
FRBSF WEEKLY LETTER

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A Model Central Bank?

Despite the recent slowdown associated with appreciation of the yen exchange rate, Japan's overall macroeconomic performance during the last decade has been impressive (Chart 1). Real GNP in Japan has averaged a robust 4.3 percent since 1975, while inflation (GNP deflator) has averaged less than 4 percent. Comparable figures for the United States are 2.5 percent GNP growth and 6.9 percent average inflation.

Moreover, Japan alone among the major industrial countries was able to maintain strong output growth while avoiding the continual inflationary pressures that followed the second oil price shock in 1979. The U.S. eventually also reduced inflation after the second oil price shock, but only after undergoing a severe recession in 1981-1982. In fact, the volatility (standard deviation divided by average growth) of U.S. real GNP growth since 1980 has been more than six times greater than that of Japan.

One frequently cited explanation for Japan's successful macroeconomic performance focuses on Japanese monetary policy. Several prominent economists have argued that the Bank of Japan (BOJ) — Japan's central bank — undertook a major policy shift in the mid-1970s that created the conditions necessary to attain an environment of low inflation and stable output growth.

At least two views regarding the nature of this policy shift may be distinguished. Milton Friedman argues that "The Bank of Japan has been the least monetarist central bank in its rhetoric, the most monetarist in its policy". Allan Meltzer has characterized Japan's shift in monetary regimes in terms of the adoption of a more "credible" monetary policy. By credible, Meltzer means that Bank of Japan policy has become more predictable, that is, can be predicted with less forecast error. This *Letter* evaluates the evidence supporting these two views.

Monetarist principles?

A central theme of monetarism is that achieving a low and stable rate of growth in a basic money aggregate is a necessary condition for a central bank to achieve a low rate of price inflation and stable output growth. Some monetarists have recommended that a constant money growth objective be pursued. To achieve money growth targets, monetarists usually argue that the central bank should operate to control strictly growth in either total bank reserves or the monetary base (total bank reserves plus currency in circulation outside banks). In particular, Milton Friedman states that "monetary authorities should avoid trying to manipulate either interest rates or exchange rates" because an interest rate or an exchange rate operating procedure is inconsistent with the objective of monetary control.

Friedman's evidence for concluding that the Bank of Japan is following monetarist principles is based primarily on two facts: Japan's rate of money growth (broad money defined as M2 plus certificates of deposit) has followed a fairly steady trend of decline since the mid-1970s, and this trend has coincided with a decline in the rate of Japanese price inflation.

Although Japanese money growth remains high by international standards, Chart 2 shows a declining trend from the peak reached in 1975 through 1983, at which time money growth appears to have stabilized at roughly 8 percent per annum. Similarly, Japanese inflation reached a peak in 1974-1975, trended downwards until 1983, and has since fluctuated within the 0-2.5 percent range. In addition, the growth in Japanese broad money — the BOJ's intermediate indicator — has been less volatile than growth in the U.S. narrow money aggregate (M1).

However, growth in the Japanese narrow money aggregate — usually preferred by monetarists as

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an intermediate target of policy — has been considerably more volatile than its U.S. counterpart. Moreover, the Bank of Japan also has not achieved the decline in money growth by following monetary control procedures typically prescribed by monetarists. The BOJ's primary short-term operating instrument is the interbank interest rate (call loans and discounted commercial bills), and the Bank's moves to "smooth" interbank interest rates are at least partly responsible for their stability in recent years. In fact, Japanese interbank interest rates have shown considerably less variability than the federal funds rate in the U.S. (Chart 3).

It therefore seems inconsistent for monetarists to criticize the interest rate operating instrument of the Fed while lauding the operating control procedures of the BOJ. The BOJ has apparently found the use of an interest rate operating instrument compatible with a reasonably steady deceleration in money growth and a low inflation environment.

Also noteworthy in this context is that attempts to control money growth as an explicit intermediate target of policy have never been embraced in Japan with the same enthusiasm as in the U.S. by the Federal Reserve between 1979-1982. Since 1978, the BOJ has announced "projections" of the annual rate of broad money growth for four quarters ending one quarter ahead. The information imbedded in its money projections therefore amounts to one-quarter ahead forecasts of money growth that, on balance, have been fairly accurate.

The projections do not, however, serve as a guide to the intermediate or longer term policy stance of the BOJ and, in fact, have varied significantly (between 6.5 and 12.5 percent) since the announcements began in 1978. Moreover, by reporting new growth projections each quarter independent of deviations from previous projects, the BOJ in essence allows complete "base drift" — a practice monetarists criticize the Fed for pursuing.

"Credibility" and predictability

Allan Meltzer also attributes the seemingly more favorable output/inflation tradeoff experienced in Japan to substantive differences in monetary policy. However, he recognizes the BOJ's clear

deviation from traditional monetarist principles and argues instead that Japan's relative success is attributable to the greater consistency — or greater predictability — of its monetary policy. Greater predictability, according to Meltzer, makes the BOJ more "credible" than the Fed, and greater credibility has resulted in Japan's experience of disinflation without recession.

Meltzer's argument derives from the principles of the so-called "new classical" macroeconomics. This school of economic thought argues that only monetary policy "surprises" (e.g., unpredictable and therefore unexpected policies) have an impact on real output. In this view, if money growth were predictable, and therefore could be anticipated, monetary policy should have no influence on real output.

The basic reasoning behind this theory is that real output in the economy is fundamentally determined by such "real" factors as labor productivity, labor/leisure choice, technology, and resource endowments. Money is a nominal magnitude that has inflation consequences, but which, in an equilibrium setting with price flexibility, has no impact on fundamental real factors and therefore on output.

According to this view, only when unanticipated money causes unanticipated inflation will monetary policy have even temporary effects on output. These effects would result from firms that increase their output in response to what they view as a favorable relative price shift rather than what in fact amounts to an economy-wide rise in the general price level. Once they realize that costs as well as all other prices in the economy have increased proportionately with their own product price, they will cut production back to the original "natural" output level.

Applying the new classical theory to Japan, Meltzer suggests that 1) a highly predictable BOJ policy (i.e., one with few "surprises") has led to the apparent independence of output from inflation, and 2) that the overall decline in money growth is responsible for low Japanese inflation.

The evidence marshalled by Meltzer in support of his credibility thesis is that the forecast error variance (generated from sophisticated forecasting equations) of nominal GNP, real GNP, and prices in Japan decreased markedly after the country's switch to fluctuating exchange rates in 1971. Moreover, the forecast errors for these variables were higher in the U.S. under fluctuating than under fixed exchange rates. Fewer surprises in Japan and more surprises in the U.S.

Chart 1
Japan's Strong Output Growth

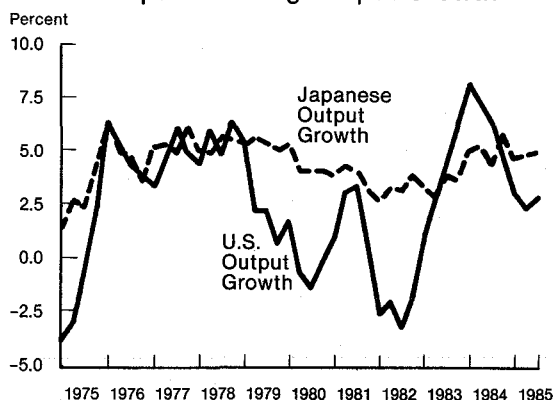


Chart 2
Declining Trend in Japanese Money Growth

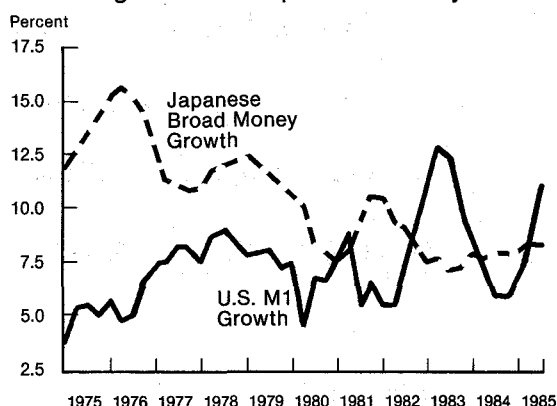
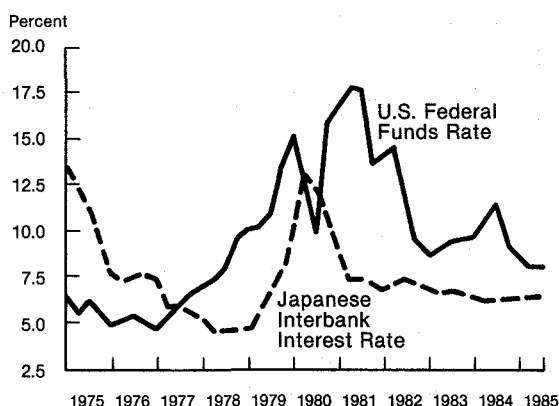


Chart 3
Less Variability in Japanese Interbank Interest Rate



lead Meltzer to conclude that the BOJ must be following a more credible monetary policy.

The difficulty with this conclusion, as Meltzer also points out, is that the variance of money (M1) forecast errors for Japan and the U.S. did not decline after 1971 when forecast errors for GNP and price did decline. Moreover, the variability of forecast errors for U.S. money growth is less than that for Japan during both periods.

Nonetheless, Meltzer argues that greater output and price stability in Japan since 1971 has been associated with increased Bank of Japan "credibility" as opposed to a wide variety of other potential explanations (e.g., differences in financial and labor market institutions, differences in fiscal policy, and so on). As part of this thesis, he also suggests that Japan's introduction of publicly announced quarterly money growth projections — which were not even initiated until the third quarter of 1978 — contributed substantially to a more stable environment following Japan's move to fluctuating exchange rates. He does not, however, offer any direct empirical evidence to support this view.

Conclusion

Support for either the "monetarist" view or the "credibility" view of the reasons behind the seemingly more favorable output/inflation trade-off in Japan compared to the U.S. seems rather weak. Reaching a similar conclusion after analyzing the monetarist view, one observer has noted that "... Japan achieves results that are monetarist in nature without using the procedures frequently advocated by monetarists." A similar statement could be made about the credibility hypothesis: The Bank of Japan achieves results that are credible in nature without having used more predictable policies.

Given the limited empirical support for either the monetarist or credibility hypothesis regarding the Bank of Japan's behavior, other explanations for the Japanese success in maintaining stable output growth during the recent period of disinflation should be explored.

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BANKING DATA—TWELFTH FEDERAL RESERVE DISTRICT (Dollar amounts in millions)

Selected Assets and Liabilities Large Commercial Banks	Amount Outstanding 3/11/87	Change from 3/4/87	Change from 3/12/86 Dollar	
Loans, Leases and Investments ^{1 2}	203,682	124	203	0.0
Loans and Leases ^{1 6}	182,766	— 1	— 1,580	— 0.8
Commercial and Industrial	53,593	143	115	0.2
Real estate	67,908	261	1,749	2.6
Loans to Individuals	37,153	56	— 3,094	— 7.6
Leases	5,460	6	— 192	— 3.3
U.S. Treasury and Agency Securities ²	13,821	98	2,787	25.2
Other Securities ²	7,095	26	— 1,005	— 12.4
Total Deposits	208,398	— 1,442	6,373	3.1
Demand Deposits	52,821	— 1,481	4,913	10.2
Demand Deposits Adjusted ³	36,272	303	3,522	10.7
Other Transaction Balances ⁴	19,561	— 278	4,172	27.1
Total Non-Transaction Balances ⁶	136,015	316	— 2,713	— 1.9
Money Market Deposit Accounts—Total	46,718	261	890	1.9
Time Deposits in Amounts of \$100,000 or more	32,517	103	— 6,007	— 15.5
Other Liabilities for Borrowed Money ⁵	23,440	— 387	— 3,622	— 13.3
Two Week Averages of Daily Figures	Period ended 3/9/87	Period ended 2/23/87		
Reserve Position, All Reporting Banks				
Excess Reserves (+)/Deficiency (—)	91	45		
Borrowings	18	7		
Net free reserves (+)/Net borrowed(—)	72	38		

¹ Includes loss reserves, unearned income, excludes interbank loans

² Excludes trading account securities

³ Excludes U.S. government and depository institution deposits and cash items

⁴ ATS, NOW, Super NOW and savings accounts with telephone transfers

⁵ Includes borrowing via FRB, TT&L notes, Fed Funds, RPs and other sources

⁶ Includes items not shown separately

⁷ Annualized percent change