

In Brief: **High Foreign Real Interest Rates and Investment in the 1990s**

by C. L. Osler

Long-term interest rates among developed countries have been quite high during the 1990s. This article suggests that the high rates set back the economies of these countries by depressing output and investment.¹ Business investment was hit particularly hard, experiencing unusually large declines both before and during the recessions in these countries. Housing construction seems to have been disrupted as well, although government stimulus programs and other special factors largely offset that negative influence in some countries. Overall, high interest rates are estimated to have reduced output in the foreign members of the Group of Seven (G-7) by 2½ to 4½ percent per year on average over 1990-93.

Investment consequences of high real interest rates abroad: A qualitative analysis

Inflation-adjusted or "real" interest rates among the major industrial trading partners of the United States have generally exceeded 5 percent over the past ten to fifteen years (Chart 1). This figure is clearly above earlier rates, which averaged 2.3 percent before 1973 and 0.5 percent from 1973 to 1982 for the group as a whole.² The rates in this decade have also outstripped average rates during the recessions of the mid-1970s and early 1980s. In 1990, average real rates in the foreign members of the G-7 were over 6 percentage points higher than they had been in com-

parable earlier business cycles.³ Though they declined somewhat during 1992 and 1993, at the end of this period real rates for this group remained a still-notable 2½ percentage points above rates in the business cycles that peaked in second-quarter 1974 and first-quarter 1980.⁴

In some members of the G-7, these high interest rates correlated very clearly with a drop-off in overall private investment (Chart 2). In Canada and the United Kingdom, private investment declined unusually rapidly during the early stages of these countries' recessions, and it remained depressed far longer than is typical. In Germany, France, and Japan, however, the effects of the high real interest rates were less evident; private investment did not perform any worse than in past downturns.

A closer look at private investment and its components reveals that the apparent resilience of overall investment in Germany, France, and Japan was due entirely to strength in residential construction in those countries (Chart 3 plots the behavior of real residential investment). By contrast, real business investment, which typically represents about two-thirds of private investment, fell exceptionally rapidly

² To calculate the foreign G-7 average, 1992 dollar GDP weights were used

⁴ Analysts differ about the causes of these high real interest rates. Among the causes cited are (i) high levels of indebtedness among individuals and businesses, (ii) increased equilibrium and/or expected returns to capital, and (iii) widening fiscal imbalances in the United States and some other countries. See Howe and Pigott, "Determinants of Long-Term Interest Rates: An Empirical Study of Several Industrial Countries," Federal Reserve Bank of New York *Quarterly Review*, vol 16, no 4 (Winter 1991-92), pp 12-28. See also Brunner and Kaminsky, "World Interest Rates: The Driving Forces," Board of Governors of the Federal Reserve System, mimeo, April 1993, and Barro and Sala-i-Martin, "World Real Interest Rates," *Macroeconomics Annual* (National Bureau of Economic Research, 1990), pp 15-60

¹ Countries considered here are members of the Group of Seven: France, Germany, the United Kingdom, Japan, and Canada. Although long-term real interest rates in Italy, another G-7 member, were also high during the 1990s, this country is not discussed extensively in the text for reasons of space and data availability. The data for "Germany" refer to the western region alone.

² The historical period used to construct the pre-1973 average begins in 1967.

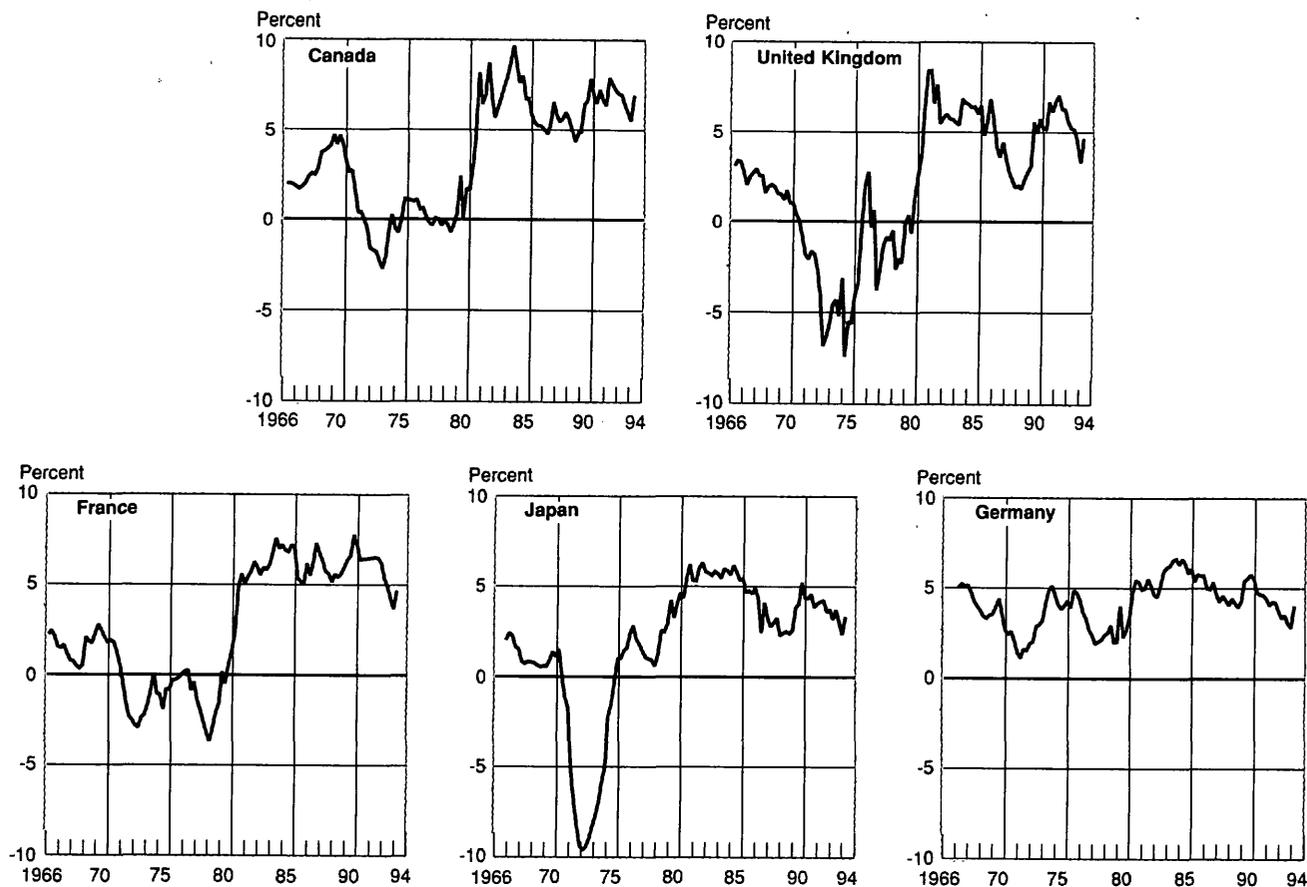
during the recent recession in all the countries under consideration (Chart 4). The impression that high rates were strongly depressing business investment is reinforced by two observations. First, this sector showed marked weakness in Japan despite modest fiscal stimulus measures.⁵ Second, the growing use of computers causes the data on real business investment, which includes a measure of the amount of new computing power, to understate this sec-

tor's weakness. The fall in business investment would be all the more striking if measured in nominal terms, in part because the cost of purchasing a given amount of computing power has declined so dramatically. Note too that business investment was quite weak in most countries even before overall output began to decline, implying that this sector may have contributed to the onset of the recessions.

The strength of residential construction in Germany, France, and Japan is largely attributable to unusual factors specific to those countries. In Germany, an immigration wave that began late in the 1980s spurred the demand for new housing. The population of western Germany, constant

⁵ Japanese tax incentives and other measures to promote capital investment are expected to cost less than 1/3 of 1 percent of GDP, however, so it is not surprising that they did not fully offset the negative effects of high real interest rates

Chart 1
Real Government Bond Yields



Sources Central Bank reports, Statistics Canada, *Canadian Economic Observer*, Central Statistical Office of the United Kingdom, *Monthly Digest of Statistics, Supplement*; *Consensus Forecasts*, April 1994

Notes Real interest rates are calculated by subtracting from long-term bond yields (for bonds with maturities of roughly ten years) the average of actual inflation over the current and following two years. To calculate real rates for 1992-1 to 1994-1, forecast values of inflation through 1996-1 were used when actual values were not yet available

for two decades, swelled by roughly 6 percent during 1988-92. The immigrants are primarily ethnic Germans from Eastern European states once under Communist control.

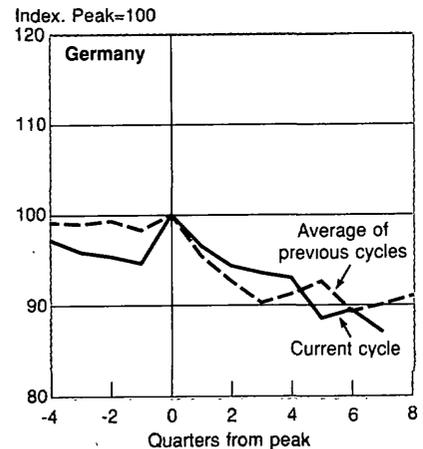
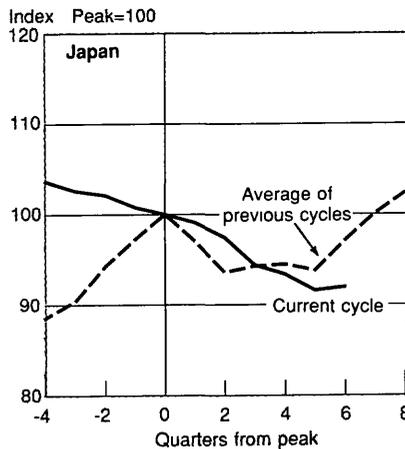
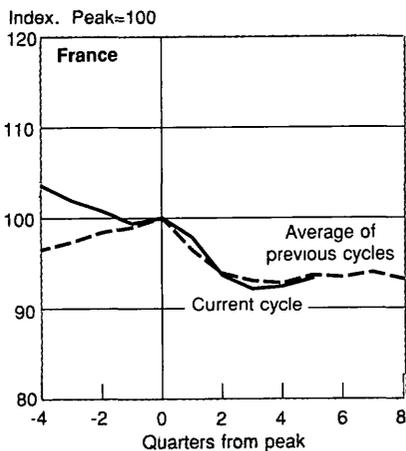
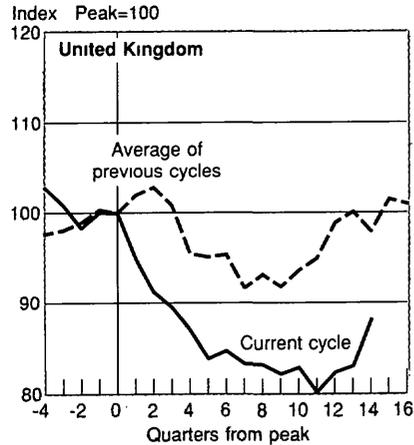
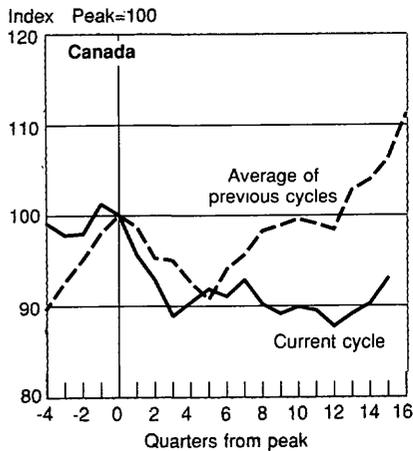
The support for housing construction in Japan and France comes principally from special government programs targeted directly at this sector. The Japanese government has sought to stimulate housing construction through a vast increase in the supply of subsidized housing loans; since 1992 it has allocated roughly 1½ percent of a year's GDP for this purpose. The government has charged only 3.6 percent on its mortgage loans, substantially less than the prevailing market rate of about 5.8 percent. In addition, some taxes and regulations have been altered to promote further housing construction: for example, the government reduced the gift tax for those who receive funds for the purpose of pur-

chasing residential property, and it eased regulations regarding floor areas and basements. Last year, these financial and tax incentives helped stimulate double-digit growth in private housing starts, which was the main source of strength in housing construction overall.

In contrast to the Japanese, the French are relying particularly heavily on tax incentives to stimulate housing construction and are using direct subsidies very little. Employees whose housing-related expenditures exceed FF 20,000 (\$3,000) can now withdraw funds without penalty from special profit-share savings funds that are normally frozen for five years. In a similar vein, individuals who withdraw money market funds to buy a home are exempted from the capital gains tax on such withdrawals. The French authorities have also tried to stimulate residential construction

Chart 2

Private Investment: A Cyclical Comparison



Sources: Central Bank reports, Statistics Canada, *Canadian Economic Observer*; Central Statistical Office of the United Kingdom, *Monthly Digest of Statistics*; INSEE, *Information Rapides*

more directly by accelerating the government's own investment in housing. These efforts will likely involve a smaller commitment of government funds, relative to GDP, than the Japanese efforts.⁶

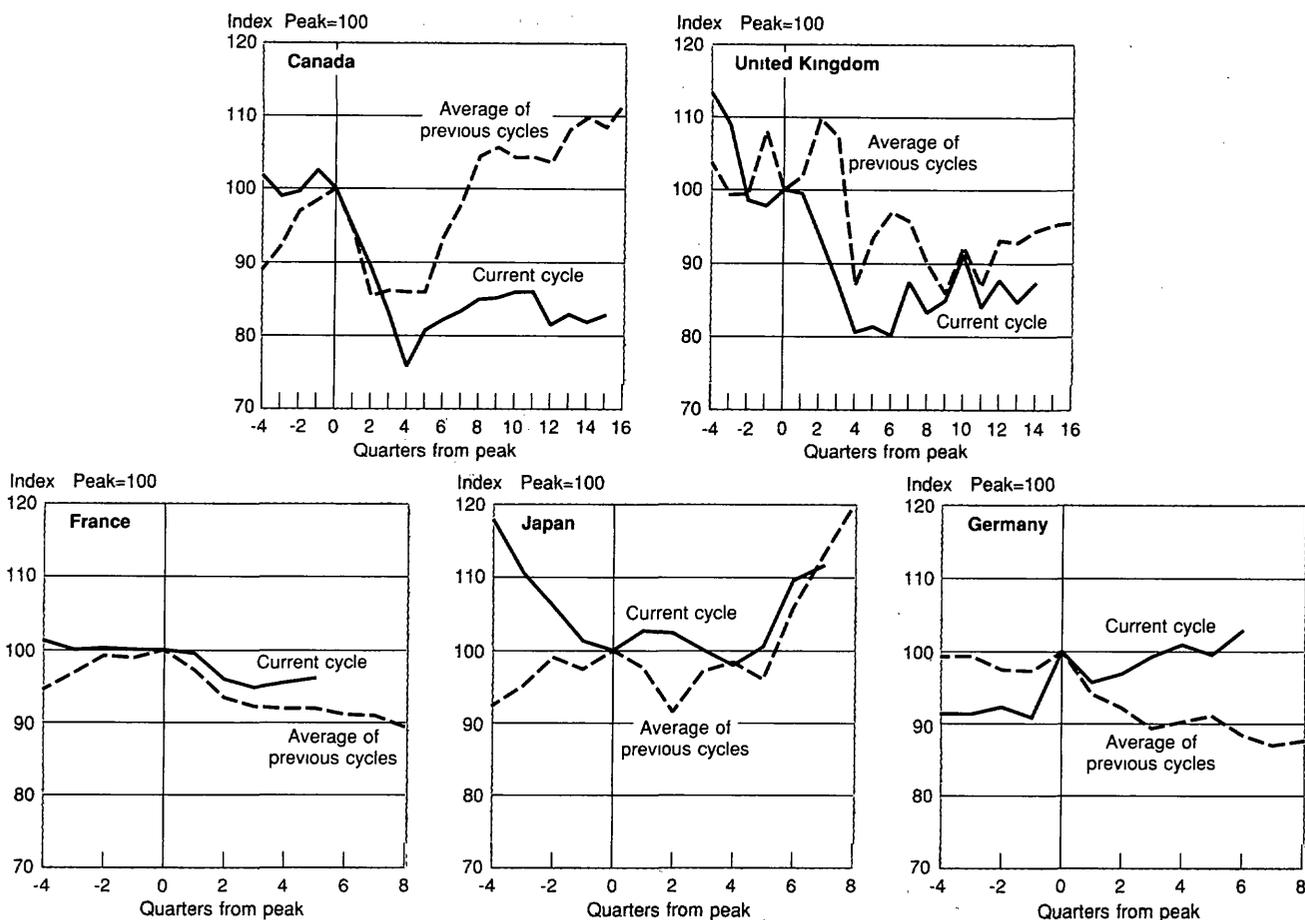
The fiscal stimulus programs in Japan and France were implemented after the countries' recessions began. Before then, housing construction in these countries was actually declining, and was much weaker than it had been before earlier recessions. This observation suggests that the high real interest rates had indeed depressed this sector in the

beginning of recession in France and Japan, in much the same way as in Canada and the United Kingdom. In the latter two countries, however, no special policies were implemented to support residential construction, so it is not surprising that the sector remained unusually depressed throughout the early 1990s.

The extended weakness of residential and business investment in Canada and the United Kingdom may have implications for the future behavior of investment in other countries. Although the economies of the two countries have begun to grow once again, private investment spending has not led the current recoveries, as it did in earlier

⁶ Government estimates of the cost of such programs are not available.

Chart 3
Private Residential Investment: A Cyclical Comparison



Sources: Central Bank reports, Statistics Canada, *Canadian Economic Observer*, Central Statistical Office of the United Kingdom, *Monthly Digest of Statistics*, INSEE, *Information Rapides*

Note: In Germany the "construction" measure includes business construction. Unpublished residential construction data portray qualitatively similar behavior.

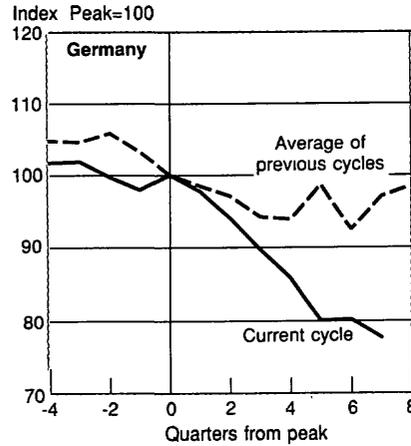
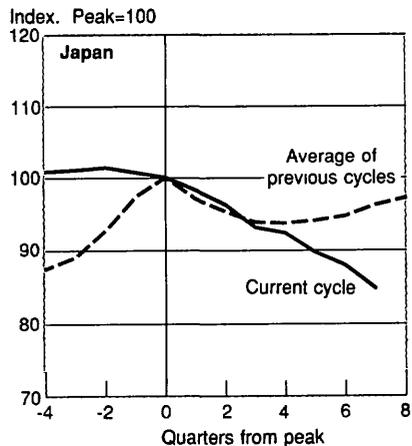
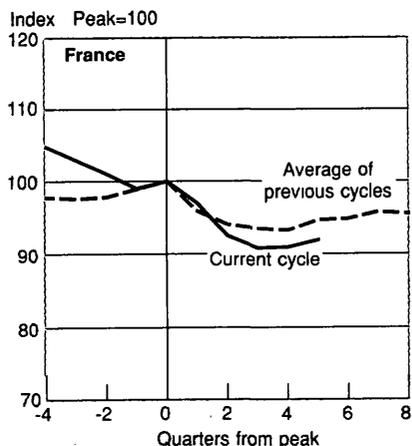
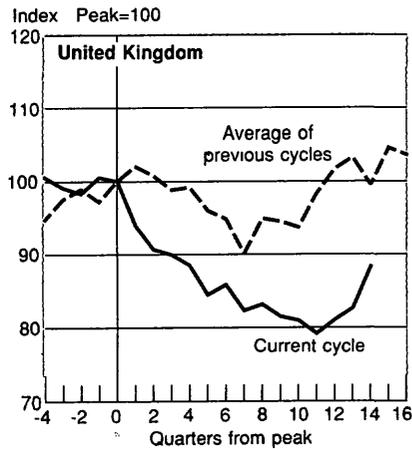
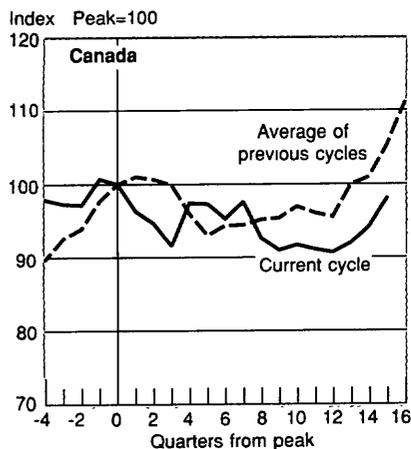
business cycles. Indeed, investment spending has remained significantly depressed relative to its behavior in earlier recessions. The evidence presented so far suggests that high real interest rates contributed to the relative weakness of investment in the current cycle. Since real rates remain high in France and Japan, it is likewise possible that investment may not contribute as strongly to economic recovery in these countries as it did in the past.

To be sure, factors other than high real interest rates may have weakened investment abroad during the 1990s. The worldwide investment boom of the late 1980s may have left firms with excess capacity, prompting them to scale back on investment in the early years of the next decade. The

relevance of the earlier investment boom is not strongly supported by capacity utilization data, however, since in most of these countries capacity utilization rates have fallen no more (and in some cases less) during the most recent recession than in past recessions. Alternatively, weak output growth may have generated weak investment, rather than the reverse. Output and investment depend on each other, of course, and causal relations between them are not easily sorted out. Nonetheless, a striking pattern across all of the countries under consideration suggests that investment was the drag on GDP: the GDP decline early in the recent recessions was less rapid than was typical, while the decline in business investment (and housing

Chart 4

Private Business Investment: A Cyclical Comparison



Sources Central Bank reports, Statistics Canada, *Canadian Economic Observer*; Central Statistical Office of the United Kingdom, *Monthly Digest of Statistics*, INSEE, *Information Rapides*

Note In Germany the category "business investment" includes only machinery and equipment In the other countries the category also includes nonresidential construction

investment where it was not otherwise supported) was more rapid than normal.

Some may wonder whether the relationship between investment and real interest rates suggested here is overly simplistic. For example, it may be argued that the influence of changes in real interest rates has been neglected relative to the influence of interest rate levels. The relationship between the cost of capital and investment is indeed complex; both the levels and the changes in interest rates are potentially important, the relationship may well vary over time,⁷ and, in the data, the relationship may be obscured by the influence of factors such as expectations about future demand conditions.⁸ Nonetheless, complexities exist in all areas of economics, and yet strong, simple relationships do occasionally become apparent. In pointing out the consistency across countries in the high level of real interest rates and the weakness of investment, this article suggests that the link between foreign interest rates and investment in the 1990s may be just such a relationship.

Consequences of high real interest rates abroad: Numerical measures

Just how much did high real interest rates depress foreign private investment during the 1990s? To evaluate the effects of these unusually high rates, we turn to four standard macroeconomic models.⁹ Although the investment sectors of these models are not explicitly available to us, we can examine the effect of high real interest rates on total output. Interest rates are thought to have their strongest impact on investment, so it is reasonable to assume that investment accounts for the lion's share of the output effects discussed below. Output itself grew significantly

⁷ Economists have long noted that rising real interest rates would initially lead to a drop in investment as firms tried to let their capital stock decline to a new, lower level. Once the desired level was achieved, however, investment would once again accelerate so that the capital stock could be maintained at that level, even if the real interest rate remained unchanged. Thus one rise in real rates will trigger more than one investment response over time. In addition to this source of ambiguity about the relationship between interest rates and investment, substantial lags separate changes in rates from the associated adjustments in investment.

⁸ For example, it seems likely that buoyant demand conditions during the late 1980s may have obscured the depressing effect of high real interest rates on investment at the time.

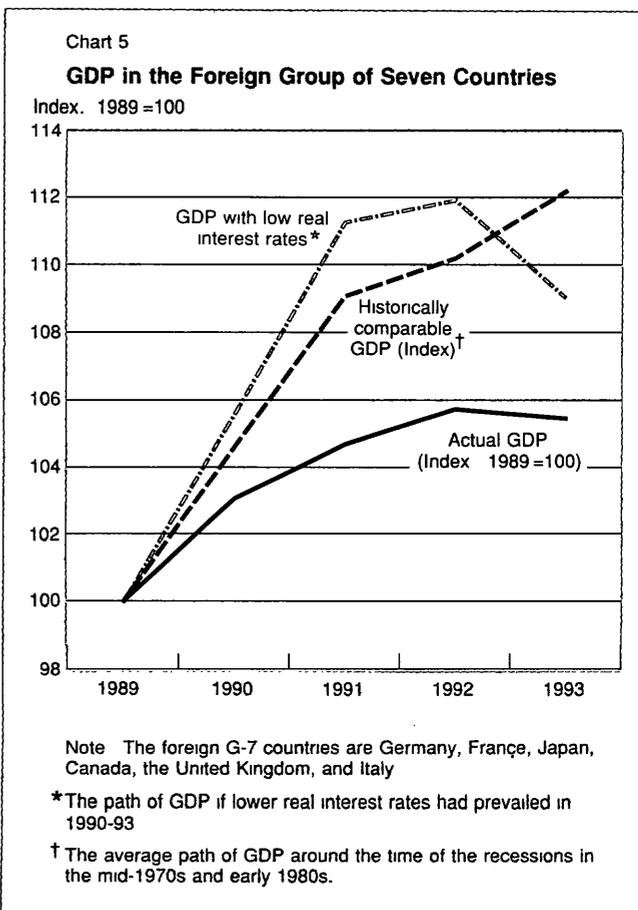
⁹ The four models are the Multi-Country Model of the Federal Reserve Board of Governors, the international models of the Organization for Economic Cooperation and Development and the European Community, and the model of Wharton Economic Forecasters, Inc. The properties of these models are summarized in R. Bryant, ed., *Empirical Macroeconomics for Interdependent Economies* (Washington, DC: Brookings Institution, 1988). This volume analyzes the effects of monetary and fiscal shifts on economic variables but does not explicitly analyze the effects of an interest rate change taken in isolation. For this reason, the interest rate change reported here is associated with an expansion of the money supply. In using these simulations as a guide, it is effectively assumed that the historical behavior of these economies, including the historical relationship between money supply and real long-term rates, remains an adequate guide to their current behavior.

more slowly during the 1990s than during historically comparable periods (Chart 5). The simulations may clarify the extent to which this relatively slow growth can be attributed to high real interest rates.

To carry out the simulations, we first calculate the gap between real interest rates in the 1990s and those of comparable earlier cycles, using a weighted average of the interest rates of the foreign G-7 countries. We find that on average during 1990-93, these real rates were 5.1 percentage points higher than rates from previous comparable cycles.¹⁰ The simulations measure the extent to which output for the major industrialized trading partners of the United States, taken as a group, would have differed if that gap had not existed in the 1990s.

The simulations suggest that output would have been substantially higher in these countries had real interest rates been lower. Chart 5 shows these counterfactual results as a dot-dashed line. The line indicates the level that output might have reached had all the major determinants of

¹⁰ We use here the same two cycles cited earlier in the article, one beginning in third-quarter 1974 and the other in second-quarter 1980.



investment in the 1990s been unchanged except for interest rates, which are assumed to equal their levels in historically comparable periods¹¹ (To construct this line, we average the estimates from all four macroeconomic models.) The estimated economic effect of high real rates is visible as the gap between the solid and dot-dashed lines. The average size of this gap in any one year is around 4½ percent, implying a cumulative output loss in excess of 18 percent of GDP over 1990-93.

Had real foreign interest rates been consistent with their levels in earlier comparable cycles, output growth would not just have been higher by some margin, it might even have exceeded growth during these earlier cycles. In Chart 5 this possibility is represented by the fact that the counterfactual GDP line from 1989 to 1992 runs above the GDP line for historically comparable periods. Output in the low-interest-rate counterfactual presumably would have more closely tracked output in historically comparable periods if high real interest rates had been the primary source of atypical weakness in output *and* if the high rates' negative effects had not been offset by such factors as fiscal policies. But because the effects of the high rates were offset to some degree by special forces, the influence of those forces would naturally result in higher output in the counterfactual scenario than in historically comparable periods.¹²

¹¹ GDP for the group as a whole was generally increasing, even though all these countries experienced recession at some point in the decade. The positive growth for the group results from the staggering of individual countries' recessions. Canada and the United Kingdom entered recession as early as 1990, they were recovering as Germany, France, and Japan entered recession in 1992.

¹² Counterfactual output falls below historically comparable levels in 1993. This drop presumably reflects the influence of factors other than interest rates, such as the appreciation of the yen and concurrent fiscal tightening in the United Kingdom, Italy, and other countries. The reader may also have noted that the total estimated effect of high real rates increases over 1990-91 and then declines. The initial increase reflects (1) the time required to bring interest rates down to historically average levels, and (2) the time required for choosing and implementing investment projects. The later decline in the effect of high real rates largely reflects the downward trend in foreign real interest rates during the 1990s. Because of this decline, the gap between actual interest rates and their historically comparable levels was narrower in 1992-93 than in 1990-91. We are essentially measuring the impact of this gap, and the decline in the gap implies that the measured impact of unusually high rates would have declined as well.

A caveat is in order: our estimates of the effects of high real interest rates on foreign output are not intended to be precise, and should be taken instead as indicative of the effects' order of magnitude. One reason for viewing the estimates with caution is the great diversity of results obtained from the four models, which suggest average annual effects ranging from 1½ to 8 percent of GDP. Note, however, that even the lowest of these estimates suggests that the aggregate output loss was sizable. An additional source of uncertainty about these estimates is our calculation of interest rates from historically comparable periods. Since the historical average used here includes the negative rates that prevailed during the mid-1970s, these historically comparable rates may be lower than rates one would consider "historically normal," in which case our estimates of output loss would be too high. If we use as an alternative benchmark the average of real rates before 1973, the models indicate that the output loss for the foreign G-7 countries in the 1990s was 2½ percent per year, with a cumulative output loss close to 10 percent. Though these estimates are, as expected, lower than our central estimates, the total magnitude of the effect is still notable. Thus, our general conclusion seems quite robust: output and investment among our major developed trading partners would have been significantly greater if real interest rates there had been lower in the 1990s.

Conclusions

Historically high real interest rates abroad seem to have substantially depressed private investment in most of the foreign G-7 countries in the 1990s. This effect was most evident for private business investment, which was unusually weak in all the countries considered. The negative effects of high real rates on private housing construction were quite apparent in Canada and the United Kingdom, but were masked by offsetting factors in France, Japan, and Germany. Prominent among these factors were stimulative fiscal policies, introduced once these countries' recessions began in earnest. For this reason, the high rates have likely produced a smaller loss of investment, output, and jobs than historical experience would have suggested, but at the cost of larger fiscal deficits.