
The Yen and the Japanese Economy, 2004

TAKATOSHI ITO

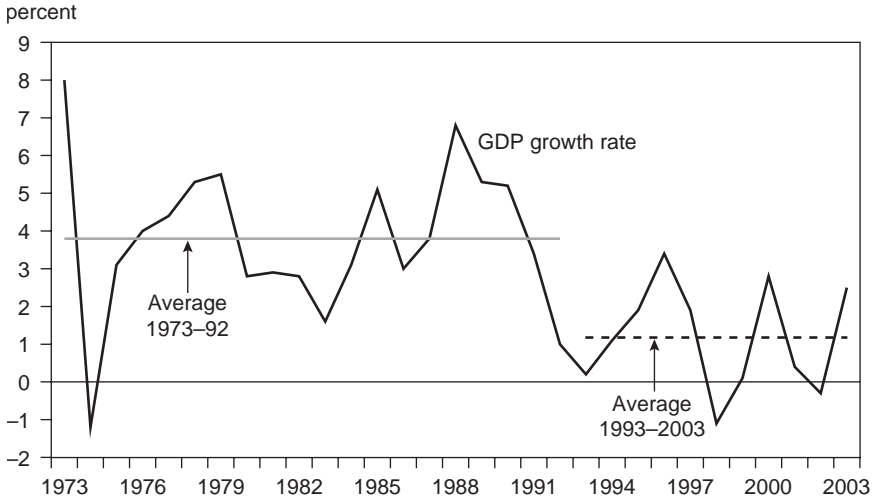
This chapter presents an overview of the Japanese macroeconomy and its exchange rate policy and monetary policy in the period 2003–04. It also examines the effects of the exchange rate changes on Japanese trade balances. The monetary authorities of Japan—namely, the Ministry of Finance and the Bank of Japan (MOF-BOJ)—intervened in the foreign exchange market frequently heavily in 2003–04. The authorities sold ¥35 trillion (or \$320 billion), 7 percent of the Japanese GDP, between January 2003 and March 2004. This chapter examines the presumed objectives of the large interventions and their effectiveness. Why the Japanese authorities intervened to this unprecedented extent is explained here in the context of the macroeconomic conditions and developments in the foreign exchange, spot, and futures markets.

To summarize the chapter's conclusions, interventions were conducted for several reasons—including to prevent “premature” appreciation in the midst of a weak economy, to help monetary policy by providing opportunities for unsterilized interventions, and to defuse excessive speculative pressure. These hypotheses on the motivations for intervention are supported by data, but it is more difficult to judge whether the intended effects of the MOF-BOJ's actions were achieved.

Japan's macroeconomic conditions are described in the chapter's second section. The third section examines the relationship between the exchange rate and net exports of Japan. The next sections explain the reasons for heavy interventions from January 2003 to March 2004 and section provide data to back up these explanations. The last section offers conclusions.

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Figure 8.1 Growth rates of Japan, 1973–2003 (percent)



Source: Cabinet office, government of Japan.

Macroeconomic Conditions: The End of Japan’s Lost Decade

Japan has been underperforming for the past 14 years. Since 1992, its average growth rate has barely been above 1 percent. This contrasts with an approximate 4 percent average growth rate from the mid-1970s to 1992. Figure 8.1 shows trend and time series changes of the country’s growth rates. This period of slow growth—what is often dubbed the “lost decade” of Japan—has also been accompanied by deteriorating financial and capital market conditions: deflating asset prices, mounting problems of nonperforming loan, a series of bank failures, and a downgrading of government bonds. Since the mid-1990s, prices have declined.¹ The inflation rate, measured by the consumer price index (CPI), reached about negative 1 percent in 2000–01, while the inflation rate measured by the GDP deflator reached between negative 2 and 3 percent in 2002–03. The combination of a declining GDP deflator and weak real growth implied declining nominal GDP from 1997 to 2002. The Japanese economy from the mid-1990s to 2003 was probably the first example, since the United States in the 1930s, of a major economy that suffered from deflation and associated problems.

1. See, e.g., Bayoumi and Collins (2000) and Callen and Ostry (2003) for the views of the International Monetary Fund staff on Japanese stagnation. See also Ito (2003b, 2004). See Cargill, Ito, and Hutchison (1997, 2000) and Hoshi and Patrick (2000) for analyses of financial sector problems in Japan.

In the period 2001–02, the Japanese economy, along with that of the United States, experienced very low growth. By the end of 2002, the Japanese economy was considered to be in a crisis stage, or a repeat of the financial crisis of 1997–98. Japan’s negative growth in 2002 had placed it in this crisis mode. At the beginning of 2003, the prospects for the country’s economy looked very bleak. The economy was coming out of the negative growth of 2002, yet all indicators seemed to worsen. The unemployment rate reached 5.5 percent in January, and it seemed to be rising further (but did not). The stock price index, the Nikkei 225, dropped below 8,000, one-fifth of the peak achieved at the end of 1989. The major banks had to report huge losses from unrealized capital losses in stock portfolios as well as writing off nonperforming loans. Prices were declining; monetary policy, at the zero interest rate, lacked conventional tools; and fiscal policy, already facing high fiscal deficits and high debts, seemed to be limited in its room for deficit financing. The Resona Bank failed in May; its capital ratio was found to have sunk below 4 percent. Because the Financial Services Agency decided to nationalize the bank and inject ¥2 trillion—raising the capital ratio well above 8 percent, without writing down existing shareholders’ equity—the stock prices of banks started to rise in the summer, and business activity picked up the pace. Exports to China and other Asian countries started to increase sharply, and companies started to invest and expand capacity in Japan. In the second half of 2003, the rate of economic growth began to increase.

In 2004, there were growing signs that Japan is finally getting out of a long tunnel of depressing events and macroeconomic underperformance. The Japanese economy grew at 2.5 percent in 2003, and 6.1 percent in the first quarter of 2004 (annualized quarter-to-quarter growth).² According to the International Monetary Fund (*World Economic Outlook*, April 2004), Japan was expected to grow at 3.4 percent in 2004, compared with 4.6 percent for the United States and 1.7 percent for the euro area, as is shown in table 8.1.³ Growth would only accelerate, compared with 2003, in Japan as well as the other Group of Seven (G-7) countries.

Japan’s current recovery is the third time that its economy has grown by more than 2.5 percent in the past 14 years—and the country’s third attempt to get out of stagnation. The first recovery attempt was during the period 1995–96, with a sudden end in 1997, mainly due to the tax rate hike in April 1997, which was followed by the Asian currency crisis and the Japanese banking crisis. The second recovery attempt was in 2000–01, with a sudden

2. The number is based on the announcement by the Cabinet Office, May 18, 2004. The new number became available since the first draft of this chapter was written. Growth slowed down in the second quarter of 2004 to 1.7 percent (as announced on August 13, 2004).

3. The IMF number was calculated before the first-quarter number became known on May 18, and it was later revised upward. The IMF assessment of the Japanese economy, made public on August 11, has a projection of 4.5 percent growth in 2004.

Table 8.1 Economic growth rates of major economies, 2001–04

Country or region	2001	2002	2003	2004
Canada	1.9	3.3	1.7	2.6
China	7.5	8.0	9.1	8.5
France	2.1	1.2	0.2	1.8
Germany	0.8	0.2	-0.1	1.6
Italy	1.8	0.4	0.3	1.2
Japan	0.4	-0.3	2.5	3.4
United Kingdom	2.1	1.7	2.3	3.5
United States	0.5	2.2	3.1	4.6
Euro area	1.6	0.9	0.4	1.7

Sources: International Monetary Fund, *World Economic Outlook*, April 2004, except for Japan in 2003, which was updated by the Cabinet Office announcement on May 18, 2004.

end in 2001 due to the collapse of the information technology stock bubble and the mistaken monetary policy initiated in August 2000—a policy of tightening during deflation.

Two engines for the current Japanese recovery are exports and corporate investment. The former increased by 3.9 percent (quarter-to-quarter change), and the latter by 2.4 percent in the first quarter of 2004. Exports to the United States and to China have shown significant increases since about 2002. Corporate investment has increased due to high levels of profits among large manufacturing companies.

Stock prices have risen by 50 percent since the trough in April 2003. This has given breathing room to financial institutions that hold equities as portfolios as well as to individuals with stock portfolios. The increase in stock prices, fueled by foreigners in 2003, is contributing to an increase in demand for consumption and investment. The unemployment rate is also showing encouraging signs; after it peaked at 5.5 percent in January 2003, it fell to 4.7 percent in March 2003 and to 4.6 percent in May 2004.

Deflation has accompanied low growth in the past several years. In fact, low growth has been both a cause and result of deflation. An output gap has put downward pressure on prices, but deflation has discouraged corporate and housing investment. Nonperforming loans will continue to emerge as deflation continues, because borrowers suffer from an increasing real burden of nominally contracted debt. On the basis of the CPI, price levels have been declining since 1998. The worst decline was in the period 2001–02, when the CPI was decreasing at a rate of about 1 percent. Recently, the rate has narrowed to about zero. However, the GDP deflator is still showing deflation of about 2.5 percent. Deflation has not ended in Japan.

Economic growth may accelerate beyond that forecast, if several pieces fall into place in 2004. First, stock price increases may generate a virtuous cycle: Wealth effects due to stock price increases generate more spending among individuals and corporations, leading to higher profits, higher stock prices, and further wealth effects. Higher stock prices would also help strengthen financial institutions' balance sheets.

If sufficient progress is made in economic growth, prices in Japan may finally start rising instead of falling. The Bank of Japan is sending the right signal: that it will not increase the interest rate until the CPI inflation rate becomes positive for several consecutive months with no prospect of falling back to deflation.⁴ Therefore, ending deflation may not automatically trigger an interest rate hike. In fact, the Bank of Japan should be extra patient before even thinking of an interest rate hike, to make up for the drop in the price levels since 1998.

The most encouraging sign suggesting an increase in domestic demand is a rise in corporate investment. But this may also be linked to export demand. For the Japanese economy to begin to grow autonomously with increases in domestic demand rather than export demand, household expenditures will have to rise beyond the current level (1.0 percent quarter-to-quarter growth). For this, both employment and wages will have to increase. When restructured corporations start to report profits and wages start to increase, the scenario of rising household expenditures will become a reality. This may happen soon, because higher profits are now trickling down to the household sector.

Most banks are now reporting healthier balance sheets. Although several weak banks, including the UFJ Bank, are still showing large nonperforming loans and undercapitalization, there is no financial panic. The episode of nationalizing the Resona Bank and Ashikaga Bank in 2003 shows that the Financial Services Agency can handle weak banks swiftly without raising concern about systemic risk.

However, there are also downside risks. The first risk is of a sharp appreciation of the yen, or of a depreciation of the dollar vis-à-vis the yen. Recall that exports are still one of the most powerful engines for Japan's recovery. The United States and China—the dollar-linked country—are the favorite destinations for Japanese exports. However, the volume of exports to the United States is declining, though their value is being maintained. The dollar's collapse would adversely hit the Japanese economy and bring the Japanese recovery to a sudden stop.

4. The necessary condition to stop providing current extra liquidity with a zero interest rate had changed from "until the deflation fear is dispelled" (February 1999) to "until the CPI inflation rate (excluding fresh food) becomes stably above zero" (March 2001) and then to the current statements put out in October 2003: First, the tendency of an inflation rate measured by CPI excluding fresh food being zero or above should be "confirmed over a few months," and second, the tendency should be forecasted by many Policy Board members. These are the necessary conditions.

Similarly, any substantial deceleration of the US and Chinese economies would slow down Japanese exports. An interest rate hike in the United States and credit restraints in China also would slow down the two economies, which some regard as on the verge of overheating.

The scenario of a virtuous cycle of stock price increases and a rise in real expenditures depends totally on the movement of stock prices, which in turn depends on foreign investors' behavior. As soon as foreigners turned to net selling in the second quarter of 2004, stock prices started to slump.

Another financial crisis would have substantial adverse effects on Japan's economy. The UFJ Bank—along with its stockholding umbrella, the UFJ Financial Group—was placed under special examination by the Financial Services Agency from March to May 2004, and it was ordered to increase provisioning for problematic loans. As a result, the UFJ Bank reported large losses for the fiscal year ending in March 2004, and the bank's capital ratio was reduced to just above 8 percent. Another shock to the UFJ Bank would push its capital below the critical 8 percent level, triggering the Bank to be forced to withdraw from international business, and in the worst case, nationalization like the Resona Bank.⁵

In April 2005, the blanket guarantee of bank deposits will be almost completely lifted, and that may trigger deposit shifts from weaker institutions to stronger ones. Some smaller regional banks may have difficulty keeping deposits. However, at that point, the probability of another systemic risk to the financial system will be low because the safety net will be well established.

Higher social security contributions are projected because the pension system is facing deficits in the medium run. As the proposed "reform" plan has passed the Diet, households will face a continuous increase in social security contributions in the next several years. This will have an effect similar to a scheduled tax rate hike. However, many young to middle-age workers are skeptical about how much they would receive in return for paying into the pension system. Household expenditures are not forecast to increase sharply.

Other kinds of downside risk, originating abroad, also would affect the Japanese economy. Higher oil prices are an obvious downside risk for oil-importing Japan. However, the oil-import expenditures are small relative to Japanese exports, so moderately higher oil prices would hardly make a dent in the country's macroeconomic trade balance. More than half of the

5. The UFJ Bank executives will have to take responsibility if the plan for rehabilitation, which was specified at the time of the capital injection in 1998–99, is not achieved (i.e., profits are below the target by more than 30 percent) for two fiscal years in a row. Since the first draft of this chapter was written, the Mitsubishi Tokyo Financial Group and UFJ Holding agreed to merge. This will be essentially a rescue merger, a financially healthy Mitsubishi Tokyo Financial Group, including the Bank of Tokyo-Mitsubishi, injecting capital to UFJ Holding, including the UFJ Bank.

retail gasoline price is accounted for by the gasoline tax, so crude oil price increases would not cause a sharp retail price increase in percentage terms, unlike in the United States. The political impact on household perception of oil price increases would be much less in Japan, although it is still a downside risk to the economy.

In addition to oil prices, commodity prices in general have risen since 2003, partly due to the demand from China. Further rises in commodity prices—including coal, iron ore, and grain—would have an adverse impact on the Japanese manufacturing sector. Conversely, however, the growth of the Chinese economy is beneficial to Japanese corporations, including steel and shipbuilding companies.

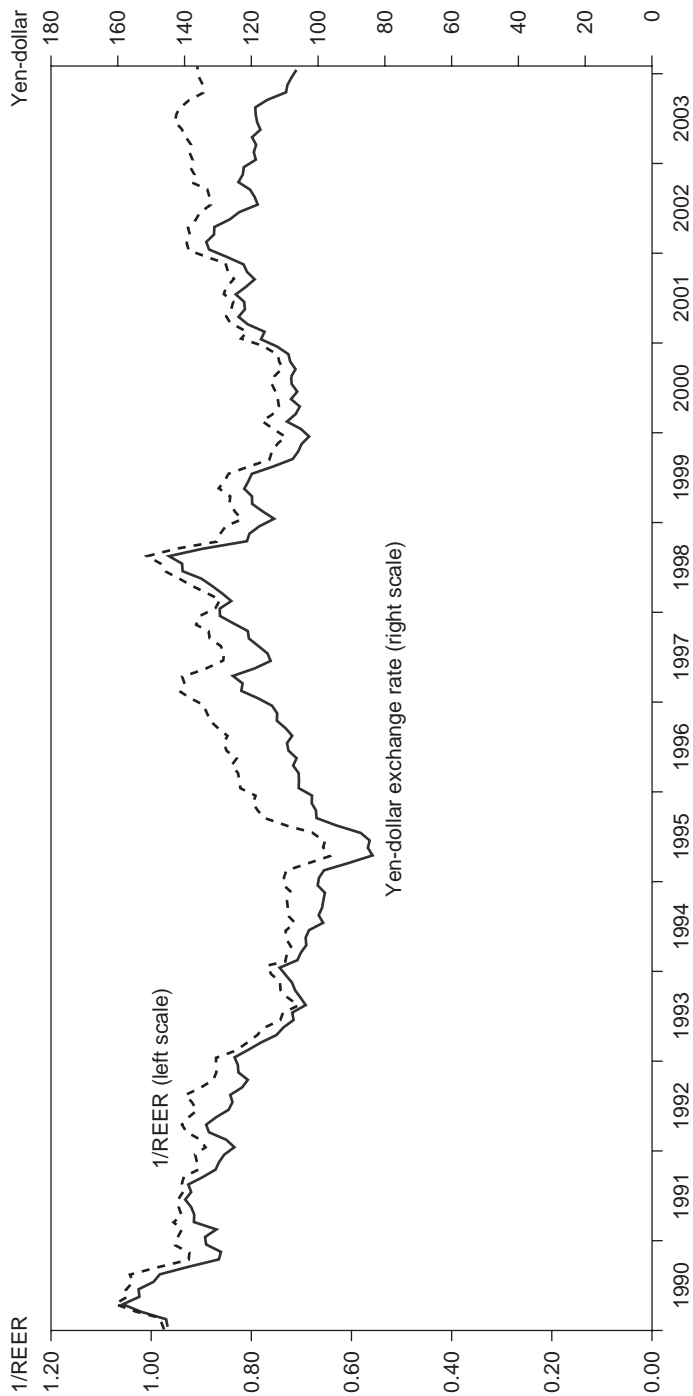
The Yen-Dollar Exchange Rate and Japanese Exports and Imports

The yen-dollar exchange rate has been fluctuating most of the time from 1992 to 2004 at between 100 and 135 (as of this writing)—with the notable exceptions of a brief period of appreciation to 80 in the spring and summer of 1995, and a brief period of depreciation to 145 in June–August 1998. Although the short-run (e.g., daily) movement of the yen is hard to explain, the medium-term (e.g., quarterly) movement can be associated with various factors, such as growth potentials, interest rate differentials, and other macroeconomic factors. But here I do not attempt to explain the movement of the exchange rate. Instead, the exchange rate is taken as given, and I try to explain exports by, among other things, movements of exchange rates.

It can be argued that the Japanese external (trade or current account) balances have become less sensitive to the yen-dollar rate but maintained a relationship, with a lag, to the real effective exchange rate (REER). It is important to differentiate the REER (the multilateral, real rate) of Japan from the yen-dollar rate (the bilateral, nominal rate). Figure 8.2 shows the time series of the two exchange rates. Most of the time, they move in parallel. However, since 2001, the REER has remained stable, while the yen-dollar rate has appreciated by 20 percent. The difference is partly due to a widening price gap between Japan (under deflation) and the United States (under moderate inflation) and partly due to stable exchange rate movement vis-à-vis Japan's other trading partners (mainly Asian countries).

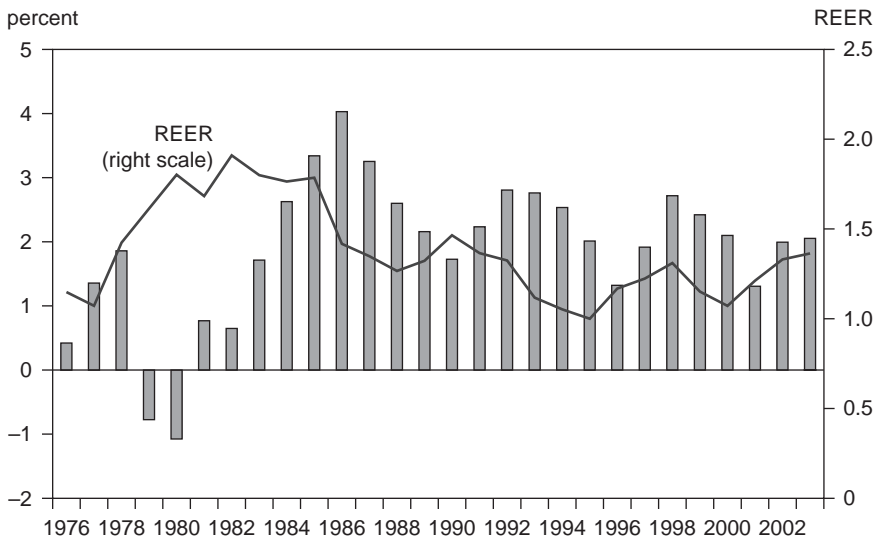
Figure 8.3 shows changes in net Japanese exports and the REER (the inverse of the REER as defined by the IMF). It shows that sharp appreciations, like those in the periods 1985–88 and 1991–95, produced a corresponding decline in net exports, with a one-year lag in the peak of net exports. Depreciation episodes, like those in 1995–98 and 2000–03, are also accompanied by an increase in net exports. Thus, net exports are indeed sensitive to yen movements, with a time lag.

Figure 8.2 Time series for the yen-dollar exchange rate and REER, 1990–2003



REER = real effective exchange rate
 Note: REER, defined by IMF, 1995 = 100.
 Source: IMF, *International Financial Statistics*, May 2004.

Figure 8.3 Real effective exchange rate and trade balances, 1976–2003



Note: Bars represent the trade balance as a percent of GDP (left scale).

REER, (right scale) defined by IMF, 1995 = 100.

Source: IMF, *International Financial Statistics*, May 2004.

If the correlation between the REER and trade balances can be taken seriously, then the following back-of-the-envelope calculation is possible: If the REER appreciates by 30 percent from the level of 2003 to make the yen's REER value close to the level in 1995–96 and 2000, then net exports of the following year would be 35 percent less. This spells a recession (like the ones in 1997 and 2001–02), unless domestic demand increases sharply.

The point of this exercise of comparing the REER and the yen-dollar exchange rate is that looking at the yen-dollar rate is misleading on two fronts: It is bilateral and it is nominal. The weight of the United States in Japan's trade has decreased over time, so the bilateral exchange rate may be misleading in predicting export competitiveness. In addition, Japanese deflation has caused real exchange rate stability, despite the fact that the nominal exchange rate appreciated in the period 1998–2003. A comparison of 1998 and 2003 proves the point. The yearly average of the nominal yen-dollar exchange rate was 131 for 1998 and 116 for 2003, but the REER (1995 = 1.00) was 1.31 for 1998 and 1.36 for 2003. Thus, the yen did not appreciate at all in 2003 compared with 1998, the trough of the financial crisis for Japan and Asia.

To evaluate a claim that to keep the yen from appreciating would help the export industry of Japan, a standard export function can be estimated. The export/GDP ratio, $EXY(t)$, is explained by the lagged variable $EXY(t-1)$; the log of the real effective exchange rate (an increase being appreciation),

Table 8.2 The export function for Japan
(dependent variable: Gross export/GDP ratio, EXY)

Variable	Coefficient (standard error)	t-statistic	Significance
Constant	0.0879 (0.0231)	3.81	0.000
$EXY(t-1)$	0.6412 (0.0735)	8.73	0.000
$LREER(t)$	-0.0087 (0.0037)	-2.34	0.019
$LREER(t-1)$	0.0042 (0.0038)	1.11	0.267
$LJPY(t)$	-0.0073 (0.0022)	-3.31	0.001
$LUSY(t-1)$	0.0041 (0.0010)	3.80	0.000

Notes: R bar squared = 0.856. Linear regression: estimation using a Gaussian mixture model, with 4 lags. Quarterly data were used, from the fourth quarter of 1976 to the first quarter of 2004.

Source: International Monetary Fund, *International Financial Statistics*, June 2004.

$LREER(t)$ and $LREER(t-1)$; the Japanese output level, $LJPY(t)$; and the US output level, $LUSY(t-1)$. The US output level is used as a proxy for global demand for Japanese exports. It is lagged because it may take time for higher US income to generate exports from Japan.⁶ The export function equation takes this form:

$$\begin{aligned}
 EXY(t) = & Y\alpha + \beta_1 EXY(t-1) + \beta_2 LREER(t) \\
 & + \beta_3 LREER(t-1) + \beta_4 LJPY(t) \\
 & + \beta_5 LUSY(t-1) + \varepsilon(t)
 \end{aligned} \tag{8.1}$$

The equation is estimated using a Generalized Method of Moments (GMM), and table 8.2 shows the result. The Japanese export/GDP ratio will indeed increase if the exchange rate depreciates, if Japanese growth slows, and if US growth accelerates. This result is broadly consistent with conventional expected signs of coefficients. The estimated coefficients imply not so large effects from the change in the real effective exchange rate to the export/GDP ratio—a 10 percent change in REER in the medium run will cause a decline of 0.1 point in the export/GDP ratio.⁷ It needs to be noted that this result pertains not to net exports but to gross exports, so one should be careful in interpreting the result in a macro-economic context.

In sum, Japanese exporters have much more robustness against the yen's appreciation in terms of the nominal yen-dollar rate than in the period 1998–2000, because the Japanese economy has experienced deflation (real depreciation) and exports to non-dollar-linked Asia have risen.

6. I acknowledge the excellent research assistance of Kentaro Kawasaki.

7. The medium-term effect of a permanent change in $LREER$ (a percent change) on EXY would be $d(EXY)/d(LREER) = (\beta_2 + \beta_3)/(1 - \alpha) \approx -0.01$.

Table 8.3 Summary of interventions by the Japanese authorities, January 2003–March 2004

Intervention	In trillions of yen	Yen-dollar average for the period	In billions of dollars
January–March 2003	2.3867	118.66	20.1
April–June 2003	4.6116	119.30	38.7
July–September 2003	7.5512	115.90	65.2
October–December 2003	5.8755	108.43	54.2
January–March 2004	14.8314	106.30	139.5
Total	35.2564		317.7

Sources: Intervention: Ministry of Finance; yen-dollar rate: Bank of Japan.

Japanese Interventions

The magnitude of interventions conducted by the Ministry of Finance–Bank of Japan from January 2003 to March 2004 was particularly large, in Japan’s intervention history and in comparison with other countries. Table 8.3 shows the quarterly aggregate of intervention amounts in yen from the first quarter of 2003 to the first quarter of 2004. The MOF-BOJ sold a total of ¥35 trillion, or purchased about \$317 billion, of which 42 percent was concentrated in the first quarter of 2004. The Japanese authorities’ total intervention amount from April 1991 to December 2002 was less than ¥34 trillion.⁸ So the interventions in the 15 months from January 2003 to March 2004 exceeded those of the 11 years and 9 months preceding that period.

The interventions of this period started on January 15, 2003—the first since June 28, 2002—just a day after Zembei Mizoguchi became Vice Minister for International Affairs. The amount of the intervention on January 15, 2003, was ¥8.3 billion, or \$70 million, and it was rather a modest one. (The average size of the intervention from June 1995 to June 2002 was ¥520 billion per intervention day.) However, interventions were conducted in eight days in January, five days in February, and four days in March. This was a higher frequency of interventions than between June 1995 and December 2002.

But day-to-day interventions were not confirmed on the day by the MOF-BOJ during the heavy intervention episode. Mizoguchi, when asked about them, did not confirm or deny the interventions—so they were later dubbed “stealth interventions.” This was a contrast to previous interventions from 1995 to 2002 under Eisuke Sakakibara and Haruhiko Kuroda, both of whom were known for their vocal interventions as well as for playing up actual interventions with announcements.

8. The daily intervention data on and after April 1, 1991 have been disclosed.

Rumors of interventions were increasingly abundant from January to March 2003. Since monthly aggregates of interventions were fairly accurately guessed from Bank of Japan statistics released at the end of each month, the fact that stealth interventions had been conducted became known at the end of January 2003. In addition, the Ministry of Finance itself confirmed the monthly aggregate number of interventions at the end of January, February, and March. However, the detailed day-by-day statistics were not available until the first week of June. When the daily intervention records of January to March 2003 were then disclosed, many in the market were surprised by the frequency and size of the interventions. For transparency, disclosure of the monthly aggregate of interventions started in June 2003, along with conventional daily intervention disclosure four times a year. But the market participants were left to guess whether there had been an intervention on a particular day until the quarterly disclosure of the daily figures.⁹

Factors That Influence Intervention Decisions

Below I give a rather detailed description of interventions from January 2003 to March 2004, with some conjectures as to the reasons for them. From previous studies (e.g., Ito and Yabu 2004), it appears that two of the most common reasons for interventions are a sharp appreciation (or depreciation) and a deviation from the long-run trend. So-called smoothing operations are aimed at slowing down the pace of appreciation or depreciation, when movements (of preceding days) are regarded as too fast. On many occasions, the Minister of Finance or the Vice Minister for International Affairs, Ministry of Finance, mentioned that the too-rapid movements were the reason for an intervention. Even when the exchange rates move quickly, the MOF-BOJ may not intervene if the level is near long-run equilibrium, or if the movement is toward equilibrium rather than away from it. It has been shown (Ito 2003a) that the Japanese authorities, since 1991, never sold dollars below ¥125/\$1 and never bought dollars above ¥125/\$1. The level as well as the speed of change influences the decision to intervene.

However, these two traditional reasons for interventions do not seem to adequately explain why the Japanese authorities intervened so much after January 2003. Three more reasons are considered below: to prevent “premature” appreciation; to purchase foreign bonds as a means of expanding the monetary base (i.e., unsterilized intervention); and to prevent speculative forces from moving the yen-dollar exchange rate.

9. See Ito (2003a) and Ito and Yabu (2004) for a description and analysis of interventions before the Mizoguchi regime.

Preventing Premature Appreciation

First, interventions seemed to have been conducted to prevent “premature” appreciation—that is, appreciation when macroeconomic conditions were deteriorating. This explanation may apply to interventions in the first 6 to 8 months of 2003. The economy was still considered to be very weak, and stock prices declined sharply from January to March. The *Monthly Report of Recent Economic and Financial Developments* of the Bank of Japan showed its assessment of the stagnant economy until August 2003.¹⁰ Stock prices according to the Nikkei index had been declining from 14,000 in April 2002 to 10,000 in July 2002, 8,700 in December 2002, and 7,600 at the end of April 2003. This decline in stock prices by more than 40 percent in 12 months set off alarms in the MOF-BOJ. The declining stock prices also hit bank balance sheets, and the mood was quite bad.

Against these deteriorating conditions, the yen was on an appreciating trend. One reason was the bearish assessment of the dollar against the background of the war in Iraq. Another factor was that foreign investors thought that the Japanese stock markets were near the bottom and that the timing was right to purchase stocks. But the yen’s appreciation in the first half of 2003 was considered to be inconsistent with macroeconomic fundamentals. Sharp appreciation would cause further deterioration of macroeconomic conditions. Even when macroeconomic fundamentals and stock prices showed recovery in the second half of 2003, the recovery was considered to be very weak, so any sharp appreciation was then considered to be “premature.” It is not surprising that the Japanese authorities thought that it would be prudent to prevent sharp appreciation at the stage of deteriorating macroeconomic conditions, or at the stage of weak recovery. In sum, a concern to prevent “premature” appreciation can broadly explain interventions from January 2003 to August 2003.

Second, interventions might be conducted to help monetary policy to stimulate the economy. The short-term interest rate (call rate) had been zero since February 1999 (except for temporary tightening to 0.25 percent from August 2000 to March 2001; quantitative easing was used after March 2001). For the BOJ to expand the monetary base (i.e., quantitative easing), it must purchase assets. Buying short-term treasury bills—the usual instrument—is not very effective, because at a zero interest rate, cash and treasury bills are perfectly substitutable for the public. If the BOJ purchases different kinds of assets—such as long-term bonds, foreign bonds, equities,

10. The Bank of Japan’s views were that “economic activity remains virtually flat” in July and August 2003; then “economic activity still continues to be virtually flat as a whole, although signs of improvement have been observed in such areas as the environment for exports” in September 2003; “the foundation for a gradual recovery in Japan’s economy is being laid, as the environment for exports and business sentiment have improved” in October 2003; and “Japan’s economy is starting to recover gradually” in November.

and real assets—then unconventional channels of monetary policy may open up. Unsterilized intervention is one such instrument. Because interventions are conducted by the MOF, unsterilized intervention can be achieved only by cooperation between the BOJ and MOF. A combination of large interventions and a large increase in the monetary base can be regarded as a method of unsterilized intervention.

Third, the MOF-BOJ was determined that the yen-dollar exchange rate would not fluctuate due to speculative forces. In the minds of officials in Japan, the yen-dollar movement between the spring of 1995 and October 1998 seems to be still vividly remembered. From April to August 1995, the yen-dollar rate moved from 100 to 80 and then back to 100. The rate's appreciation from 100 to 80 in a matter of several weeks is considered to have been driven by speculative buying of the yen, knock-out options, loss cuts, and other technical forces that were unrelated to the macroeconomic conditions at the time. The level of ¥80/\$1 was considered to be unsustainable and harmful to exporters. Several interventions from June to September 1995, in particular forceful ones in August and September, made it possible to reverse the trend and pushed the yen-dollar rate back to the 100 level.

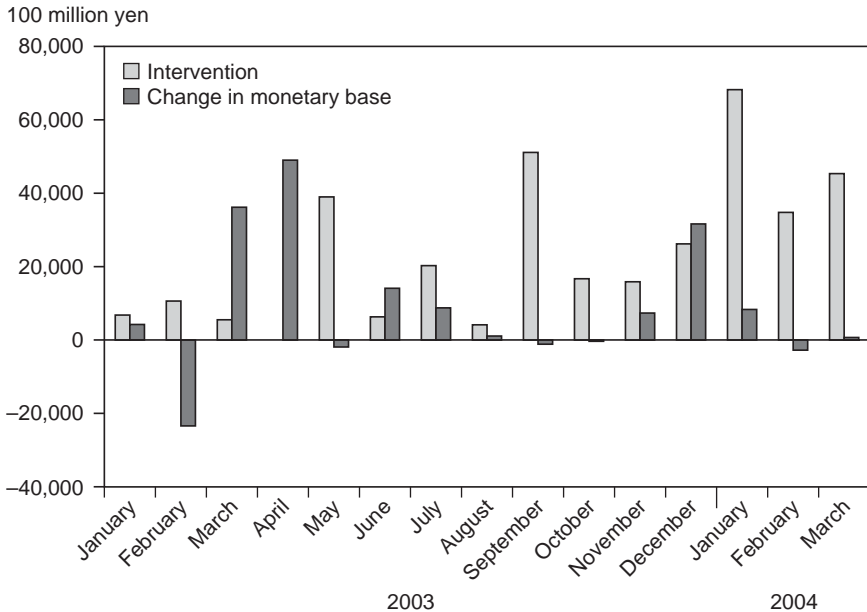
From October 5 to 9, 1998, the yen appreciated from ¥135/\$1 to ¥116/\$1. This very rapid movement was caused by the unwinding of the yen carry trades that had been popular among hedge funds before that week. Unwinding became necessary when sensitivity to risk suddenly changed after disclosure of the failure of Long-Term Capital Management, a large hedge fund. All other hedge funds liquidated positions to fatten cash reserves. As a result, the yen was bought to square the short position. These episodes are remembered as examples that speculative positions and technical factors could move the yen-dollar market easily. Japanese officials may think that interventions can be more easily justified when they are used against the speculative buying and selling of the yen.¹¹ The next sections analyze the timing of these interventions and the underlying factors that are considered to have prompted them.

Unsterilized Intervention

Another justification for a large intervention is that it was helpful to achieve monetary easing. The Bank of Japan, under its new governor, Toshihiko Fukui, was increasing excess reserves in several steps from April to December 2003. Unsterilized intervention in the usual circum-

11. There is a fundamental difference between fighting against the pressure of a depreciating currency (e.g., the United Kingdom's in 1992) and fighting against the pressure of an appreciating currency (e.g., Japan's in 1995 and in 2003–04). The former has a limitation of foreign reserves as ammunition and the latter has unlimited resources for intervention by printing money.

Figure 8.4 Intervention and the monetary base, Japan, 2003–04



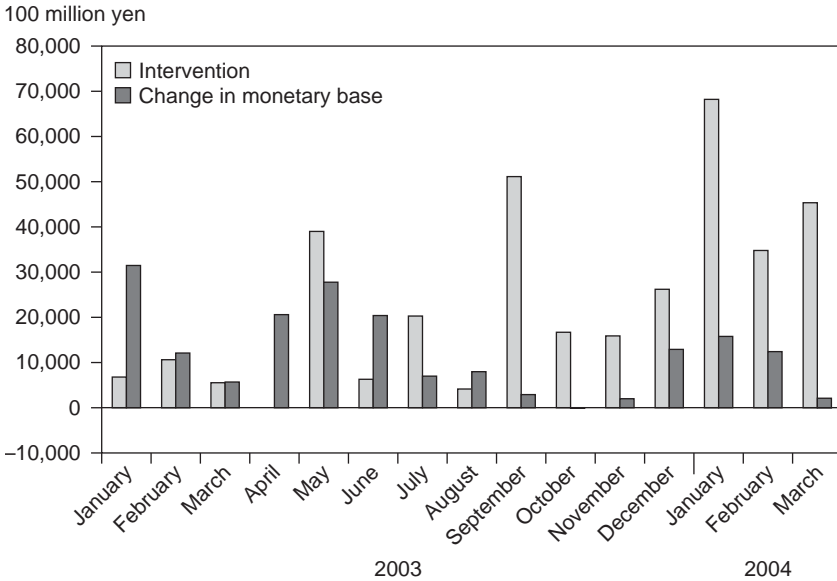
Sources: Intervention, Ministry of Finance, Japan; monetary base, Bank of Japan.

stance (the interest rate being positive) would be effective in depreciating the currency by relaxing the monetary condition (lowering the interest rate). According to the view that monetary policy works only through the interest rate, unsterilized interventions simply increase excess reserves, with no effect through the interest rate channel, under a zero interest rate regime, like that in Japan in 2003.

However, monetary policy may work through channels other than the interest rate. First, because more liquidity in the system will make corporations and households shift their portfolio toward risky assets, like stocks and foreign bonds, unsterilized interventions even at a zero interest rate will likely cause depreciation and have real effects. Second, if market participants are convinced that the BOJ, by making unsterilized interventions, is signaling a future monetary policy of maintaining the zero interest rate for a long period—longer than previously believed—after the economy starts to recover, then unsterilized intervention will have real effects.

Figure 8.4 shows the monthly aggregate of interventions and monthly changes of the monetary base. It appears to be the case that the two series have very little correlation. Figure 8.5 shows the same two series, but with the past three-month moving average of the monetary base. Now the movement seems to be more correlated, although the correlation coefficient is not perfect. From January to December 2003, cumulative interventions amounted to ¥20.2 trillion, while the cumulative increase in the monetary

Figure 8.5 Interventions and the monetary base, Japan, 2003–04
(3-month moving average)



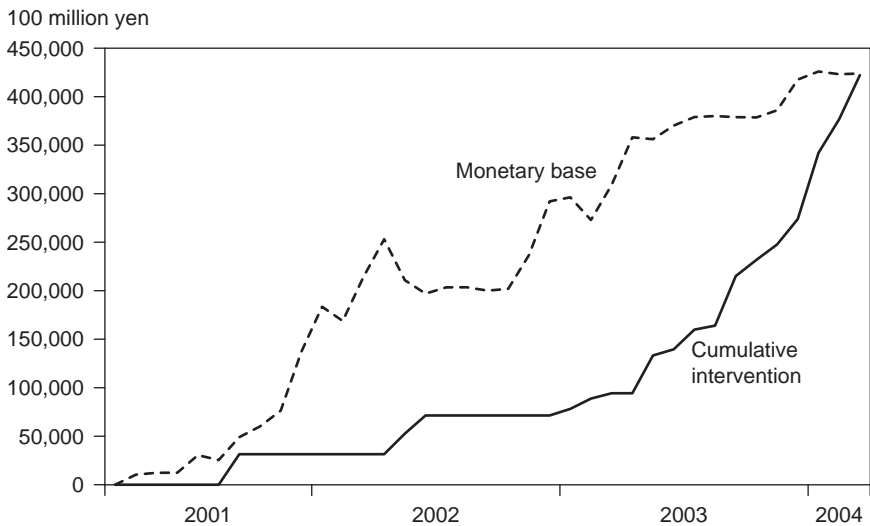
Sources: Intervention, Ministry of Finance, Japan; monetary base, Bank of Japan.

base was ¥12.5 trillion. In 2003, it was not inconsistent to say that more than half of the interventions were unsterilized. When the time span is made a little bit longer, as since March 2001, when quantitative easing was initiated, then the cumulative intervention amount and the cumulative increase in the monetary base match at the end of March 2004, as is shown in figure 8.6.¹² It is not immediately clear to observers whether the MOF, which again is in charge of intervention, and the BOJ, which is in charge of monetary policy, were consciously coordinating so that unsterilized intervention could be realized. It could have been just a coincidence of two independent decisions.¹³

12. I owe this insight to James Harrigan.

13. Deputy Governor Kazumasa Iwata, when asked about this on October 1, 2003, replied that “the amounts of interventions amounted to ¥13.5 trillion so far this year, and the additional liquidity supplied by the Bank of Japan amounted to ¥10 trillion—¥2 trillion in March, ¥5 trillion in April, and ¥3 trillion in May—so far. The two amounts have been about the same, although it must be a coincidence. Thus, the simultaneous interventions and liquidity provision, ex post, have the same effect as unsterilized intervention. Also, ex post, they had the same effect as the case where the Bank of Japan purchases US government securities” (press interview, Deputy Governor Iwata, October 1, 2003, at Sendai; printed in Japanese, translated by the author. Available at <http://www.boj.or.jp/press/03/kk0310a.htm>).

Figure 8.6 The monetary base and cumulative intervention, Japan, 2001–2004



Sources: Intervention, Ministry of Finance, Japan; monetary base, Bank of Japan.

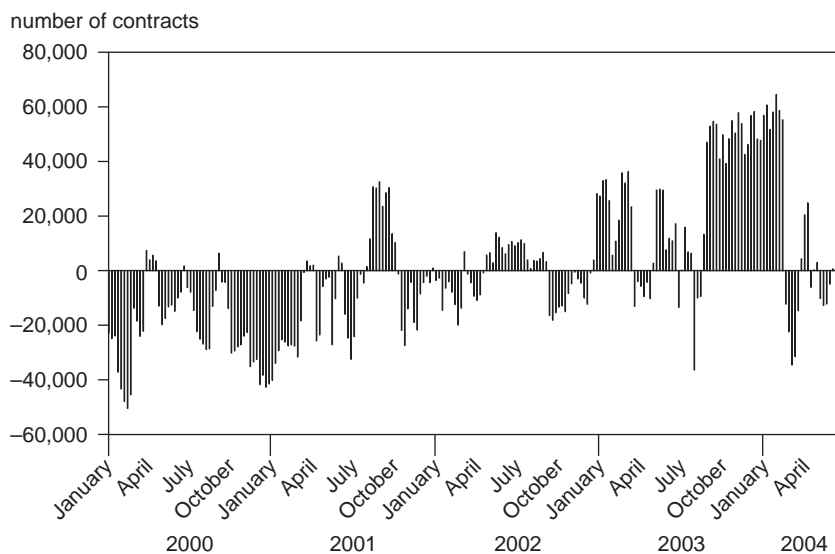
An important point is that intervention was helping to broaden the menu of quantitative easing. In other words, intervention policy and monetary policy were pointing in the same direction. As Lars Svensson (2001) pointed out, many economists approved of unsterilized intervention because it would help Japan get out of deflation at zero interest rate by raising the expected inflation rate in the future.

The Fight Against Speculators

Another possible reason that the MOF-BOJ intervened so much was to prevent the exchange rate from becoming misaligned by speculative positions. Although speculators may not cause permanent damage, short- to medium-run volatility would be greatly increased if there were massive capital flows in and out of the yen asset markets. One indicator of such a futures position is represented in the weekly figure for the International Monetary Market (IMM) position on the Chicago Mercantile Exchange.¹⁴ The data on long and short positions on Tuesday are disclosed on the following Friday. The net long position (i.e., long minus short) is frequently regarded as potential (downward or upward) pressure in the market for the currency.

14. Available at http://www.cme.com/prd/overview_JY2466.html.

Figure 8.7 The International Monetary Market net long position of yen futures, 2000–04



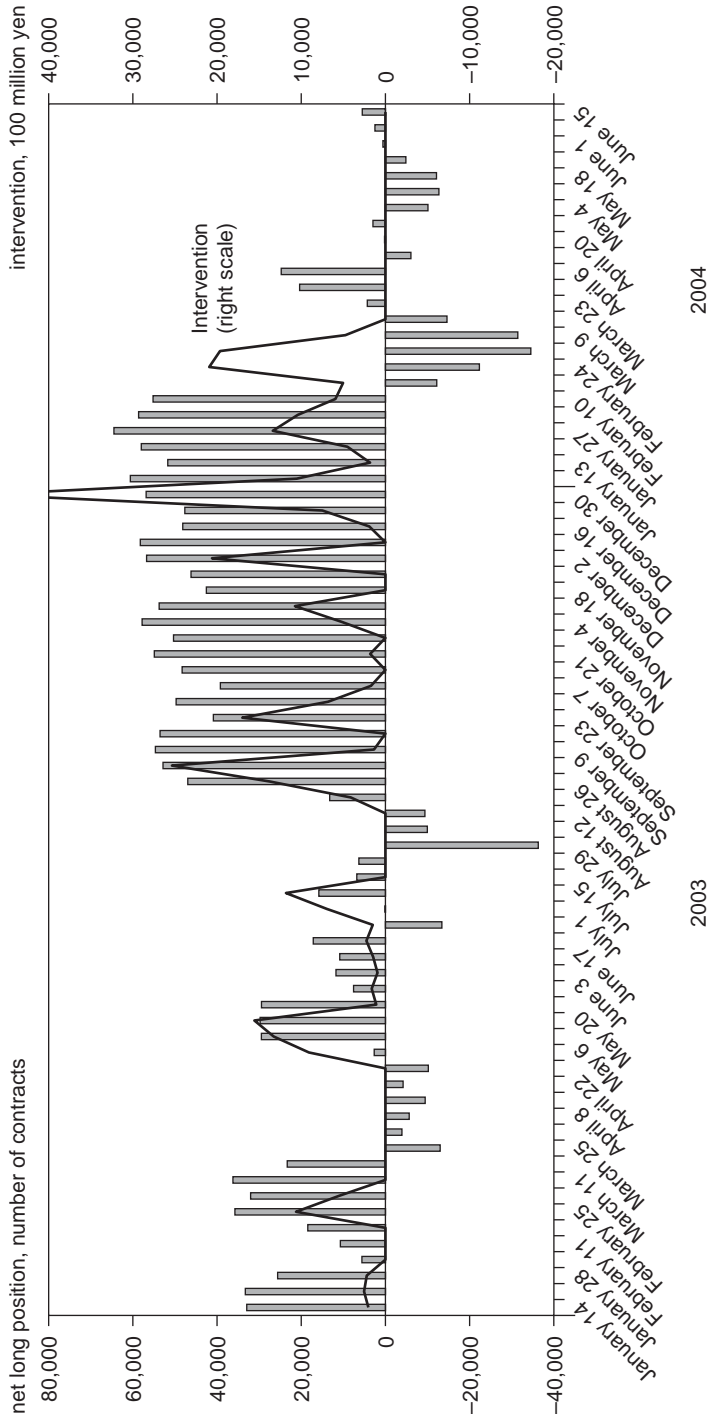
Note: The International Monetary Market is part of the Chicago Mercantile Exchange. Data are for the 11th of January, April, July, and October of the year represented.

Source: Chicago Mercantile Exchange, International Monetary Market.

Figure 8.7 shows the net long position of IMM yen futures on the Chicago Mercantile Exchange. In the period from 2000 to 2004, the positions from January 2003 to February 2004 were very large. Figure 8.8 shows the magnified picture for the period from January 2003 to June 2004, with weekly intervention amounts (the positive number of interventions here means yen sales or dollar purchases). It is striking that when yen net long positions were large, it is more likely that interventions were conducted to offset that pressure. The timing seems to be very close, except for the period from mid-February to mid-March 2004.

There were three waves of high net long positions and interventions. The first wave of long positions coincided with the beginning of the stealth interventions. The position jumped from basically zero to the high 20,000s (the number of contracts, and one of which is for ¥12.5 million) on December 31, 2002. The strong appreciation pressure must have been felt in the market. It is quite likely that the MOF-BOJ also noticed the change in the wind in the market. The large net long position continued a week later (January 7, 2003), and even increased to more than 30,000 on January 14, 2003, the day before intervention started. The high long position continued until mid-March. These on-and-off interventions continued from January 15 to March 10, and then the interventions stopped—until May 8. The duration of the interven-

Figure 8.8 The International Monetary Market yen net long positions and interventions, 2003–04



Note: Bars represent net long position (left scale).

Sources: Net long position, Chicago Mercantile Exchange, International Monetary Market; intervention, Ministry of Finance, Japan.

tions and the duration of the high net long positions in the first wave match almost exactly.

The second wave of high long positions started on May 13, with almost 30,000. The high long positions continued until July 15, with a few dips in the number. Interventions started on May 8 and continued on and off until July 16 (before resuming on August 29). Again, the stretch of high net long positions and that of interventions match in the second wave.

After a hiatus of a month and a half, interventions resumed on August 29, followed by interventions almost every day in the first half of September. The resumption of high long positions started on August 26, with 13,000, and then quickly rose to more than 46,000 on September 2, and to more than 52,000 on September 9. At this time, the market started to focus on criticism from the United States and Europe of Japanese intervention and the Chinese dollar peg. The coming G-7 finance ministers' meeting was on the radar screen. Many financial institutions started to bet on yen appreciation.

As was explained above, the Japanese intervention stopped between September 16 and 30, and the yen appreciated from ¥116/\$1 to ¥112/\$1. This must have encouraged speculators to keep high long positions on the yen. In fact, the IMM net long positions on the yen remained quite high, in the range of 40,000 to 60,000, from October 2003 to February 17, 2004. This extended stretch of high long positions also matched a stretch of heavy interventions by the MOF-BOJ.

The net long positions in the IMM almost exactly match the period of heavy interventions, except for two periods: one from September 16 to 30, 2003, at about the time of the Dubai G-7 meeting, and one from mid-February to March 16, 2004, when interventions continued even while the net long positions fell dramatically. The latter period is puzzling in the sense that the interventions continued until one month after the end of the high net long positions.

Why Stealth Interventions?

Because these were "stealth interventions," there was no explicitly stated goal as to when they were to be conducted. It was never clear whether the Japanese monetary authorities wanted to check the speed of appreciation (smoothing operation) or to keep the floor of the exchange rate (target zone). As is explained below, the immediate goal seems to have shifted from smoothing operations to a target zone, and then the floor yen-dollar exchange rate seems to have been revised several times.

Why there had to be stealth interventions—that is, not confirming the fact of interventions on the day—during this period is harder to explain. If the above logic was recognized clearly by the authorities, the announcement of determination might have had more impact on the market. The amount of intervention, and certainly the frequency of interventions, might have been much less if the interventions had been announced.

Exit Policy

The frequency and size of interventions increased sharply during the 3 months from January to March 2004 compared with the preceding 12 months. The fundamentals of the Japanese economy became much stronger and more robust, compared with the 12 preceding months, when interventions started, and Japanese exporters were reporting higher profits. In early February, a very high GDP growth rate for the fourth quarter of 2003 was announced. The only reason for heavy interventions in the first quarter of 2004 was to counter the speculative pressure that was shown in the IMM long positions.

There was no intervention after March 16, 2004, a fact which became public knowledge in the first week of May, the yen drifted to depreciate somewhat, and the yen-dollar rate moved toward ¥113 by mid-May. One interpretation that is kind to the Japanese authorities is that with heavy intervention from January to mid-March 2004, the Japanese authorities finally convinced the market that even with the improved fundamentals, the current yen-dollar rate at the time was an appropriate level, and there was no more room for speculative movements. This view is supported by the analysis of IMM positions above. The authorities quit interventions a month after the net long positions disappeared.

A more critical view of the exit policy is that the authorities exited due to criticism from US policymakers—or at least, as was reported in the press. It was just “luck” that a soft landing was possible. This “luck” included a stronger hint of a coming US interest rate hike and capital flows shifting out of the Japanese market and reverting to the US market. One bit of supporting evidence for this view is that despite the yen’s depreciation, stock prices came down in April to May 2004, due to foreigners selling Japanese stocks in preference to overseas assets.

At the time of this writing (July 2004), no intervention seems to be imminent because the yen-dollar rate is hovering at about ¥110. A real test of the authorities’ resolve would come if the yen appreciates again toward 100.¹⁵ However, the hurdle for restarting intervention may be much higher now, when the economy is projected to grow by more than 3 percent in 2004.

Were the Interventions Effective?

The MOF-BOJ may claim that the economy’s recovery from -0.1 percent in 2002 to 2.5 percent in 2003, and the stock price increase of 50 percent from

15. Hiroshi Watanabe assumed the position of vice minister for international affairs at the Ministry of Finance from Zenbei Mizoguchi on July 2, 2004. Watanabe’s method and philosophy of interventions may be different from those of Mizoguchi, according to analysts of the market.

April 2003 to April 2004, would not have been possible without massive interventions. Objectives were achieved, and now the exit from heavy intervention is appropriate, is possible, and has been made, for the economy is solidly on the recovery path (as of the end of the first quarter of 2004). The last intervention was March 16, 2004. This is probably the most sympathetic view of the intervention episode from January 2003 to March 2004.

Using the econometric model of measuring effectiveness for the earlier period, we can compare the effectiveness of the Mizoguchi interventions. I have proposed (Ito 2003a) to measure the effectiveness of interventions by regressing the change in the exchange rate (the New York close of day $t - 1$ to the New York close of day t) on the past exchange rate movements and interventions (Japanese intervention, US intervention, and Japanese first-of-the-week intervention).¹⁶ The model equation takes this form:

$$\begin{aligned} \Delta s(t) = & \beta_0 + \beta_1 \Delta s(t - 1) + \beta_2 [s(t) - s^T(t - 1)] \\ & + \beta_3 Int(t) + \beta_4 IntUS(t) \\ & + \beta_5 IntIN(t) + \epsilon(t) \end{aligned} \tag{8.2}$$

where $\Delta s(t) = s(t) - s(t - 1)$, $s(t)$ is the New York close of the yen-dollar exchange rate, and s^T is the long-run backward moving average (here 180 days). The first three terms on the equation's right-hand side capture the movement of the yen-dollar rate in the absence of interventions. If one strongly believes that the exchange rate follows a random walk, then a condition, $\beta_0 = \beta_1 = \beta_2 = 0$, should be imposed. However, in general, a short-run bandwagon effect ($0 < \beta_1 < 1$) and a medium-run mean reversion ($\beta_2 < 0$) may be allowed. $Int(t)$ is the Japanese intervention amount; $IntUS(t)$ is the US intervention amount (in yen). $IntIN$ denotes the first-in-the-week interventions; it takes the value of intervention when the intervention of the day was not preceded by any intervention for five days:

$$IntIN(t) = Int(t) \text{ if } Int(t) \neq 0$$

and

$$Int(t - 1) = Int(t - 2) = \dots = Int(t - 5) = 0,$$

or, otherwise, $IntIN(t) = 0$. This term captures the power of infrequent, "surprise" interventions, as opposed to continuous interventions. Interventions often are done in a cluster. Namely, one intervention tends to be followed by others. Therefore, an intervention, when done for the first time in a certain span of days, signals that the authorities are not happy with the level

16. See Dominguez and Frankel (1993), Dominguez (2003), and Sarno and Taylor (2001) for general references on the effectiveness of interventions. See Truman (2003) for a skeptical view of the effectiveness of interventions.

Table 8.4 Estimates of the effectiveness of interventions by the Japanese authorities, 1991–95, 1995–2003, and 2003–04

Variable or parameter	April 1, 1991– June 20, 1995	June 21, 1995– January 13, 2003	January 14, 2003– March 31, 2004
β_0	-0.0008 (0.0002)**	0.0001 (0.0002)	-0.001 (0.0005)*
β_1	-0.028 (0.031)	-0.0022 (0.026)	-0.033 (0.053)
β_2	-0.0158 (0.0053)**	0.0019 (0.002)	-0.0038 (0.0089)
β_3	0.0000047 (0.0000008)**	-0.0000007 (0.0000002)**	-0.00000038 (0.00000016)*
β_4	-0.000012 (0.000005)**	-0.000054 (0.000008)**	n.a.
β_5	0.0000008 (0.0000057)	-0.0000014 (0.0000005)**	-0.00000007 (0.00000003)
R^2	0.0031	0.0068	0.0037
Number of observations	1,101	1,962	308

** = statistically significant at the 1 percent level

* = statistically significant at the 5 percent level

n.a. = not available

Note: Estimated with a Garch model. Numbers in parentheses are standard errors. See Ito (2003a) for details.

or the change of the exchange rate and will be ready to intervene again. It is natural to allow for the possibility that the first intervention of the bunch has a special effect compared with the others.

The equation is now estimated for the three subperiods (pre-Sakakibara, Sakakibara-Kuroda, and Mizoguchi), and the estimated coefficients are compared.¹⁷ The results are shown in table 8.4.

The table shows that interventions were effective in the sense that the yen-selling interventions depreciated the yen, and the yen-buying interventions appreciated the yen in the second and third subperiods. For example, a ¥1 trillion first-time-in-a-week intervention (i.e., the effects of $\beta_3 + \beta_5$) caused a 2.1 percent depreciation in the yen-dollar exchange rate in the second subperiod (1995–2003), while the rate depreciated 0.45 percent in the third period (2003–04). The Mizoguchi stealth interventions were effective, but the degree of impact declined to the level of $\frac{1}{5}$. In the case of continuous/subsequent (β_3 only) interventions, the ¥1 trillion interventions depreciated only 0.7 percent in the second period and 0.38 percent in the third period. Taking this estimate and multiplying by 35, we get an estimate of 13 percent depreciation (from the level otherwise) from the massive ¥35 trillion intervention from the level without intervention. However, this is quite

17. I am grateful to Tomoyoshi Yabu for his excellent research assistance.

a rough estimate, in the sense that effectiveness is measured only by the immediate impact. My preliminary research shows that the effects of interventions on the yen-dollar rate tend to wear off within several days of interventions. Therefore, 13 percent depreciation should be taken as a maximum estimate, on the assumption that the immediate impact (within a day) tends to stick in the medium run.

Examining Criticism

There are two kinds of criticism of Japanese interventions, from different directions. First, some observers are skeptical of the effectiveness of interventions.¹⁸ They argue that although an intervention has short-term effects, as measured by myself above, the effects on the exchange rate may not last long, as a long-run effect is not tested in my equation. They regard interventions as futile efforts in resisting market forces.

Second, others criticize Japan for “manipulating the exchange rate.” If interventions are not effective, then there is no way to manipulate the exchange rate by interventions. Therefore, those who believe in the manipulation story think that the level or the speed of the change in the exchange rate can be altered by interventions. Then, the answer to a question of whether interventions are manipulative depends on what the rate would have been without intervention, and whether the rate without intervention could be consistent with the fundamentals. If the exchange rate would reach a level that is not justifiable from the economic fundamentals, then interventions can be justified, instead of being branded as manipulation.¹⁹

Several factors can be viewed as supporting the massive amount of interventions in Japan in the period 2003–04. First, the Japanese economy was extremely vulnerable in 2002–03, especially in the banking sector, and the monetary policy instrument was limited after having driven the interest rate down to zero. Massive interventions along with massive additional liquidity in excess reserves meant that the Japanese monetary authorities bought foreign bonds by issuing domestic currencies.

Some European officials reportedly complained, at about the time of the G-7 meeting in September 2003, that the Japanese interventions distorted the euro-dollar exchange rate. Their argument went as follows. The dollar has to fall to make the current account deficits manageable, with the estimate of the necessary fall ranging from 10 to 30 percent, on a REER basis. Given this objective, if the yen does not appreciate by interventions, then the euro has to shoulder an unfairly large adjustment (i.e., appreciation) vis-à-vis the dollar. The European countries that were worried about the relatively high level of the euro demanded that Japan stop its interventions. In short, the target

18. See Sarno and Taylor (2001) and Truman (2003) for a good survey of the literature.

19. Preeg (2003) makes the case that Japan and China had “manipulated” the exchange rate by interventions.

REER is the given, and if some currencies refuse to join the concerted appreciation vis-à-vis the dollar, other currencies have to appreciate more.

However, the very assumption of a given REER depreciation of the dollar may be questioned. This may be a theoretical calculation, but it may not be a calculation of market participants of the exchange rate market. Investors in the foreign exchange market often consider the yen and the euro to be close substitutes as nondollar assets. If investors diversify assets between the dollar and nondollar assets, but also among nondollar assets, investors consider the euro and the yen to be perfect substitutes. Then those who would purchase nondollar assets would buy the euro (as it appreciates vis-à-vis the dollar) or the yen, whichever is cheaper (compared with the benchmark). If the yen refuses to appreciate due to interventions, then those who would normally purchase the euro would purchase the yen. The interventions to ease the yen-buying pressure by selling the yen would have to absorb the euro-buying pressure. Those who arbitrage between the yen and the euro would take advantage of interventions by the Japanese authorities by selling the euro and buying the yen. Therefore interventions by the Japanese authorities lessen the appreciation pressure on the euro as well as the yen. Thus, whether the Japanese interventions aggravated or mitigated the euro's appreciation depends on the substitutability between the yen and the euro among major international investors in currencies.

Conclusions

This chapter has analyzed the reasons for Japanese interventions in the foreign exchange market from January 2003 to March 2004. Preventing premature appreciation and preventing market pressures from appreciating the yen—these are the most likely explanations. The timing of IMM net long positions building up and the timing of heavy interventions roughly match each other.

A negative impact of potential dollar depreciation (yen appreciation) on the Japanese economy is much less evident in 2004, compared with 2003. Automobile and high-technology exporters would be able to endure a yen-dollar exchange rate of 100. The deflation since 1998 means that the real bilateral exchange rate is now depreciated compared with five years ago. Approximately ¥100/\$1 this year is like ¥110/\$1 five years ago, reflecting at least the 2-percentage-point inflation rate differential between Japan and the United States.

Moreover, Japan is becoming less and less dependent on the United States as a destination for exports. Asian markets, especially the Chinese market, have become increasingly important for Japan. The real effective (multi-lateral) exchange rate of the yen has been virtually flat in the past five years. Suppose that the dollar depreciated by 20 percent vis-à-vis the yen and the euro, but that the Chinese renminbi broke the link to the dollar and appreciated with the yen. This might not be such a disaster for Japan and the rest of Asia.

A typical intraregional trade ratio for Asian countries (East and Southeast Asian countries, including Japan) has risen to 50–60 percent. The threat of the dollar's instability (e.g., a loud voice forecasting the dollar's imminent collapse) would make Asian countries realize that it would be in their interest to pay attention to the intraregional stability of their exchange rates, rather than trying to soft peg to the dollar by heavy interventions. With the possibility of a floating Chinese renminbi, it makes sense for the Association of Southeast Asian Nations–plus–Three countries to strengthen their cooperation in exchange rate management.

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