

# FRBSF WEEKLY LETTER

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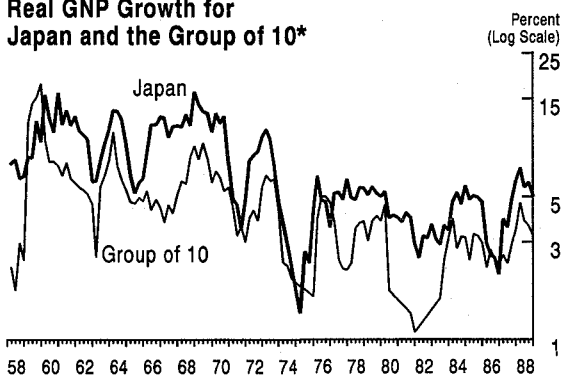
## Japan's Experience with Flexible Exchange Rates

Many expected the introduction of generalized floating exchange rates in the early 1970s to increase the degree to which national economies would be insulated from foreign disturbances, particularly foreign monetary disturbances. However, the subsequent high correlation among output fluctuations in different countries has called this assumption into question. At the same time, it is commonplace to note that the nature of the shocks the world economy faced in the 1970s and 1980s departed from those faced in the 1950s and 1960s. This change in the nature of the underlying disturbances may have played a more important role than any apparent shortcomings in the flexible exchange regime.

To examine this possibility, this *Letter* focuses on Japan's experience under flexible exchange rates. Among the major industrial economies, Japan offers the greatest *prima facie* evidence that the shift in exchange rate regimes provided greater insulation from foreign shocks because its economy became less volatile after exchange rates began to float. However, the simple observation that the Japanese economy became less volatile does not by itself prove that floating rates were the causal factor. What remains unresolved is whether the move to flexible rates or a change in the nature of domestic and foreign disturbances was primarily responsible for dampened output fluctuations in Japan.

Under fixed exchange rates, Japan had the largest fluctuations in output among the major industrial countries, while under flexible rates, Japan has had the smallest, as the chart shows. Some have argued that the switch to floating rates permitted Japan to pursue more stable monetary policy, which, in turn, increased output stability. Proponents of this view point to the fact that the variability in Japanese money growth declined markedly beginning in the mid-1970s, and that this decline coincided with the reduction in Japanese output volatility.

Real GNP Growth for Japan and the Group of 10\*



58 60 62 64 66 68 70 72 74 76 78 80 82 84 86 88

\* The countries comprising the G-10 group are: The United States, United Kingdom, Germany, Japan, France, Canada, Italy, The Netherlands, Belgium, Sweden, and Switzerland.

### A different view

An alternative explanation is that diminished nonmonetary domestic economic disturbances primarily may account for more stable output growth in Japan. According to this view, real output and monetary disturbances in Japan during the fixed-rate period were predominantly of domestic origin, associated with Japan's so-called "high growth period." During this period, the Japanese economy experienced double-digit real growth rates, fundamental, sectoral demand and supply shifts, and rapid technological innovation. The abrupt end of this high growth period in the early 1970s (for reasons unrelated to the change in exchange rate regimes), therefore, may account for the subsequent increase in output stability.

During the first three decades of the post-war period, Japan was a semi-industrialized country in the process of catching up with the more advanced countries of Europe and North America. For most of this period labor was an abundant resource, but there were shortages of capital equipment, raw materials, and technical expertise. Postwar economic policy was therefore designed strategically to give priority to plant and equipment investment and to the export

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sector as a means of securing imported raw materials. Elements of this policy included tight trade and exchange rate management, protection of industry, tax treatment favoring saving and investment, and credit subsidies to priority sectors.

The rapid growth in the investment and export sectors of the Japanese economy and the consequent double-digit growth rates in overall output during this period are well documented. Sectoral output and resource shifts (particularly, the absorption of latent unemployment in agriculture and low-productivity traditional services into the rapidly growing investment and export sectors) characterized the Japanese economy during the "high-growth" period. Economists Denison and Chung, for example, found that five factors contributed to faster growth in Japan than in other industrial countries: increased labor inputs, increased capital stock, advances in knowledge, reallocation of resources away from agriculture, and economies of scale.

The financial system and monetary policy played a fairly passive role during this period. The financial system was highly concentrated and extensively regulated to ensure that resources flowed to priority sectors. Similarly, the stance of monetary policy during the period was generally expansionary; its fundamental purpose was to support the rapid growth of the economy and to provide high priority sectors with subsidized credit.

The "low growth" period in Japan is usually identified as beginning in the early 1970s. By this time, Japan largely had "caught up" with the West, and the greater part of the sectoral transformation of the Japanese economy had been completed. The sectoral reallocation of resources stabilized, sectoral shifts dampened in magnitude and frequency, and average economic growth dropped to half its previous rate. Average trend real GNP growth in Japan was 9.4 percent a year during the high growth period and 4.2 percent during the low growth period. These developments may be the primary reason for the reduction in the variability of output during this period, playing a much larger role than the change in the exchange rate regime.

## **An empirical question**

Which of the two competing interpretations of Japan's reduced output variability in the floating

exchange rate period is correct hinges crucially on whether the nature of the underlying disturbances has changed or whether the exchange rate system has affected the manner in which Japan has adjusted to these disturbances.

To shed light on this issue, we measured the extent to which Japanese economic disturbances during both the fixed and the flexible rate periods could be attributed to domestic versus foreign sources. In our analysis, movements in Japanese real GNP that are not attributable to movements in U.S. real GNP and/or changes in the nominal U.S. money supply (M1) or to changes in the real world price of oil are interpreted as arising from domestic (Japanese) disturbances.

Our results indicate that under fixed exchange rates, domestic shocks contributed much more significantly to the volatility of Japanese real GNP than did foreign shocks. Specifically, under fixed rates, the model suggests that domestic shocks accounted for between 89 percent (at the one-quarter horizon) and 68 percent (at the 30-quarter forecast horizon) of the variance in Japanese real GNP. In contrast, the proportion of Japanese real GNP variation associated with foreign shocks ranged from only 11 percent in the short term to 32 percent in the longer term.

In the flexible rate period, domestic shocks were of secondary importance. Instead, foreign shocks accounted for 77 percent of Japanese GNP variation in the short term and 65 percent in the longer run. Thus, it appears that shocks of foreign origin played a much smaller role in generating Japanese output instability during the period of fixed exchange rates than during the period of flexible rates.

Our results are consistent with the hypothesis that major sectoral shifts and the rapid industrial transformation of the Japanese economy during the greater part of the fixed exchange rate period were primarily responsible for the large observed output fluctuations, and that foreign factors played a secondary role. These results seem to contradict the standard view that the shift in the exchange rate regime has been the main reason Japan has enjoyed greater economic stability in the latter period. Otherwise, the switch to flexible exchange rates should have insulated Japan from these foreign shocks. In fact, our results

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indicate that foreign shocks have been *more* important under flexible exchange rates.

### **Changing disturbances**

Nonetheless, one cannot conclude on this basis that the flexible exchange rate regime provided no insulation (or worse, that it may have intensified the impact of foreign shocks on the Japanese economy). Rather, foreign shocks may have dominated domestic shocks during the flexible rate period simply because the nature and pattern of the shocks facing the economy changed. Perhaps more importantly, the move to floating rates also may have freed monetary policy to engage in policies designed to offset the impact of domestic disturbances. To examine these possibilities, we calculated the estimated variances of the disturbances under the two exchange rate regimes.

Not surprisingly, the variance of real oil shocks in the pre-1973 period of fixed rates was estimated to have been less than half of that during the flexible rate regime. The variance of U.S. monetary shocks also was significantly smaller in the pre-1973 period, although real U.S. GNP shocks were somewhat larger in the fixed rate period. Nonetheless, by far the largest change occurred in the variance of domestic Japanese shocks. During the period prior to 1973, the variance of such disturbances was three times its value in the period after the shift to flexible rates.

These results indicate that the nature and magnitude of the underlying disturbances facing the Japanese economy under the two exchange rate regimes were quite different. They also suggest that although foreign shocks account for relatively more of the forecast error variance of Japanese real output under flexible exchange rates, this probably is attributable to the greatly reduced magnitude of underlying domestic disturbances, and not to the switch to flexible exchange rates *per se*. In fact, we find some evidence that flexible rates did help to insulate the domestic

economy from foreign shocks. This effect, however, was swamped by the reduction in the role played by domestically originating disturbances.

Our results also cast doubt on the standard argument that Japan's output stability resulted from the monetary stability achieved under floating rates. Under fixed exchange rates, Japan's monetary instability was not an independent source of economic fluctuations; the money supply simply responded to domestic and foreign disturbances in order to maintain the exchange rate. Consequently, greater monetary stability after the shift to floating rates cannot, by itself, account for the reduced importance of domestic Japanese disturbances.

### **Shocks, not regimes**

We have focused on Japan in part because, on the surface, it appears to fit the traditional theory regarding the superior insulating properties of flexible exchange rates: since the move to flexible exchange rates in February 1973 Japanese output variance has fallen markedly. Our research suggests, however, that a more plausible alternative explanation is simply that domestic disturbances were more frequent and their magnitude much greater during the period of Japan's transition to a mature industrial economy.

In the case of Japan, it appears that the changing nature of the fundamental disturbances to the economy, rather than the switch in exchange rate regime, is primarily responsible for the remarkable stability in real output growth since the mid-1970s.

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