustainable level. Efforts by foreign countries to intervene to prevent the dollar's fall should be strongly opposed.

However, such policies will only affect the value of the dollar relative to the major currencies with flexible exchange rates, and may only work in the short run. Therefore, other policies are needed to influence the value of the dollar relative to other currencies (those with fixed or managed rates) and to stabilize international currency values at more sustainable levels (consistent with more balanced global trade) in the future. For those countries that keep their currencies artificially undervalued by buying up large amounts of dollar reserves (above all China), the United States should pressure them to abandon such intervention in currency markets

and allow their exchange rates to appreciate. The United States should use its leverage in international trade negotiations to achieve such a result. For the long-run future, the United States should consider proposals for target zones or crawling bands among the major currencies (dollar, euro, and yen) as a way of stabilizing exchange rates and ensuring that American products do not again become priced out of global markets by overvaluation of the dollar.

## Introduction

The fall in the value of the U.S. dollar relative to the euro and other major currencies between February and July 2002 provided a new glimmer of hope for the U.S. manufacturing sector. Domestic industries have been struggling for seven years with the consequences of an overvalued dollar, which rose by over 30 percent in “real” (inflation-adjusted) terms between mid-1995 and early 2002. In spite of massive investments in new plant, equipment, and software that resulted in rapid growth of industrial productivity during the 1990s, many domestic manufacturers could not compete with artificially cheap imports at the misaligned exchange rates prevailing in the late 1990s and early 2000s. Unfortunately, only a small part of the dollar’s overvaluation was reversed by July 2002, and the dollar stopped falling and even recovered somewhat in August and September of this year, leaving U.S. industries producing tradable goods in a continued vulnerable position.

Contrary to what some officials in both the Clinton and Bush administrations have claimed, an artificial price disadvantage of over 30 percent is something that few industrial enterprises can overcome, no matter how much they raise efficiency and improve quality. The result has been that profits on domestic manufacturing operations peaked in 1997, during a period of still-rapid economic growth, and began falling *four years before* the U.S. economy as a whole fell into a recession. Similarly, U.S. manufacturing employment peaked one year later in 1998 and began falling three years before the recession of 2001.

In response to the high dollar, many industrial corporations had little choice but to move production offshore or outsource components abroad in order to stay competitive, resulting in job losses for U.S. manufacturing workers. Although there are other incentives for companies to shift production abroad or outsource inputs, the higher dollar has clearly exacerbated this trend. Meanwhile, those companies who, for various reasons, could not relocate production abroad faced the unenviable choice of either slashing prices (often below costs) or else giving up market share to low-priced imports. The American steel industry is perhaps the most significant such case. One of the most prominent trade disputes of recent times has concerned the temporary tariffs imposed on certain steel imports by President Bush under the escape clause of U.S. trade law (section 201) in March 2002. These tariffs were based on a finding by the U.S. International Trade Commission that a surge of steel imports was the most important cause of the serious injury suffered by domestic steel producers.

The surge in steel imports resulted from many factors, including chronic excess capacity in many steel exporting countries that is maintained by government subsidies and collusive business practices, foreign markets that are closed to steel imports, and the general slowdown of most of the global economy outside the United States in the late 1990s and early 2000s that reduced demand for steel in other countries. The resulting excess steel production was often dumped into the U.S. market. This paper will show that the overvalued dollar also contributed significantly to the dramatic increase in steel imports and the ensuing trade dispute.

Certain domestic steel-consuming industries have lobbied against import relief for U.S. steel producers, claiming that higher costs of steel put the steel-consuming industries at a competitive disadvantage relative to imports manufactured with cheaper foreign steel inputs, as well as in export markets. A recent study by economist Peter Morici shows that these claims are

exaggerated. Morici shows that the import relief has been only partial and has had limited effects on U.S. steel prices, while foreign steel prices have also risen for other reasons. Morici concludes that the steel tariffs “do not appear to have harmed either foreign steel producers or U.S. consumers.”<sup>1</sup> Nevertheless, the tension between steel firms and their customers could still be ameliorated by a significant depreciation of the dollar, which would enable both steel producers and steel consumers—indeed, all U.S. producers of internationally traded goods and services—to compete on a more equal footing with foreign firms.

Although the dollar has come down about 8 percent from its peak against the euro and most other major currencies as of September 2002, much more needs to be done before American manufacturers can reap the benefits of the large investments they made in increasing their efficiency during the 1990s. In the first place, the dollar has lost only a small part of the value it gained relative to these currencies since 1995. Secondly, many important U.S. trading partners have fixed or managed exchange rates that do not respond to the same market forces that have generated this year’s decline in the dollar. For example, there has been no change in the Chinese exchange rate with the dollar, in spite of the fact that China now accounts for the largest portion of the U.S. trade deficit. The dollar has risen this year relative to some other currencies, such as the Brazilian real. Even certain currencies that supposedly float against the dollar are frequently manipulated by their governments through exchange market intervention, notably the Japanese yen. As a result, **the overall, average value of the dollar relative to all U.S. trading partners has not yet declined by nearly enough to undo the damage caused by misaligned exchange rates over the past seven years.**

In focusing on the costs of the high dollar, it is important not to overlook the benefits that it brought and the reasons why U.S. officials have been reluctant to let it fall. A high and rising dollar helped to keep inflation low during the boom of the late 1990s by keeping import prices down. Low prices of imported goods in turn benefited consumers. Low inflation allowed the Fed to keep interest rates lower than it otherwise would have, and hence encouraged the U.S. economic boom to continue. The capital inflows that pushed the dollar ever-higher also helped to finance the U.S. trade deficit and domestic investment in the face of a growing shortfall of private domestic saving. U.S. financial markets gained from the inflows of foreign funds that helped to push up asset values, while American investors benefited from the inflated purchasing power of their nation’s currency in foreign financial markets.

But these benefits of a high dollar cannot be maintained indefinitely, not only because they came at a high cost for key sectors of the U.S. economy, but also because the high dollar led to severe macroeconomic and financial disequilibria that cannot be corrected without a significant fall in the dollar. Contrary to some mythology that has developed in recent years, the basic laws of international financial economics were not repealed by the recent run-up of the dollar. **No country can run perpetually growing trade deficits and increasing foreign debts without eventually facing major adjustments, usually involving a currency depreciation.**

Like stock markets and other asset markets, currency markets can develop “bubbles” in which prices rise out of proportion to underlying fundamentals; when this happens, the bubble inevitably bursts and the asset price (in this case, the exchange rate) subsequently falls. No matter how much confidence investors had in the dollar in the past seven years, financial markets are notoriously fickle, and that confidence can collapse as quickly as it grew. Thus, lowering the

dollar in an orderly fashion is necessary not only to restore the health of the domestic manufacturing sector, but also to put the entire U.S. economy and financial system on a more balanced and sustainable growth path. At this juncture, when the dollar has already declined partially from its peak in February 2002, the policy question for the future is not whether the dollar will fall, but how far and how fast it will fall and how we manage the decline.

Before proceeding to the analysis, a few preliminary words of caution are in order. Lowering the dollar further is a necessary, but hardly sufficient, condition for restoring the viability of domestic manufacturing in the United States or solving the global steel crisis. A depreciation of the dollar is a necessary corrective, but it is not a panacea. Much domestic industrial capacity has been lost and corporations will not want to invest in rebuilding it unless they are assured of a stable and prosperous future business climate, including a more stable value for the dollar. This means that the dollar's decline must be managed carefully to keep it from becoming a free fall, and policies need to be considered to stabilize exchange rates among the major global currencies at more sustainable levels in the future.

The next two sections of this paper will analyze the reasons for the dollar's appreciation between 1995 and 2002 and explain why the dollar's current value is still unsustainable. The following two sections will document the damage that the overvalued dollar caused to U.S. manufacturing in general and the American steel industry in particular during this period. In the course of this analysis, it will be necessary to take account of the effects of the U.S. business cycle, including the "goldilocks" economic boom of 1996-99, the growth slowdown that began in 2000, the recession of 2001, and the still-sluggish recovery therefrom. Indeed, as will be shown below, controlling (in a statistical sense) for these cyclical upturns and downturns reveals the truly massive negative impact that the dollar appreciation has had on the internationally competitive sectors of U.S. industry. Finally, although a full discussion of U.S. international financial policies would be beyond the scope of this paper, the conclusion discusses some suggestions for policy initiatives that could help to ease the dollar down in an orderly and sustainable fashion.

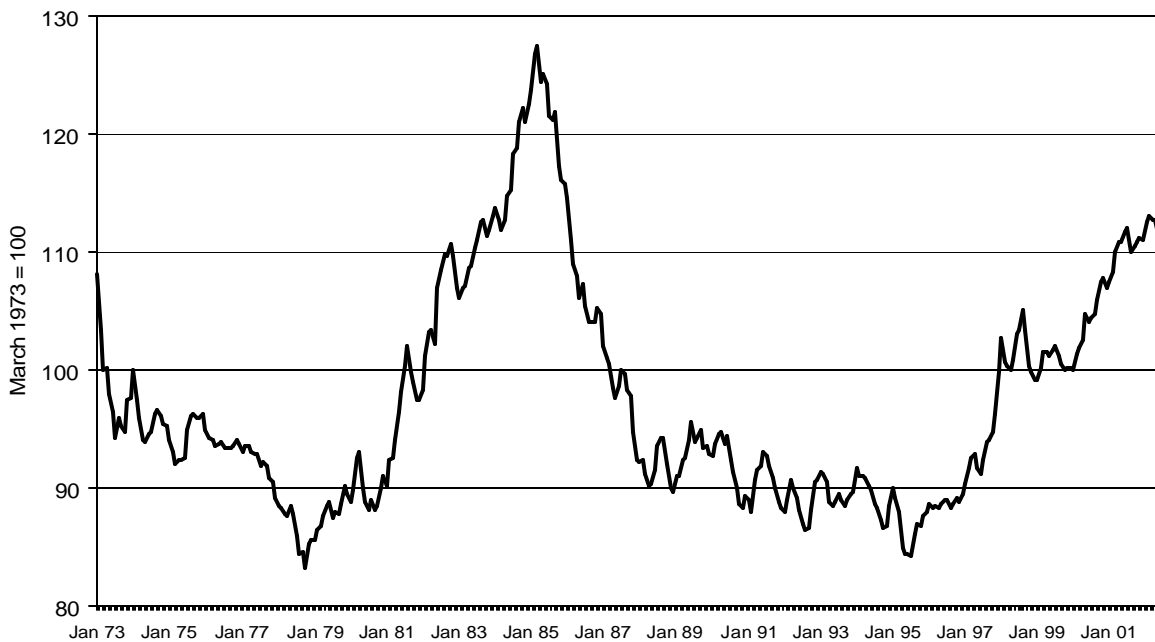
## **Causes of the Dollar's Rise**

The sharp rise in the U.S. dollar in the late 1990s and early 2000s is only one of the latest episodes in the large gyrations of currency values since the major industrialized nations switched to floating exchange rates in 1973. As shown in Figure 1, the dollar tended to fall for most of the 1973-79 period, but then rose to new heights in the early 1980s before falling precipitously in 1985-87. After that, the dollar had a more gradual declining trend through mid-1995, but generally remained more stable than during the previous decade. In mid-1995, there was another abrupt reversal, as the dollar began its long ascent to a new peak in early 2002, at which point the dollar's value had returned to levels not seen since the 1984-87 period. Figure 1 also shows clearly that the partial decline in the dollar in early 2002 was only a small downward blip compared with the sharply rising trend since 1995.

Space precludes a full discussion of the reasons for these shifting trends, but a few words of historical explanation are in order. The Nixon, Ford, and Carter administrations generally

favored a depreciating dollar in order to correct then-emerging trade deficits in the 1970s. Only when the dollar was seen as entering a free-fall in the midst of high inflation in late 1979 did the Carter administration reverse gears and shift to a tight-money, high-dollar stance under new Fed Chairman Paul Volcker. Subsequently, the first Reagan administration welcomed further dollar appreciation as a sign of renewed confidence in the American economy—although subsequent research showed that the dollar’s rise at that time was caused by a combination of relatively high interest rates in the U.S., capital flight from Latin America during the debt crisis, and a “speculative bubble” that pushed the dollar to its ultimate peak in 1984-85.<sup>2</sup> The high dollar of the early 1980s caused many of the same problems that we have witnessed again more recently, including worsening trade deficits (see Figure 2), injury to domestic manufacturing and agricultural sectors (and consequent tensions with U.S. trading partners), and increasing dependence on foreign capital inflows (which at that time were helping to finance large budget deficits).

**Figure 1**  
**Real Value of U.S. Dollar, Federal Reserve**  
**Broad Index, Monthly, January 1973 - June 2002**

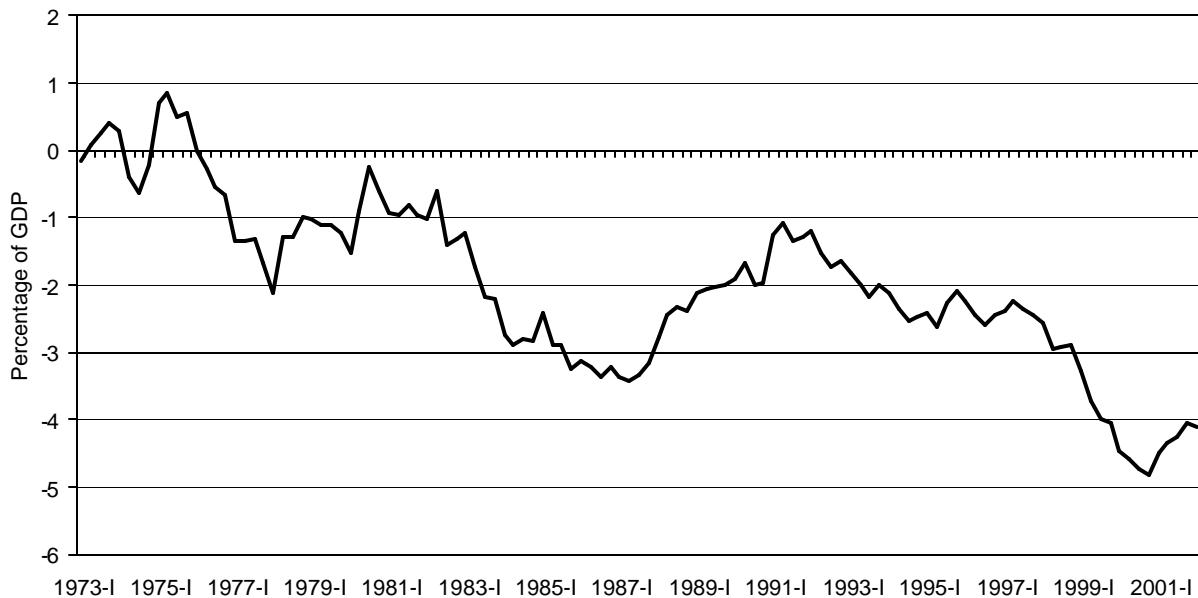


Source: Federal Reserve Statistical Release H.10, Foreign Exchange Rates, downloaded from [www.federalreserve.gov/releases/h10/Summary/](http://www.federalreserve.gov/releases/h10/Summary/).

In response to these concerns, the second Reagan administration shifted to a low-dollar policy. Starting with new Treasury Secretary James Baker’s declarations at his confirmation hearings in January 1985 and culminating in the Plaza Agreement in September of that year,<sup>3</sup> U.S. officials encouraged a fall in the dollar to a more competitive value and negotiated cooperation with U.S. trading partners to stabilize exchange rates at more sustainable levels. The

result was a notable decrease in the U.S. trade deficit in the late 1980s and early 1990s (with about a two-year lag after the dollar's decline—compare Figures 1 and 2) and a lessening of trade tensions with most other countries at that time (with the notable exception of Japan, which was accused of having “structural impediments” to imports during the first Bush administration). The cooperative efforts to keep the dollar and other major currencies within implicit target zones petered out in the early 1990s, but the dollar's value remained relatively stable overall in spite of large fluctuations in other parts of the global monetary system (especially, the collapses of several European currencies within the former European Monetary System/Exchange Rate Mechanism in 1992-93, followed by the Mexican peso crisis of 1994-95).

**Figure 2**  
**U.S. Trade Balance for Goods,**  
**Percentage of GDP, Quarterly, 1973-I to 2002-I**

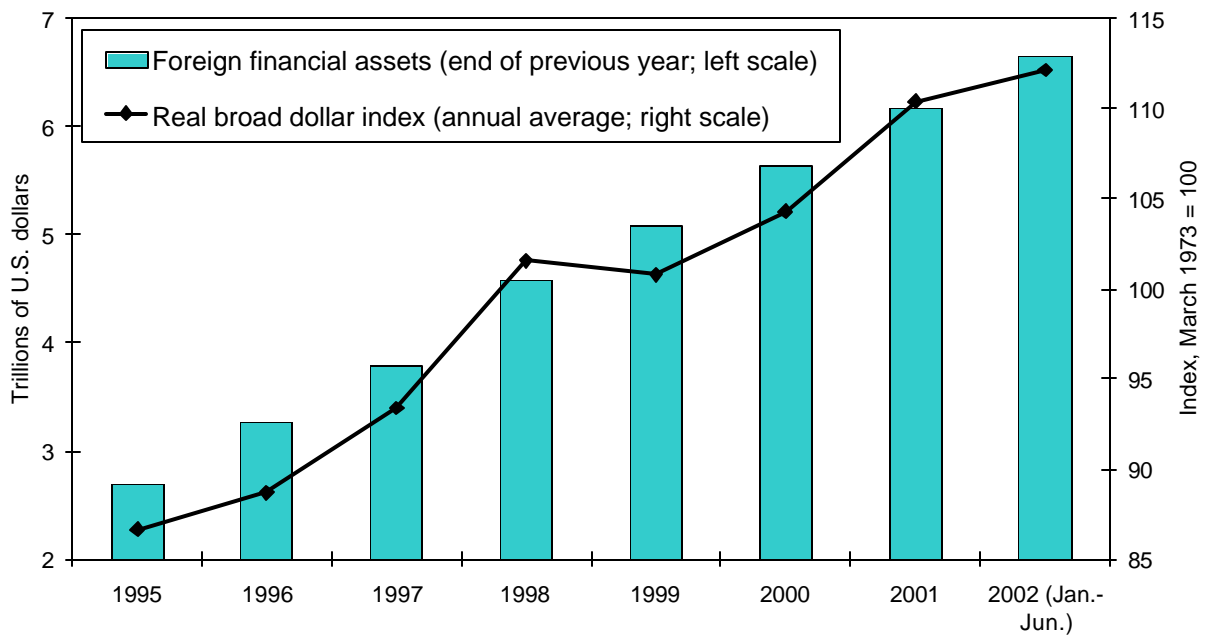


Source: U.S. Department of Commerce, Bureau of Economic Analysis, National Income and Product Accounts, downloaded from [www.bea.gov](http://www.bea.gov) under "GDP and Related Data"; and author's calculations.

The recent ascent of the dollar began with a gradual turn-around in mid-1995 (Figure 1). Although there are many explanations for the dollar's rise, and there are undoubtedly several contributing factors, the most fundamental explanation of the dollar's renewed strength is very simple: the rise in the dollar coincided with the strengthening of the U.S. economy in the late 1990s at a time when most of the rest of the world was relatively stagnant. The dollar's strength was, to a large extent, the mirror image of severe economic weaknesses abroad that resulted in falling values of foreign currencies. Japan's decade of stagnation, continental Europe's slow growth under the Maastrich Agreement, the Asian financial crisis, and the subsequent financial turmoil in other countries from Russia to Argentina led to a massive flight of capital funds out of

those countries and into the one “safe haven” in the global economy: the United States. While the rest of the world economy was largely mired in stagnation or at best experiencing sluggish and unstable growth, the U.S. economy had six consecutive years of relatively rapid growth with low inflation in 1995-2000. A robust business climate and a booming stock market helped to attract investment into U.S. financial markets, thus pushing up the value of the dollar. As Figure 3 shows, rapidly increasing foreign holdings of U.S. financial assets throughout the 1996-2001 period drove the dollar to ever-higher heights in each succeeding year.<sup>4</sup>

**Figure 3**  
**Foreign Financial Assets in the United States**  
**and the Value of the Dollar, Annually, 1995 - 2002**



Sources: Federal Reserve Statistical Release H.10, Foreign Exchange Rates (same as Figure 1); U.S. Department of Commerce, Bureau of Economic Analysis, Net International Investment Position, [www.bea.gov/bea/di/intinv1976\\_2001.xls](http://www.bea.gov/bea/di/intinv1976_2001.xls); and author's calculations.

In addition to the overall impact of U.S. economic strength relative to foreign economic weakness, several specific events provided more specific stimuli to the appreciating dollar. First, 1995 was the year when the rise in the New York stock market began to accelerate, thus attracting increasing amounts of private foreign funds into the United States.<sup>5</sup> Also, as emphasized in a study by Peter Morici,<sup>6</sup> there was deliberate intervention by the governments of several major countries, especially Japan, to halt the dollar's previous decline and prevent their own currencies from appreciating further in the mid-1990s. These interventions, which were especially large in the 1994-96 period, effectively started the dollar on its new upward course and contributed significantly to rising U.S. trade deficits at that time. As Morici states,

In the 1990s, the Japanese, the Chinese, and other governments have dramatically increased their purchases of U.S. government securities, propping up the value of the dollar against other currencies. This has helped to sustain both their trade surpluses and U.S. deficits, even as the United States has put its fiscal house in order. In most cases, these purchases are not market-driven decisions, made in response to higher U.S. interest rates. Rather, they often reflect policy decisions to block exchange rate adjustments, and reduce internal pressures on national governments to revise protectionist trade policies and the reliance on export-led growth.<sup>7</sup>

A second impetus for the dollar's rise came from the failure of European efforts to make the euro a strong currency both before and after its official debut on January 1, 1999. The Maastricht Agreement that led to the formation of the European Monetary Union (EMU) required tight monetary and fiscal policies in the prospective member countries with the intention of keeping inflation under control. Unfortunately, these policies of fiscal and monetary austerity proved to be counterproductive, since they ended up depressing European growth and discouraging investment on the continent during the mid-1990s. As a result, the basket of currencies that later joined the euro began to depreciate relative to the dollar in 1995 and continued to decline up to and beyond the inauguration of the euro in 1999.

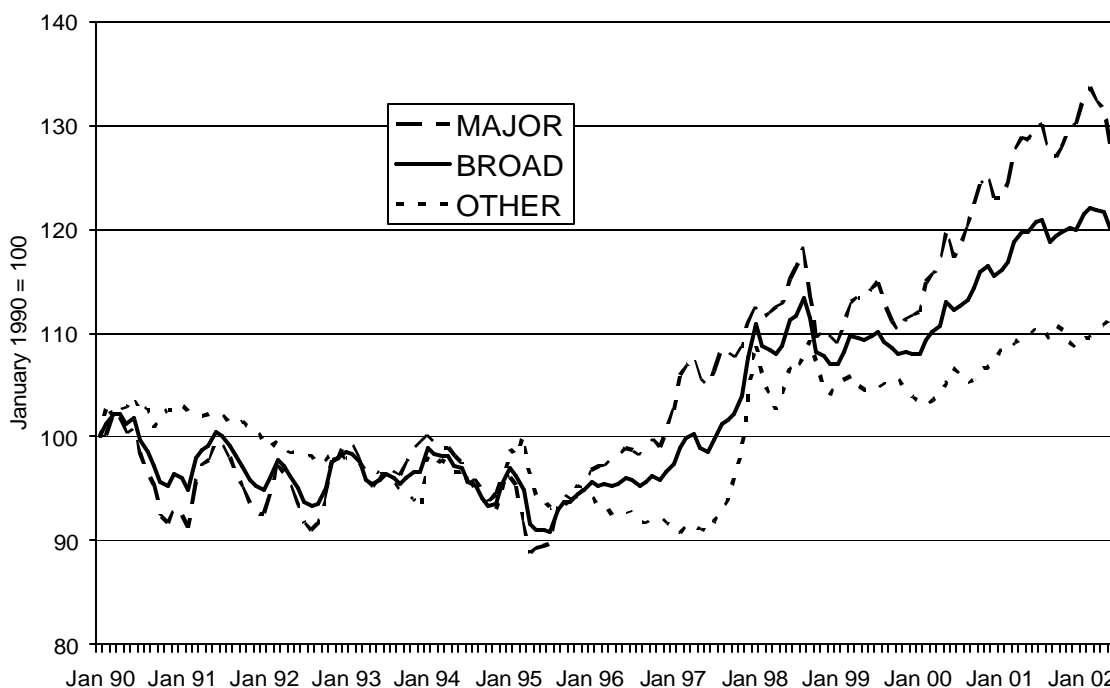
The European Central Bank (ECB), which was given extraordinary powers and independence by the Maastricht Agreement, has focused on inflation control at all costs after it came into existence in 1999. Paradoxically, the ECB's high interest rate policy has made the euro weaker instead of stronger because of the policy's negative effects on growth in the EMU countries.<sup>8</sup> Ironically, the weak euro ended up helping the European economies to recover through improvements in their external trade balances, but this was the opposite of the ECB's original intention of making the euro a strong currency. The result of this misguided European monetary policy was seven straight years in which the euro (or its predecessors) fell and the dollar rose until early 2002.

Yet another fillip to the dollar came as a result of the Asian financial crisis in 1997-98. Prior to that crisis, the dollar had only been rising relative to the "major" industrialized country currencies (the predecessors of the euro plus the British pound, Japanese yen, Canadian dollar, Australian dollar, Swedish krona, etc.). As Figure 4 shows, the dollar continued to fall gradually (in real terms) relative to the currencies of what the Fed calls America's "other important trading partners," i.e., the developing nations and transition economies, until mid-1997. The Asian crisis led to the collapse or devaluation of several important currencies in Asia and elsewhere (notably the Thai Baht, Taiwanese dollar,<sup>9</sup> Korean won, Indonesian rupiah, Malaysian ringgit, Philippine peso, and Russian ruble) in the second half of 1997 and 1998.

As a result, the index of the dollar's real (inflation-adjusted) value relative to such "other" currencies rose sharply in 1997-98, and then plateaued thereafter (see the dotted line in Figure 4). These "other" currencies account for roughly 45 percent of U.S. trade with the countries included in the Fed's broad dollar index and nearly half of overall U.S. trade;<sup>10</sup> hence the depreciations of those currencies imparted a significant upward thrust to the overall (broad) dollar index and had a notable impact on the U.S. trade balance. After the Asian crisis abated in 1999, many of the currencies that initially collapsed stabilized, but subsequent currency crises in

other developing countries (such as Brazil, Turkey, and Argentina) have contributed to keeping the dollar high relative to developing country currencies as a group. Figure 4 shows clearly that the dollar has *not* declined from its 1998 peak relative to the “other” currencies and that the dollar has been *rising* instead of falling against these other currencies thus far in 2002—the dollar has fallen *only* against the major ones, and then only to a relatively small degree.

**Figure 4**  
**Real Value of U.S. Dollar, Indexes for Different Groups**  
**of Currencies, Monthly, January 1990 - June 2002**



Source: Federal Reserve Statistical Release H.10, downloaded from [www.federalreserve.gov/releases/h10/Summary/](http://www.federalreserve.gov/releases/h10/Summary/).

Note: The broad index is a trade-weighted average of the major and other currency indexes. All indexes were rebased to January 1990 = 100.

One of the reasons why the dollar has stayed so high relative to the other currencies is that some of their governments continue to peg their exchange rates and intervene heavily to keep their currencies undervalued relative to the U.S. dollar. Even some countries with nominally floating exchange rates actually operate what used to be called “dirty floats,” i.e., they intervene to manage their exchange rates to desired target levels. Such exchange rate policies are usually pursued as part of an export-led growth strategy that fosters chronic trade surpluses with the United States and hence effectively exports unemployment to this country’s traded goods sectors (mostly manufacturing). The most egregious offenders in this regard are a number of prominent East Asian countries, especially Japan, China, and Taiwan.

As shown in Table 1, these countries have had truly prodigious increases in their international currency reserves since 1995. Japan more than doubled its currency reserves between 1995 and 2001, reaching a world-leading \$395 billion at yearend 2001. To put this number in perspective, Japan's reserves at that time were nearly double those of the entire Euro Area (\$234 billion), even though the Euro Area is much larger by other economic criteria (e.g., GDP) and the reserves of the future Euro Area countries exceeded those of Japan in 1995.<sup>11</sup> China's reserves more than tripled between 1995 and 2001, and at \$216 billion were nearly as large as those of the entire Euro Area by yearend 2001. Taiwan, Hong Kong, and Singapore's reserves are also enormous for relatively small countries and also grew substantially between 1995 and 2001. No other countries in the world come close to the levels of reserves accumulated by this relatively small group of East Asian countries.

**Table 1**  
**Total Reserves (Excluding Gold), Selected Countries and Years**  
**(end-of-period, in billions of U.S. dollars<sup>a</sup>)**

	1990	1995	2001
Japan	78	183	395
P.R. China	30	76	216
Taiwan	73	91	122
Hong Kong	24	55	111
Singapore	28	69	75
Memo: Euro Area <sup>b</sup>	292	300	234

Source: International Monetary Fund, *International Financial Statistics*, on-line database (<http://ifs.apdi.net/imf/>).

Notes:

<sup>a</sup>Data were converted from special drawing rights (SDRs) using the end-of-period U.S. dollar/SDR exchange rate for each year.

<sup>b</sup>Data for 1990 and 1995 are the sum for the countries that later joined the European Monetary Union (EMU) in 1999. Data for 2001 are EMU totals including reserves of the European Central Bank (ECB) not counted in the individual countries' statistics.

Of course, some growth of international reserves is important for sustaining global liquidity and facilitating trade, and the evidence from the financial crises of the late 1990s shows that countries with larger ratios of reserves to domestic monetary assets (e.g., reserve-M2 ratios) were more successful in avoiding speculative attacks on their currencies or contagion effects from other countries' crises. But the sheer magnitude of the reserves accumulated by these East Asian countries and the rapidity with which they have increased in recent years is *prima facie* evidence of efforts to keep their currencies from appreciating to equilibrium exchange rates that would be conducive to more balanced trade relations with the United States.<sup>12</sup>

Relative to the major, industrialized country currencies, the dollar continued to rise in 1999 mostly as a result of the weakness of the new euro, which fell from its inception on January 1 of that year. Further appreciation of the dollar was encouraged by a series of interest rate increases by the Fed, which raised the targeted Federal Funds Rate from about 4.75 percent in January 1999 to about 6.5 percent in June 2000. But the dollar's final ascent from the second half of 2000 through early 2002 is much more mysterious. By this time, the U.S. economy had

slowed down and passed through a recession. The Fed had cut interest rates drastically, bringing the Federal Funds Rate down to about 4.0 percent in June 2001 and 1.75 percent by January 2002. The U.S. stock market peaked in the winter of 1999-2000 and fell subsequently, while the terrorist attacks of September 11, 2001 shook confidence in U.S. national security. Yet, aside from short-term fluctuations, the dollar continued its seemingly inexorable climb through February 2002, after which a series of accounting scandals began to undermine faith in the reported profits of major U.S. corporations and the stock market took another nosedive.

Although it is too early for a definitive evaluation on this point, it is likely that the dollar developed another speculative bubble in the late 1990s that persisted into early 2002. A speculative bubble occurs when investors buy and hold an asset on the expectation that the asset will rise in value, and the resulting increase in the demand for the asset causes its price to rise as expected. This is known in the economics literature as a “self-fulfilling prophecy,” and it has been observed to occur in various asset markets including equity and currency markets. Although, as noted above, there were objective reasons for the dollar’s rise in 1995-99, these reasons were less and less apparent in 2000-01 and early 2002. Consequently, although such a hypothesis must be verified in future research, it is reasonable to surmise that the dollar’s sustained upward momentum in the late 1990s was amplified by a set of self-fulfilling expectations of further increases that carried through early 2002. However, it is in the nature of a speculative bubble that it must eventually burst, because a bubble implies that an asset’s value has risen beyond a level that can be justified by the underlying fundamentals. The next section describes how the fundamentals shifted between 1995 and 2001 in a way that makes the eventual decline of the dollar—if not its timing—inevitable.

## Why the Dollar Has to Fall

Although there were reasons why the dollar rose for nearly seven years, there are equally strong reasons why it cannot remain at its peak level of 2002. The overvalued dollar has contributed to a series of worsening macroeconomic imbalances that make a significant “correction” of the dollar’s value inevitable. The United States already had significant trade deficits and net international debts in the early 1990s; these pre-existing deficits and debts were the legacy of the macroeconomic imbalances of the 1980s as well as a secular declining trend in U.S. competitiveness. But these problems accelerated during the 1995-2002 period when the dollar appreciated.<sup>13</sup>

As Table 2 shows, between 1995 and the early 2000s (data are shown for both calendar year 2000 and the first quarter of 2002), measured in nominal (current dollar) terms, the trade deficit for goods more than doubled, while the trade deficit for goods and services<sup>14</sup> and the current account deficit nearly quadrupled. The amount that the United States borrowed each year to cover its current account deficit—measured by the negative amount of “net foreign investment,” i.e., net capital inflows—also more than quadrupled, from just under \$100 billion in 1995 to over \$400 billion annually in 2000-02. As a result of this continuous borrowing, the U.S. net international debt (i.e., the negative “net international investment position,” which is the difference between U.S.-owned assets abroad and foreign assets in the United States) jumped from \$343 billion at yearend 1995 to \$2.3 *trillion* at yearend 2001.<sup>15</sup> The total (gross) amount of

foreign-owned financial assets in the United States —bonds, bank deposits, equity, etc., but excluding direct investment—more than doubled from about \$3.3 trillion in at yearend 1995 to over \$6.6 trillion at yearend 2001.

**Table 2**  
**Indicators of Financial Vulnerability Caused by the Appreciation of the Dollar,**  
**Selected Periods, 1990 to 2002-I**  
**(billions of dollars and percentage of GDP)**

	1990	1995	2000	2002-I
<u>Billions of Current Dollars:</u>				
Trade balance, goods	-111.0	-174.2	-452.4	-425.7 <sup>a</sup>
Trade balance, goods and services	-80.9	-96.4	-378.7	-379.4 <sup>a</sup>
Current account balance	-79.0	-105.8	-410.3	-449.9 <sup>a</sup>
Net foreign investment <sup>b</sup>	-69.2	-98.0	-430.5	-413.5 <sup>a</sup>
Net international investment position <sup>c,d</sup>	-164.5	-343.3	-1,583.2	-2,309.1 <sup>e</sup>
Foreign financial assets in U.S. <sup>d,f</sup>	1,919.0	3,267.9	6,168.0	6,645.3 <sup>e</sup>
<u>Percentage of Gross Domestic Product:</u>				
Trade balance, goods	-1.9	-2.4	-4.6	-4.1
Trade balance, goods and services	-1.4	-1.3	-3.8	-3.6
Current account balance	-1.4	-1.4	-4.2	-4.3
Net foreign investment <sup>b</sup>	-1.2	-1.3	-4.4	-4.0
Net international investment position <sup>c,d</sup>	-2.8	-4.6	-16.0	-22.6 <sup>e</sup>
Foreign financial assets in U.S. <sup>d,f</sup>	33.1	44.2	62.5	65.1 <sup>e</sup>

Sources: U.S. Department of Commerce, Bureau of Economic Analysis, National Income and Product Accounts, U.S. International Transactions, and U.S. Net International Investment Position, downloaded from [www.bea.gov](http://www.bea.gov) under “GDP and related data” and “Balance of payments and related data”; and author’s calculations.

Notes:

<sup>a</sup>Quarterly data expressed at an annual rate.

<sup>b</sup>Net capital outflows (+) or inflows (-), national income and product accounts basis.

<sup>c</sup>Including foreign direct investment valued at current cost; a negative sign indicates a net debt position.

<sup>d</sup>End of period (except as noted otherwise); the percentages shown are percentages of full-year GDP.

<sup>e</sup>Data are for yearend 2001 (quarterly data are not available); the percentages shown are percentages of 2001 annual GDP.

<sup>f</sup>Gross U.S. liabilities to foreigners, excluding foreign direct investment in the United States.

Table 2 also shows these same variables scaled as percentages of GDP to reflect their relative importance in a growing economy. Only the goods deficit rose noticeably as a percentage of GDP between 1990 and 1995, reflecting the import-intensity of the recovery from the early 1990s recession; the other measures remained about constant. But between 1995 and 2000-02, all measures of the trade deficit and net capital inflows increased significantly as percentages of GDP, reaching about 4 percent.<sup>16</sup> Meanwhile, the net international debt position rose from less than 5 percent of GDP to almost 23 percent, and foreign financial assets in the U.S. climbed from about 44 to 65 percent of GDP, between yearend 1995 and yearend 2001.

These worsening indicators show a rapidly increasing degree of vulnerability in the U.S. external financial situation. Under current conditions, the United States has to borrow over \$400 billion a year, or more than 4 percent of its GDP, just to pay for the excess of its imports over its exports. This borrowing has created large international debts that have to be serviced, and which thus constitute a further drain on the U.S. balance of payments.<sup>17</sup> When these deficits and debts were smaller, they could essentially be ignored by financial markets. But by the early 2000s, they had reached proportions that began to set off alarm bells among currency traders and other international investors. Combined with a crisis of confidence in the accounting practices of major U.S. corporations and a consequent crash of the stock market, it is no wonder that foreign investors began to move out of U.S. assets and to push the dollar downward in early 2002.

In fact, the trade deficit figures of over 4 percent of GDP in the last few years are approaching what is usually thought of as the threshold for inviting a currency collapse: 5 percent of GDP. In countries such as Mexico in 1994 and Thailand in 1997, trade deficits that surpassed this threshold became signals to financial markets to sell short those currencies and to speculate on their devaluations (speculative attacks that turned out to be self-fulfilling prophecies). Although the U.S. economy is much stronger than the Mexican and Thai economies, and the United States has the luxury of being able to borrow in its own currency rather than in foreign currency, Americans cannot afford to think that their country will be immune to such speculation.

Once financial market speculators come to think that a currency has to fall, they usually begin to sell off their holdings of that currency thus pressuring it to fall as expected. Since the United States has a floating exchange rate, the downward pressure on the value of the currency is felt immediately, unlike in countries like Mexico or Thailand in the 1990s when their exchange rates were pegged and the pressure was felt instead in the form of reduced foreign exchange reserves as their central banks attempted to defend their unsustainable pegs (until they nearly ran out of reserves, at which time they had to devalue or float anyway).

There is already growing evidence that financial markets are beginning to view the type of data shown in Table 2 with alarm. When a record \$37.6 billion *monthly* trade deficit (in goods and services) for May 2002 was announced on July 19, the immediate reaction in currency markets was a fall in the dollar. As one prominent newspaper reported, in an article subtitled “Dollar Falls on News of \$37.6 Billion Gap,”

foreigners tend to become more reluctant to invest here as the trade deficit reaches levels that many economists consider to be unsustainably high. That was one of the factors—together with the plunging stock market—that caused the dollar to sink yesterday [July 19, 2002] against the Japanese yen and the euro. (Washington *Post*, July 20, 2002, pp. E1-E2.)

Only a few years earlier, regular monthly reports of new records for the trade deficit were ignored by financial markets as capital inflows pushed the dollar to ever-higher heights. Now, those same financial markets fret over the damage done to the U.S. balance of payments by the high value to which the dollar was pushed.

A rather frightening implication of the data in Table 2 is that foreign investors would only have to sell off a small percentage of their liquid investments in the U.S. in order to put very substantial pressure on the dollar to fall (and, possibly, on the Fed to raise interest rates and precipitate another recession). With outstanding foreign financial assets in the U.S. (i.e., U.S. liabilities to foreigners) in excess of \$6.6 trillion, and a current account deficit of over \$400 billion needing to be financed, a sell-off of only about 6 percent of those foreign holdings would drain the U.S. financial system of nearly the entire value of the current account deficit. If we were unable to finance that deficit, draconian adjustments in the U.S. economy (e.g., massive dollar depreciation, huge interest rate hikes, and a severe recession) would be required to bring the current account into balance—just as occurred in Mexico in 1995 or the Asian crisis countries in 1998.

Yet, the longer we postpone the necessary adjustments, the more vulnerable we become to the threat of such a crisis, and the worse the crisis would be if and when it occurs. That is why it is essential to bring the dollar down now, in an orderly and controlled fashion, rather than wait for a worse crisis. Policies to achieve this are discussed in the concluding section, but now we turn to a detailed survey of the damage done to domestic manufacturers by the overvalued dollar of the past several years.

## The Impact of the High Dollar on Domestic Manufacturing

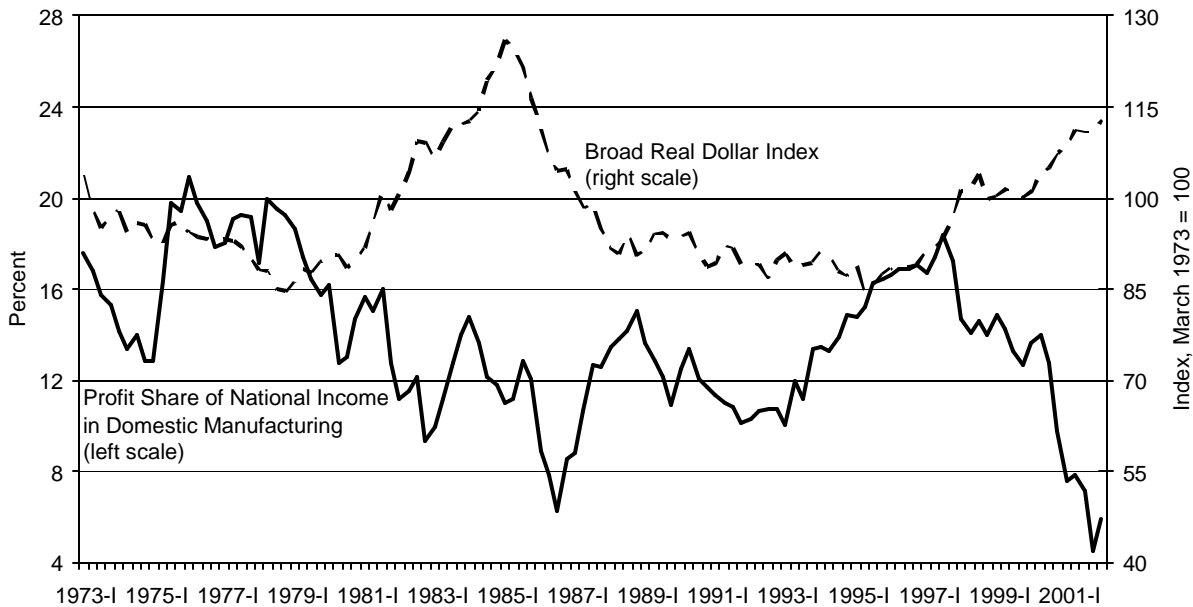
Changes in the value of the dollar are bound to have a disproportional impact on manufacturing for the simple reason that **manufacturing accounts for the vast majority of U.S. international trade**. In 2001, manufacturing accounted for about 80 percent of U.S. exports and 83 percent of U.S. imports of goods; taking a broader definition and looking at trade in goods and services, manufacturing accounted for 58 percent of total exports and 70 percent of total imports.<sup>18</sup>

As a result of its highly open and internationally competitive nature, the manufacturing sector suffered devastating consequences from the dollar's appreciation in the late 1990s and early 2000s.<sup>19</sup> Starting about 1997, when the dollar's rise accelerated, domestic manufacturers ceased to benefit from the economic boom that continued for three subsequent years in most of the rest of the U.S. economy. As Figure 5 shows, manufacturing profits<sup>20</sup> began to recover during the mid-1990s economic recovery but then peaked and tumbled in mid-1997, three years before overall economic growth slowed down in late 2000 and four years before the recession of 2001. This premature decline in manufacturing profits in the midst of an overall economic boom in 1997 coincided with the time when the dollar's rise accelerated during the outbreak of the Asian financial crisis (see Figures 1 and 4 and the earlier discussion of the dollar's rise).

Figure 5 also shows that the fluctuations in manufacturing profits are virtually a mirror image of the inflation-adjusted value of the dollar, i.e., manufacturing profits and the real dollar index generally moved in opposite directions throughout the past two decades. This inverse relationship between the dollar and profits is no coincidence. A higher dollar reduces import prices, and hence forces domestic firms that compete with imports to either cut price-cost

margins or lose sales volume (or both). As Figure 6 (below) shows, import prices began to fall immediately after the dollar started rising in 1995 and have trended downward ever since.

**Figure 5**  
**Inverse Relation Between Manufacturing Profit Share and the**  
**Real Value of the Dollar, Quarterly, 1973-I to 2002-I**



Sources: Federal Reserve Statistical Release H.10, Foreign Exchange Rates (same as Figure 1); U.S. Department of Commerce, Bureau of Economic Analysis, National Income and Product Accounts, from [www.bea.gov](http://www.bea.gov); and author's calculations.

A higher dollar also makes U.S. exports less competitive abroad, and hence compels exporting firms to either lower their dollar prices (so as to “price-to-market” abroad) or suffer reduced export volumes. Either way, exporting firms lose profits on their domestic operations,<sup>21</sup> and export sales are likely to be reduced to some extent. As Table 3 shows, the growth of export sales was dramatically reduced in the 1996-2001 period compared with the previous six years (1990-95), while import growth accelerated, as a result of the rising dollar as well as other factors (especially, the foreign growth slowdown).

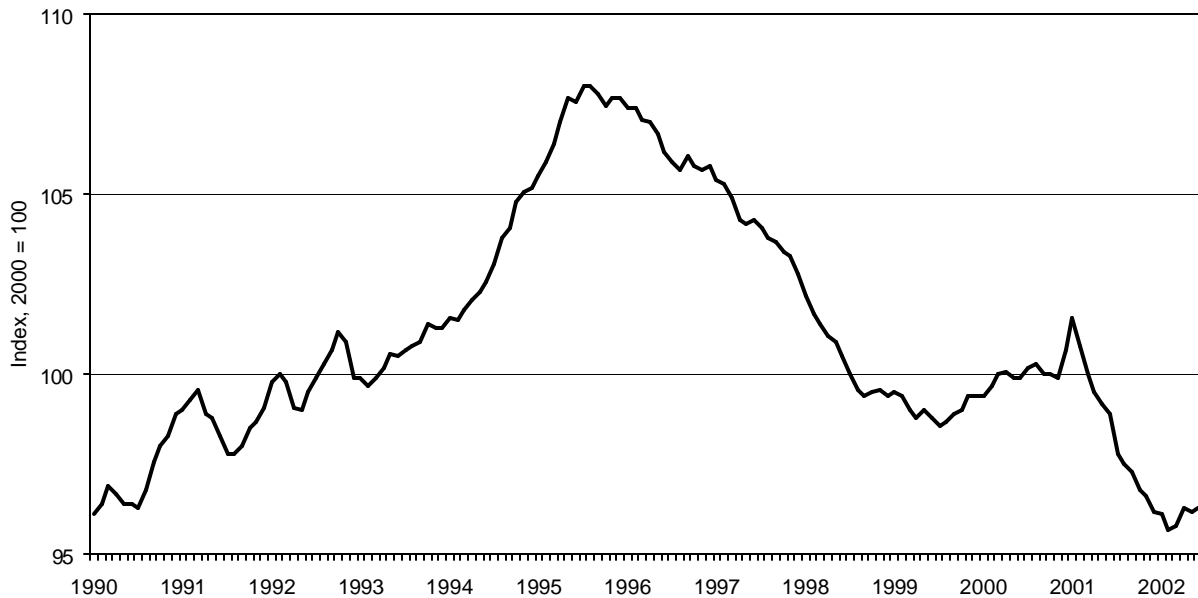
**Table 3**  
**Average Growth Rates of Real Exports and Imports of Goods,**  
**1990-95 and 1996-2001 (average annual percentage rates)**

	Non-agricultural exports	Non-petroleum imports
1990 to 1995	8.9	8.0
1996 to 2001	<b>4.7</b>	<b>9.6</b>

Source: U.S. Department of Commerce, Bureau of Economic Analysis, National Income and Product Accounts, Table 4.2, downloaded from [www.bea.gov](http://www.bea.gov) under "GDP and related data"; and author's calculations.

Note: The average annual growth rates shown are the simple averages of the quarterly growth rates (measured at annual rates) for the years indicated.

**Figure 6**  
**Import Price Index, All Imports Except Petroleum,**  
**Monthly, January 1990 - June 2002**

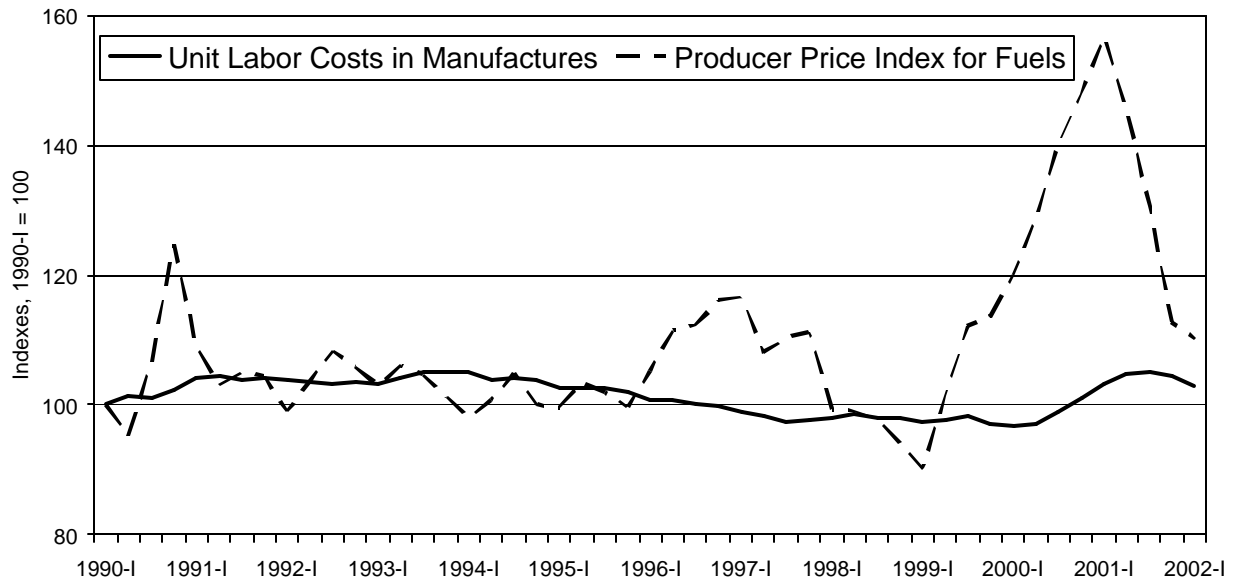


Source: U.S. Department of Labor, Bureau of Labor Statistics, downloaded from <http://www.bls.gov/mxp/home.htm>.

Of course, manufacturing profits are also affected by other factors, especially economic growth (the business cycle) and cost factors (labor, energy, and raw materials). However, none of these factors can explain the decline in manufacturing profits from mid-1997 on. Figure 7 shows the trends in labor and energy costs affecting the manufacturing sector since 1990. Unit labor costs in manufacturing were virtually flat throughout the 1990s, as productivity growth almost exactly matched nominal wage increases. Unit labor costs did not turn up until 2000-01, when the growth slowdown and recession led to a temporary cyclical decrease in labor productivity; this was three years after profits declined as shown in Figure 5. Energy costs (as measured by the Bureau of Labor Statistics' producer price index for all fuels) fluctuate much more widely than labor costs, but the timing of their fluctuations does not match the trends in

manufacturing profits. Fuel prices did rise in 1996 and early 1997, but then fell for about two years, before rising more sharply in 1999-2000; the timing of these trends in energy costs cannot explain why manufacturing profits peaked in early 1997 and declined thereafter.

**Figure 7**  
**Manufacturing Unit Labor Costs and**  
**Energy Prices, Quarterly, 1990-I to 2002-I**



Sources: U.S. Department of Labor, Bureau of Labor Statistics, Major Sector Productivity and Costs and Producer Price Indexes, downloaded from [www.bls.gov](http://www.bls.gov); and author's calculations.

Note: all indexes re-based to 1990-I = 100.

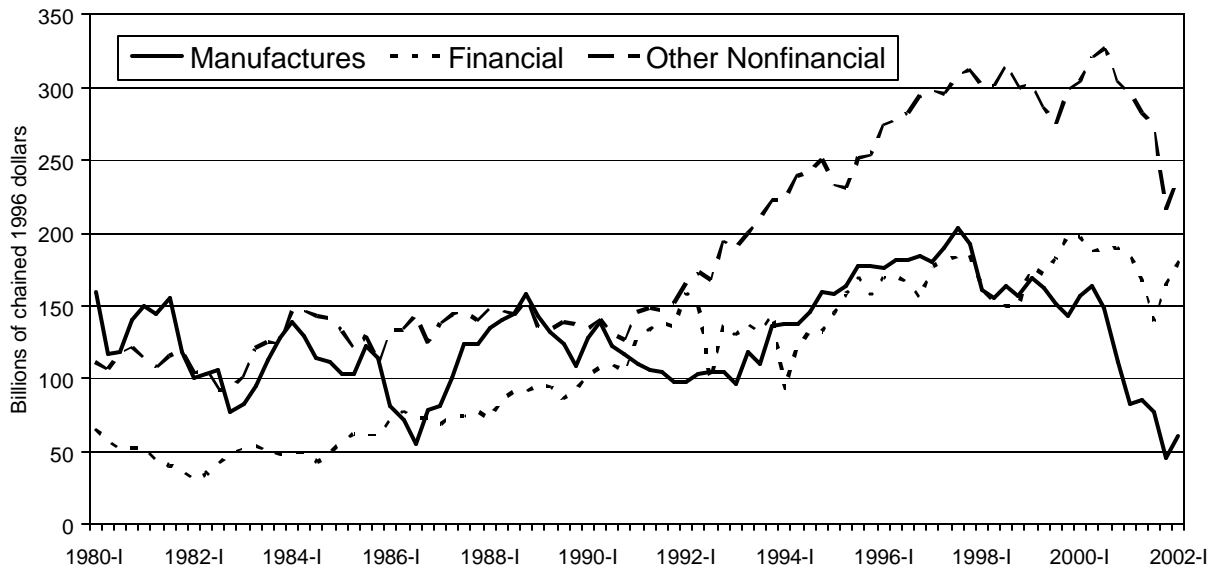
With regard to the demand side, overall U.S. economic growth remained strong until the third quarter of 2000, about three years after manufacturing profits peaked and began falling. Manufacturing profits did fall further as a result of the growth slowdown and recession in 2000-01, but those profits had already begun falling while demand was still strong three years earlier in 1997. Thus, the only factor that can account for decreasing manufacturing profits in the late 1990s was the rising dollar, which led to falling import prices and reduced export sales.

This conclusion, which follows from the analysis of all the data presented thus far, is also supported by more rigorous statistical tests. As discussed in the Statistical Appendix, both a multivariate regression and cointegration analysis confirm significant negative effects of the dollar's exchange rate on manufacturing profits, in models that control for other factors such as economic growth and labor costs. To give a quantitative sense of the significance of the dollar appreciation for manufacturing profits, the best estimates in the Statistical Appendix imply that the cumulative rise in the dollar from its (quarterly) trough in 1995-II to its peak in 2002-I reduced manufacturing profits by \$96.2 billion annually at current 2002 prices. Since actual

manufacturing profits were only \$66.7 billion (measured at an annual rate) in 2002-I, they would have been nearly one-and-a-half times higher (144 percent, to be exact) if the dollar had not appreciated. Looked at from another perspective, manufacturing profits were \$141.2 billion lower in 2002-I compared with their peak of \$207.9 billion in 1997-III; the higher dollar accounts for more than two-thirds of this decrease in manufacturing profits over the past five years, while the rest can be attributed to the recession and other factors.

The enormous decline in manufacturing profits after 1997 was unique among the major sectors of the U.S. economy (with the possible exception of agriculture, for which comparable statistics are not available). As shown in Figure 8, real (inflation-adjusted) profits in the financial sector and other (non-manufacturing, non-financial) activities remained strong<sup>22</sup> (in spite of short-term fluctuations) until 2000, when overall economic growth slowed down, while manufacturing profits peaked in 1997 and then trended downward even before the 2001 recession reduced them even further.

**Figure 8**  
**Real Corporate Profits by Sector,**  
**Quarterly, 1980-I to 2002-I**



Source: U.S. Department of Commerce, Bureau of Economic Analysis, National Income and Product Accounts, downloaded from [www.bea.gov](http://www.bea.gov); and author's calculations.

Note: Nominal profits were deflated by the chain-type price index for GDP.

In addition to its negative impact on profitability, the overvalued dollar also hurt the domestic manufacturing sector in another way: by decreasing investment in plant, equipment, and software (i.e., capital expenditures).<sup>23</sup> Since decreased investment in real, productive assets

threatens the future viability of U.S. manufacturers, the negative effect of the high dollar on this variable is especially alarming.

The appreciation of the dollar diminishes investment in this sense for two reasons. First, there are direct effects on the planned level of capital expenditures by business firms that have to compete with foreign goods that become cheaper in dollar terms. Exporting firms that are losing market share abroad (or which are relocating production to overseas sites) perceive a reduced need for production facilities in the United States, and hence cut back their planned domestic investment. Import-competing firms see reduced demand for their domestic products and hence also slash their planned capital expenditures. These direct effects on both exporting and import-competing firms' investment are felt with a lag, since they affect plans for future investment projects (the estimates in the Statistical Appendix suggest that the lag is about one year). Second, there are indirect effects of the dollar appreciation on investment through reduced profitability. As discussed earlier, the rise in the dollar has had an adverse impact on corporate profits in domestic manufacturing; the fall in profits in turn puts an additional squeeze on capital spending. Business firms rely on the cash flow out of current profits to finance investment, either internally or by leveraging outside funds (since banks' and bondholders' willingness to lend depends on firms' financial health). Thus, reduced profits curtail firms' ability to finance their investment, and hence can result in the cancellation or delay of already planned capital expenditures. This effect usually occurs within a year of the decrease in profits.

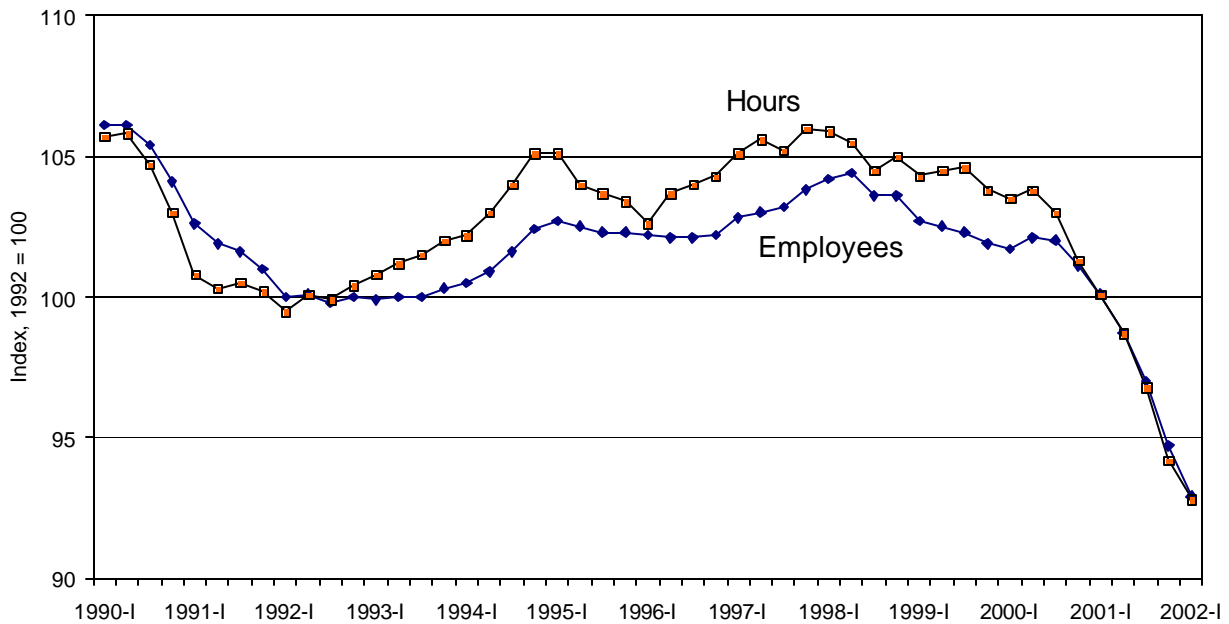
The estimates in the Statistical Appendix imply that investment in domestic manufacturing was reduced by a total of \$36.9 billion in 2001 (at current, 2001 prices) as a result of the post-1995 appreciation of the dollar. This estimate combines both the direct and indirect effects discussed above, and is based on statistical methods that control for other factors affecting investment (such as the economic growth rate).<sup>24</sup> To put this number in perspective, note that \$36.9 billion is equivalent to 18.2% of the actual level of investment in manufacturing of \$203.4 billion in 2000 at current prices (data for 2001 were not available as of this writing). With capital expenditures reduced by nearly one-fifth as a result of the rise in the dollar, domestic manufacturers will find it difficult in the future to keep up with new technologies and to maintain the pace of productivity growth that they were able to achieve in the 1990s unless the overvaluation of the dollar is reversed.

Manufacturing companies have seen the effects of the overvalued dollar mostly in reduced profits and investment; their workers have felt these effects in lost hours of work and fewer jobs. According to the estimates in the Statistical Appendix, for each 1 percent rise in the real value of the dollar, hours of labor in manufacturing fall by 0.13 percent and employment falls by 0.12 percent. Since the dollar rose by 33.5 percent from 1995-II to 2002-I, U.S. manufacturing workers' hours were reduced by 4.4 percent and the number of jobs was cut by 4.0 due to the effects of the higher dollar (these losses in hours and jobs attributed to the dollar are over and above any effects of productivity growth and the business cycle downturn, which are controlled for in the statistical analysis).

Such effects explain why manufacturing hours peaked in 1997-IV, manufacturing employment peaked in 1998-II, and both trended downward thereafter (as shown in Figure 9), even though the recession (measured by when real GDP fell) did not occur until over three years later (in 2001-III). In terms of the actual number of workers affected, since there were

approximately 18.5 million employees in manufacturing when the dollar reached its nadir in 1995-II,<sup>25</sup> a 4 percent reduction in employment would be equivalent to about 740,000 jobs lost<sup>26</sup> as a result of dollar appreciation. The three-quarters of a million lost jobs represent almost half of the total job losses in manufacturing of about 1.6 million between 1995-II and 2002-I; the remainder must be attributed to the effects of the recession and sluggish recovery in the latter part of this period combined with continued productivity growth throughout the whole period.

**Figure 9**  
**Manufacturing Sector Employment and**  
**Hours, Quarterly Indexes, 1990-I to 2002-I**



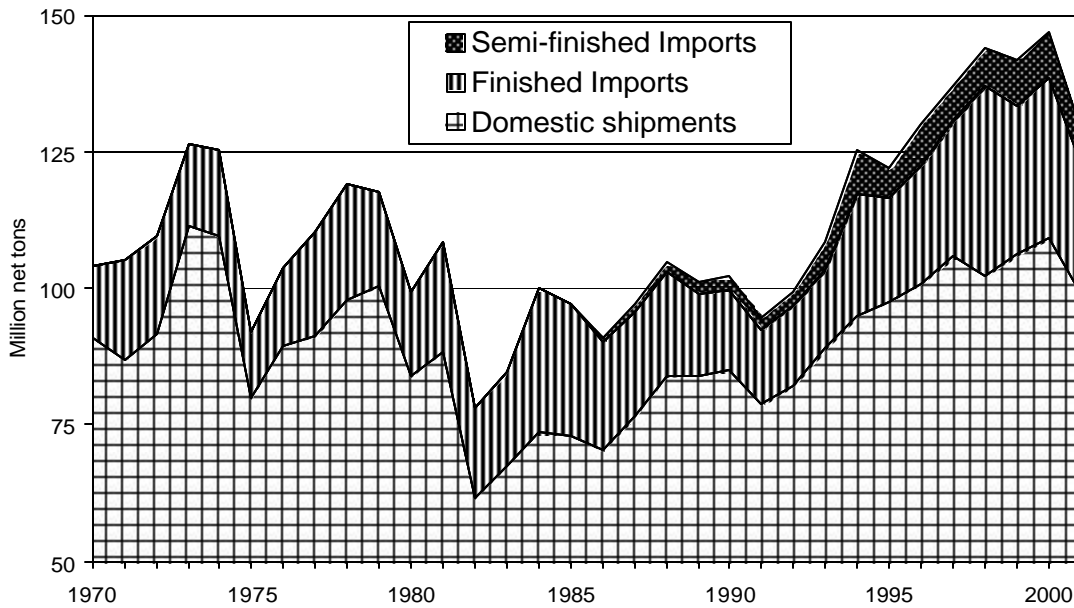
Source: U.S. Department of Labor, Bureau of Labor Statistics, Major Sector Productivity and Costs, downloaded from [www.bls.gov/lpc/home.htm](http://www.bls.gov/lpc/home.htm).

## The Overvalued Dollar and the Steel Import Crisis

In the debate over the U.S. steel import crisis and the domestic industry's efforts to seek import relief, insufficient attention has been paid to the role of the overvalued dollar as one of the underlying factors leading to the surge of imports into the U.S. steel market. This section briefly reviews the circumstances surrounding the steel crisis, but the primary focus in what follows will be on the effects of the overvalued dollar on steel imports. The analysis will show that the high dollar was a significant factor contributing to the increase in steel imports and the resulting injury to domestic steel producers, and that lowering the dollar would have substantial, long-term benefits for American steel producers.

The basic story of the recent steel crisis is well known from several recent investigations by U.S. government agencies.<sup>27</sup> During the period of rapid growth in the U.S. economy in the late 1990s, overall demand for steel (so-called “apparent consumption”) reached its highest level in U.S. history at about 130 million net tons per year in 1998-2000.<sup>28</sup> However, American steel producers failed to benefit proportionately from this boom in demand as imports absorbed an increased share of the domestic market (see Figure 10 and also Figure 12, below).

**Figure 10**  
**Imports and Domestic Shipments**  
**of Steel Mill Products, Annually 1970 - 2001**

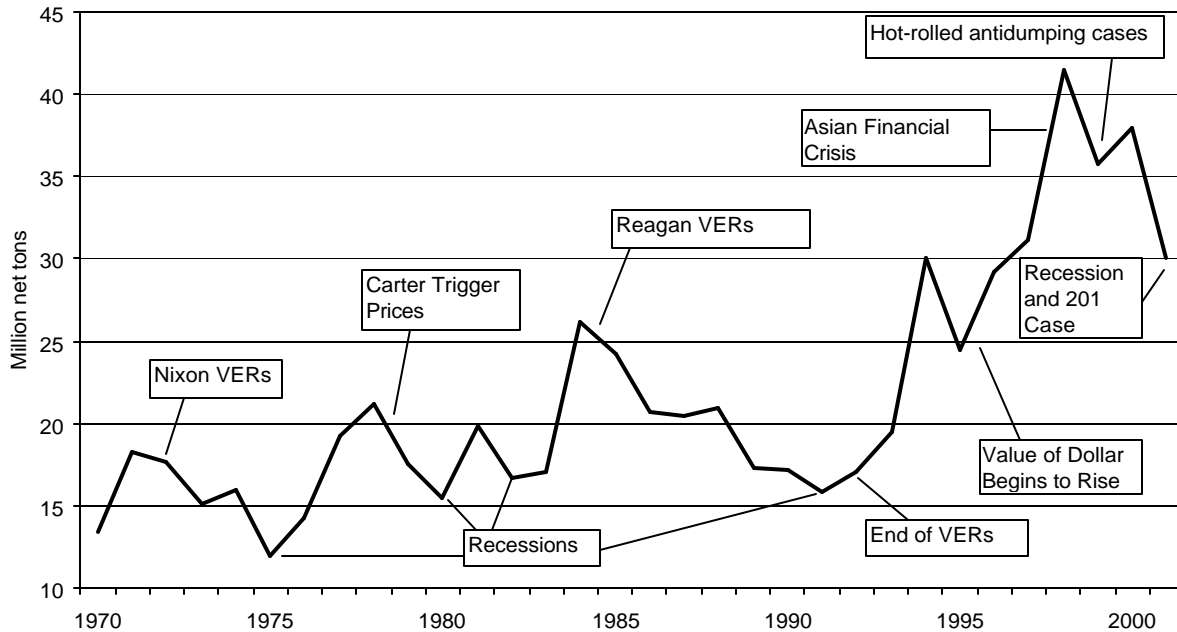


Source: American Iron and Steel Institute, *Annual Statistical Report*, various years.

Note: Semi-finished imports for 1985-88 were estimated by the author and are assumed to be zero for earlier years.

As Figure 11 shows, the volume of steel imports<sup>29</sup> reached record levels in the late 1990s. Although there were several previous import surges dating back to the 1970s, no previous import surge came close in magnitude to the gigantic and sustained increase in the late 1990s and early 2000s. Figure 11 also shows how import relief obtained by U.S. steel producers under the trade laws or through international agreements has sometimes stemmed the rising tide of imports. These episodes of import relief included voluntary export restraint agreements (VERs) under President Nixon, the trigger price mechanism under President Carter, and more extensive VERs under Presidents Reagan and Bush in the 1980s and early 1990s.<sup>30</sup> Each of these interventions helped to halt and reverse an import surge. After the last VERs were allowed to expire by President Bush in 1992, groups of steel producers filed for relief from imports of particular products from specific countries under the unfair trade laws (antidumping and countervailing duties) at various times during the 1990s, with varying degrees of success.

**Figure 11**  
**Total Imports of Steel Mill Products, Annually, 1970 - 2001,**  
**With Major Policy Interventions and Historical Events**



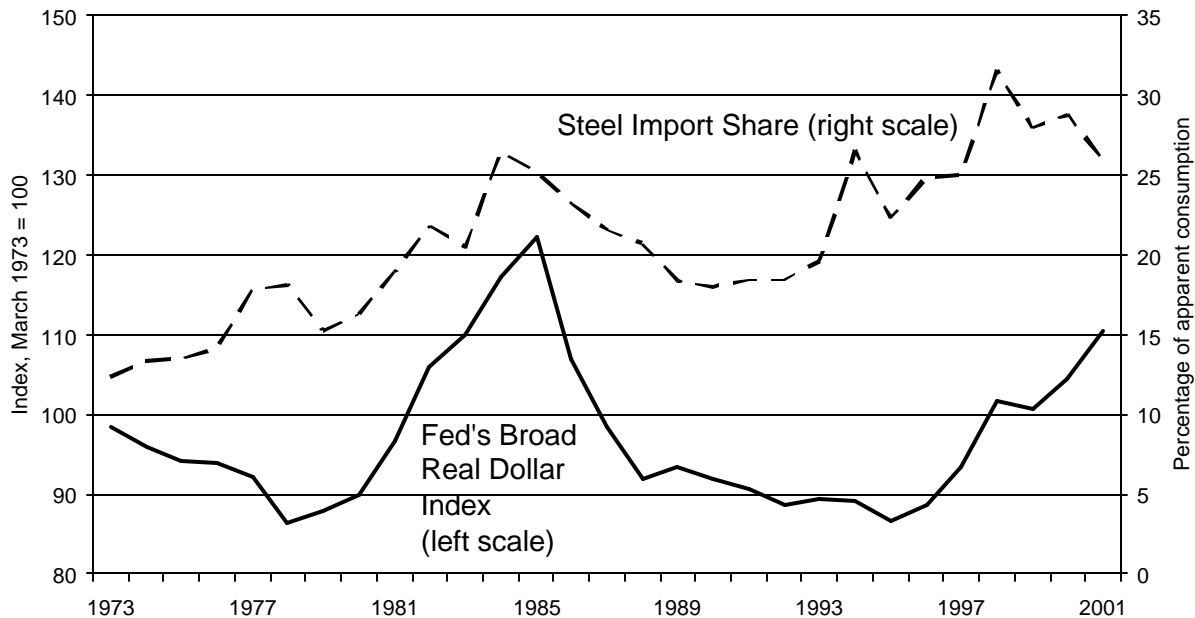
Source: American Iron and Steel Institute, *Annual Statistical Report*, various years.

A major shift occurred in 1998-99 as a result of the Asian and Russian financial crises, which vastly worsened the problem of global excess supply of steel at the same time as the associated currency collapses led to an accelerated rise in the value of the U.S. dollar (as discussed earlier). Steel prices plummeted, and imports hit an all-time high of 41.5 million net tons, or 31.5 percent of apparent consumption, in 1998 (see Figure 12). The domestic industry responded by filing more anti-dumping and countervailing duty cases, and were successful on a number of key products especially hot-rolled sheet (a major flat-rolled product that is used as an input in a wide range of downstream finished steel products). The result was a temporary and only partial breather, however as import volumes fell only slightly in 1999 and remained well above their pre-1997 levels (see Figure 11). Imports declined somewhat further in 2001 as a result of additional antidumping and countervailing duty cases on hot-rolled sheet and the effects of the U.S. recession, but remained far above historical norms in 2001 especially for a recession period.

Turning to the role of the dollar, Figure 12 shows that there has been a positive correlation between fluctuations in the real value of the dollar and the import share of the domestic steel market since the advent of floating exchange rates in the 1970s: a higher dollar generally leads to an increased import share. Equally clearly, Figure 12 also shows that the steel import share has risen notably more than can be explained by the fluctuations in the dollar alone;

note the upward trend of the import share (the dashed line in Figure 12) and the fact that the import share has risen more than proportionally to the value of the dollar since the late 1980s.

**Figure 12**  
**Import Share of Domestic Steel Market and the**  
**Real Value of the U.S. Dollar, Annually, 1973 - 2001**



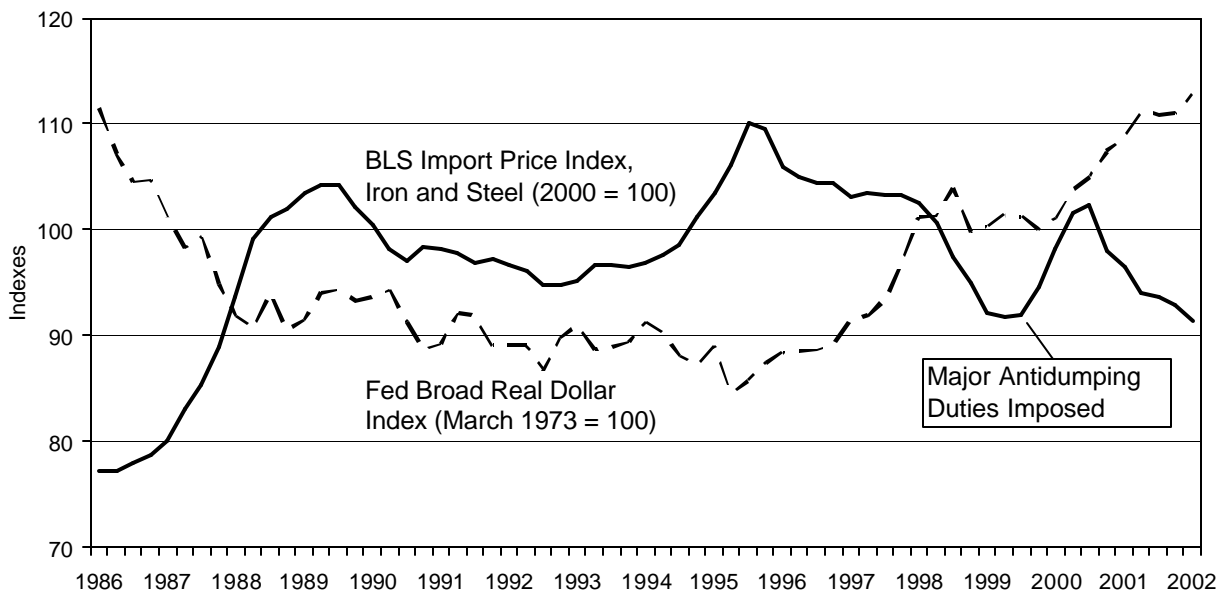
Sources: American Iron and Steel Institute, Annual Statistical Report, various years; Federal Reserve Statistical Release H.10, Foreign Exchange Rates (same as Figure 1); and author's calculations.

Many factors have contributed to the rising trend of import penetration in the U.S. steel market. First, more and more nations have developed export-oriented steel industries. U.S. steel imports began with mostly European and Japanese products in the 1960s and early 1970s, followed by increasing quantities of imports from newly industrializing developing countries (such as Brazil, Taiwan, and Korea) in the late 1970s and 1980s, and were then joined by imports from “transition economies” (such as Russia, Ukraine, and China) in the 1990s. However, there is a long (and continuing) history of foreign government policies that have directly or indirectly fostered the creation of excess capacity in many of these countries’ steel industries. In some countries, outright protection and subsidies have been used; in others, governments have tolerated collusive business practices by domestic industrial groups and banks that have allowed unprofitable steel mills to stay in business.

Second, the rapid increase in U.S. steel imports in the late 1990s was driven by several related factors. Economic downturns in other areas of the world economy led to a global glut of steel supply that dramatically reduced steel prices. Major steel exporting nations such as Japan, other East Asian countries, Russia, Ukraine, Brazil, and Argentina all went through periods of

slow growth, severe recession, and/or utter economic collapse. The European market was at best growing slowly during this period. With domestic demand depressed in all these regions, growing excess supplies pressed their way into the U.S. market using falling prices as levers starting in the mid-1990s (see Figure 13). Also, most of these countries' currencies depreciated significantly against the dollar (this was just the flip side of the dollar's strengthening), allowing them to lower their export prices in dollar terms by more than their domestic prices fell. Thus, although the rising dollar was not the only cause of increased steel imports in the late 1990s, it was certainly a significant contributing factor.

**Figure 13**  
**Steel Import Prices and the Real Value of the U.S. Dollar,**  
**Quarterly, 1986-I to 2002-I**

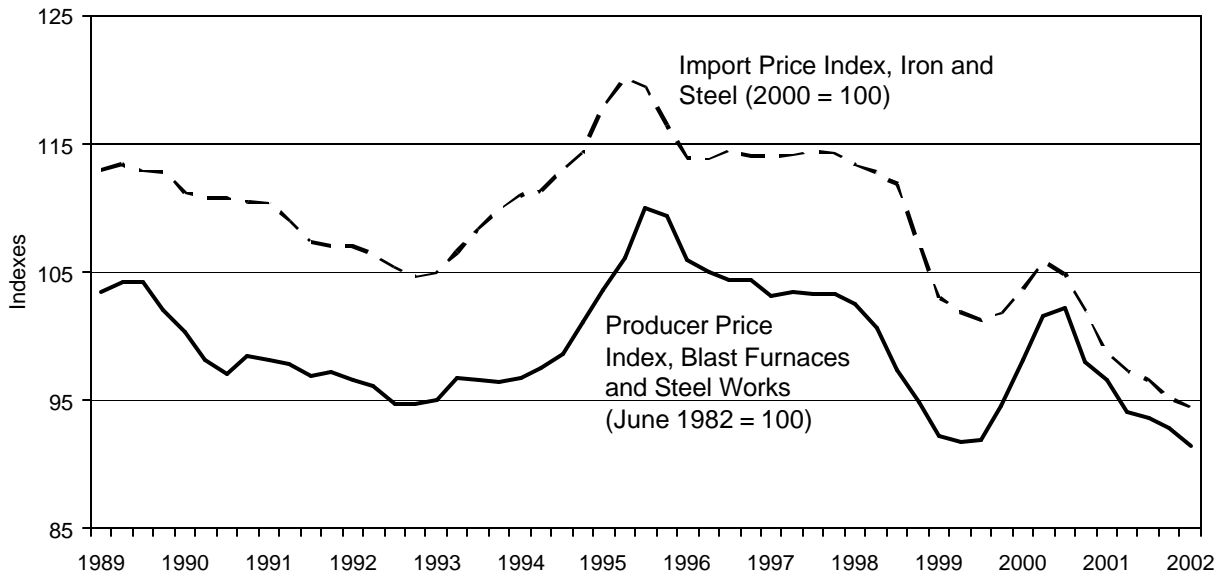


Sources: U.S. Department of Labor, Bureau of Labor Statistics, Import Price Index, SITC 67, downloaded from [www.bls.gov/mxp/home.htm](http://www.bls.gov/mxp/home.htm); Federal Reserve Statistical Release H.10, Foreign Exchange Rates (same as Figure 1); and author's calculations.

As noted earlier, the economic problems of the steel-exporting nations were so closely correlated with the declines in their currency values that it can be difficult to distinguish the pure effects of the latter, but there was certainly a strong inverse relationship between the value of the dollar and steel import prices as shown in Figure 13, in addition to the positive relationship between the value of the dollar and the steel import share shown earlier (in Figure 12). Due to the highly competitive nature of the U.S. steel market, domestic producer prices followed import prices in almost lock-step fashion throughout the 1989-2002 period (see Figure 14). The correlation coefficient for these indexes of prices of imported and domestic steel is 83 percent in

the quarterly data for the period shown in Figure 14, indicating a high degree of co-movement of these variables. Thus, the fall in steel import prices in 1995-98—which in turn was at least partly caused by the rise in the dollar at that time—had a direct and immediate negative impact on pricing for domestic steel manufacturers.

**Figure 14**  
**Import Price Index and Producer Price Index**  
**for Iron and Steel, Quarterly, 1989-I to 2002-I**



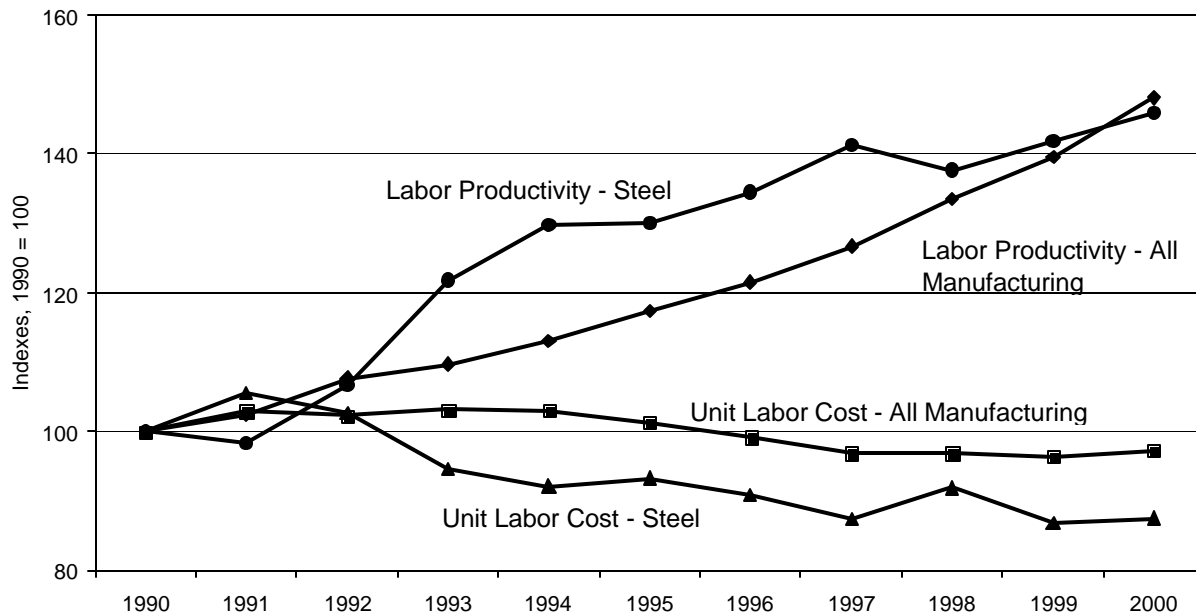
Source: U.S. Department of Labor, Bureau of Labor Statistics, Import Price Index, SITC 67, downloaded from [www.bls.gov/mxp/home.htm](http://www.bls.gov/mxp/home.htm), and Producer Price Index, SIC 3312, from [www.bls.gov/ppi/home.htm](http://www.bls.gov/ppi/home.htm); and author's calculations.

The rise in steel imports during the late 1990s also coincided with the “new economy” boom in the United States. This coincidence has led to claims by importers that increased imports were merely a response to strong demand conditions in the U.S. market. But if a demand-pull effect was the main cause of higher imports, one would expect average import prices to have risen rather than to have fallen, as they actually did. Thus, the downward trend of average import prices for steel products in the late 1990s shown in Figure 14 supports the conclusion that it was excess supplies from abroad, not excess demand at home, that drove imports to historic record levels.

It is also important to note that the steel import crisis occurred even though there was no reduction in the real competitiveness of the domestic steel industry. On the contrary, all indicators of the industry’s underlying efficiency were strongly positive throughout the 1990s. Labor productivity in steel grew close to or above the average trend for all manufactures<sup>31</sup> during most of the 1990-2000 period,<sup>32</sup> as shown in Figure 15. Unit labor costs in steel production

trended downward from 1992 to 2000 and fell faster than unit labor costs for all manufacturing during that period, as also shown in Figure 15.<sup>33</sup>

**Figure 15**  
**Labor Productivity and Unit Labor Costs,**  
**Steel versus All Manufactures, Annually, 1990 - 2000**

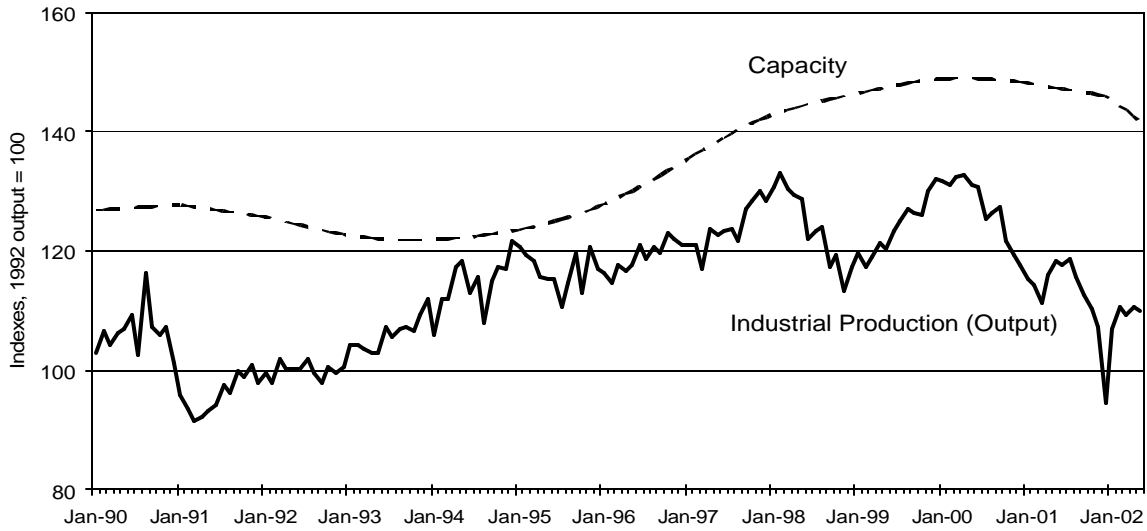


Sources: U.S. Department of Labor, Bureau of Labor Statistics, downloaded from [www.bls.gov](http://www.bls.gov); and author's calculations.

Note: all indexes were re-based to 1990 = 100.

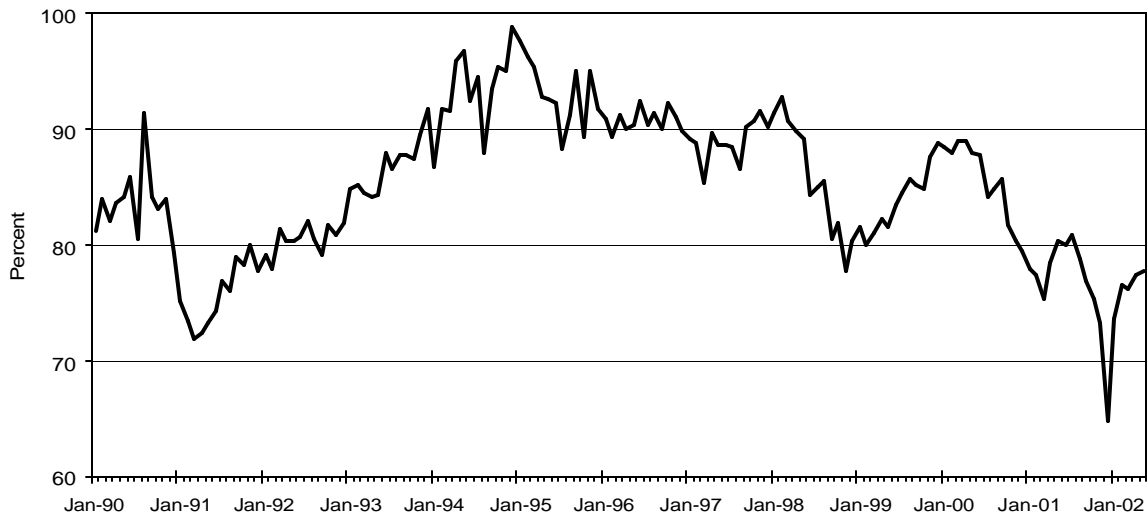
The industry's investments during the 1990s—mostly planned before the surge in imports at the end of the decade—resulted in growing domestic steel capacity through 1999, after which plant closures due to increased imports made capacity begin to turn down again (see Figure 16). By utilizing this increased capacity, domestic producers could have handled most of the increased demand for steel products during the late 1990s without such large increases in imports. But the import surge caused domestic steel production to fall behind the growth of capacity, especially after 1997 (see Figure 16), and the capacity utilization rate plummeted as a result (see Figure 17). Note that capacity utilization began to decline in 1995, around the time when the dollar started rising, and was significantly depressed even before the recession of 2001 (the temporary uptick in utilization in 1999, visible in Figure 17, was an effect of the antidumping cases discussed earlier).

**Figure 16**  
**Steel Industrial Production and Capacity, SIC 3312,**  
**Federal Reserve Indexes, Monthly, January 1990 - May 2002**



Source: Federal Reserve Statistical Release G.17, Industrial Production and Capacity Utilization, Historical Data, downloaded from [www.federalreserve.gov/releases/g17/download.htm](http://www.federalreserve.gov/releases/g17/download.htm).

**Figure 17**  
**Steel Capacity Utilization Rate, SIC 3312,**  
**Monthly, January 1990 - May 2002**



Source: Author's calculations based on data in Federal Reserve Statistical Release G.17, Industrial Production and Capacity Utilization, Historical Data, downloaded from [www.federalreserve.gov/releases/g17/download.htm](http://www.federalreserve.gov/releases/g17/download.htm).

A series of new shocks buffeted domestic steel producers in 2000-02. The U.S. economy slowed down in late 2000 and fell into a recession in 2001, with serious negative effects on a cyclically sensitive industry like steel. The dollar continued its ascent up to February 2002, putting renewed downward pressure on steel import prices and thus on domestic steel prices as well (see Figures 13 and 14 above); output and capacity utilization also fell (see Figures 16 and 17). A number of countries not included in the 1999 antidumping and countervailing duty cases increased their exports to the U.S. market, while countries subject to those duties increased their exports of products not covered by the orders in those cases (e.g., cold-rolled sheet and various downstream finished steel products). These products continued to come into the U.S. market at depressed prices, at least partly made possible by the continued rise in the dollar.

By early 2002, more than 30 steel firms had been pushed over the edge into bankruptcy, including major integrated producers such as Bethlehem and LTV as well as many smaller companies—firms that together accounted for about one-third of industry employment.<sup>34</sup> In the midst of this crisis, the Bush administration initiated a section 201 (escape clause or “safeguard”) investigation of steel imports in June 2001. After an affirmative injury determination by the U.S. International Trade Commission for most steel products<sup>35</sup> in October 2001, President Bush decided to impose tariffs of 15 to 30 percent on a wide range of steel imports in March 2002. This decision in turn unleashed a trade dispute with several U.S. trading partners who export steel, as well as internal controversy due to the positive effects of the tariffs on steel prices and the possible ramifications of those increased prices on downstream, steel-consuming industries in the United States, although as noted earlier these effects have been very limited in magnitude and scope.<sup>36</sup>

The analysis in this section has shown that the rising value of the dollar was a significant contributing factor, along with other causes (especially weak demand, chronic excess capacity, and closed markets in foreign steel-exporting countries), in fostering a sharp increase in import penetration of the U.S. steel market in the late 1990s and early 2000s. This sharp rise in imports occurred despite the lack of underlying competitive weaknesses on the part of domestic steel producers, and prevented U.S. steel manufacturers from reaping the benefits of high overall steel demand during a period of rapid overall economic growth in the United States. Instead of ending the twentieth century in a strong position to weather a relatively mild recession, the domestic steel industry was already weakened by low import prices and high import volumes (both exacerbated by the high dollar) when overall growth slowed down in late 2000 and the recession came in 2001.

To verify these inferences from our examination of the data in Figures 10-17, the Statistical Appendix provides econometric estimates of the magnitude of the effect of the rising dollar on U.S. steel imports, after controlling statistically for other factors that influence the demand for those imports. These estimates confirm that there is a statistically significant positive effect of the value of the dollar (as measured by the Fed’s broad real index) on steel imports, with an “elasticity” of about 1.2. This means that, for every 1 percent increase in the real value of the dollar, steel imports increase by 1.2 percent (i.e., slightly more than a one-for-one proportional response).<sup>37</sup>

This estimated elasticity can be used to quantify the impact that the rising dollar had in encouraging steel imports in the late 1990s. Between 1995 and 2000 (when overall steel

demand peaked), the dollar rose by 20.4 percent, which (multiplied by the elasticity of 1.2) implies a 24.4 percent increase in steel imports or about 6.0 million tons. This accounts for about 44 percent of the actual increase in steel imports of 13.5 million tons between 1995 and 2000. Actual imports increased by more than can be accounted for by the dollar's appreciation during those years because of the other factors discussed earlier—the continued overhang of excess supplies in global steel markets and foreign economic policies that fostered slow growth and unfair trading practices. Still, the rise in the dollar accounts for almost half of the rise in steel imports up to 2000.

Looking to the future, these estimates imply that the dollar would have to fall much further than it already has as of this writing in order to undo the strong impetus that the higher dollar has given to steel imports. Merely stabilizing the dollar at the slightly lower value of September 2002 would barely make a dent in the steel import problem. Even a complete reversal of the dollar's rise since 1995 would only eliminate roughly half of the steel import problem (assuming that the domestic economy recovers in the next few years so that the recession effects are eliminated). Although a lower dollar is therefore an important part of a solution to the steel crisis, it must be accompanied by other measures such as foreign countries stimulating their domestic economies, opening up closed markets, and eliminating their subsidies to inefficient steel mills in order to create more demand for steel at home and eliminate the excess steelmaking capacity that has glutted global steel markets.

What is especially significant about dollar depreciation, however, is that it is a means of helping to resolve the steel crisis that also benefits other U.S. industries producing tradable goods. A lower dollar would both help U.S. export industries to be more competitive in global markets and assist U.S. domestic industries in competing with imports. A significant further decline in the dollar would thus benefit *all* manufacturing industries in the United States, including steel producers and steel consumers alike. The concluding section will discuss policies that the U.S. government can use to try to bring the dollar down further in an orderly, sustainable way.

## **Conclusions and Policy Recommendations**

This paper has described the causes of the dollar's sharp ascent between 1995 and 2002 and has documented the injury caused by the high dollar to the U.S. manufacturing sector in general and the steel industry in particular. The dollar's partial fall thus far in 2002 has already demonstrated that the value of the dollar had reached an unsustainable level by the beginning of this year. The belief in the dollar's invincibility has been revealed to be a myth; the fundamental disequilibria caused by an overvalued dollar—such as rising trade deficits and mounting international debts—are now coming into sharp relief and make it clear that further dollar depreciation is inevitable. This concluding section will discuss some of the things that the U.S. government can do, either by itself or in cooperation with U.S. trading partners, to encourage the dollar's necessary decline and to stabilize exchange rates at more sustainable levels.

Ensuring an effective and orderly depreciation of the dollar is not a simple matter. As discussed earlier, the dollar has a flexible or market-determined exchange rate with the other

major industrialized country currencies, but its exchange rates with many developing countries' currencies are controlled or managed by those countries' monetary authorities. In addition, even some of the currencies that have nominally floating rates with the dollar are subject to significant intervention and manipulation by their governments, especially the Japanese yen. This diversity of exchange rate policies alone makes it clear that no one policy device can suffice to bring down the dollar. The following discussion focuses first on policies that can encourage the dollar to depreciate in relation to the major currencies with flexible exchange rates; then the discussion turns to what can be done to encourage countries with fixed or managed exchange rates to revalue their currencies or allow them to appreciate.

Supporters of the strong dollar have raised certain concerns about the alleged risks in efforts to bring down the dollar. These purported risks include: the limited effectiveness of direct government intervention in currency markets; the potential harm to U.S. trading partners of their currencies appreciating while their economies are weak; the potential jeopardy to financial markets of a sudden dollar collapse; the potentially inflationary consequences of currency depreciation; the difficulties of changing market psychology; the need to keep attracting large capital inflows to finance the U.S. trade (current account) deficit and to offset the low household saving rate; and the lack of attractive investment opportunities overseas that keeps funds pouring into U.S. financial markets.

Although some of these are legitimate concerns, they are not insurmountable, and others are more excuses for inaction rather than reasons not to act (for example, there is no reason why we have to have a large trade deficit requiring large capital inflows to finance it, or why we should accept that foreign countries cannot stimulate their own domestic economies). Moreover, there are also risks in doing nothing about the overvaluation of the dollar. If the high dollar is unsustainable anyway, we are going to have to confront these problems sooner or later; we may as well be prepared with policies to minimize the adverse consequences of the dollar's decline and make sure that it occurs in as orderly a manner as possible. The question today is not whether the dollar needs to fall, but rather whether the U.S. government will seek to encourage and manage that fall as part of its efforts to promote an economic recovery, or instead will try to postpone the inevitable decline in the dollar thereby running the risk of a more severe crash in the future.

Perhaps the most serious of the concerns about dollar depreciation is the fear that it would spark increased inflation by raising dollar prices of imported goods. Inflation fears should be mitigated, however, if the dollar is brought down over the next few years, at a time when inflation is already tame both domestically and internationally due to weak demand conditions. Furthermore, goods imports account for a relatively small (albeit growing) share of U.S. GDP (about 12 percent in 2000-01), and hence a rise in import prices would have only a small impact on overall, average inflation.<sup>38</sup> It should also be recalled that the sharp drop in the dollar in 1985-87 (shown in Figure 1, above) had no perceptible effect on U.S. inflation.<sup>39</sup>

Given the importance of market psychology in determining the value of any financial asset, including a currency such as the U.S. dollar, concerted statements by prominent U.S. officials could profoundly alter the current market psychology and push the dollar further in a downward direction (just as occurred in 1985-87). In this regard, it is vital for leading economic policy makers such as the Fed Chairman and Treasury Secretary to publicly accept the need for

further dollar depreciation. Indeed, at this juncture, statements by such officials endorsing a lower dollar would be much more credible in financial markets than continued assertions that further dollar decline is unnecessary or avoidable. Professions of faith in a high dollar by the current Treasury Secretary and his predecessors in the Clinton administration did much to encourage that result in the late 1990s and early 2000s; a more realistic appraisal of the need for a lower dollar today would help to encourage a reversal of the dollar's overvaluation in the coming months and years.

At the same time, it is vital to try to stabilize market expectations in order to prevent a destabilizing free fall in the dollar. Therefore, it would be useful for government officials not only to suggest that the dollar needs to fall more, but also to state a range for the necessary dollar depreciation (e.g., about 25-30 percent overall from its February 2002 peak) and to suggest a floor for the dollar's level relative to the other major currencies. Even implicit suggestions of this sort proved effective in the 1985-87 period (when no specific targets were mentioned); more specific targets for sustainable exchange rates could be very effective today.

Because the dollar has already fallen to some extent (about 8 percent from February to September 2002, relative to the major currencies), it is especially important for U.S. and foreign monetary officials to accept what has already happened and not to try to intervene to offset it. Certainly, the U.S. government should not intervene in foreign exchange markets to prevent the dollar from falling, and should be leaning on its allies abroad not to intervene to prevent their currencies (especially the yen and euro) from rising. But U.S. officials also have to acknowledge that the depreciation of the dollar to date only reverses part of the dollar's overvaluation; a further decline back to approximately 1995 levels is needed to undo the damage to the U.S. manufacturing sector and the overall trade balance that has been done since that time.

Monetary policy also has powerful, albeit somewhat unpredictable, effects on exchange rates. One option in the present situation (with a halting recovery from the 2001 recession and fears of a "double-dip recession" on the horizon) would be for the Fed to announce in advance that it will not raise interest rates to prevent further dollar depreciation until the dollar reaches a lower desired, target level. Further, the Fed could pre-announce that it will not raise interest rates even after the recovery takes hold, absent any indicators of serious inflationary pressures, in order to facilitate a gradual depreciation of the dollar to a more sustainable level. This would require a more accommodative monetary policy stance, i.e., allowing for somewhat greater increases in monetary aggregates and slightly higher inflation, in order to rectify the severe imbalance in the U.S. external accounts and to avoid industrial and trade conflicts such as the steel crisis. The Fed could also pre-commit to raise interest rates again after the dollar has fallen to a desired target level, which would help to foster a set of self-fulfilling expectations that would encourage a significant but controlled depreciation of the dollar.

Direct intervention in currency markets—i.e., central banks or treasuries buying and selling foreign exchange in order to influence exchange rates—can be a helpful tool in this process, if conducted intelligently and in support of a lower but stable value for the dollar. It is often pointed out that the volumes of currencies traded in today's global financial markets dwarf the relatively meager foreign exchange reserves of most central banks. But this does not mean that currency market intervention cannot be successful. If such intervention is coordinated with policy announcements and undertaken in a concerted fashion by several leading central banks

simultaneously, foreign exchange market intervention can help to shift exchange rates in a desired direction.

Exchange market intervention is of limited power when it seeks to oppose rather than to support market fundamentals; in those cases, speculators can usually see the handwriting on the wall and bet against the authorities succeeding. On the other hand, intervention in support of market fundamentals and consistent with stated policy objectives can help to shift market expectations and thus becomes more effective than one might expect from the limited amounts of foreign exchange that the authorities typically buy or sell. The effectiveness of exchange market intervention under the right circumstances has been demonstrated in several studies.<sup>40</sup> As one group of researchers concluded,

even weak signals, such as those provided by sterilized interventions, may be sufficient to coordinate agents' expectations, induce them to converge on a particular model of the economy and pick a value of the exchange rate that is not too far from that targeted by the authorities.<sup>41</sup>

Thus, concerted and coordinated intervention in support of market fundamentals and pre-announced policy changes can sometimes help to move exchange rates in a desired direction. Given the severe global trade imbalances that make dollar depreciation inevitable, interventions to bring the dollar down could be helpful in conjunction with pre-announced targets for the dollar's fall. By the same logic, interventions to prevent the dollar from falling would be not only counterproductive but also unlikely to succeed under present circumstances. On the other hand, once the dollar reaches a desired lower level, U.S. and foreign monetary authorities should stand ready to intervene massively to prevent any further, undesired depreciation, and to help stabilize the dollar around a long-run target level.

Given the importance of other countries' monetary, macroeconomic, and exchange rate policies in determining the values of their currencies relative to the dollar, it is vital for the United States to negotiate with our trading partners for the adoption of policies that would encourage appreciation of foreign currencies (and hence depreciation of the dollar). For the Eurozone countries, Japan, and other economically depressed areas, this means above all convincing them to revive their economies through the use of *domestic* demand stimuli and necessary structural reforms, so that they do not need to rely on low currency values and export-led expansion. Such policies would have the added benefit of increasing global demand for commodities in excess supply, including steel as well as many primary commodities, and would thus help in alleviating current problems of low commodity prices and ameliorating international trade disputes. Especially, the Europeans' effort to make the euro a strong currency through restrictive macro policies that have crippled growth have proven to be self-defeating; a reversal of ECB monetary policy that would stimulate growth would also, contrary to current European beliefs, be likely to strengthen the euro in the long term.

How to elicit cooperation from U.S. trading partners in this respect is a challenging question. Evidently, allowing their currencies to appreciate may not appear to be in their immediate self-interest under present circumstances, when many foreign economies are struggling to recover from recessions or growth slowdowns. Nevertheless, there are arguments and inducements the United States can offer to encourage a cooperative attitude. First, the

United States can point out that appreciation of their currencies will help foreign countries to control inflation, especially since most foreign countries are much more dependent on imports than the United States. Second, appreciation of foreign currencies and depreciation of the dollar will encourage more direct foreign investment in the United States, which can help to revitalize many domestic industries while also benefiting foreign corporations.

Third, foreign countries need to realize that they can and must switch from reliance on export-led growth targeted on the U.S. market to more domestic-oriented growth or more reciprocal reliance on each others' markets, rather than focusing on the U.S. market alone. Ironically, the current slow recovery of the U.S. economy may be teaching foreign countries a lesson about the risks of relying so much on exports to the United States. Finally, foreign countries need to be persuaded that allowing a realignment of currencies with a lower dollar is essential for resolving trade disputes with the United States, such as the present steel controversy, because the high dollar has been a major factor in fostering these disputes.

These kinds of policies—announcements, interest rates, interventions, and foreign demand stimuli—can be useful in the short run for moving currency values in a desired direction. They are less effective, however, for ensuring that currency values remain at more sustainable levels (more consistent with globally balanced trade) in the long run.

The need for long-run stability in exchange rates is especially important in light of what this paper has shown about the damage to manufacturing industries caused by wide and persistent fluctuations in exchange rates. It would do little good for the dollar to fall over the next few years, if it were then to reverse itself and rise once again. Corporations will not be willing to make the investments that are needed to keep their domestic enterprises efficient and raise their productivity if they perceive a risk of an appreciating dollar once again making their U.S. products uncompetitive. A significant and sustained revival of domestic manufacturing will not occur in the United States unless the dollar not only falls but is kept at a lower value that maintains the competitiveness of U.S. production facilities for a substantial period of time (just as the prolonged fall in the dollar between 1985 and 1995 led to a considerable revival of domestic manufacturing in the mid-1990s before the renewed appreciation of the dollar stopped that revival in its tracks). Correspondingly, policies that ensure a sustained lower dollar will encourage both U.S. companies and foreign corporations to invest in U.S.-located manufacturing plants in the future.

For the long run, therefore, it is important to consider systemic reforms that could stabilize exchange rates among the major currencies. There have been several proposals for systems of “target zones” or “crawling bands” for the dollar, euro, yen, and other major currencies.<sup>42</sup> It would be beyond the scope of this paper to endorse any particular version of such a plan. Nevertheless, some common elements are clear. What is most important is to target exchange rates at levels that would be consistent with more balanced trade and more sustainable levels of net capital flows among the major industrialized countries, and that would allow all nations to grow at respectable rates (consistent with internal balance targets, such as full employment with low inflation) without causing growing external trade imbalances. In addition, it is important to allow relatively wide bands around the central parities (targets) and to adjust these targets periodically in order to compensate for inflation differentials among countries (although such adjustments are less important today, in an environment of low global inflation,

than they would have been in the 1970s or 1980s). John Williamson has called such targets “fundamental equilibrium exchange rates” (FEERs), and he and other economists have offered reasonable methods for calculating what such rates would be.<sup>43</sup> The challenge for American policy makers is to have the courage to endorse such proposals and to negotiate with U.S. trading partners to put them into effect.

All of the above policies would be helpful, but would only affect the dollar’s exchange rates with currencies that account for barely over 50 percent of U.S. trade. As mentioned earlier, nearly half of U.S. trade today is conducted with developing countries and ex-socialist “transition economies” that manage or fix their exchange rates. Although these countries vary a great deal in their economic conditions and their trade relations with the United States, a number of them have large bilateral trade surpluses with the United States as a result of artificially undervalued exchange rates for their currencies. Chief among these countries is China, which now accounts for the largest part of the U.S. trade deficit (\$83.1 billion out of a total \$411.9 billion, as of 2001),<sup>44</sup> but there are a number of other offenders in East Asia and other regions.

The appropriateness of pushing for developing countries to revalue their currencies upward varies depending on their economic conditions. Those countries that have recently been through financial crises and have depressed domestic economic conditions (e.g., Argentina and Brazil in mid-2002) should not be pressured to revalue their currencies, and would probably be unable to do so anyway. On the other hand, those countries that are accumulating large amounts of reserves in order to artificially undervalue their currencies, such as China, should be pressured to abandon such policies and allow their currencies to appreciate to market equilibrium levels.

There is little that the U.S. government can do directly to influence these countries’ exchange rates, which depend mainly on their own national policies and financial conditions. Nevertheless, there is much that the United States can do to encourage these countries to adjust their exchange rates to levels more consistent with balanced trade relations. Especially, support for future trade liberalization efforts (e.g., in a new WTO round or an FTAA) and expanded access to the U.S. market could be linked to the maintenance of equilibrium exchange rates that allow for more balanced trade relationships in which exports and imports are determined by true comparative advantages (i.e., relative efficiencies) and not by misaligned exchange rates. It was a mistake to negotiate so many recent trade liberalization agreements (such as NAFTA, the WTO, and China’s accession thereto) without paying attention to the need for keeping exchange rates at levels that prevent excessive trade imbalances; now that Trade Promotion Authority has been renewed, it is not too late to make sure that this need is not neglected in future trade negotiations.

Countries like Japan and China that hoard large international currency reserves are effectively draining liquidity from the international monetary system and exporting unemployment to other countries; standards for what may be deemed “excessive” reserve accumulations should be promulgated and countries that exceed those standards should be required to spend the reserves and cease undervaluing their own currencies.<sup>45</sup> A full recovery of the global economy depends on all countries being able to share equitably in the growth of the world market, and not allowing a few countries to grow faster at the expense of others by artificially undervaluing their nations’ products.

## Statistical Appendix

This appendix presents the econometric estimates of the effects of the increased value of the U.S. dollar on the performance of the domestic manufacturing sector and the quantity of steel imports discussed in the text of this paper. Equations were estimated for the effects of the real value of the dollar (measured by the Fed’s broad, inflation-adjusted index) on profits, investment, employment, and hours in manufacturing, as well as on the volume of steel imports. The methodology used is multivariate regression analysis, which can identify the effects of one variable (e.g., the value of the dollar) by controlling for other causal factors. Thus, other variables (such as the GDP growth rate) were included in the regression equations to control for other factors (such as the business cycle) that also affect the “dependent variables” in these equations (i.e., the variables being explained). A complete, detailed list of the variable definitions and sources is given at the end of this appendix.

Because the data are all “time series,” i.e., variables measured over units of time such as months, quarters, or years, certain special procedures have to be used to obtain reliable statistical estimates. All the variables were tested for the presence of “unit roots” or non-stationarity, a common problem in time-series data. Generally, all the variables had unit roots (i.e., were non-stationary) when measured in levels (or levels of logarithms<sup>46</sup>), according to standard Augmented Dickey Fuller (ADF) tests, except the GDP growth rate which was stationary.<sup>47</sup> However, all the variables were stationary (did not have unit roots) when measured in first differences (i.e., period-to-period changes) or logarithmic differences (i.e., proportional changes). The variables used in each equation were also tested for cointegration (in levels). For those cases in which no cointegration was found, the regression equations were run with the data measured in first differences or log differences.

Although differencing the data helps to make time series stationary, it also loses information and can therefore result in less reliable estimates. In some of the equations this was not a problem, but in the equations for the profit share and the investment rate in manufacturing, differencing the data resulted in very poor statistical fits. As a result, other methods were used to estimate these two equations. Both of the equations that didn’t fit well in differences (i.e., for the profit share and investment rate) showed evidence of cointegration among the variables, although the cointegration tests were sensitive to the specification chosen. Hence, the results of cointegration analysis are reported for these equations along with more conventional estimates in levels.<sup>48</sup>

### *The Manufacturing Profit Share*

The most successful way of estimating the manufacturing profit share equation was with the data measured in levels and including a lagged dependent variable to represent a partial adjustment process. This eliminated autocorrelation of the residuals, which was a problem in all other specifications tried (including using lags of the independent variables), and produced much better fits than differencing the data. With a lagged dependent variable, the estimated coefficients are estimates of the short-run effects of the other variables, i.e., how much they affect the current value of the dependent variable *relative* to its one-period lag. The effects of lags of the other independent variables are all captured in the lagged dependent variable. Estimates of the long-run effects of those variables can be obtained using the formula

$$\hat{\beta}_i \left( \frac{1}{1 - \hat{\beta}_1} \right)$$

in which  $\hat{\beta}_1$  is the estimated coefficient on the lagged dependent variable and  $\hat{\beta}_i$  is the estimated coefficient on the  $i^{\text{th}}$  variable ( $i \geq 1$ ). Several different specifications (in terms of which other variables were included) were tried as sensitivity tests, i.e., to make sure that the estimated effects of the dollar index are robust. In addition, since the variables in this equation showed evidence of cointegration, the cointegrating equation from the cointegration analysis is also used as a further sensitivity test.<sup>49</sup> The results of these various estimates are given in Table A1.

**Table A1**  
**Estimated Equations for the Profit Share in Domestic Manufacturing**  
**(Quarterly Data)**

Equation	(1)	(2)	(3)	(4)
Method	OLS	OLS	OLS	Cointegration <sup>a</sup>
Sample Period	1973-I to 2002-I	1973-I to 2002-I	1980-I to 2002-I	1973-IV to 2002-I
Constant	5.47** (1.39)	7.08** (1.45)	11.03** (3.18)	
Profit Share (lagged 1 quarter)	0.86** (0.03)	0.82** (0.04)	0.82** (0.05)	
Real Dollar Index	-0.044** (0.012)	-0.049** (0.011)	-0.053** (0.013)	-0.34 (0.08)
GDP Growth Rate	0.20** (0.03)	0.21** (0.03)	0.21** (0.04)	2.09 (0.30)
Time Trend		-0.009** (0.003)		-0.06 (0.02)
Unit Labor Costs			-0.046* (0.023)	
Adjusted $R^2$	0.903	0.910	0.868	
<i>Implied long-run coefficients on:</i> <sup>b</sup>				
Real Dollar Index	-0.33	-0.27	-0.30	-0.34
GDP Growth Rate	1.48	1.17	1.19	2.09
Time Trend		-0.05		-0.06
Unit Labor Costs			-0.26	

Notes: "OLS" refers to ordinary least squares. Numbers in parentheses are standard errors. Sample periods were determined by the longest time periods for which all data (including lags) were available. Significance levels for equations (1)-(3): \* 5% level, \*\* 1% level.

<sup>a</sup>This is the cointegrating equation assuming an intercept and a linear deterministic trend. The Johansen trace test indicates 1 cointegrating equation at the 5% level and the maximum eigenvalue test indicates 1 cointegrating equation at both the 5% and 1% levels. Significance levels for individual coefficients are not reported.

<sup>b</sup> See text for explanation of long-run coefficients in equations (1)-(3). The cointegrating equation (4) does not distinguish short-run and long-run coefficients.

In the equations reported in Table A1, the GDP growth rate is included to control for business cycle effects, and is strongly positive and significant. The most basic version of the equation is (1), in

which the implied long-run effect of the dollar index on the profit share is  $-0.33$ , i.e., for every sustained 1 point rise in the real dollar index, profits fall by 0.33 percentage points of national income generated in domestic manufacturing. Equations (2) and (3) test the sensitivity of this result and find that it is robust when either a time trend (2) or a unit labor cost variable (3) is added into the equations. Adding these variables, each of which is statistically significant when included separately (but not together), reduces the estimated long-run effect of the dollar index only slightly. (The equation was also estimated with the PPI for fuels as an index of energy costs, but this variable was not statistically significant.) The cointegrating equation (4) yields remarkably similar (long-run) coefficients for the dollar index and the time trend, although it yields a somewhat higher estimate of the growth rate effect (perhaps because of the omission of the lagged dependent variable from the cointegration test). Based on these results, the coefficient of  $-0.30$  from equation (3) is used as a mid-range estimate of the long-run dollar effect in order to calculate the quantitative impact of the dollar's rise on manufacturing profits discussed in the text.

### *The Investment Rate in Manufacturing*

For the investment rate (i.e., capital expenditures as a percentage of the capital stock at the end of the previous period, both measured at current costs) in manufacturing, the best fits were obtained using the variables in levels and with certain lags. Lags are common in investment models because of the time it takes for changes in observed economic conditions to affect firms' desired investment plans, and then for firms to design and implement those plans (e.g., to order and install new equipment or to construct new facilities). The most robust variable for explaining investment is the growth rate, representing business cycle effects (known in the investment function literature as the "accelerator effect"). Many theories emphasize negative effects of (real) interest rates on investment, but empirical evidence on interest rate effects is mixed at best. Many studies have found interest rate effects (or a broader measure known as the "cost of capital") to be small, statistically insignificant or to have the "wrong" sign (positive).<sup>50</sup>

Also, much research has shown the prevalence of financial constraints on investment, which can prevent firms from making otherwise desired capital expenditures.<sup>51</sup> Such financial constraints are usually represented in econometric tests by cash flows or other profit measures; in the present analysis, the profit share is used. Financial constraints often operate contemporaneously rather than with lags, since they can force firms to cut back on already planned or desired investment projects. What is innovative in the present analysis is the inclusion of the Fed's real broad dollar index to test for direct (negative) exchange rate effects on investment; this author is aware of only one previous study that has tested for (and found) such effects.<sup>52</sup>

Table A2 (below) reports the results of several different variants of an investment equation for the U.S. manufacturing sector. Annual data had to be used for the investment equation because the investment and capital stock data series for manufacturing are only available on an annual basis (annual averages of monthly and quarterly data series were used as needed). Given the use of annual data, the number of lags that can be included is necessarily limited. The sample ends in 2000 because the investment and capital stock data for manufacturing for 2001 are not yet available. As noted earlier, estimates of the investment equation in first differences yielded very poor fits and therefore the equation was estimated in levels as well as using cointegration methods.

Equation (1) in Table A2 is a baseline investment equation without a dollar index included. The profit share and growth rate (accelerator) variables are positive and significant, as expected, but the real interest rate variable has the wrong sign (positive) and is insignificant (and this was also true using several different specifications of the real interest rate<sup>53</sup>). Hence, the real interest rate was omitted from

the other equations. Equation (2) shows the effects of including the real dollar index (but omitting the real interest rate). The real dollar index is negative and significant at the 5% level, while the coefficients on the other variables change only slightly and are still significant at the 1% level. This is strong evidence that the dollar's value has a negative effect on manufacturing investment in the United States, even controlling for other factors.

**Table A2**  
**Estimated Equations for the Manufacturing Investment Rate**  
**(Annual Data)**

Equation	(1)	(2)	(3)	(4)
Method	OLS	OLS	2SLS <sup>a</sup>	Cointegration <sup>b</sup>
Sample Period	1975-2000	1975-2000	1975-2000	1977-2000
Constant	5.15** (1.17)	11.42** (2.35)	11.00** (2.64)	
Profit Share	0.30** (0.06)	0.19** (0.06)	0.20** (0.07)	0.08 (0.05)
GDP Growth Rate (lagged one and two years) <sup>c</sup>	0.24* (0.10)	0.30* (0.09)	0.30** (0.09)	0.71 <sup>d</sup> (0.13)
Real Interest Rate <sup>e</sup>	0.10 (0.07)			
Real Dollar Index (lagged one year)		-0.045* (0.019)	-0.042* (0.020)	-0.115 (0.016)
Adjusted R <sup>2</sup>	0.517	0.587	0.586	

Notes: "OLS" means ordinary least squares; "2SLS" means two-stage least squares. Numbers in parentheses are standard errors. Sample periods were determined by the longest time periods for which all data (including lags) were available. Significance levels for equations (1)-(3): \* 5% level, \*\* 1% level.

<sup>a</sup>The profit share was treated as endogenous; all other RHS variables were treated as exogenous or predetermined (i.e., lagged variables). The instruments used in the first stage regression were the GDP growth rate (0 to 2 lags), the real dollar index (0 to 1 lag), the profit share (1 lag), a time trend, and a constant.

<sup>b</sup>This is the cointegrating equation assuming an intercept and a linear deterministic trend (but no time trend in the cointegrating equation). The Johansen trace test indicates 1 cointegrating equation at the 1% level and 2 cointegrating equations at the 5% level; the maximum eigenvalue test indicates 2 cointegrating equations at the 5% and no cointegrating equations at the 1% level. Significance levels for individual coefficients are not reported.

<sup>c</sup>Coefficients are for the sum of the coefficients on the GDP growth rate lagged one and two years, except as indicated; standard errors are for the null hypothesis that the sum equals zero using a Wald F-test.

<sup>d</sup>One annual lag only.

<sup>e</sup>Prime rate charged by banks minus the inflation rate as measured by the percentage change in the GDP chain-type price index. See text and endnote 53 for discussion of alternative measures.

Certain econometric issues lead to the estimation of alternative equations (3) and (4) as sensitivity tests. Because the profit share is an endogenous variable, and is a function of other right-hand side variables,<sup>54</sup> it could be argued that equation (2) suffers from an identification (simultaneity) problem. To remedy this, equation (2) is re-estimated with two-stage least squares (2SLS), treating the profit share as endogenous, and using as instruments all the exogenous variables in the investment function plus the exogenous variables in equation (2) from Table A1 above. The resulting estimates (equation (3) in Table

A2) are remarkably similar to those in the OLS equation (2), and the real dollar index is still negative and significant at the 5% level, lending further support to the hypothesis of significant direct negative effects of the dollar's value on manufacturing investment.<sup>55</sup> Equation (3) is used to estimate the effects of the rise in the dollar on investment between 1995 and 2001 as reported in the text.

Finally, the fact that the variables in this equation have unit roots suggests the need for a cointegration test, which shows evidence of at least one significant cointegrating vector and possibly two such vectors (see notes to Table A2 for details). The cointegrating equation (assuming only one cointegrating vector) is presented as equation (4) in this table. The coefficients differ somewhat in magnitude from those in equations (2) and (3), but have the same signs, and if anything the direct negative effects of the dollar on manufacturing investment are estimated to be even greater in the cointegrating equation than in the OLS and 2SLS estimates.

### *Hours and Employment in Manufacturing*

Variations in hours and employment in manufacturing are well explained by a very simple specification with the variables measured in first differences of natural logarithms ("log differences," which approximate percentage changes). Log differences were used for these equations for three reasons: they were stationary (all the included variables had unit roots in logs but not in log differences); they yield good fits in the regressions; and the coefficients can be interpreted as elasticities. The variables in these equations were not cointegrated, according to standard cointegration tests, and hence it was preferred to use standard regression methods with the data series in a form that was stationary (i.e., log differences).

The model assumes that demand for workers in the manufacturing sector depends primarily on two factors: GDP growth, which determines the overall demand for manufactured goods; and the real value of the dollar, which determines how profitable it is to produce manufactured goods in the United States either for export markets or in competition with imports. GDP growth affects hours and employment contemporaneously, while the value of the dollar affects them with lags of up to four quarters due to the time it takes for imports and exports to adjust to changes in the exchange rate. This model explains a relatively high percentage of the changes in manufacturing hours and employment.

The equations for hours and employment implied by this model were estimated by ordinary least squares (OLS) using quarterly data for 1980-II to 2002-I with the following results:

$$\Delta \log \text{Hours}_t = -0.01 + 1.14 \Delta \log \text{Real GDP}_t - 0.13 \Delta \log \text{Real Dollar Index} + \varepsilon_t$$

(0.001) (0.11) (0.06)

(adjusted  $R^2 = 0.571$ )

$$\Delta \log \text{Employment}_t = -0.01 + 0.83 \Delta \log \text{Real GDP}_t - 0.12 \Delta \log \text{Real Dollar Index} + v_t$$

(0.001) (0.09) (0.05)

(adjusted  $R^2 = 0.529$ )

where the "t" subscript designates the current quarter; the numbers in parentheses are standard errors; and  $\varepsilon_t$  and  $v_t$  are random error terms. The coefficients on  $\Delta \log \text{Real Dollar Index}$  are the sums for 1-4 quarterly lags and the standard errors are for the null hypothesis that the sum of these coefficients equals zero using a Wald F-test. The constants and  $\Delta \log \text{Real GDP}$  (i.e., the GDP growth rate) are significant at the 1% level in both equations;  $\Delta \log \text{Real Dollar Index}$  (i.e., the percentage increase in the value of the dollar) is significant at the 5% level in both equations. The adjusted  $R^2$ 's are relative high for equations estimated in log differences. Note that, with the variables measured in log differences, the constant terms



simultaneously determined endogenous variables, and hence there would be a “simultaneity bias” in regressing the quantity on the price. This problem is solved here by using the real dollar index as an “instrument” for the relative price variable, since presumably the value of the dollar is independent of the behavior of the steel market and hence can be taken as exogenously given in a steel import equation.<sup>57</sup>

Second, the sample period was limited to 1980-2001 because of changes in the availability of import supplies in the 1980s and after compared with earlier decades. As discussed in the text, many new suppliers of steel imports in the developing countries and “transition economies” entered the U.S. market with competitive products during the 1980s and 1990s. As a result, U.S. demand for steel imports became more sensitive to relative prices (and hence to the value of the dollar) and coefficients estimated with longer time series underestimate that sensitivity for the more recent period. Since our focus in this study is on the late 1990s and early 2000s, a shorter but more recent sample period was preferred. Having 22 annual observations with two independent variables strikes a good balance between having enough degrees of freedom to obtain reliable estimates and having a recent enough sample period to obtain coefficient estimates relevant to the 1995-2001 episode of dollar appreciation.

Third, lags of the real dollar index were tested and found to be statistically insignificant. This shows that the effects of changes in the exchange rate are felt relatively quickly (i.e., within one year, since these are annual data) in the U.S. steel market. Lastly, there is no constant term in the steel import equation reported here because the constant was insignificant when it was included.

### *Data Definitions and Sources*

This section gives the exact definitions and sources for the data series used in the preceding statistical analysis.<sup>58</sup> Abbreviations and websites (homepages) for the major data sources are as follows:

U.S. Department of Commerce, Bureau of Economic Analysis (BEA); [www.bea.gov](http://www.bea.gov).

U.S. Department of Labor, Bureau of Labor Statistics (BLS); [www.bls.gov](http://www.bls.gov).

U.S. Board of Governors of the Federal Reserve System (Federal Reserve Board or FRB);  
[www.federalreserve.gov](http://www.federalreserve.gov).

American Iron and Steel Institute, *Annual Statistical Report*, various years (AISI); [www.steel.org](http://www.steel.org).

Profit share in manufacturing: profit income as a percentage of national income generated in the manufacturing sector; BEA, National Income and Product Accounts (NIPAs), Tables 6.1B and 6.1C for national income by sector, and Tables 6.16B and 6.16C for profits by sector. Annual and quarterly data downloaded from [www.bea.gov/bea/dn/nipaweb/index.asp](http://www.bea.gov/bea/dn/nipaweb/index.asp).<sup>59</sup>

Real dollar index: trade-weighted index of the real (inflation-adjusted) value of the U.S. dollar; “broad” index includes both “major” currencies and currencies of “other important trading partners, March 1973 = 100; FRB, Federal Reserve Statistical Release H.10, Foreign Exchange Rates, Summary Measures of the Foreign Exchange Value of the Dollar. Monthly data for the real broad index downloaded from <http://www.federalreserve.gov/releases/h10/Summary/> and converted to quarterly or annual time series as needed by the author.

GDP growth rate: percentage change in real gross domestic product at chained 1996 prices, BEA, National Income and Product Accounts (NIPAs), Table 1.2 for real GDP (percentage changes were calculated by the author; quarterly growth rates are expressed at an annualized rate). Annual and quarterly data downloaded from [www.bea.gov/bea/dn/nipaweb/index.asp](http://www.bea.gov/bea/dn/nipaweb/index.asp).

Unit labor costs in manufacturing: index (1992 = 100), BLS, quarterly data downloaded from [www.bls.gov/lpc/home.htm](http://www.bls.gov/lpc/home.htm) under Major Sector Productivity and Costs – Create customized tables (one screen).

Investment rate in manufacturing: annual investment as a percentage of the capital stock at the end of the previous year, from BEA, Fixed Asset Tables: investment from Table 4.7, “Historical-Cost Investment in Nonresidential Fixed Assets by Industry Group and Legal Form of Organization”; yearend capital stocks from Table 4.1, “Current-Cost Net Stock of Nonresidential Fixed Assets by Industry Group and Legal Form of Organization.” Annual data downloaded from [www.bea.gov/bea/dn/faweb/AllFATables.asp](http://www.bea.gov/bea/dn/faweb/AllFATables.asp).

Real interest rate: prime interest rate minus the inflation rate (measured by the annual percentage rate of change in the GDP chain-type price index). Prime interest rate from FRB, Federal Reserve Statistical Release H.15, Selected Interest Rates; monthly data for “bank prime loan rate” downloaded from <http://www.federalreserve.gov/releases/h15/data.htm> and converted to annual averages by the author. The GDP chain-type price index was calculated by the author by dividing nominal GDP (BEA, NIPAs, Table 1.1) by “real” GDP at chained 1996 prices (BEA, NIPAs, Table 1.2); annual data downloaded from [www.bea.gov/bea/dn/nipaweb/index.asp](http://www.bea.gov/bea/dn/nipaweb/index.asp).

Hours of labor in manufacturing: index (1992 = 100), BLS, quarterly data downloaded from [www.bls.gov/lpc/home.htm](http://www.bls.gov/lpc/home.htm) under Major Sector Productivity and Costs – Create customized tables (one screen).

Employment of labor in manufacturing: index (1992 = 100), BLS, quarterly data downloaded from [www.bls.gov/lpc/home.htm](http://www.bls.gov/lpc/home.htm) under Major Sector Productivity and Costs – Create customized tables (one screen).

Real GDP: in chained 1996 prices, BEA, National Income and Product Accounts (NIPAs), Table 1.2. Annual and quarterly data downloaded from [www.bea.gov/bea/dn/nipaweb/index.asp](http://www.bea.gov/bea/dn/nipaweb/index.asp) (quarterly data are expressed at an annual rate).

Imports of steel: total, in net tons, from AISI, *Annual Statistical Report*, various years, Table 1A.

Apparent consumption of steel: in net tons, from AISI, *Annual Statistical Report*, various years, Table 1A. For all years up to 1984, this variable equals the old AISI series for “apparent supply,” defined as domestic net shipments plus imports minus exports. For 1989-2001, this equals the new AISI series for “apparent supply,” defined as domestic net shipments plus *finished* imports minus exports (excluding semi-finished imports). For 1985-88, the quantity of semi-finished imports was estimated by extrapolating backward from the 1989-2001 (linear) trend for this variable; the estimated semi-finished imports were then subtracted from apparent supply as reported by AISI for those years (prior to 1985, the estimated semi-finished imports were negative and hence were treated as zero).

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## Endnotes

<sup>1</sup> Peter Morici, “The Impact of Steel Import Relief on U.S. and World Steel Prices: A Survey of Some Counter-intuitive Results,” Robert H. Smith School of Business, University of Maryland, College Park, July 2002, p. 1.

<sup>2</sup> For analyses of the causes and consequences of the high dollar in the early 1980s, see: Jeffrey A. Frankel, “The Dazzling Dollar,” *Brookings Papers on Economic Activity*, 1:1985, pp. 199-217; Rudiger Dornbusch, *Dollars, Debts, and Deficits* (Cambridge, MA: MIT Press, 1985); and Paul R. Krugman, *Exchange-Rate Instability* (Cambridge, MA: MIT Press, 1989).

<sup>3</sup> See Yoichi Funabashi, *Managing the Dollar: From the Plaza to the Louvre* (Washington, DC: Institute for International Economics, 1988); the text of the Plaza Accord is excerpted at [www.library.utoronto.ca/g7/finance/fm850922.htm](http://www.library.utoronto.ca/g7/finance/fm850922.htm).

<sup>4</sup> Note that the dollar values shown in Figure 3 are annual averages of monthly indexes, while the foreign-owned assets in the United States are yearend figures for the *preceding* year.

<sup>5</sup> Discussions of the New York stock market in this section were based on information obtained from the Dow Jones website at <http://www.djindexes.com/jsp/industrialAverages.jsp> (see the “Dow data” charts for 1990-99 and 2000-09).

<sup>6</sup> See Peter Morici, *The Trade Deficit: Where Does it Come From and What Does It Do?* (Washington, DC: Economic Strategy Institute, October 1997).

<sup>7</sup> *Ibid.*, p. v.

<sup>8</sup> For an in-depth analysis of the failures of ECB monetary policy that supports the argument in this paragraph see Jörg Bibow, “The Monetary Policies of the European Central Bank and the Euro’s (Mal-)Performance: A Stability Oriented Assessment,” *International Review of Applied Economics*, vol. 16, no. 1 (January 2002), pp. 31-50.

<sup>9</sup> Unlike the other currencies listed here, the Taiwanese dollar was not subject to a speculative attack. However, the Taiwanese government devalued the currency in late 1997 in order to offset the competitive losses caused by the collapse of the Thai baht, thereby possibly precipitating some of the other currency depreciations such as Korea’s. I am indebted to C. Fred Bergsten for calling my attention to this point.

<sup>10</sup> According to U.S. Federal Reserve Statistical Release H.10, Foreign Exchange Rates, Currency Weights (available on-line at [www.federalreserve.gov/releases/h10/Weights/](http://www.federalreserve.gov/releases/h10/Weights/)), the major currency countries currently have a total weight of 54.6 percent in the broad dollar index while the “other important trading partners” account for the other 45.4 percent, based on the composition of total U.S. trade with the included countries for 2001. Including a number of additional, small developing countries that are excluded from the Fed’s “other important trading partners” group, total “other” (non-major) countries accounted for 47.9 percent of overall U.S. trade and 49.6 percent of U.S. imports in 2001 (Census Bureau, “U.S. International Trade in Goods and Services – Annual Revision for 2001,” Exhibit 13, downloaded from [www.census.gov/foreign-trade/Press-Release/2001pr/Final\\_Revisions\\_2001/](http://www.census.gov/foreign-trade/Press-Release/2001pr/Final_Revisions_2001/)).

<sup>11</sup> The Euro Area countries were able to reduce their holdings of currency reserves after the switch to a single currency in 1999 because they would no longer have to intervene to maintain their parities with each other within the former Exchange Rate Mechanism (ERM).

<sup>12</sup> For an analysis that supports this conclusion and interesting policy suggestions for inducing Japan and China to abandon their currency undervaluation, see Ernest H. Preeg, “Exchange Rate Manipulation to Gain an Unfair Competitive Advantage: The Case Against Japan and China,” Manufacturers Alliance/MAPI, Paper presented at Conference on “The Dollar,” Institute for International Economics, Washington, DC, September 24, 2002.

<sup>13</sup> For analysis of the U.S. trade deficit over the past few decades see Robert A. Blecker, *Beyond the Twin Deficits: A Trade Strategy for the 1990s* (Armonk, NY: M.E. Sharpe, Inc., 1992); Robert A. Blecker, “The Trade Deficit and U.S. Competitiveness,” in Robert A. Blecker (editor), *U.S. Trade Policy and Global Growth: New Directions in the International Economy* (Armonk, NY: M.E. Sharpe, Inc., 1996); Robert A. Blecker, “Causes of the U.S. Trade Deficit,” statement to the U.S. Trade Deficit Review Commission, August 19, 1999, available at [www.ustrdc.gov](http://www.ustrdc.gov); and Steven D. Cohen, Robert A. Blecker, and Peter D. Whitney, *Fundamentals of U.S. Foreign Trade Policy: Economics, Politics, Laws, and Issues*, second edition (Boulder, CO: Westview Press, 2002), pp. 80-108.

<sup>14</sup> The fact that the goods and services balance deteriorated much more than the balance for goods in 1995-2000 shows that the service sector is not immune to the problems caused by the overvalued dollar combined with sluggish foreign economies. In the early 1990s, some commentators claimed that a rising surplus in services would soon offset the worsening deficit in goods (mostly manufactures); by the early 2000s, such a claim was no longer credible.

<sup>15</sup> Note that the data for international debts and assets for yearend 2001 are reported in the column for 2002-I, since quarterly data are not available for these variables.

<sup>16</sup> Slight improvements in some of the trade balance figures between 2000 and 2002-I are due to the recession and growth slowdown, but these deficits remained relatively large in 2002-I.

<sup>17</sup> For an earlier analysis of the growing U.S. international debt problem including projections through 2005, see Robert A. Blecker, “The Ticking Debt Bomb: Why the U.S. International Financial Position is Not Sustainable,” Briefing Paper, Economic Policy Institute, Washington, DC, June 1999. The Bureau of Economic Analysis has subsequently revised the historical series for these data so that the *level* of the net debt position for any given year appears lower than in this earlier analysis; however, the projections of the downward trend (i.e., the year-to-year changes) remain essentially valid.

<sup>18</sup> Author’s calculations based on data in U.S. Census Bureau, “U.S. International Trade in Goods and Services – Annual Revision for 2001,” Exhibits 1 and 14, downloaded from [www.census.gov/foreign-trade/Press-Release/2001pr/Final\\_Revisions\\_2001/](http://www.census.gov/foreign-trade/Press-Release/2001pr/Final_Revisions_2001/).

<sup>19</sup> For an earlier study of the harmful effects of the high dollar on the nation’s manufacturing sector focusing more on the export side see National Association of Manufacturers, “Overvalued U.S. Dollar Puts Hundreds of Thousands Out of Work,” revised version (March 2002), available from [www.nam.org](http://www.nam.org).

<sup>20</sup> Manufacturing profits in Figure 5 are measured as the profit share of national income generated in domestic manufacturing industries. A similar picture of an inverse relationship between these two variables results if manufacturing profits are measured in constant (inflation-adjusted) dollars. Note that these are profits on domestic manufacturing operations only and do not include profits of foreign affiliates of U.S. manufacturing companies.

<sup>21</sup> Shifting production to other countries can be a solution for some companies, but does not rescue the profitability of domestic export production.

<sup>22</sup> Profits of non-manufacturing, non-financial corporations for the late 1990s and early 2000s may be exaggerated to some extent by illegitimate accounting practices of the type made famous by the scandals at Enron and WorldCom. How much such accounting practices affect the data shown in Figure 8 will only be determined in the course of future revisions to these statistics and is impossible to gauge at this time.

<sup>23</sup> In this part of the discussion, the terms “capital expenditures” and “investment” (in new plant, equipment, and software) are used interchangeably.

<sup>24</sup> More specifically, this estimate is based on equation (3) in Table A2 in the Statistical Appendix, plus the first stage regression for the profit share in manufacturing, which is an endogenous variable in the two-stage least squares procedure.

<sup>25</sup> The numbers of employees in manufacturing in this paragraph are taken from U.S. Department of Labor, Bureau of Labor Statistics, *Industry at a Glance: Manufacturing, National Employment, Hours, and Earnings*, series ees30000001, All employees (thousands) in manufacturing (SIC codes 20-39); downloaded from the internet at [http://www.bls.gov/iag2/iag.manufacturing\\_t.htm](http://www.bls.gov/iag2/iag.manufacturing_t.htm) by clicking on “Back Data” for “Payroll Employment.”

<sup>26</sup> Of course, workers who lose jobs in manufacturing do not necessarily become permanently unemployed; they may find jobs (usually at lower wages and with less benefits) in other sectors such as services depending on the overall state of the economy. Needless to say, this was easier during the boom years of the late 1990s than the recession and slow-growth years of the early 2000s.

<sup>27</sup> See U.S. Department of Commerce, International Trade Administration, *Global Steel Trade: Structural Problems and Future Solutions*, Report to the President, July 26, 2000 (downloaded from [www.ita.doc.gov/media/steelreport726.htm](http://www.ita.doc.gov/media/steelreport726.htm)); and U.S. International Trade Commission, *Steel*, Investigation No. TA-201-73, Publication 3479, vol. I, Determinations and Views of Commissioners, December 2001. The latter made a legal determination that the domestic producers of most steel products had been “seriously injured” as a result of increased imports under the “escape clause” or “safeguard” provision (section 201) of the U.S. trade laws. This study shows that the overvalued dollar was a significant contributing factor in the increase of steel imports that entered the U.S. market and that were found by the International Trade Commission to have seriously injured the U.S. industry.

<sup>28</sup> Data are from the American Iron and Steel Institute (AISI), *Annual Statistical Report* (Washington, DC: AISI, various years). Apparent consumption (which the AISI calls “apparent supply”) is generally defined as domestic net shipments plus imports minus exports; it is only “apparent” and not actual consumption because it is not adjusted for inventory accumulation (complete data on which are not available). Since 1989, the AISI has adjusted these data to exclude imports of semi-finished products that would otherwise be double-counted when those products are transformed into finished steel products by domestic producers. The data on semi-finished products shown in Figure 10 were estimated by the author for 1985-1988 and assumed to be negligible before that year. See the Statistical Appendix for further discussion.

<sup>29</sup> Figures 11 and 12 both show total imports, i.e., finished plus semi-finished. As discussed in the previous note, the latter are excluded in calculating apparent consumption to avoid double-counting with domestic shipments. However, semi-finished imports do displace U.S. production of similar products and hence should be counted in measuring total import penetration of the U.S. steel market.

<sup>30</sup> For an analysis of the economic impact of the VERs on the U.S. steel industry in the 1980s see Robert A. Blecker and Robert E. Scott, “Labour Rents, Adjustment Costs and the Cost of US Steel Trade Restraints in the 1980s,” *International Review of Applied Economics*, vol. 11, no. 3 (1997): 399-419.

<sup>31</sup> It should be noted that productivity growth in manufacturing was substantially above the national average for the entire nonfarm business sector; hence, steel productivity growth was also above the national average.

<sup>32</sup> Industry-level data for 2001 and 2002 for the variables discussed in this paragraph (labor productivity and unit labor costs) are not yet available. The data for 2001-02, when released, may show some adverse impact of the recession and sluggish recovery, which would be typical in the context of a business cycle downturn.

<sup>33</sup> However, these labor cost data are for currently employed workers, and thus do not include the “legacy costs” of pensions and retiree benefits that are especially significant for some of the larger, integrated steel companies.

<sup>34</sup> For an analysis of the potential employment impact of the bankrupt steel companies see Robert A. Blecker, “Jobs at Risk: The Necessity of Effective Relief for the American Steel Industry,” unpublished manuscript, February 2002 (available from the author on request).

<sup>35</sup> The products on which the USITC made an affirmative determination account for roughly 80 percent of the value of U.S. steel production.

<sup>36</sup> See pp. 1-2, above, and the citation to the study by Peter Morici in endnote 1, above.

<sup>37</sup> Note that this estimated elasticity is significantly different from zero, but not significantly different from one.

<sup>38</sup> It could be argued that the United States can and should tolerate a slight increase in inflation—say, from the current 1-2 percent range up to the 3-4 percent range—if that is the necessary price of rectifying our international

trade imbalances and engineering a recovery of the domestic industrial sector. Recent research shows that small increases in inflation at such low rates are not only not harmful, but can even help to generate sustained lower unemployment. See George Akerlof, William Dickens, and George Perry, "Near-Rational Wage and Price Setting and the Long-Run Phillips Curve," *Brookings Papers on Economic Activity*, 1:2000, pp. 1-60. Nevertheless, it is unlikely that a fall in the dollar would even have such an effect.

<sup>39</sup> The inflation rates as measured by the percentage change in the GDP chain-type price index were 3.7 percent in 1984 (when the dollar was still rising), 3.2 percent in 1985 (when the dollar began falling), 2.2 percent in 1986, 3.0 percent in 1987, and 3.4 percent in 1988 (a year after the dollar bottomed out). Thus, inflation actually *fell* while the dollar was rising most rapidly in 1985-87! Source: U.S. Department of Commerce, Bureau of Economic Analysis, National Income and Product Accounts, Release of July 31, 2002, Table 6, downloaded from [www.bea.gov/bea/newsrel/gdpnewsrelease.htm](http://www.bea.gov/bea/newsrel/gdpnewsrelease.htm).

<sup>40</sup> See, for example, Kathryn M. Dominguez and Jeffrey A. Frankel, "Does Foreign-Exchange Intervention Matter? The Portfolio Effect," *American Economic Review*, vol. 83, no. 5 (December 1993), 1356-69, and Kathryn M.E. Dominguez, "Foreign Exchange Intervention: Did It Work in the 1990s?" Paper presented at Conference on "The Dollar," Institute for International Economics, Washington, DC, September 24, 2002.

<sup>41</sup> Pietro Catte, Giampaolo Galli, and Salvatore Rebecchini, "Report on the G-7: Exchange Markets Can Be Managed!" *International Economic Insights* (September/October 1992), p. 20.

<sup>42</sup> See, for example, John Williamson and Marcus H. Miller, *Targets and Indicators: A Blueprint for the International Coordination of Economic Policy* (Washington, DC: Institute for International Economics, 1987); John Williamson, "Crawling Bands or Monitoring Bands: How to Manage Exchange Rates in a World of Capital Mobility," Institute for International Economics, Policy Brief No. 99-3, February 1999; John Grieve Smith, *There Is A Better Way: A New Economic Agenda* (Anthem Press, 2001), chap. 5; and Christian E. Weller and Laura Singleton, "Reining in Exchange Rates: A Better Way to Stabilize the Global Economy," Economic Policy Institute, Briefing Paper, September 2002. Some of these proposals include other elements, such as macroeconomic policy coordination, international currency stabilization funds, capital controls on short-term financial flows, and a "Tobin tax" on international currency transactions, which are argued to be necessary for long-run exchange rate stability but are more controversial. See also the discussion of Paul Davidson's proposal in endnote 45, below.

<sup>43</sup> See John Williamson (editor), *Estimating Equilibrium Exchange Rates* (Washington, DC: Institute for International Economics, 1994); Simon Wren-Lewis and Rebecca Driver, *Real Exchange Rates for the Year 2000* (Washington, DC: Institute for International Economics, 1998); and Andrew Hughes Hallett, "Updated Estimates of the Fundamental Value of the Dollar," Paper presented at Conference on "The Dollar," Institute for International Economics, Washington, DC, September 24, 2002.

<sup>44</sup> Data from U.S. Census Bureau, "U.S. International Trade in Goods and Services – Annual Revision for 2001," Exhibit 13, downloaded from [www.census.gov/foreign-trade/Press-Release/2001pr/Final\\_Revisions\\_2001/](http://www.census.gov/foreign-trade/Press-Release/2001pr/Final_Revisions_2001/).

<sup>45</sup> The idea of limiting foreign exchange reserve accumulations is part of a broader proposal for a new international monetary system developed by Paul Davidson, "Reforming the International Payments System," in Robert A. Blecker (editor), *U.S. Trade Policy and Global Growth: New Directions in the International Economy* (Armonk, NY: M.E. Sharpe, Inc., 1996). Davidson's proposal builds on John Maynard Keynes' original ideas from the 1940s for a post-war international monetary system, including the creating of an international unit of account (Keynes' "bancor" or Davidson's "international monetary clearing unit" [IMCU]). This proposal envisions an international monetary clearing system in which all nations would hold their reserves in IMCUs at the clearing house, and it would be easy for the clearing system authorities to confiscate excessive credit balances (i.e., international reserves) that were not spent by the offending national monetary authorities. While such an ambitious plan has little chance of implementation in the foreseeable future, the idea of limiting reserve holdings is a good one and could possibly be implemented through existing institutions such as the International Monetary Fund (which already monitors reserve holdings) in conjunction with the major central banks that issue reserve currencies (e.g., the Fed and ECB).

<sup>46</sup> "Logarithms" and "logs" always refer to natural logarithms (base-*e*) in this study.

<sup>47</sup> The ADF tests were run in various specifications (i.e., with or without intercepts and trends and with varying numbers of lags) and the results were entirely robust. Note that the GDP growth rate is really a differenced variable

(i.e., the proportional rate of change in real GDP); real GDP itself has a unit root and it is not surprising that its rate of change is stationary.

<sup>48</sup> It should be recalled that conventional unit root tests have low power to reject the null hypothesis of a unit root in relatively short time series, i.e., a few decades or less. Some of the variables that appear to have unit roots in the present analysis are ratios or rates that might be expected to be stationary over longer time periods (e.g., the profit share, the investment rate, and—if one believes in the hypothesis of long-run relative purchasing power parity—the real value of the dollar). These variables may appear to be non-stationary only because of the short length of the available data. Perhaps it is not a coincidence that the two equations that yielded poor fits in differences were the equations for two such variables, i.e., the profit share and investment rate, and therefore running these equations in levels may be appropriate after all.

<sup>49</sup> A lagged dependent variable was not included in the cointegration estimates, which do not distinguish between short-run and long-run effects.

<sup>50</sup> Two major econometric studies of investment functions that support these conclusions are Robert Eisner, *Factors in Business Investment* (Cambridge, MA: National Bureau of Economic Research and Ballinger Books, 1978), and Barry P. Bosworth, *Saving and Investment in a Global Economy* (Washington, DC: Brookings Institution, 1993). See also the comprehensive review of the literature on investment functions by Robert S. Chirinko, “Business Fixed Investment Spending: A Critical Survey of Modeling Strategies, Empirical Results, and Policy Implications,” *Journal of Economic Literature*, vol. 31, no. 4 (December 1993), pp. 1875-1911.

<sup>51</sup> For the classic econometric study of this issue see Steven M. Fazzari, R. Glenn Hubbard, and Bruce C. Petersen, “Financing Constraints and Corporate Investment,” *Brookings Papers on Economic Activity*, 1:1988, pp. 141-206.

<sup>52</sup> See Paula R. Worthington, “Investment, GNP, and Real Exchange Rates,” *Economic Perspectives*, Federal Reserve Bank of Chicago, vol. 15, no. 4 (July/August 1991), pp. 2-10.

<sup>53</sup> The real interest rate used here is the prime rate minus the current inflation rate. An alternative measure, the prime rate minus the one-year lagged inflation rate (to proxy for expected inflation) was also positive and insignificant. Lags of both measures were also tried and were also positive and insignificant. The real interest rate, by any of these measures, was also insignificant when the dollar index was included in the equation. When the real interest rate is omitted from equation (1), the other coefficients remain virtually unchanged in magnitude and significance.

<sup>54</sup> Obviously, from the estimates in Table A1, the profit share is a function of the (current) real dollar index. Less obviously, because of the lagged dependent variable in the profit share function, the profit share is also a function of lagged GDP growth rates.

<sup>55</sup> The statistical significance of the dollar index was sensitive to the choice of instruments for the profit share. Specifically, when unit labor costs are included as an instrument, the dollar index still has a negative sign but the coefficient is smaller and insignificant. However, a better fit (as measured by adjusted  $R^2$ ) was obtained using the time trend instead of unit labor costs. See the discussion of the profit share equations in Table A1 for more on these variables, and note that the time trend was significant in both the OLS and cointegration estimates.

<sup>56</sup> Note that, although semi-finished imports are excluded from the calculation of apparent consumption, they are included in total imports (the dependent variable) because all imports (whether finished or semi-finished) may displace domestic production of similar products and hence are of concern in understanding the overall effect of the high dollar on the domestic steel industry. Also note that the AISI provides data on finished vs. semi-finished steel imports for 1989-2001 only; the author estimated the quantity of semi-finished imports for 1985-1988 and used these estimates to adjust the AISI’s earlier data for apparent consumption (which included all imports) downward. Semi-finished imports were assumed to be negligible (i.e., zero) prior to 1985.

<sup>57</sup> An alternative methodology would be to specify a more complete model of the steel industry, including an equation for the domestic price, and then to use two-stage least squares (instrumental variables) to estimate the import demand function. This was done by the present author in two earlier studies: Robert A. Blecker, “Markup Pricing, Import Competition, and the Decline of the American Steel Industry,” *Journal of Post Keynesian Economics*, vol. 12, no. 1 (Fall 1989), pp. 70-87, and “Import Competition, Investment Finance, and Cumulative

Decline in the U.S. Steel Industry, 1962-1981,” *International Review of Applied Economics*, vol. 5, no. 2 (May 1991), pp. 171-95. Such a complete model would be beyond the scope of the present paper, which is focused on the effects of the value of the dollar. Furthermore, domestic steel prices track steel import prices so closely in the 1990s (as shown in Figure 14) that such an approach (which assumes a limited response of domestic prices to import prices) may no longer be useful.

<sup>58</sup> Only the data series used in the econometric analysis in the Statistical Appendix are included here; definitions and sources for other data series are given in the appropriate parts of the text, tables, figures, and endnotes.

<sup>59</sup> This and other data series from the National Income and Product Accounts were taken from the BEA statistical release of June 27, 2002 (which included “final” estimates for first quarter 2002). Subsequent revisions to these data were not available in time to be incorporated into this paper.