

CRS Report for Congress

Japan's Currency Intervention: Policy Issues

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Dick K. Nanto
Specialist in Industry and Trade
Foreign Affairs, Defense, and Trade Division



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Summary

Japan's intervention to slow the upward appreciation of the yen has raised concerns in the United States and brought charges that Tokyo is manipulating its exchange rate in order to gain unfair advantage in world trade. This coincides with similar charges being made with respect to the currencies of the People's Republic of China and South Korea. In the 110th Congress, H.R. 2886 (Knollenberg)/S. 1021 (Stabenow) (Japan Currency Manipulation Act), H.R. 782 (Tim Ryan)/S. 796 (Bunning) (Fair Currency Act of 2007), S. 1677 (Dodd) (Currency Reform and Financial Markets Access Act of 2007), and S. 1607 (Baucus) (Currency Exchange Rate Oversight Reform Act of 2007) address currency misalignment in general or by Japan in particular.

In the past, Japan has intervened (bought dollars and sold yen) extensively to counter the yen's appreciation, but since March 2004, the Japanese government has not intervened significantly, although some claim that Tokyo continues to "talk down the value of the yen." This heavy buying of dollars has resulted in an accumulation of official foreign exchange reserves that exceeded a record \$893 billion (June 2007) by Japan. The intervention, however, seems to have had little lasting effect. It may only have slowed the rise in value of the yen rather than reverse its direction of change. For the past few years, the yen has been depreciating and is now at a 20-year low. Estimates on the cumulative effect of the interventions range from an undervaluation of the yen of about 3 or 4 yen to as much as 20 yen per dollar. Private company estimates of the misalignment of the yen range from an overvaluation of 1.8% to an underevaluation of 29%. The median value of these estimates is that the yen is about 15% undervalued, but it is not known how much of the undervaluation resulted from market forces and how much from intervention.

In 2006, the U.S. Secretary of the Treasury indicated that it had not found currency manipulation by any country, including by Japan. An April 2005 report by the Government Accountability Office reported that Treasury had not found currency manipulation because it viewed "Japan's exchange rate interventions as part of a macroeconomic policy aimed at combating deflation..." In its May 2006 report on consultations with Japan, the International Monetary Fund (IMF), likewise, did not find currency manipulation by Japan. The criteria for finding currency manipulation, however, allows for considerable leeway by Treasury and the IMF.

One problem with the focus on currency intervention to correct balance of trade deficits is that only about half of the increase in the value of a foreign currency is reflected in prices of imports into the United States. Periods of heaviest intervention also coincided with slower (not faster) economic growth rates for Japan.

Major policy options for Congress include (1) let the market adjust; (2) clarify the definition of currency manipulation; (3) require negotiations and reports; (4) require the President to certify which countries are manipulating their currencies and take remedial action if the manipulation is not halted; (5) take the case to the World Trade Organization or appeal to the IMF; or (6) oppose any change in governance in the IMF benefitting Japan. This report will be updated as circumstances require.

Contents

The Interventions	3
Economic Studies	5
The Link Between Exchange Value and Trade	8
Intervention or Manipulation?	11
Policy Issues	14
Let the Market Adjust (Do Nothing)	15
Clarify the Definition of Currency Manipulation	16
Require Negotiations and Reports	18
Certify Currency Manipulation and Take Remedial Action	19
Actions with the IMF, World Bank, WTO, and OPIC	19
Legislation	20
Appendix	21

List of Figures

Figure 1. Japan's Real Effective Exchange Rate (March 1973=100)	3
Figure 2. Japan's Exchange Rate and Foreign Exchange Reserves 1972-2006	4
Figure 3. Changes in Japan's Foreign Exchange Reserves and in the Yen/Dollar Exchange rate with Interventions and GDP Growth Rates, 1972-2006	11
Figure 4. Indexes of the Value of the Japanese Yen and German Mark per U.S. Dollar	14

List of Tables

Japan's GDP Growth Rate, Yen/Dollar Exchange Rate, and Foreign Exchange Reserves, 1970-2007	21
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Japan's Currency Intervention: Policy Issues

Japan's intervention to slow the upward revaluation of the yen has raised concerns in the United States and brought charges that Tokyo is manipulating its exchange rate in order to gain unfair advantage in world trade. This coincides with similar charges being made with respect to the currency of China. This report provides an overview and analysis of Japan's official intervention into currency markets, reviews various studies on the probable effect of that intervention, examines the charge that Japan has manipulated its exchange rate as defined by the International Monetary Fund (IMF), and reviews legislation and policy options.

Foreign governments intervene into currency markets by buying foreign exchange — usually dollars, Euros, or British pounds — in order to increase demand for dollars and support its value relative to the intervening government's own currency. Likewise, they can sell foreign exchange in order to decrease demand for dollars and increase the value of the country's own currency. In Japan's case, it has usually bought dollars from its domestic exporters in exchange for yen and used those dollars to buy U.S. Treasury securities or other liquid dollar assets.

In the 110th Congress, H.2886 (Knollenberg)/S. 1021 (Stabenow) (Japan Currency Manipulation Act) would require negotiation, reports, and other action with respect to Japan's currency actions. This bill states in its findings that Japan's exchange rate provides a subsidy to Japanese exporters and an unfair competitive advantage for Japanese automobile manufacturers. H.R. 782 (Ryan)/S. 796 (Bunning) (Fair Currency Act of 2007) would provide that exchange-rate misalignment by a foreign nation is a countervailable export subsidy and also would clarify the definition of manipulation with respect to currency.

S. 1607 (Baucus) (Currency Exchange Rate Oversight Reform Act of 2007) would require the Treasury Department to identify currencies that are fundamentally misaligned and would require action to correct the misalignment. S. 1677 (Dodd), Currency Reform and Financial Markets Access Act of 2007, would require the Treasury Department to identify countries that manipulate their currencies regardless of their intent and to submit an action plan for ending the manipulation, and gives Treasury the authority to file a case in the WTO.

Concern over currency manipulation, intervention, and misalignment stems from the basic U.S. interest in American national prosperity. Manipulation of exchange rates to undervalue foreign currencies potentially can increase the U.S.

trade deficit,¹ increase U.S. dependency on foreign investors to finance U.S. budget deficits, affect the level of U.S. interest rates, and negatively affect U.S. businesses competing with imports or exporting.

In Japan's case, the Bank of Japan (in consultation with the Ministry of Finance) has bought U.S. Treasury securities and other liquid dollar assets at times when the value of the dollar relative to the yen was declining. The intended result was to keep the value of the yen from appreciating too quickly in order to keep the price of Japanese exports from rising in markets such as those in the United States and to maintain the profitability of those exports.

Some experts argue that the yen is undervalued by 10% to 29% or more. If so, this would give many Japanese manufacturers a significant price advantage over U.S. competitors. The U.S.-headquartered automobile industry, for example, claims that the undervalued yen generates a price advantage of about \$4,000 per car to vehicles made in Japan and a resultant surge in sales of such vehicles in the United States.² As shown in **Figure 1**, the real effective value of the yen has reached a 20-year low, but it is not clear whether this undervaluation has resulted from government intervention and manipulation or from private market forces.³

Most economic studies indicate that currency intervention for large countries with floating exchange rates, such as Japan, merely slows the rate of currency appreciation or depreciation over the short run (less than 30 days) and has little effect over the long term. Whether Japan has manipulated its exchange rate under criteria set by the International Monetary Fund (IMF) is open to debate. The IMF and the Secretary of the Treasury have not found such manipulation in recent years,⁴ but others charge that such manipulation has taken place. Japan claims that it has not intervened in foreign exchange markets since March 2004, although some claim that Japan still "talks down the value of the yen."

Even without official intervention, Japan's holdings of foreign exchange continue to increase because of interest Japan earns by investing that foreign exchange in U.S. Treasury bills and other securities. In 2006, Japan earned \$40.3

¹ The overall size of a nation's current account balance (trade in goods and services plus unilateral transfers) is determined mainly by rates of savings and investment, interest rates, and other factors, but the foreign exchange rate plays a key role in adjusting for imbalances.

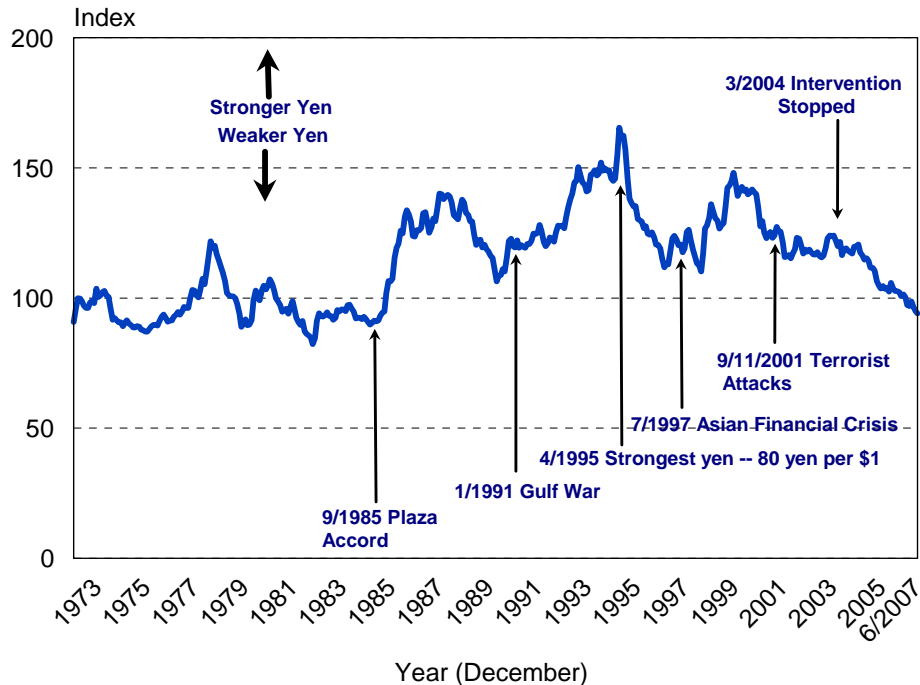
² Collins, Stephen. How the Misaligned Yen Hurts U.S. Automakers, *Real Clear Politics.com*. March 8, 2007.

³ The real effective value of the yen is an index of the exchange rate adjusted to account for differing rates of inflation among Japan's trading partners and for the share of trade with each major trading partner in Japan's total trade. It is calculated by the Bank of Japan.

⁴ U.S. Treasury. *Report to Congress on International Economic and Exchange Rate Policies*. May 2006. International Monetary Fund. *Japan — 2006 Article IV Consultation Concluding Statement of the IMF Mission*, May 24, 2006 (contains no mention of exchange rate manipulation).

billion more on its investments (including business direct investments) in the United States than Americans earned on their investments in Japan.⁵

**Figure 1. Japan's Real Effective Exchange Rate
(March 1973=100)**



Data Source: Bank of Japan

The Interventions

In 1971, when the link between the U.S. dollar and gold was severed and the dollar was allowed to float within certain bands, the yen began to appreciate in value. The yen/dollar exchange rate, established during the U.S. occupation of Japan in 1949, had been held at 360 yen per dollar for 22 years. Since then, it appreciated to around 105 yen per dollar in early 2005, but in late 2005 it had depreciated to around 120 yen per dollar before rising slightly to about 119 yen per dollar in March 2007.

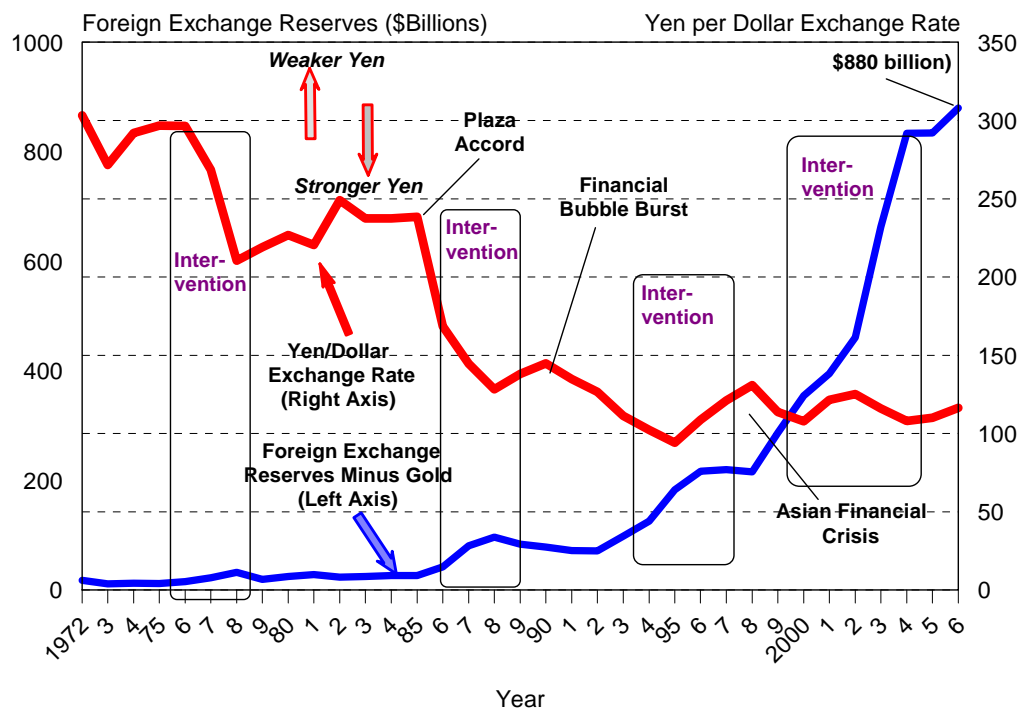
Japan's government has intervened in currency markets to buy dollars or other foreign exchange at times when the yen was appreciating at a pace considered to be too rapid. Japan also has intervened by selling dollars at times when the yen was depreciating too rapidly. The net result of this intervention is that Japan's holdings of foreign exchange reserves have risen to about \$888 billion in March 2007.⁶

⁵ U.S. Bureau of Economic Analysis. U.S. International Transactions, by Area - Japan. Accessed April 12, 2006, on Internet at [http://www.bea.gov/international/bp_web/simple.cfm?anon=71&table_id=10&area_id=11].

⁶ Japan. Ministry of Finance at [<http://www.mof.go.jp/english/e1c006.htm>].

As can be seen in **Figure 2**, the most significant of Japan's interventions to counter the yen's appreciation took place in 1976-1978, 1985-1988, 1992-1996, and 1998-2004. Since March 2004, the Japanese government has not intervened significantly in currency markets to support the value of the dollar.⁷ **Figure 2** also shows that despite heavy buying (or selling) of dollars during certain periods of time, the intervention seems to have had little lasting effect. It might have slowed the change in value of the yen, but the appreciation (or depreciation) occurred anyway. This is called “leaning against the wind” in economic parlance or intervening to oppose strong short-term trends rather than to reverse the direction of change. In most cases, Japan's intervention resulted in the “smoothing” of fluctuations in exchange rates rather changing the direction of movement. As one author put it, Japan seems to have won many daily battles with the foreign exchange market, yet it lost the war.⁸

**Figure 2. Japan's Exchange Rate and Foreign Exchange Reserves
1972-2006**



Source: Data from World Bank. World Development Indicators

Even though Japan has invested hundreds of billions of dollars in buying dollar assets that are then held as foreign exchange reserves, many observers point out that

⁷ For data on intervention, see Japan. Ministry of Finance. International Reserves/Foreign Currency Liquidity. Issued monthly. Also see Foreign Exchange Intervention Operations. Issued periodically. See [<http://www.mof.go.jp/english/files.htm>].

⁸ Dominguez, Kathryn M. “Foreign Exchange Intervention: Did It Work in the 1990s?,” In *Dollar Overvaluation and the World Economy*, edited by Fred Bergsten and John Williamson, Washington, Institute for International Economics, 2003. pp. 217-245.

such transactions are small when compared with the average daily turnover of \$1.9 trillion in traditional foreign exchange markets and \$2.4 trillion in over-the-counter currency and interest rate derivatives markets.⁹ Currency transactions in support of imports and exports, investments, remittances, and other purposes dwarf interventions by central banks. Still, it is the effect of central government intervention on net — rather than gross — flows that make the difference (since imports and exports tend to balance on a global basis). Government purchases and sales constitute a net addition to or subtraction from global demand and supply. Also government interventions can have a powerful signaling effect on market participants who may prudently reduce their speculative buying should it be in a contrary direction to what the government is doing. Central banks also often coordinate intervention (intervening in the same direction the same day). This multiplies the effect of the intervention.

Economic Studies

Academic studies of intervention generally conclude that interventions did increase exchange rate volatility (moved the market), were a good indicator that the magnitude of the change in exchange value on subsequent days would decrease, and that much of it amounted to “leaning against the wind.”¹⁰ A recent study of the 1991-2002 period of Japanese intervention concluded that “prior to June 1995, Japanese interventions only had value as a forecast that the previous day’s yen appreciation or depreciation would moderate during the current day. After June 1995, Japanese purchases of dollars had value as a forecast that the yen would depreciate” in the very short run. This analysis also confirmed that large, infrequent interventions, which characterized the latter period, had a higher likelihood of success than small, frequent interventions. For 2003 and 2004, despite the record size and frequency of the intervention by Japan, the authors found it difficult to statistically distinguish the pattern of exchange rate movements on intervention days from that of all the days in that particular subperiod. This showed little effectiveness in the interventions for that subperiod and only modest effectiveness overall.¹¹

Another study examining data from 1991 to 2000 found strong evidence that “sterilized” intervention (buying of dollars offset by domestic selling of yen-denominated bonds to keep Japan’s money supply unchanged) systemically affected the exchange rate in the short-run (less than one month). Large-scale intervention (amounts over \$1 billion) — coordinated between the Bank of Japan and the U.S. Federal Reserve — gave the highest success rates. Of the 12 “large scale

⁹ Bank for International Settlements. *Triennial Central Bank Survey of Foreign Exchange and Derivatives Market Activity 2004 - Final Results*. March 17, 2005. p. 1.

¹⁰ Neely, Christopher J. An Analysis of Recent Studies of the Effect of Foreign Exchange Intervention. The Federal Reserve Bank of St. Louis Working Paper 205-030B, Revised June 2005. p. 3, 8ff.

¹¹ Chaboud, Alain P. and Owen F. Humpage. “An Assessment of the Impact of Japanese Foreign Exchange Intervention: 1991-2004.” Board of Governors of the Federal Reserve System, International Finance Discussion Papers, No. 824, January 2005. p. 1-5.

coordinated” interventions studied, 11 achieved the desired effect: they moved the yen either up or down in accordance with the policy goal of the moment, although the effects were short-lived.¹²

The estimate that the yen is 10% to 20% undervalued is emphasized heavily by U.S. automaker interests. In 2003, General Motors claimed that the yen should be trading at about 100, rather than at 110 yen per dollar.¹³ In late 2005, as the dollar strengthened, General Motors claimed that the relatively weak yen (111 per dollar at the time) was providing a significant cost advantage (about \$3,000 per vehicle) to Japanese automakers. GM also raised the issue of “jawboning” and verbal currency intervention (talking the yen down) by high-ranking Japanese officials.¹⁴ In a meeting between President Bush and the Big Three U.S. automakers, General Motors Chairman Rick Wagoner indicated there is still a chasm between the auto industry and President Bush on foreign exchange issues. Wagoner said the yen, in particular, was “systematically undervalued” with the car companies estimating that Japanese competitors gain a \$3,000 to \$9,000 cost advantage per vehicle over U.S. auto makers thanks to what is seen as an unfair currency advantage.¹⁵ In April 2007, the Automotive Trade Policy Council (with membership by Daimler Chrysler, Ford, and GM) claimed that Japan’s weak yen policy had forced U.S. automakers to contend with a \$4,000 subsidy on vehicles that their Japanese competitors export from Japan to the United States.¹⁶

A leading proponent of the position that Japan has manipulated its exchange rate is Ernest Preeg.¹⁷ In one study, he concluded that Japan had manipulated its exchange rate and that the yen in 2002 was about 20% undervalued and should have been around 100 yen per dollar.¹⁸ His analysis is based on the observation that Japan’s intervention has been large, protracted, and one-sided, but the 20% figure is a rough estimate based primarily on the extent of the intervention, not on a rigorous economic model.

¹² Faum, Rasmus and Michael M. Hutchinson. “Effectiveness of Official Daily Foreign Exchange Market Intervention Operations in Japan.” National Bureau of Economic Research Working Paper 9648, April 2003. p. 1-5.

¹³ Meredith, Robyn. GM: Weak Yen Hurts U.S. Automakers. *Forbes*, October 21, 2003.

¹⁴ Mohatarem, Mustafa. Statement before the House Committee on Ways and Means, Hearing on United States-Japan Economic and Trade Relations, September 28, 2005.

¹⁵ Auto Makers Cite Open Dialogue With Bush Administration. Dow Jones News Service, November 14, 2006.

¹⁶ Automotive Trade Policy Council. U.S. Automakers Call on G7 to Address Imbalanced Japanese Yen at Finance Ministers Meeting in Washington, News Release, April 12, 2007.

¹⁷ Ernest H. Preeg is a Senior Fellow in Trade and Productivity at the Manufacturers Alliance/MAPI.

¹⁸ Preeg, Ernest H. “Exchange Rate Manipulation to Gain an Unfair Competitive Advantage: The Case Against Japan and China,” in C. Fred Bergsten and John Williamson, *Dollar Overvaluation and the World Economy*, Washington, Institute for International Economics, 2003. p. 273.

The International Monetary Fund also conducts surveillance over the exchange rates of its member countries. In the IMF's August 2005 report on consultations with Japan, the Fund noted that compared to the United States and the Euro Area, Japan stands out for its active use of foreign exchange market intervention as a policy instrument. The IMF reported that since 1991, the Bank of Japan had intervened on 340 days, the European Central Bank on four days (since its inception in 1998), and the U.S. Federal Reserve on 22 days. The IMF further stated that "there is some evidence that intervention has had some impact on yen movements." It then quoted Takatoshi Ito, a Japanese economist, who found that intervention of about ¥2.5 trillion (about \$250 billion) on average moved the exchange rate by ¥1 per dollar or about 1%.¹⁹ The IMF's May 2006 report on consultations with Japan did not discuss exchange rate intervention.²⁰

A fundamental problem with exchange rates is that no commonly accepted method exists to estimate the effectiveness of official intervention into foreign exchange markets. Many interrelated factors affect the exchange rate at any given time, and no quantitative model exists that is able to provide the magnitude of any causal relationship between intervention and an exchange rate when so many interdependent variables are acting simultaneously.²¹

A 2007 Occasional Paper No. 7 by economists at the U.S. Treasury surveyed exchange rate models and misalignments in currencies. The authors concluded that currencies cannot be said to be misaligned without estimating what the exchange rate should be. Economists use various models to estimate such hypothetical exchange rates and then compare the modeled rates to the actual ones. The study notes that the models produce widely divergent results and depend heavily on their assumptions, methodologies, and mathematical structure in trying to capture all the relevant features of an economy, particularly the behavior of financial markets. For Japan, the authors note that according to the purchasing power parity approach, Japan's currency in 2003 was overvalued (not undervalued) by 21%. According to a Big Mac index of the cost of this hamburger across countries, in May 2006, the yen at 112 yen per dollar was 28% undervalued. Using relative labor costs to calculate real effective exchange rates, in 2004, Japan's yen was undervalued by 6.3%, but was overvalued by 2.2% using relative consumer prices in the calculation. Private sector estimates likewise vary widely. Using various methods, the Hong Kong and Shanghai Banking Corporation (HSBC) estimated the yen to have been 1.8% overvalued at the end of 2005, while Goldman Sachs estimated that it was 6.9% undervalued, while J.P.

¹⁹ International Monetary Fund. *IMF Country Report No. 05/273*, Japan: 2005 Article IV Consultation — Staff Report; Staff Supplement; and Public Information Notice on the Executive Board Discussion. August 2005. Ito, Takatoshi. Interventions and the Japanese Economic Recovery, paper presented at the University of Michigan Conference on Policy Options for Japan and the United States. October 2004.

²⁰ International Monetary Fund. *Japan — 2006 Article IV Consultation, Concluding Statement of the IMF Mission*, May 24, 2006.

²¹ See, for example, International Monetary Fund. *IMF Country Report No. 05/273*, Japan: 2005 Article IV Consultation — Staff Report; Staff Supplement; and Public Information Notice on the Executive Board Discussion. August 2005. p. 7.

Morgan Stanley came up with the figure of 14% undervalued.²² In 2007, Morgan Stanley reported that the thirteen models it uses to value currencies provided estimates of the exchange value of the yen being between 18% overvalued and 29% undervalued with the median at 15% undervaluation.²³ These models do not, however, differentiate between undervaluation caused by intervention and that caused by market forces.

Setting aside the problems with statistical estimates, what can be said is that the Japanese economy has generated a surplus in its trade accounts for much of recent history. Without an offsetting deficit in its capital account, market forces would have forced an appreciation of the yen that would have worked to eliminate the trade surplus. From 1977 to 2004, Japan's cumulative surplus on current account (net trade in goods and services plus remittances) totaled \$2,077 billion. Offsetting Japan's surplus on current account was its net capital outflow and net official purchases of foreign exchange reserves (intervention). From 1977 to 2004, Japan recorded a deficit in its capital flows (investments in foreign securities, buying foreign companies, deposits in foreign bank accounts, etc.) of \$1,314 billion. In other words, Japan's private investors sent \$1,314 billion more abroad than foreigners invested in Japan. The remaining \$763 billion outflow (\$2,077 billion minus \$1,314 billion) of dollars was primarily from official currency intervention that added to Japan's foreign exchange reserves. This net buying of \$763 billion²⁴ in dollars — over the 1977-2004 period provided more than a third (37%) of the total capital outflow from Japan to offset the country's surplus in trade. If Japan had not intervened to this extent, the yen likely would have appreciated more than it did.

Taking the estimate by Takatoshi Ito that \$250 billion in intervention moved the exchange rate by about 1% or ¥1, the net effect of the direct intervention that ended in 2004 would have been around ¥3 or ¥4 per dollar. Taking the estimates by Preeg and General Motors, the upper bound on the effect of the intervention would be around 20% or about ¥20 per dollar. The range, therefore, for the effect of exchange rate undervaluation because of Japanese intervention would be from ¥3 to ¥20 per dollar with the statistical likelihood more toward the lower end of the range.

The Link Between Exchange Value and Trade

Setting aside the question of the efficacy of Japan's intervention into exchange markets to weaken the yen, a second question is whether changes in the yen-dollar exchange rate actually affect imports and exports. In theory, Japan's intervention by buying dollars and selling yen induces a cheaper yen which then assists Japan's

²² McCown, T. Ashby, Patricia Pollard, and John Weeks. Equilibrium Exchange Rate Models and Misalignments. Department of the Treasury, Office of International Affairs, Occasional Paper No. 7, March 2007.

²³ Finance and Economics: Misleading Misalignments; Economics Focus. *The Economist*, June 23, 2007. P. 100.

²⁴ Japan's holdings of foreign exchange reserves actually rose by \$811 billion over this period. Some of this may have been interest earned on its holdings.

exporters by allowing them either to lower their export price or to maintain their export price while increasing profits. It also makes imports relatively more expensive in Japan. Lowered export prices and higher import prices will tend to increase Japan's trade surplus which then contributes to a higher growth rate. The Bank of Japan may or may not sterilize the currency operation by selling Japanese bonds locally to keep the domestic money supply constant. In an economic sense, if the intervention is not sterilized, buying dollars is equivalent to increasing the Japanese money supply, since the Finance Ministry purchases the dollars from Japanese exporters with yen which then enters the Japanese money supply.

In actual practice, the operation of currency markets often deviates from that represented in economic theory and in models. In particular, the long-term link between intervention and the foreign exchange rate is difficult to show empirically. While the intervention has short-term effects, the long-term effects on exchange rates and trade flows are much less apparent — especially considering that most of the time, the intervention leans against the wind rather than reversing the direction of change.

A second problem is that, in practice, Japan's automakers and other exporters to U.S. markets usually do not make short-run adjustments to prices in response to exchange rate fluctuations. Unlike generic commodities (such as crude oil or wheat that have standardized commodity markets), Japan's exports tend to be brand-named products for which the sellers have some control over prices. When selling in the United States, dealers and retailers of products from Japan tend to "price to market" or set prices according market conditions.²⁵

For instance, between January 5, 1994, and April 19, 1995, the Japanese yen appreciated by 34% against the dollar (it rose from 113 to 80 yen per dollar). Prices for exported products from Japan to the United States should have risen significantly, but, for example, the U.S. sticker price of a Toyota Celica ST Coup rose by only 2% (it went from \$16,968 to \$17,285), while the suggested retail price of a large-screen Sony Trinitron television receiver actually fell by 15%. Japanese exporters simply absorbed exchange rate changes into their costs. They tended to gain or lose profits — rather than market share — because of exchange rate changes. In the case of Toyota Motors, it is estimated that the company's profit increases by ¥25 billion (\$227 million) a year for every ¥1 the currency depreciates against the dollar.²⁶ For shipments to the United States, economic studies have found that, on average, an exchange rate change induces a price response equal to one-half the amount, although it varies by industry.²⁷ An implication of this lack of a complete response of

²⁵ Goldberg, Pinelopi Koujianou and Michael M. Knetter. "Goods Prices and Exchange Rates: What Have We Learned?" *Journal of Economic Literature*, vol. 35, September 1997. pp. 1244, 1270.

²⁶ "Toyota Hits Year's High on Robust Car Sales, Weak Yen." *Nikkei Weekly*, August 22, 2005. p. 27.

²⁷ Goldberg, Pinelopi Koujianou and Michael M. Knetter. "Goods Prices and Exchange Rates: What Have We Learned?" *Journal of Economic Literature*, vol. 35, September 1997. pp. 1244, 1270.

domestic prices to exchange rate changes is that a currency depreciation will not necessarily eliminate — or even reduce significantly — a nation's trade deficit.

Empirical studies indicate, however, that for most countries over the long run, a real depreciation (adjusting for domestic inflation) is likely to improve a nation's current account balance while a real appreciation is likely to worsen it. In the short-run, however, the opposite is likely to occur. This is called the J-curve effect. As the value of the yen rises, for example, some Japanese exporters do increase their prices, and U.S. importers end up paying more for the quantity of goods they need. This worsens the balance of trade before U.S. importers can switch to other suppliers.²⁸

Still, Japan's balance of trade does respond somewhat in the long run to a large appreciation of the yen. Japanese exporters ultimately have to either raise prices or decrease costs of production, and importers of commodities in Japan face lower international prices. This works to reduce Japan's surplus in trade (exports fall while imports rise).

One economic study indicated that, in 2002, a 1% appreciation of the yen induced a 2.2% decrease in Japan's current account surplus (balance of trade with the world in goods and services plus unilateral transfers).²⁹ At that time, Japan's current account surplus was about \$110 billion. Therefore, a 1% yen appreciation was estimated to decrease Japan's current account balance by about \$2.4 billion. Another study for 1985-1991 found that a 10% sustained appreciation of the yen would reduce Japan's trade surplus by 0.7% of gross national product (GNP).³⁰ At that time, Japan's GNP was around \$3,000 billion. A 1% appreciation of the yen, therefore, would have reduced Japan's trade surplus by about \$2.1 billion.

In actuality, from 2002 to 2004, the yen appreciated from ¥120 to ¥104 per dollar (up by 13%), but Japan's current account surplus rose (not fell) from \$113 billion to \$172 billion (up by 52%).³¹ Part of this rise in Japan's current account surplus may have been the J-curve effect, but in this case the yen appreciation was overshadowed by other variables. Yen appreciation may have slowed the rise in Japan's current account surplus, but it did not stop it. Other factors also came into play. These included growth in the American and other major markets, relative savings and inflation rates, the level of interest rates in various markets, earnings

²⁸ In order for a real depreciation to improve the current account, exports and imports must be sufficiently elastic respect to the real exchange rate. This condition holds for most industrialized countries for trade in manufactured goods in the long run but not in the short run. Krugman and Obstfeld, *International Economics*, pp. 450, 468.

²⁹ Cline, William R. The Impact of US External Adjustment on Japan. In *Dollar Overvaluation and the World Economy*, edited by C. Fred Bergsten and John Williamson. Institute for International Economics, Washington, DC, 2003. pp. 190-91.

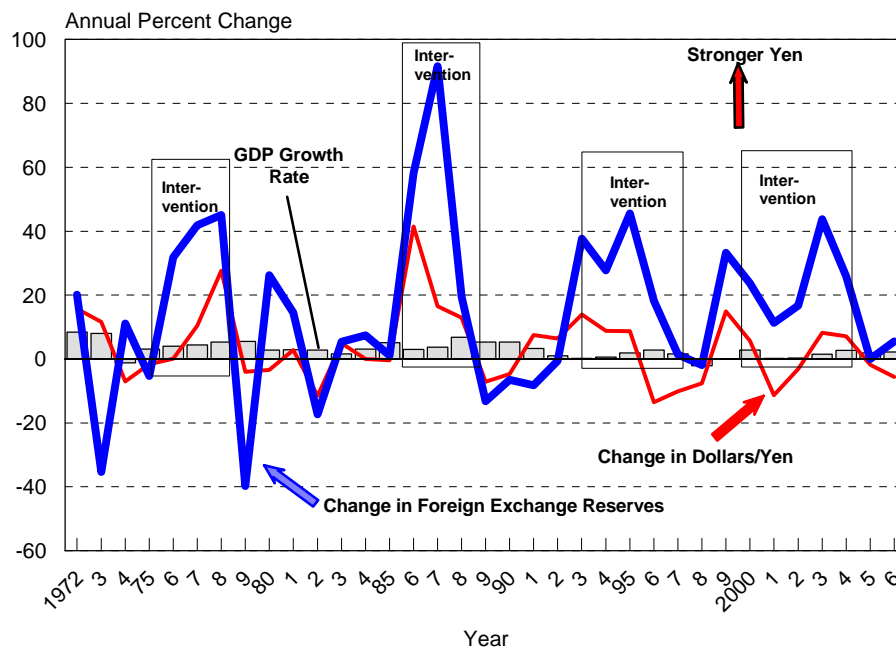
³⁰ Yoshitomi, Masaru. Surprises and Lessons from Japanese External Adjustment in 1985-91. In *International Adjustment and Financing: The Lessons of 1985-1991*, edited by C. Fred Bergsten, Institute for International Economics, Washington, DC, 1991. pp. 128-29.

³¹ Over the 2002-2004 period, differences in rates of inflation would have changed the real exchange rate and real current account balance somewhat.

from investments, the competitiveness of Japanese products, the price of petroleum, competition from China, and intra-firm trade by multinational corporations.

Another question is whether Japan's intervention into foreign exchange markets raised its rate of growth. **Figure 3** shows Japan's currency intervention in terms of annual rates of change in its foreign exchange reserves and the yen/dollar exchange rate. It also shows Japan's economic growth rate (in real gross domestic product). The chart indicates that many of the periods of yen appreciation and intervention into foreign exchange markets to buy dollars also were periods of relatively slower — not faster — economic growth rates. Except in the late 1970s, Japan's growth performance during periods of intervention was rather lackluster. Growth tended to be higher during periods without intervention, although it can be argued that the intervention may have helped to keep economic conditions from becoming worse than they actually were.

Figure 3. Changes in Japan's Foreign Exchange Reserves and in the Yen/Dollar Exchange rate with Interventions and GDP Growth Rates, 1972-2006



Source: Underlying data from World Bank. World Development Indicators

Intervention or Manipulation?

A question for U.S. policy is whether Japan's intervention into currency markets constituted manipulation of its exchange rate. Under U.S. law,³² the Secretary of the Treasury is required to analyze the exchange rate policies of foreign countries annually (in consultation with the International Monetary Fund) and consider whether countries manipulate their exchange rate for purposes of preventing effective balance

³² 22 U.S.C. §5304-5305.

of payments adjustment or gaining unfair competitive advantage in international trade. If the Secretary considers that such manipulation is occurring with respect to countries that (1) have material global current account surpluses; and (2) have significant bilateral trade surpluses with the United States, the Secretary of the Treasury shall take action to initiate negotiations with such foreign countries on an expedited basis, in the International Monetary Fund or bilaterally, for the purpose of ensuring that such countries regularly and promptly adjust the rate of exchange between their currencies and the United States dollar to permit effective balance of payment adjustments and to eliminate the unfair advantage. The Secretary of the Treasury also is to provide reports on exchange rate policy that contain the results of exchange rate negotiations conducted pursuant to this law.

At various periods from 1988 through 1994, Treasury found that China, Taiwan, and South Korea were each considered to have manipulated their currencies.³³ In the March and November 2005 and May 2006 reports to Congress as required by the Omnibus Trade and Competitiveness Act of 1988, Treasury indicated that it had reviewed the exchange rates, external balances, foreign exchange reserve accumulation, macroeconomic trends, monetary and financial developments, state of institutional development, and financial and exchange restrictions for U.S. trading partners. In both reports, Treasury did not find currency manipulation by any country, including by Japan.³⁴ Likewise, in Treasury's December 2006 report to Congress, the Secretary stated that persistent Japanese deflation since 1998 has led to a substantial depreciation of the yen in real terms. Bank of Japan data indicate that the yen was at its weakest level in real trade-weighted terms in more than 20 years, even though Japanese authorities had not intervened in the foreign exchange market since March 2004.³⁵

In April 2005, the Government Accountability Office examined Treasury's assessments of whether countries were manipulating their currencies and concluded that "although China and Japan have engaged in economic activities that have led to concerns about currency manipulation," Treasury "did not find that Japan met the Trade Act's definition for currency manipulation in 2003 and 2004." GAO reported that Treasury viewed "Japan's exchange rate interventions as part of a macro-economic policy aimed at combating deflation...."³⁶

³³ Treasury considered the following countries to be manipulating their exchange rates under 22 U.S.C. 5304: Oct 1988 Report — Korea and Taiwan; April 1989 Report — Korea and Taiwan; October 1989 Report — Korea, May 1992 Report — China and Taiwan; December 1992 Report — China and Taiwan; May 1993 Report — China; November 1993 Report — China; July 1994 Report — China.

³⁴ U.S. Department of the Treasury. *Report to the Committees on Appropriations on Clarification of Statutory Provisions Addressing Currency Manipulation*. Press Release js2308, May 25, 2005. p. 4. *Report to Congress on International Economic and Exchange Rate Policies*, November 2005.

³⁵ U.S. Secretary of the Treasury. *Report to Congress on International Economic and Exchange Rate Policies*. December 2006. p. 23.

³⁶ United States Government Accountability Office. *Treasury Assessments Have Not Found Currency Manipulation, but Concerns about Exchange Rates Continue*. GAO Report GAO- (continued...)

In September 2005 testimony before the House Ways and Means Committee, Deputy Assistant Secretary of the Treasury David Loevinge stated that Treasury had discussed foreign exchange market issues with Japanese officials. He stated that Japan has supported the G-7 position on exchange rates, expressed in a series of G-7 Communiqués, calling for greater exchange rate flexibility. Japan also has worked with the United States to bring about greater exchange rate flexibility in China and in other large economies in East Asia.³⁷

The International Monetary Fund also conducts surveillance over the exchange rates of its member countries. A 1977 decision by the Fund (as amended), a principle for guidance of member's exchange rate policies states, "A member shall avoid manipulating exchange rates or the international monetary system in order to prevent effective balance of payments adjustment or to gain unfair competitive advantage over other members." The decision, does allow, however, for governments to intervene in the exchange market if necessary to counter disorderly conditions (disruptive short-term movements in the exchange value of its currency).³⁸ In the IMF's August 2005 report on consultations with Japan, the Fund did not find currency manipulation, but noted that compared to the United States and the Euro Area, Japan stands out for its active use of foreign exchange market intervention as a policy instrument.³⁹

As a comparison, one can compare the movement of the exchange rate between the German mark and the dollar with that for the yen and the dollar. **Figure 4** shows the movement of indexes (1972 = 100) for the value of the two exchange rates. From 1972 to 2005, the yen has appreciated more than the mark, and they generally have moved together. The correlation coefficient between the two indexes is 0.82 (they move together 82% of the time). This indicates that most of the time both currencies are responding to the same outside influences.

³⁶ (...continued)

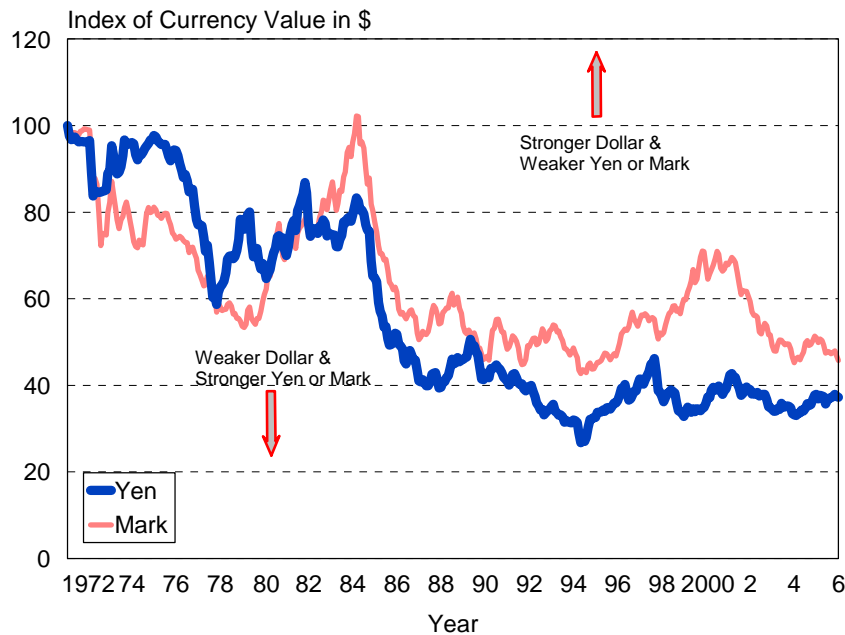
05-351, April 2005. p. 4.

³⁷ U.S. Department of the Treasury. Testimony of Deputy Assistant Secretary of the Treasury David Loevinger before the House Ways and Means Committee, JS-2954, September 28, 2005.

³⁸ International Monetary Fund. Surveillance Over Exchange Rate Policies, Decision No. 5392-(77/63), April 29, 1977 as amended.

³⁹ International Monetary Fund. *IMF Country Report No. 05/273*, Japan: 2005 Article IV Consultation — Staff Report; Staff Supplement; and Public Information Notice on the Executive Board Discussion. August 2005.

Figure 4. Indexes of the Value of the Japanese Yen and German Mark per U.S. Dollar



Note: 1972 = 100. Underlying exchange rates from PACIFIC Exchange Rate Service.

Policy Issues

Even though Japan claims that it has not intervened into currency markets since March 2004, this issue still is a U.S. policy concern because of Tokyo's past intervention and the possibility that it could resume intervening should the yen strengthen too rapidly or excessively against the dollar. Japan also may use other methods to alter the expectations of currency traders and "talk down" the yen through various statements or other "jawboning." Japan also could be caught up in the concern over China's currency policy. Policies aimed at China also could affect Japan. Currently, Tokyo seems content to abstain from active intervention into international currency markets. At some point, however, Japan may want to decrease its \$830 billion in foreign exchange holdings. It would likely do this by selling dollar-denominated assets, an action that would weaken the dollar and strengthen the yen. Depending on how this potential divestiture is conducted, it could be viewed as intervention into foreign exchange markets (albeit in the opposite direction of concern).

A question remains, however, of whether the United States should take measures to compensate for past intervention by Japan. Setting aside the issue of how much past intervention actually moved the exchange rate and whether any exchange rate change affected actual market transactions, if U.S. industries were significantly impacted negatively, should remedial action be taken now? If, for example, the U.S. automobile industry lost market share because of past Japanese government attempts to reduce the value of the yen, is there action that should be taken now to remedy the lost market share?

The major policy options for Congress include the following:

- let the market adjust (do nothing);
- clarify the definition of currency manipulation;
- require reports and negotiations;
- require the President to certify which countries are manipulating their currencies and take remedial action if the manipulation is not halted; and
- convene a special meeting of the International Monetary Fund to reach an agreement on the misalignment of the yen, oppose increased voting shares or representation in international financial organizations for any country that has a currency that is manipulated or in fundamental misalignment, initiate a dispute settlement case with the World Trade Organization (WTO), or block the Overseas Private Investment Corporation from providing services to Japan.

Let the Market Adjust (Do Nothing)

Most economists argue that currency markets are so large that only extensive and coordinated intervention has any lasting effects. Countries that do intervene often find themselves “leaning against the wind” and not materially altering either the direction of or the extent of change. Also, intervention is expensive. It is not clear that Japan could afford to invest another \$800 billion in U.S. Treasury securities and other liquid dollar assets. Allowing market forces to determine exchange rates while permitting central banks to intervene only to counter abnormal market shifts is the policy pursued for most major currencies of the world.

In terms of foreign exchange intervention, Japan differs from China in two important respects. First, Japan does not peg its exchange rate to any basket of currency. It generally intervenes to slow down rates of change not to maintain a certain exchange rate. It also does not require citizens to sell foreign exchange to the central bank at an official rate of exchange. Second, Japan allows for free flows of capital into and out of the country. This makes currency manipulation much more difficult in Japan, since speculators and investors can offset official buying and selling of foreign financial assets.

A currency peg without capital controls is expensive and difficult to maintain during a financial crisis. During the 1997-1998 Asian financial crisis, for example, Hong Kong maintained its pegged exchange rate partly by raising domestic interest rates to attract foreign capital and to retard capital flight by local investors (to reduce the incentive to convert Hong Kong dollars to U.S. dollars in anticipation of a drop in the value of the Hong Kong dollar). On October 23, 1997, the overnight rate of interest in Hong Kong jumped from 6.25% to 100.0% as the monetary authorities tried to stem the capital outflow. Even though Hong Kong was able to maintain its exchange rate peg, the high interest rates caused a near collapse of real estate markets there. This is one reason China still maintains some capital controls.⁴⁰ Since the Asian financial crisis, Japan and other Asian nations have negotiated currency swap

⁴⁰ For financial data, see Global Financial Data at [<http://www.globalfinancialdata.com>].

agreements to provide short-term sources of foreign exchange in times of crisis.⁴¹ This obviates, somewhat, the need to rely on interest rates to attract foreign capital.

Under a policy of allowing market forces to determine exchange rates, some intervention still may be necessary to calm excessive volatility in markets or to counter trends that overshoot because of herd mentality and other effects. In the past, the more successful of such interventions were coordinated among the large, industrialized nations.

Clarify the Definition of Currency Manipulation

A major provision of various currency bills in Congress has been to clarify the definition of currency manipulation. While this legislation apparently has been aimed primarily at China's currency policy, in cases, the bills also have cited Japan (and South Korea) in the findings.

Currently, the Department of the Treasury, in consultation with the International Monetary Fund, determines each year whether countries are manipulating their exchange rate for purposes of gaining an unfair trade advantage or preventing effective balance of payments adjustments and also have a material global current account surplus and a significant bilateral trade surplus with the United States.⁴²

H.R. 1498 (Ryan)/S. 796 (Bunning) and H.R. 2886 (Knollenberg)/S. 1021 (Stabenow) define exchange-rate misalignment as an undervaluation of a foreign currency (yen) as a result of protracted large-scale intervention by or at the direction of a governmental authority in the exchange market. Such undervaluation shall be found when the observed exchange rate for a foreign currency (yen) is below the exchange rate that could reasonably be expected for that foreign currency absent the intervention. In determining whether exchange-rate misalignment is occurring and a benefit thereby is conferred, the administering authority in each case would consider the exporting country:

- bilateral balance of trade surplus or deficit with the United States,
- balance of trade surplus or deficit with other trading partners,
- foreign direct investment in its territory,
- currency specific and aggregate amounts of foreign currency reserves,
- mechanisms employed to maintain its currency at a fixed exchange rate and the nature, duration, and monetary expenditures of those mechanisms, and
- may consider such other economic factors as are relevant.

⁴¹ This is called the Chiang Mai Initiative. See Seok-Dong Wang and Lene Andersen. "Regional Financial Cooperation in East Asia: the Chiang Mai Initiative and Beyond," *UNESCAP Bulletin on Asia-Pacific Perspectives 2002/03*, Chapter 8.

⁴² Omnibus Trade and Competitiveness Act of 1988, 22 U.S.C. § 5304(b), § 3004(b). The global current account surplus is the current account surplus of merchandise, services, and transfers with all other countries, while the bilateral trade surplus is the surplus in goods and services trade with one trading partner country only.

S. 1607 (Baucus) would define a currency for priority action if the country that issues such currency is:

- engaging in protracted large-scale intervention in one direction in the currency exchange market;
- engaging in excessive reserve accumulation;
- introducing or substantially modifying for balance of payments purposes a restriction on, or incentive for, the inflow or outflow of capital, that is inconsistent with the goal of achieving full currency convertibility; or
- pursuing any other policy or action that, in the view of the Secretary of the Treasury warrants designation for priority action.

The bills also specify that trade data are to be those of the United States and other trading partners of the exporting country, unless such trade data are not available or are demonstrably inaccurate, in which case the exporting country's trade data may be relied upon if shown to be sufficiently accurate and trustworthy.

The issue of which data to use applies primarily to China, mainly because of imports and exports that flow through, but do not originate in, Hong Kong and the general lack of confidence in China's system for compiling statistics and reporting them. The data problem, however, also arises with Japan. In 2004 for Japan, Japanese data (as accessed through the IMF or Global Trade Atlas⁴³) reported a merchandise trade surplus of \$110 billion (2.4% of GDP), but a compilation of partner country data (statistics from countries that export to and import from Japan) showed a surplus for that year of \$208 billion (4.5% of GDP).⁴⁴

Each bill placed more emphasis on large-scale intervention by a country into currency markets — particularly when evidenced by large accumulations of foreign exchange. Such accumulations of dollars, do not constitute *prima facie* evidence of currency manipulation, but they would be used along with other criteria to determine whether a country has been engaged in it.

The bills have not addressed the issue of sterilization in currency intervention.⁴⁵ In 2003 and 2004, Treasury found that Japan did not meet the criteria for currency

⁴³ The Japanese government reports trade data in yen values. They convert those data into dollars when reporting them to the IMF. Global Trade Atlas is a propriety database of trade statistics.

⁴⁴ Data from International Monetary Fund. *Direction of Trade Statistics*. September 2005. For 2004, China reported a merchandise trade surplus of \$32 billion, but the exports and imports of trading partners implied a trade surplus of \$314 billion. The IMF notes that data reported by exporting and importing countries can be inconsistent because of differences in country of origin or destination classification concepts, lack of destination detail, time of recording, valuation, coverage, and processing errors.

⁴⁵ Sterilized intervention refers, in the government of Japan's case, to the buying of dollars (or other foreign exchange) from Japanese holders and using those dollars to buy dollar-denominated securities in the United States while simultaneously selling yen-denominated securities in Japan to keep the domestic money supply unchanged.

manipulation in part because its exchange rate interventions were considered to be part of a macroeconomic policy to combat deflation.⁴⁶ (It was considered to be unsterilized intervention to increase the money supply.) A policy question is whether large-scale interventions are justified when part of macroeconomic policy even though they may have adverse affects on exchange markets.

Require Negotiations and Reports

Current trade law requires the President to seek to confer and negotiate with other countries to achieve:

- more appropriate and sustainable levels of trade and current account balances and exchange rates of the dollar and other currencies consistent with such balances; and
- improvement in the functioning of the exchange rate system to provide for long-term exchange rate stability consistent with more appropriate and sustainable current account balances.⁴⁷

The United States and Japan also conduct regular cabinet and sub-cabinet meetings that provide a venue to discuss exchange rates. In addition, the two countries meet in G-7 summits and at the APEC (Asia Pacific economic cooperation) meetings where currency and exchange rate policy is discussed.⁴⁸ In a 2000 G-7 meeting, for example, the communique stated that the group had discussed developments in exchange and financial markets and said that they welcomed the reaffirmation by the Japanese monetary authorities that exchange rate policies would be conducted appropriately in view of their potential impact and that they would continue to monitor developments in exchange markets and cooperate as appropriate.⁴⁹

Current bills related to Japan's currency in the 110th Congress would require Treasury to submit a semi-annual report to Congress on currency intervention by Japan to include any effort by Japan to create an exchange-rate misalignment (including intervention and statements by Japanese government officials). The bills also would require Treasury to submit to Congress a proposal for a comprehensive joint U.S.-European Union plan to address the exchange-rate misalignment of the Japanese yen. It also would require the U.S. government to initiate consultations with Japan for the purpose of decreasing the foreign currency holdings of the government of Japan.

⁴⁶ United States Government Accountability Office. Treasury Assessments Have Not Found Currency Manipulation, but Concerns about Exchange Rates Continue. GAO Report GAO-05-351, April 2005. p. 4.

⁴⁷ 22 U.S.C. § 5304.

⁴⁸ See, for example: U.S. Department of the Treasury. Statement of G-7 Finance Ministers and Central Bank Governors. September 25, 1999. Washington, DC.

⁴⁹ Statement of G-7 Finance Ministers and Central Bank Governors. January 22, 2000. Tokyo, Japan.

Certify Currency Manipulation and Take Remedial Action

In the 110th Congress, H.R. 782 (Tim Ryan)/S. 796 (Bunning) would make exchange rate “misalignment” actionable under U.S. countervailing duty laws, require the Treasury Department to determine whether a currency is misaligned in its semi-annual reports to Congress on exchange rates.⁵⁰ This certification could then trigger certain remedial actions under U.S. trade law. S. 1677 (Dodd) would require the Treasury Department to identify countries that manipulate their currencies regardless of their intent and to submit an action plan for ending the manipulation. It also would give Treasury the authority to file a case in the WTO.

Actions with the IMF, World Bank, WTO, and OPIC

The currency bills in the 110th Congress also would require the Secretary of the Treasury to oppose any change in the governance arrangements in International Financial Institutions (such as the International Monetary Fund or World Bank) in the form of increased voting shares or representation if the beneficiary country has a currency that is manipulated or in fundamental misalignment.

S. 1677 (Dodd) would give the Treasury Department the authority to take a currency manipulation case to the World Trade Organization through its dispute settlement mechanism or to the International Monetary Fund.

S. 1607 (Baucus) would require the United States to inform the International Monetary Fund of the failure of a country to adopt appropriate policies to eliminate the fundamental misalignment in its currency and request a consultation by the IMF with that country. The United States also would not approve any new financing by the U.S. Overseas Private Investment Corporation (including insurance, reinsurance, or guarantee) and oppose any loan to the country from a multilateral bank. In the case of a persistent failure to adopt appropriate policies to correct the misalignment, the U.S. Trade Representative would request dispute settlement consultations at the WTO.

With respect to the WTO dispute settlement mechanism, an agreement between the IMF and WTO requires the WTO to refer exchange rate disputes to the IMF and accept the IMF’s findings as conclusive. If the IMF finds currency manipulation, it is not clear how a WTO dispute settlement panel would rule. There is no precedent for a case in which currency manipulation is considered to have the effect of an export subsidy and allows for direct retaliation against the exports of the offending country.

Even though the IMF has not found that Japan was manipulating its currency during its Article IV consultations, the United States could inform the IMF that it believes Japan is not complying with the requirements of Article IV. This would trigger consultations with Tokyo and a report by the Managing Director to the IMF’s

⁵⁰ The certification also can be that a country is not engaged in currency manipulation.

executive board.⁵¹ While the IMF still might not find Japan guilty of currency manipulation, it would put pressure on the Bank of Japan not to intervene in currency markets in the future.

Legislation

Legislation in the 110th Congress related to Japan's⁵² currency include the following:

H.R. 782 (Ryan)/S. 796 (Bunning). Fair Currency Act of 2007. Would provide that exchange-rate misalignment by any foreign nation is a countervailable export subsidy and clarify the definition of manipulation with respect to currency.

H.R. 2886 (Knollenberg)/S. 1021 (Stabenow). Japan Currency Manipulation Act. Would address the exchange-rate misalignment of the Japanese yen with respect to the United States dollar.

S. 1607 (Baucus). Currency Exchange Rate Oversight Reform Act of 2007. Would require the Treasury Department to identify currencies that are fundamentally misaligned and would require action to correct the misalignment. Such action would include factoring currency undervaluation in U.S. anti-dumping cases, banning federal procurement of products or services from the designated country, and filing a case against in the WTO.

S. 1677 (Dodd). Currency Reform and Financial Markets Access Act of 2007. Would require the Treasury Department to identify countries that manipulate their currencies regardless of their intent and to submit an action plan for ending the manipulation, and would give Treasury the authority to file a case in the WTO.

⁵¹ For detail, see CRS Report RS22658, *Currency Manipulation: The IMF and WTO*, by Jonathan E. Sanford.

⁵² For analysis of policy with respect to China's exchange rate, see CRS Report RL33536, *China-U.S. Trade Issues*, by Wayne M. Morrison and CRS Report RS21625, *China's Currency Peg: A Summary of the Economic Issues*, by Wayne M. Morrison and Marc Labonte.

Appendix

Japan's GDP Growth Rate, Yen/Dollar Exchange Rate, and Foreign Exchange Reserves, 1970-2007

Year	GDP Growth Rate (%)	Exchange Rate	Foreign Exchange Reserves (US\$)
1970	10.7	360.0	4,307,530,000
1971	4.7	350.7	14,621,900,000
1972	8.4	303.2	17,563,610,000
1973	8.0	271.7	11,354,560,000
1974	-1.2	292.1	12,614,290,000
1975	3.1	296.8	11,950,210,000
1976	4.0	296.6	15,746,250,000
1977	4.4	268.5	22,340,960,000
1978	5.3	210.4	32,407,240,000
1979	5.5	219.1	19,521,520,000
1980	2.8	226.7	24,636,450,000
1981	2.9	220.5	28,208,420,000
1982	2.8	249.1	23,333,970,000
1983	1.6	237.5	24,601,580,000
1984	3.1	237.5	26,429,150,000
1985	5.1	238.5	26,718,650,000
1986	3.0	168.5	42,256,600,000
1987	3.8	144.6	80,972,870,000
1988	6.8	128.2	96,728,190,000
1989	5.3	138.0	83,957,350,000
1990	5.2	144.8	78,500,590,000
1991	3.4	134.7	72,058,840,000
1992	1.0	126.7	71,622,670,000
1993	0.2	111.2	98,524,340,000
1994	1.1	102.2	125,860,200,000
1995	1.9	94.1	183,249,800,000
1996	3.4	108.8	216,648,000,000
1997	1.9	121.0	219,648,300,000
1998	-1.1	130.9	215,470,700,000
1999	0.1	113.9	286,916,100,000
2000	2.8	107.8	354,902,100,000
2001	0.4	121.5	395,155,000,000
2002	-0.4	125.4	461,185,600,000
2003	1.4	115.9	663,289,100,000
2004	2.7	103.8	833,891,000,000
2005	1.9	118.5	834,275,000,000
2006	2.2	116.3	874,596,000,000
June 2007	2.8	around 123.0	892,761,000,000

Source: World Bank. World Development Indicators. Global Insight. Japan Ministry of Finance.

Note: The growth rate is the annual change in real gross domestic product. The exchange rate is yen per U.S. dollar, period average. Foreign exchange Reserves are official reserves excluding gold.