

GAO

Report to the Chairman, Committee on
Finance, U.S. Senate

April 1989

U.S. TRADE DEFICIT

Impact of Currency Appreciations in Taiwan, South Korea, and Hong Kong





United States
General Accounting Office
Washington, D.C. 20548

**National Security and
International Affairs Division**

B-208993

April 28, 1989

The Honorable Lloyd Bentsen, Chairman
Committee on Finance
United States Senate

Dear Mr. Chairman:

At your request, we examined how currency exchange rates are determined in the Asian Pacific Rim economies of Taiwan, South Korea, and Hong Kong. In addition, we estimated the probable impacts of hypothetical currency appreciations in these countries on the U.S. trade imbalances with them and implications for the overall U.S. trade deficit.

On March 28, 1989, Taiwan announced some changes to its foreign exchange controls that became effective on April 3. The implications of these changes are still unclear, and therefore, this report primarily discusses the exchange rate system in Taiwan prior to the announced changes. Appendix II provides a summary of the recent adjustments made to the system as reported to us by Taiwan officials.

As you requested, we did not obtain official agency comments on this report. However, we obtained the views of directly responsible officials during the course of our work and incorporated their comments where appropriate. As arranged with your staff, we plan no further distribution of this report until May 5, 1989. At that time we will send copies to cognizant congressional committees and other interested parties and will make copies available upon request.

GAO staff members who made major contributions to this report are listed in appendix III.

Sincerely yours,

A handwritten signature in cursive script that reads "Allan I. Mendelowitz".

Allan I. Mendelowitz, Director
Trade, Energy, and Finance Issues

balance. Officials in all three argue that macroeconomic imbalances in the United States—such as a large, continued budget deficit—and strong consumer demand for imported products have contributed considerably to the U.S. trade deficit.

Results in Brief

Countries may intervene in foreign exchange markets when currency values are inconsistent with economic fundamentals. For example, the United States and other major industrial countries periodically intervene to influence the dollar's value for this reason. However, Taiwan and South Korea have acted to prevent their currencies' values from reflecting their economic strength. Their officials have been reluctant to allow faster appreciation of their currencies in an effort to maintain current account surpluses. Hong Kong has maintained a fixed exchange rate since 1983 and its economy adjusts primarily through inflation to changes in its trade balance. This alternative was chosen to help maintain economic stability during the politically sensitive reversion of sovereignty to the People's Republic of China.

Appreciation of local currencies in Taiwan, South Korea, and Hong Kong may modestly reduce the U.S. trade deficits with these countries. However, the final impact on the overall U.S. trade deficit will probably be smaller than the reduction in these bilateral trade deficits. The exports of other nations may capture a portion of the U.S. market share lost by these Asian economies.

Trade between the United States and the Asian newly industrializing economies is influenced by several important factors in addition to exchange rates. Differences between the United States and these Asian economies have contributed to the U.S. trade deficit with them. And, historical trading patterns among the Asian newly industrializing economies, Japan, and the United States have resulted in their chronic trade deficits with Japan and surpluses with the United States. Exchange rate policies have further exacerbated these trade imbalances.

GAO's Analysis

Factors Influencing Trade Flows

Taiwan, South Korea, and Hong Kong run chronic trade deficits with Japan, which has been their primary source for intermediate and capital goods. However, they are less able to sell many final products back to

capital flows, and close regulation of the financial sector, enhances the South Korean government's ability to control movement in the exchange rate and reduces the direct foreign exchange market intervention required.

Impact of Currency Appreciation on U.S. Trade Deficit

GAO contracted with Data Resources, Incorporated, to simulate the trade impacts of hypothetical appreciations in each of the three Asian currencies during 1988, paying special attention to the trading relationships among the Asian newly industrializing countries, Japan, and the United States. Because the impacts of exchange rate changes have time lags, the simulation extended through 1990.

The simulation showed that currency appreciations—in the absence of other structural reforms to liberalize import restrictions and strengthen domestic demand—could yield only modest results in reducing U.S. trade imbalances with South Korea and Taiwan. For Hong Kong—with its absence of import restrictions, exchange controls, or credit restrictions—currency appreciation could produce only minor changes in existing economic and trade patterns.

The combined U.S. trade deficit with Taiwan, South Korea, and Hong Kong was \$35.4 billion in 1987 and \$29.2 billion in 1988. Assuming a 10-percent nominal appreciation in each of the three currencies, the simulation showed a reduction in the U.S. trade deficit with the three Asian newly industrializing countries of \$2.7 billion in 1989 and \$3.5 billion in 1990. The overall U.S. trade deficit would likely decline by less than these amounts because imports from other countries could become more competitive and replace imports from Taiwan, South Korea, and Hong Kong. The simulation results are comparable to estimates made by many international trade economists, both in the United States and in the three Asian countries.

Recommendations

This report provides GAO's analysis of exchange rate issues involving South Korea, Taiwan, and Hong Kong; it contains no recommendations.

Agency Comments

As requested, GAO did not obtain official agency comments on its report. However, directly responsible officials were consulted during the review and their views were incorporated where appropriate.

Table 2.2: NIC Real Effective Exchange Rates	30
Table 4.1: Simulation of an Appreciation of the New Taiwan Dollar	43
Table 4.2: Simulation of an Appreciation of the South Korean Won	45
Table 4.3: Simulation of an Appreciation of the Hong Kong Dollar	46

Figures

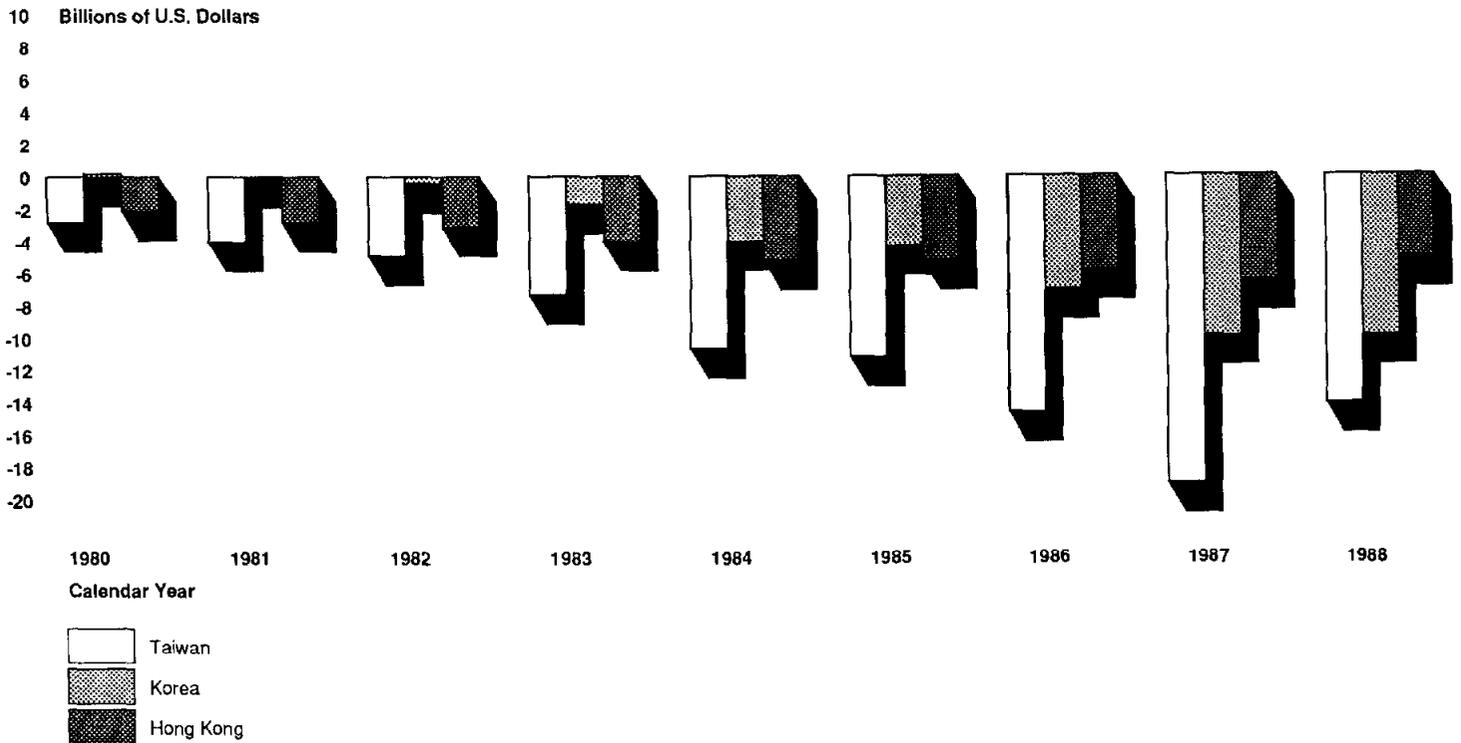
Figure 1.1: U.S. Bilateral Trade Balances With South Korea, Taiwan, and Hong Kong, 1980-88	9
Figure 1.2: U.S. Merchandise Trade Deficit With Leading Countries, 1988	10
Figure 1.3: Asian NIC Current Account Balances, 1981-88	11
Figure 1.4: U.S. Trade With Taiwan, 1980-88	13
Figure 1.5: U.S. Trade With South Korea, 1980-88	14
Figure 1.6: U.S. Trade With Hong Kong, 1980-88	15

Abbreviations

AIT	American Institute in Taiwan
BOK	Bank of Korea
BOT	Bank of Taiwan
CBC	Central Bank of China
DRI	Data Resources, Incorporated
FETC	Foreign Exchange Trading Center
GAO	General Accounting Office
GDP	gross domestic product
GNP	gross national product
HKAB	Hong Kong Association of Banks
HK\$	Hong Kong dollar
ICBC	International Commercial Bank of China
KDI	Korean Development Institute
NIC	newly industrializing country
NT\$	New Taiwan dollar
PTD	previous transaction day
SDR	special drawing rights

Chapter 1
 Growth in the U.S. Trade Deficit With the
 Asian Newly Industrializing Countries

Figure 1.1: U.S. Bilateral Trade Balances With South Korea, Taiwan, and Hong Kong, 1980-88



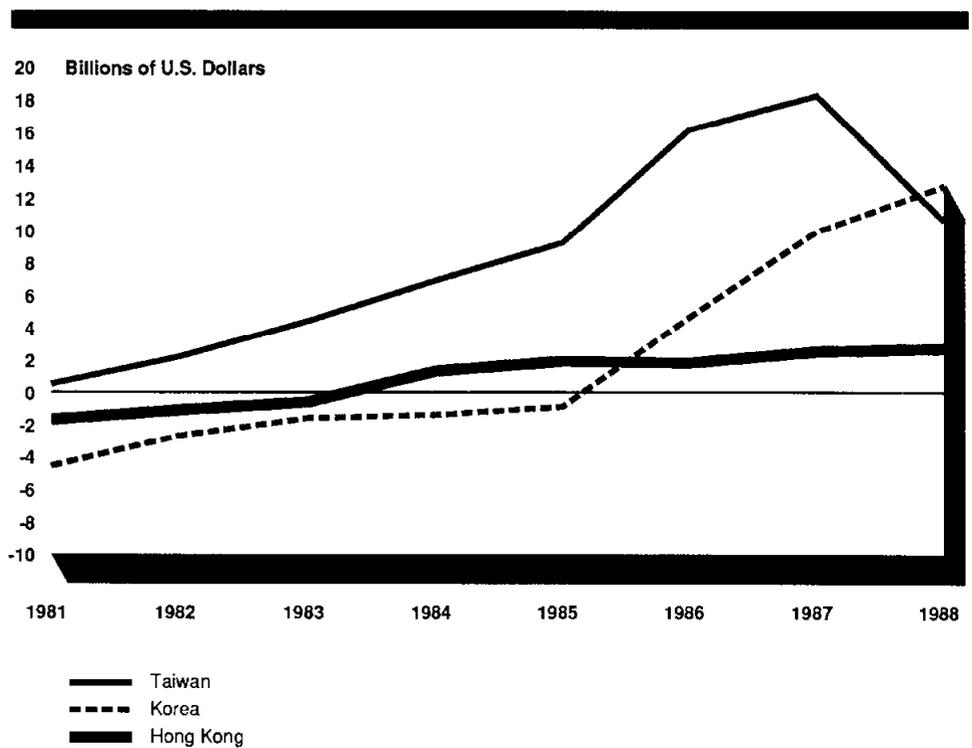
Source: U.S. Department of Commerce data.

Figures calculated with the cost of insurance and freight included for imports.

In 1988, the U.S. trade deficit with these three NICs declined by 18 percent, from \$35.4 billion to \$29.2 billion, largely because the deficits with Taiwan and Hong Kong were reduced by \$4.8 billion and \$1.4 billion, respectively. The deficit with South Korea remained virtually unchanged. Nonetheless, the combined deficits with these three economies accounted for 21 percent of the total U.S. trade deficit in both 1987 and 1988. Figure 1.2 displays the percentages of the U.S. trade deficit accounted for by leading countries, including the Asian NICs.

the world, after Japan and West Germany.⁶ Its foreign exchange reserves approached \$77 billion in 1987 and 1988, second only to Japan. Taiwan's current account and overall trade balance fell substantially in 1988 because of slower export growth and a significant increase in merchandise imports.

Figure 1.3: Asian NIC Current Account Balances, 1981-88



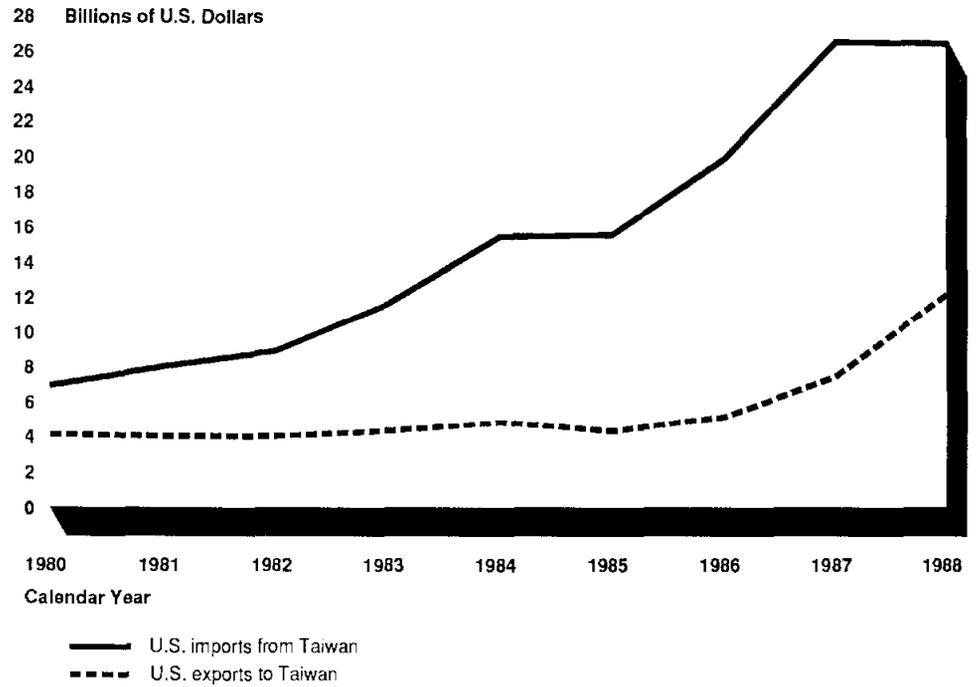
Source: Data Resources, Incorporated.

South Korea had the fourth largest current account surplus in the world in 1987 at \$9.8 billion; this increased further to over \$12 billion in 1988. However, South Korea has had an overall current account surplus only since 1986. Furthermore, it has a rather large external debt, which totaled approximately \$45 billion in 1986. Present Korean government policy is to significantly reduce this debt, which requires sustained current account surpluses. By the end of 1988, South Korea's external debt had fallen to \$32 billion.

⁶If measured by share of gross national product, Taiwan has the largest current account surplus in the world, more than four times greater than that of Japan.

Chapter 1
Growth in the U.S. Trade Deficit With the
Asian Newly Industrializing Countries

Figure 1.4: U.S. Trade With Taiwan, 1980-88

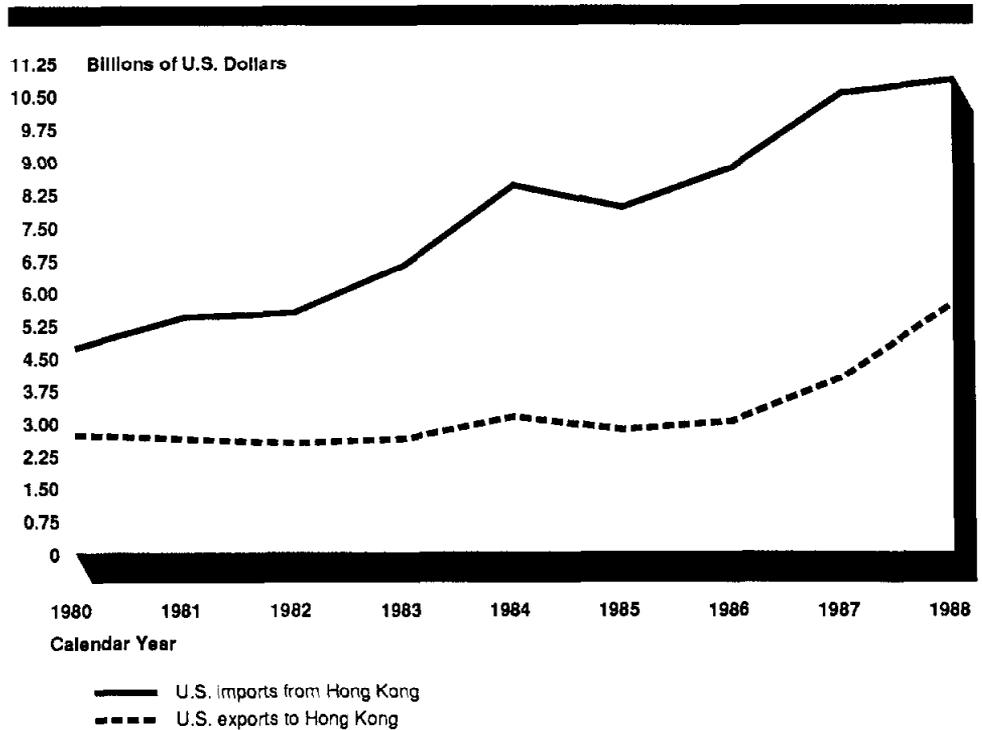


Source: U.S. Department of Commerce data.

Import figures include the cost of insurance and freight.

Chapter 1
 Growth in the U.S. Trade Deficit With the
 Asian Newly Industrializing Countries

Figure 1.6: U.S. Trade With Hong Kong, 1980-88



Source: U.S. Department of Commerce data.

Import figures include the cost of insurance and freight.

Several factors have contributed to the Asian NIC trade surpluses with the United States. Taiwan, South Korea, and Hong Kong have pursued aggressive exporting strategies over the past three decades; however, it was not until the 1980s that export growth in Taiwan and South Korea significantly exceeded import growth rates. Further, the NICs have chronic trade deficits with Japan. Because of geographical proximity, quality and service, and cheaper prices, they depend on Japan for important intermediate and capital goods to fuel their export-oriented economies. However, they are less able to sell their final products to Japan because of market barriers and consumer concerns over NIC product quality compared with competing Japanese goods.⁹ This has made the large, open U.S. market even more important to NIC exports, between 30 and 40 percent of which on average go to the United States. Thus, their exports to the United States have increased while Japanese exports and market share have risen in the NICs. These trading patterns

⁹NIC exports to Japan improved in 1987 and 1988 due in large part to a surge in Japanese domestic demand and appreciation of the yen against the NIC currencies.

rather than reduced imports. The Korean won has increased in value by 29 percent since 1985, and although U.S. exports to South Korea grew substantially in 1988, the bilateral trade imbalance with the United States remains high.

Experts disagree over the extent to which NIC currency appreciation would improve the overall U.S. trade deficit.¹² However, for appreciations of 10 to 20 percent, none have estimated that the U.S.-Asian NIC bilateral trade deficit would be reduced by over \$10 billion.¹³ While this represents about 7 percent of the total U.S. trade deficit in 1988, the overall U.S. trade deficit is not expected to decline by an equal amount because the U.S. trade deficit with other countries would probably increase as a direct result of the NIC exchange rate changes.

Other U.S./Asian NIC Trade Issues

South Korea and Taiwan have used a variety of trade barriers to protect domestic industries and services from foreign competition. These measures have been defended in the past by the argument that these countries have had to encourage infant industries. In recent years, both countries implemented tariff reductions and other import liberalization measures to permit greater foreign access to their markets for both goods and services. However, at the time of our review, no quantitative assessments of the economic and trade impact resulting from these measures were available. The full impact of such import liberalization may take a couple of years; for example, in Taiwan, currency appreciation and tariff reductions on imports have been slow to show up as price reductions for consumers. It is common for the trade effects of any change to lag for several quarters, and empirical evidence shows that consumption patterns take time to change.

¹²For example, see Balassa and Williamson, Adjusting to Success: Balance of Payments Policy in the East Asian NICs, Institute for International Economics, June 1987; Bill Overholt, "Should Hong Kong Abandon the Link?," BT Brokerage (Asia) Ltd., Speech before the American Chamber of Commerce in Hong Kong, Feb. 29, 1988; Ministry of Economic Affairs, The Domestic Impact of the Appreciation of the N.T. Dollar, Government of the Republic of China (Wharton Project Link Model), Feb. 25, 1988; Won-am Park, A Quarterly Macroeconomic Model for the Korean Economy, Korean Development Institute, 1987; Sung Y. Kwack, "Exchange Rate Effects on Korea's Economy," Howard University, Sept. 1987; Mahn-Je Kim and Sung-Tae Ro, "Korean International Macroeconomic Policy," paper presented at Korean Development Institute/Institute for International Economics Joint Conference on Economic Relations between the U.S. and Korea: Conflict or Cooperation?, Sept. 1987, Washington, D.C.

¹³Most studies assume a 10-percent hypothetical change in exchange rates in their macro-model simulations. For policy application, the resulting impact on the current account balance is then used to determine the change in the currency value required to eliminate the overall trade imbalance.

We interviewed U.S. government officials at the Departments of Treasury, State, Commerce; the Office of the U.S. Trade Representative; and the Federal Reserve Board to assess the official U.S. position toward the exchange rate policies of the Asian NICs. At Treasury, the lead U.S. agency involved in exchange rate matters, we interviewed individuals directing trade negotiations with the Asian NICs as well as the staff responsible for monitoring trade and currency developments in South Korea, Taiwan, and Hong Kong.

We also interviewed experts on and collected research results relating to Asian NIC exchange rates. Specifically, we spoke to trade economists and specialists at the World Bank, the International Monetary Fund, and the Institute for International Economics.

We discussed the views of the NIC governments with foreign economic and commercial counselors in Washington, D.C.; at the Hong Kong Section of the British embassy; the South Korean embassy; and the Coordination Council for North American Affairs, which represents Taiwan. We traveled to Taiwan, Hong Kong, and South Korea and obtained first-hand information and analyses of exchange rate and trade issues from host-government officials. In each country, we met with private businessmen, bankers, trade associations, and academics to obtain a cross-section of foreign views on exchange rate and trade issues. Foreign governments provided information on potential economic impacts of further currency appreciation based on their econometric forecasts.

We contracted Data Resources, Incorporated, a company specializing in econometric forecasting and which closely monitors Asian economic and trade developments, to conduct econometric simulations assessing the impact of currency appreciations in each country beyond levels existing in April 1988. We reviewed the structure of their Asian macroeconomic models and requested more detailed trade sector specifications. A 10-percent hypothetical appreciation was selected for the simulations because (1) it is a reasonable amount expected from these countries on an annual basis, and (2) assuming a 10-percent change in a key variable is a common practice in macro-model simulation exercises. The analyses cover potential impacts on the local economies as well as possible changes occurring in the U.S. bilateral trade accounts with each country. From these simulations, we reached conclusions about the possible impact on the overall U.S. trade deficit.

Exchange Rate Regimes and Rate Movements in the Asian NICs

Countries may intervene in foreign exchange markets when currency values are inconsistent with economic fundamentals.¹ However, Taiwan and South Korea have acted to prevent their currencies' values from reflecting their economic strength. In Taiwan, the central bank has bought or sold U.S. dollars in the local foreign exchange market on a near daily basis to influence the New Taiwan dollar to U.S. dollar exchange rate. This intervention—like that of other countries—sometimes is used to prevent excessive daily fluctuations in the value of the currency. At other times, however, the intervention is used to prevent appreciation of the currency. In South Korea, the government administratively sets the U.S. dollar to Korean won exchange rate on a daily basis, taking into consideration balance of trade and payment changes, inflation, and changes in the value of a trade-weighted basket of key currencies. In Hong Kong, the government pegs its currency directly to the U.S. dollar at a fixed rate which it has not changed since October 1983. Thus, instead of using a flexible exchange rate to make balance of payment adjustments, Hong Kong allows changes in its money supply and, consequently its price level, to be its economic adjustment mechanism.

Managed Floating Exchange Rate System in Taiwan

On April 3, 1989, Taiwan made changes to some of its foreign exchange market operations. Most notable was the decision to remove restrictions on the amount of daily exchange rate fluctuations. According to the Taiwan government, these changes make the Taiwanese exchange rate system similar to that of Japan. (See app. II for description). Our discussion below covers the foreign exchange market operations prior to the April 1989 changes.

Taiwan has mechanisms for managing exchange rates in both the interbank and customer-bank foreign exchange markets.² It is the interbank market that has played a pivotal role in setting exchange rates. In this market, the exchange rate has been allowed to float within

¹Few world currencies operate under a true floating system whereby daily market supply and demand factors solely determine exchange rates. The value of the U.S. dollar, as well as other major currencies, is often influenced by decisions among the major industrial countries to intervene in foreign exchange markets. For example, during the latter part of 1987 and early in 1988, the United States and other major industrial countries bought dollars in a coordinated effort to support the value of the U.S. dollar. More recently, these countries sold dollars to keep it from rising in value.

²The interbank market consists of foreign exchange transactions between banks on their own behalf. Customer-bank transactions refer to individuals changing currency with a designated foreign exchange bank.

The Central Bank of China (CBC) indirectly has bought (or sold) U.S. dollars in the foreign exchange markets on a near daily basis. This regular central bank intervention achieved the Taiwanese government's objective of stabilizing the official exchange rate and controlling its appreciation (or depreciation) against the U.S. dollar. Without this intervention, the New Taiwan dollar would have appreciated against the U.S. dollar at a much faster rate since 1985.

The CBC intervention has been accomplished indirectly through two surrogate banks—the Bank of Taiwan (BOT) and the International Commercial Bank of China (ICBC)—using two different methods.⁷ The first method, often called a “clean” intervention by Taiwanese analysts, involves direct buying or selling of foreign exchange in the interbank market by either the BOT or ICBC on behalf of the CBC. In recent years, this intervention has been mostly to support the U.S. dollar. If the U.S. dollar falls in value, the CBC will direct one of these banks to buy U.S. dollars. When the BOT or ICBC offers to buy U.S. dollars at a rate well above the market, it is a signal that they are intervening on behalf of the CBC. This “clean” intervention has two additional effects: (1) it raises the level of foreign exchange reserves, and (2) it generates some expansionary effect on the local money supply. However, the increase in money supply attributable to the intervention is much less than it would be in developed countries because Taiwan has an underdeveloped banking and financial services sector.⁸ Also, the CBC has applied other policies to limit credit expansion, including an increase in reserve requirements for savings deposits and the issuance of bonds and Treasury bills to banks.

To keep the New Taiwan dollar from appreciating against the U.S. dollar, the CBC directed intervention amounting to nearly US\$3 billion a month during the first few months of 1987 and between US\$1 billion to US\$2 billion a month between March and May. In the first quarter of 1988, CBC intervention sometimes represented over one-half of all interbank foreign exchange transactions.⁹

⁷In addition, the CBC governor as well as other officials often release press statements that are designed to influence the market in one direction or the other.

⁸The banks often sit with idle funds and therefore even discourage large deposits.

⁹Because of sporadic large speculative capital outflows, major import payments, and repayment of foreign loans by public enterprises, the CBC has also found it necessary to sell U.S. dollars on some days in order to prevent the New Taiwan dollar from depreciating.

previous regulations. However, the CBC could still indirectly intervene in the foreign exchange market.

Administratively Set Exchange Rate System in South Korea

The exchange rate for the Korean won is not allowed to fluctuate freely on foreign exchange markets.¹² South Korea's central bank, the Bank of Korea (BOK) sets the value relative to other currencies on a daily basis. The rate is adjusted to reflect (1) policy factors that consider movements in South Korea's external debt, the current account balance, and domestic and foreign interest and inflation differentials,¹³ (2) the special drawing right (SDR) value of the U.S. dollar,¹⁴ and (3) the dollar value of a trade-weighted basket of five currencies.¹⁵ Interestingly, this basket does not include currencies of Korea's main NIC export competitors—Taiwan, Hong Kong, and Singapore.

Because the Korean government has not disclosed the weights attached to the currencies making up its own trade-weighted basket, adjustments made in the exchange rate for policy reasons can be obscured. In fact, some trade economists believe that deliberate government policy decisions to keep the won undervalued have undoubtedly dominated the determination of the won exchange rate. Most experts agree that the U.S. dollar and Japanese yen play important roles in the Korean basket system.

The existing exchange rate system, combined with government control of interest rates, tight restrictions on capital flows, and close regulation of the Korean financial sector, enhances the Korean government's ability to control the value of the won and reduce the direct foreign exchange market intervention required. Further, South Korea has no significant futures foreign exchange market that allows businessmen to hedge against currency appreciation.

¹²From the latter part of the 1960s until 1980, Korea pegged the won directly to the U.S. dollar at a fixed rate; however, large one-shot devaluations did occur intermittently.

¹³Our interviews with Korean trade specialists and Korean government officials indicate that the Minister of Finance and the head of the Bank of Korea are among the most influential of a small group of policymakers whose input is used in adjusting the won relative to certain policy factors.

¹⁴The SDR is an international reserve asset created by the International Monetary Fund.

¹⁵The SDR basket is included in the exchange-rate equation because the weights in the SDR basket represent the role of countries in world exports of goods and services. According to Ministry of Finance officials, the trade-weighted basket consists of the U.S. dollar, Japanese yen, West German deutsche mark, British pound, and Canadian dollar. This second basket of currencies is used because the SDR basket does not adequately represent the weights appropriate for Korea.

Since the Hong Kong government implemented the linked exchange rate system, the market determines the supply of Hong Kong dollars in circulation. The system also ensures that the Exchange Fund—the institution that manages Hong Kong’s monetary and fiscal affairs—always has enough foreign assets to redeem the Hong Kong dollars in circulation.¹⁸

By rigidly adhering to this system, Hong Kong has made a conscious decision to allow fluctuations in its domestic money supply (and, consequently, the price level) rather than changes in its exchange rate to correct for disequilibria in its balance of payments. As money supply changes, resulting inflation rates will change the competitiveness of Hong Kong exports and, hence, correct the trade imbalance. Rather than government intervention in the foreign exchange market to preserve the link, the Hong Kong government claims that the system relies on arbitrage to keep the open market rate charged to customers within a small margin around the HK\$7.8 to US\$1.00 fixed rate that is charged to the banks.

The process relies primarily upon market forces to maintain the pegged rate. For example, assume that a sudden drop in Hong Kong exports occurs. Under a flexible exchange rate system, this might lead to a depreciation of the Hong Kong dollar. However, under the linked system, if the Hong Kong dollar depreciated a small amount on the foreign exchange market, Hong Kong banks would have an incentive to buy Hong Kong dollars on the open foreign exchange markets and sell them at a profit in exchange for U.S. dollars at the official rate (HK\$7.8=US\$1.00). This process would reduce the supply of Hong Kong dollars, boost the currency’s value, and maintain the open market rate very close to the fixed exchange rate.

On the other hand, suppose that the Hong Kong dollar appreciated a small amount in the open foreign exchange market. The banks would find it profitable to increase the supply of Hong Kong dollars by obtaining them at the official rate and selling them on the open foreign exchange market for a profit. The bank arbitrage returns the open market value of the Hong Kong dollar to a rate very close to the official peg. As the money supply increases and interest rates decrease, inflationary pressure should lead to some decrease in exports and increase in imports. This would complete the adjustment cycle.

¹⁸According to Hong Kong government officials, the Exchange Fund invests the dollars it acquires in a portfolio of interest-bearing assets denominated in foreign currencies and interest-bearing accounts both in Hong Kong banks and in offshore accounts.

against a trade-weighted basket index of other major currencies. However, the U.S. dollar appreciated against the New Taiwan dollar by only 10 percent. More recently, however, both Taiwan and South Korea have responded to pressure from the U.S. government by appreciating their currencies significantly. (See table 2.1.) As a result, the U.S. dollar depreciated against the New Taiwan dollar by 29 percent²⁰ between 1985 and the end of 1988. U.S. pressure on South Korea came later in 1986; since then, the U.S. dollar has depreciated against the South Korean won by 23 percent.²¹ As a result of the link, the Hong Kong dollar has not departed significantly from HK\$7.8 to US\$1.00 since late 1983.

Table 2.1: Changes in NIC Currency Values

(Foreign currency units per US\$)									
Nominal Exchange Rates^a									
	1980	1981	1982	1983	1984	1985	1986	1987	1988
NT\$	36.1	37.9	40.0	40.3	39.5	39.8	35.5	28.6	28.2
Won	659.9	700.5	748.8	795.5	827.4	890.2	861.4	792.3	684.1
HK\$	5.10	5.68	6.49	7.78	7.82	7.81	7.80	7.76	7.86
Figures in percent									
Movement in NIC Nominal Exchange Rates^b									
Appreciation/depreciation of U.S. dollar relative to NIC currencies									
	1980-85				1985-88				
NT\$	+10.2				-29.1				
Won	+34.9				-23.2				
HK\$	+53.1				0.6				

^aYear-end exchange rates.

^bPositive numbers indicate depreciation and negative numbers indicate appreciation.

Source: Data Resources, Incorporated, *Asian Review*, various issues.

A better guide to exchange rate movements is a real effective exchange rate index. Such an index measures the value of a currency against a trade-weighted basket of currencies, adjusted for changes in price levels of the various countries. It provides a better measure of overall competitiveness because it considers cost-price relationships between a country and its trade partners and competitors. Morgan Guaranty Trust Company has computed a real effective exchange rate index with trading partners' weights for these NICs. The Morgan indices indicate that by

²⁰Conversely, this change could be expressed as an appreciation of the New Taiwan dollar relative to the U.S. dollar of 41 percent.

²¹Conversely, this change could be expressed as an appreciation of the South Korean won relative to the U.S. dollar of 30 percent.

macroeconomic imbalances, such as a sustained current account imbalance. Nations also attempt to limit excessive, short-term fluctuations in their currencies' exchange rates to reduce economic instability. Such actions are considered acceptable within the current international monetary system.

However, in South Korea and Taiwan currency values have not been kept consistent with their sustained current account surpluses and robust economic growth since the mid-1980s. If examined in real effective terms, the value of their currencies have been kept low since 1983. In Taiwan, exchange rate intervention undertaken indirectly by the central bank in the local foreign exchange market has slowed currency appreciation. In South Korea, the government has largely set the exchange rate between the won and the U.S. dollar by administrative practices. The low currency values have exacerbated trade imbalances with the United States.

The Hong Kong dollar is directly pegged to the value of the U.S. dollar through a fixed exchange rate. Adjustments to current account imbalances are achieved through changes in domestic money supply and inflation rates rather than currency revaluations. The Hong Kong government does not intervene in the local foreign exchange market if the normal arbitrage process fails to keep the linked rate within a narrow range. Although the value of the Hong Kong dollar has declined in real effective terms since 1983, Hong Kong's overall trade and current account balance do not indicate that currency adjustments are warranted, particularly since Hong Kong maintains one of the most open markets in the world.

bank, capital controls, and administrative mechanisms aimed at preventing the exchange rate from reflecting market forces and achieving competitive gain." In Treasury's opinion, the currency appreciation that has occurred has lagged too far behind that of other major U.S. trading partners, such as Japan and Germany. As a result, some of these policies have "directly influenced, and frequently frustrated, multilateral efforts to reduce global imbalances." In our discussions with Treasury officials, they stressed that the United States does not seek rigidly balanced bilateral trade with all its trading partners.

According to section 3004 of the Omnibus Trade and Competitiveness Act of 1988, the Secretary of the Treasury must

"consider whether countries manipulate the rate of exchange between their currency and the U.S. dollar for purposes of preventing effective balance of payments adjustments or gaining unfair competitive advantage in international trade."

The Secretary of Treasury concluded that within the meaning of this legislation, Taiwan and South Korea are manipulating their exchange rates. As a result, the U.S. government, pursuant to section 3004, is continuing further bilateral negotiations with Taiwan and South Korea to facilitate appropriate, regular, and prompt adjustment in their rates of currency exchange with the U.S. dollar.

Although Treasury officials have not concluded that the Hong Kong government manipulates the value of the currency, they have expressed the belief that an appreciation in the currency would be in the colony's own best economic interest to ease inflationary pressures on its economy stemming from high growth rates in its domestic money supply. Some economists have also suggested that the value of the Hong Kong dollar should be determined through a basket approach because of the recent volatility of the U.S. dollar and to better reflect the growing diversity of Hong Kong's trade in world markets.

Asian NIC Positions on Currency Appreciation

Many government officials and trade economists we interviewed in South Korea, Taiwan, and Hong Kong questioned the use of revaluation of their currencies as the primary policy to correct the U.S. trade imbalance with the Asian NICs. Officials in Taiwan and South Korea in particular maintained that additional import liberalization measures would be more effective in reducing their bilateral trade imbalances with the United States. Some also noted that several conditions in the United

high partly because of an underdeveloped social security system and high housing prices. The Taiwanese stress savings to fund their future retirement needs or to purchase expensive housing. Some economists have also argued that investment has been slow in the 1980s because of slower public sector investment. These experts believed that domestic adjustments could be effective only if they included measures to address these problems.

South Korea

Government officials and private economists have stressed the unique conditions underlying South Korea's balance of payments situation. First, South Korea experienced its first current account surplus in 1986 (\$4.6 billion) after many years of deficits.² With a large external debt (\$47 billion in 1985), the Koreans stressed the need to maintain credit worthiness and the ability to lower the country's external debt burden. Second, most Koreans spoke of the so-called "three blessings" that have helped to produce the turnaround in South Korea's current account situation since 1985: (1) the decline in world oil prices (South Korea is totally dependent on imported oil) from nearly \$27 a barrel to just over \$14 a barrel during 1986, (2) a drop in world interest rates of nearly 2 percent, and (3) an appreciation in the value of the Japanese yen against the U.S. dollar, which by some Korean estimates produced a 13-percent depreciation in the real effective exchange rate of the won during 1986.³

These factors are external to South Korea's own economy and beyond its influence or control. South Korean officials argued that a rise in the price of oil combined with continued large wage increase concessions to sectors of the Korean labor force could significantly reduce the cost-competitiveness of Korean manufacturers.⁴ Some Korean economists believed that the rising labor costs would lead to higher inflation which, in turn, would affect the computed real effective exchange rate and produce a less undervalued won. In view of the uncertainty surrounding labor cost increases in 1989, some Korean economists argued against accelerated appreciation of the won against the U.S. dollar until the impact of the labor costs could be better known.

²Korea began to run a trade surplus with the United States in 1983 after having deficits through the 1960s and 1970s.

³A study by the Korean Development Institute (KDI) attributes the \$4.2-billion trade account surplus in 1986 almost totally to lower imported oil prices (54.5%) and the stronger yen (45.2%). The study also concluded that these three factors explained most of the 1986 Korean current account surplus.

⁴According to KDI, nominal wages rose at an accelerated annual rate of 19 percent between the last quarter of 1987 and December 1988.

well suited to a fixed exchange rate, because the classical adjustment mechanisms work well in a small economy with an open market and highly flexible wages. In their opinion, any change in the fixed exchange rate would generate only a minor impact without much long-term impact. For example, if the Hong Kong dollar were to appreciate against the U.S. dollar, U.S. imports would become more competitively priced and should increase. However, few Hong Kong industries directly compete with imports, so overall import levels might not increase that much. And while Hong Kong exports would be expected to grow at slower rates in the short run, with flexible prices and wage rates, export growth rates should recover in the medium to long run. In summary, a currency appreciation may cause a short run reduction of exports (and also of GNP) but not much increase in imports. Imports from the United States would probably increase, but the amount would be small because of the lower GNP growth resulting from a reduction in the rate of growth of Hong Kong exports.

Some economists in Hong Kong pointed out that Hong Kong can use its economic relationship with China to assist economic adjustment. That is, as exports decline in the short run, wage rates would decline or the unemployment rate increase, both of which would discourage legal or illegal immigrants from China. Based on a similar argument, these economists argued that Hong Kong's total exports (domestic exports plus re-exports) in the medium-term may not decline after currency appreciation because Hong Kong manufacturers can lower costs by simply moving production and assembly operations to China or by increasing their sourcing from China. This suggests that Hong Kong's total exports (including re-exports from China) to the United States may not decrease much after an appreciation in the Hong Kong dollar.

Private and government economists alike in Hong Kong believe that under the fixed exchange rate system, enough adjustment mechanisms exist to ensure Hong Kong's economic stability and equilibrium in its balance of payments. If the Hong Kong dollar is indeed undervalued, then the excess demand pressure generated by the export boom would boost prices and wage rates in Hong Kong.⁶ With higher inflation, the real exchange rate would be self-corrected; that is, the effects of currency undervaluation would dissipate after inflation rates in Hong Kong increased. Thus, there should be no need to adjust the nominal fixed exchange rate. Economists sharing these views can point to Hong Kong's

⁶Monetarists prefer to carry out a different line of reasoning by saying that a trade surplus would lead to a rapid increase in money supply that would lead to inflationary pressure.

the currency. In our discussions with public officials and private economists, many mentioned that a change to a basket system would disrupt economic confidence. Hong Kong residents would also find it difficult to understand anything other than the simple link to the U.S. dollar. In addition, Hong Kong officials fear that revaluation done in response to speculative pressures (induced by pressure from the United States for currency appreciation) would prompt future speculation whenever an exchange rate imbalance was perceived by the market. Rather than currency revaluation, Hong Kong officials have expressed a preference for economic adjustment through inflation and interest rate shifts.

Despite arguments presented by Hong Kong officials, some trade economists cite economic reasons (outside the context of U.S.-Hong Kong bilateral trade concerns) for Hong Kong to seriously consider implementing a basket exchange rate system. First, an exchange rate based upon a well-constructed basket of currencies should not be subject to any more speculative pressure than a rate tied to the U.S. dollar. Second, a basket system would adjust for movements in major currencies and not generate misalignment of the Hong Kong dollar resulting from fluctuations in the value of the U.S. dollar. Third, a published basket system (while admittedly more complicated for Hong Kong's currency arbitrage process) might be more difficult for Hong Kong residents to understand; however, a basket system could reduce the excessive economic instability associated with the linked rate.

Conclusions

The South Korean and Taiwanese governments and the U.S. government have disagreed on three basic exchange rate issues. First, since 1986, the U.S. government has maintained that the Korean and Taiwanese governments have kept their currencies undervalued against the U.S. dollar through currency intervention or administrative mechanisms aimed at preventing the exchange rate from reflecting market forces. A senior CBC official in Taiwan maintained that central bank intervention has been used primarily to smooth out excessive currency value fluctuations, which is a normal central bank function in many countries. Korean officials have argued that their currency value is not out of line when viewed in context with their status as an emerging, industrialized developing nation and their large external debt.

Second, since 1986, U.S. Treasury officials have argued that both Taiwan and South Korea need to significantly appreciate their currencies so that the values better reflect their underlying economic strength. Korean and Taiwanese officials argue that they have substantially

Chapter 3
U.S. and NIC Positions on Exchange
Rate Movements

revaluation is not necessary. In addition, the Hong Kong government argues that exchange rate stability is critical until 1997, when Hong Kong will become a special administrative region of the People's Republic of China. Lastly, they contend that a change to an exchange rate system pegging the Hong Kong dollar to a basket of currencies remains too complicated for the existing cash arbitrage process with which Hong Kong residents are now familiar.

Estimated Currency Appreciation Effects on Individual NIC Economies

The DRI simulations run for each of the three Asian NICs showed that currency appreciation produced greater reductions in overall current account surpluses than in their bilateral trade surpluses with the United States. However, changes in both figures are modest, with all three economies displaying mostly short-term declines in GNP, exports, and imports that largely recover after one-year.

Taiwan

Table 4.1 presents the simulation estimates for Taiwan. Growth in real GNP, domestic consumption and investment, and imports and exports of goods and services significantly decline in 1989; however, all recover to near baseline levels in 1990. Inflation in the Taiwanese economy would be significantly reduced as a result of the currency appreciation. Both the current account surplus and trade surplus were reduced by approximately \$2 billion in 1989 and \$4 billion in 1990. In the simulation, merchandise exports were virtually unaffected by the currency appreciation; however, merchandise imports rose by approximately \$4 billion in both 1989 and 1990.

Table 4.1: Simulation of an Appreciation of the New Taiwan Dollar^a

	(Growth in percent)					
	Baseline (No currency appreciation)			Simulation (10-percent appreciation)		
	1988	1989	1990	1988	1989	1990
Real GNP	7.1	7.5	7.0	6.1	4.3	6.6
Domestic demand:						
Consumption	15.2	10.7	9.4	14.7	8.7	8.8
Gross domestic investment	23.7	13.9	11.2	23.0	11.5	10.8
Exports of goods and services ^b	6.0	11.0	10.2	4.3	6.0	10.3
Imports of goods and services ^b	21.2	17.5	14.5	19.9	13.9	14.5
GDP deflator ^c	3.7	6.4	7.2	3.6	4.8	5.6
Money supply (M2) ^d	26.2	24.4	23.4	26.0	22.5	20.6

(continued)

Chapter 4
Estimating Economic and Trade Impacts of
NIC Currency Appreciations

Table 4.2: Simulation of an Appreciation of the South Korean Won^a

	(Growth in percent)					
	Baseline (No currency appreciation)			Simulation (10-percent appreciation)		
	1988	1989	1990	1988	1989	1990
Real GNP	8.0	7.5	7.3	7.1	6.1	7.3
Domestic demand:	12.1	9.7	8.0	12.4	9.6	7.7
Consumption	9.9	7.5	6.8	10.0	7.2	6.4
Gross domestic investment	16.6	14.2	10.4	17.4	14.2	10.3
Exports of goods and services ^d	6.6	7.6	10.7	4.0	3.5	10.5
Imports of goods and services ^b	15.1	12.0	11.9	15.0	10.7	10.9
GDP deflator ^c	8.5	8.4	7.5	6.3	4.9	6.0
Money supply (M2) ^d	18.0	17.1	16.1	18.0	17.1	16.1
	(Billions of U.S. dollars)					
Current account balance	\$9.9	\$8.0	\$8.6	\$9.1	\$5.0	\$4.4
Trade balance:	7.2	6.7	8.0	5.8	2.6	2.9
Merchandise exports	54.4	63.8	75.4	53.7	60.6	70.7
Merchandise imports	47.2	57.1	67.5	47.9	58.0	67.8
Trade balance with U.S.:	8.5	8.2	8.5	8.3	7.3	7.2
Exports to U.S.	19.9	22.4	25.8	19.8	21.9	24.8
Imports from U.S.	11.4	14.2	17.3	11.6	14.6	17.6
Trade balance with Japan:	-5.7	-5.1	-4.9	-6.2	-6.0	-5.8
Exports to Japan	10.1	13.0	15.4	10.1	12.6	15.0
Imports from Japan	15.9	18.1	20.4	16.2	18.6	20.8

^aThe simulation uses a baseline exchange rate of 750 won to US\$1.00.

^bNational income account basis.

^cGross domestic product.

^dCurrency in circulation and demand deposits plus time and savings deposits.

^eMerchandise trade.

Hong Kong

In the simulation, Hong Kong is the least affected of the three economies by a 10-percent currency appreciation. (See table 4.3.) Although growth rates for exports and imports of goods and services are estimated to decline in the short term, both recover to near baseline levels by 1990. Growth rates in GNP, domestic demand, consumption, and investment are only slightly lower in both 1989 and 1990 under the appreciation scenario. The inflation level is lower in 1989 as a result of the appreciation of the currency, but this rebounds to baseline levels by 1990. The current account balance and overall trade balances show minimal impact, with the trade surplus down only \$600 million both in 1989 and

very close to DRI's estimated reductions in Taiwan of \$1.6 and \$2.0 billion for 1989 and 1990. A Korea Development Institute analyst estimated that a \$6-billion overall impact can be anticipated with a 10-percent currency appreciation; this is about 50 percent higher than the DRI estimates. For Hong Kong, one study estimated a reduction of \$0.75 billion to \$1.5 billion in export value resulting from a 10-percent nominal appreciation in the Hong Kong dollar, which is not inconsistent with the simulation results presented in table 4.3.

Bela Balassa and John Williamson estimated that a 10-percent appreciation in the "real effective exchange rates" of the Korean won or New Taiwan dollar would yield a \$5-billion reduction in the current account surplus of each country.³ This estimate is not comparable to DRI's simulation because it used a 10-percent "nominal" appreciation. A 10-percent appreciation in the real effective exchange rate would be much larger than a 10-percent nominal appreciation. Thus, a \$5-billion reduction in a NIC's current surplus resulting from a 10-percent real effective appreciation is not inconsistent with our estimates.

Conclusions

The DRI simulations showed that only a modest improvement (\$2.7 billion in 1989 and \$3.5 billion in 1990) would likely occur in the combined U.S. trade deficits with Taiwan, South Korea, and Hong Kong as a result of 10-percent nominal currency appreciations in 1988. However, it should be noted that the simulations assessed the impact of currency appreciation alone; thus, changes in imports resulting from import liberalization efforts are not reflected in the results. In addition, these simulations only estimate the impact of currency appreciation on U.S. bilateral trade with these three economies. Whether the overall U.S. trade deficit would decline by similar amounts is uncertain given the likelihood that increased imports from other countries might replace higher priced Asian NIC imports caused by these currency appreciations. Already, some NIC exporters have moved operations offshore.

Our study indicates that Asian NIC currency appreciations in a realistic range would by themselves be insufficient to produce significant changes in the overall U.S. trade deficit, even though U.S. trade deficits with the Asian NICs would be likely to improve modestly. Additional expenditure-switching and expenditure-increasing measures taken by the Taiwan and South Korean governments to supplement exchange rate

³Bela Balassa and John Williamson, *Adjusting to Success: Balance of Payments Policy in the East Asian NICs*, Institute for International Economics, June 1987.

.

The second aspect of the simulation is how NIC currency appreciations affect their export prices. As the NIC's currencies appreciate by 10 percent, their export prices expressed in U.S. dollars increase by lesser percentages. For Hong Kong, the "pass-through" effect is fairly low; export prices increase by only 3.9 percent. The pass-through effects for South Korea and Taiwan are somewhat higher—5.2 percent and 6.6 percent respectively. Thus, these pass-through effects dilute the potential trade impact by half (at least on the export side). This analysis suggests that currency appreciation by itself in South Korea and Taiwan may produce limited results in reducing bilateral trade imbalances with the United States. However, the low pass-through effect of currency revaluation is not caused by the "non-competitive" nature of pricing behavior, rather, it reflects the NICs' high dependence on imported materials and parts whose prices expressed in dollars do not change when the value of the NIC currencies appreciate. This suggests that the value-added portion of exports are highest for Taiwan and lowest for Hong Kong among the three countries. DRI's estimates of the pass-through effects are consistent with those of many economists in South Korea, Taiwan, and Hong Kong.

(8) Banks may ask the task force to buy or sell on their behalf by stating their desired currency purchases or sales together with their price quotes.

(9) Trading on currencies other than the U.S. dollar will be conducted in accordance with existing methods.

(10) To ensure that non-cash U.S. dollar trading in small amounts will gradually fit in the operations of the liberalized foreign exchange market, the Central Bank has asked that five banks, whose foreign exchange business accounts for about half of the total of all foreign exchange banks designated by it, to work out a negotiated rate system for such trading and has agreed to the following conclusion reached by the five appointed foreign exchange banks.

(a) Before 10:00 a.m. each business day, nine rotating foreign exchange banks will negotiate and announce a fixing rate for small remittances no more than US\$30,000. Rate fluctuation on small deals between banks and customers will be limited to NT\$0.1 above or below the fixing rate.

(b) From 9:00 a.m. to 10:00 a.m. each business day, each bank will decide its own rate for small remittances (US\$30,000 or less), based on the fixing rate reached by the nine banks the previous day in accordance with item (a).

(c) If the interbank U.S. dollar trading rate fluctuates above or below the range of fixing rate for small remittances as stated in item (a) and its transaction amount exceeds 10 percent of the previous day interbank trading volume, or volatile time exceeds 30 minutes, then the nine rotating banks may meet again to reset the fixing rate on small remittances. It could be reset more than once every trading day; however, after the first revision, the rate for small remittances (US\$30,000 or less) will be settled in the range of adding or deducting NT\$0.2 from the refixing rate.

(d) All nine rotating banks are subject to trade with their customers in small deals (amount of US\$30,000 or less) based on item (a) and (c).

(e) The nine rotating banks encompass five permanent members, which are the Bank of Taiwan, International Commercial Bank of China, First Commercial Bank, Chang Hwa Commercial Bank, and Hua Nan Commercial Bank, while the additional four members will be chosen from the remaining appointed foreign exchange banks which are divided into four groups with each representing in order every business day.

According to the CBC, after the above modifications are made, the structure of the foreign exchange market in Taiwan will be more complete and concrete and the operating methods of the foreign exchange market will be similar to those prevailing in Japan. On the other hand, the

Major Contributors to This Report

**National Security and
International Affairs
Division**

Curtis Turnbow, Assistant Director (202) 275-5429
David L. McClure, Project Manager
Jane-yu Ho Li, Economist

Requests for copies of GAO reports should be sent to:

U.S. General Accounting Office
Post Office Box 6015
Gaithersburg, Maryland 20877
Telephone 202-275-6241

The first five copies of each report are free. Additional copies are \$2.00 each.

There is a 25% discount on orders for 100 or more copies mailed to a single address.

Orders must be prepaid by cash or by check or money order made out to the Superintendent of Documents.

**Appendix II
Recent Changes in Taiwan's Exchange
Rate System**

exchange rate for the New Taiwan dollar will be more flexible and reflect its actual value in the market. However, banks and enterprises need to pay more attention to training personnel for foreign exchange operations.

Recent Changes in Taiwan's Exchange Rate System

According to documents provided to GAO by the Central Bank of China, certain adjustments were made to Taiwan's foreign exchange market operations on April 3, 1989. The CBC announced that these changes were made to "accelerate economic liberalization and internationalization as well as accommodate financial policy requirements." These changes were summarized by the CBC as follows.

- (1) Abolish the current daily weighted average rate (WAR) between the New Taiwan dollar and the U.S. dollar.
- (2) Remove restriction that the New Taiwan dollar must not rise or fall more than 2.25 percent of the central exchange rate (WAR) on the previous day.
- (3) Remove the restriction that the spot U.S. dollar trading between banks and their customers must not exceed the central exchange rate by NT\$ 0.2 daily in either direction as well as the restriction that the U.S. dollar cash trading between banks and customers must not rise or fall more than NT\$ 0.4 of the central exchange rate on the previous day.
- (4) The trading between banks and customers will start at 10:00 a.m. every day. Before 10:00 a.m., the individual banks may trade, with customers upon request with exchange rates to be determined by the banks themselves.
- (5) A task force will be created, using the existing foreign exchange trading center as the basis. The proposed task force will be charged with the task of establishing a foreign exchange brokerage house. This institution will engage in foreign exchange trading, gather information as would be required by the Central Bank, and provide market information.
- (6) U.S. dollar trading volumes between banks and the final trading exchange rates will be released by the task force to the Associated Press and Reuter for transmission every 30 minutes. The task force will also be responsible for constantly coordinating with the two news organizations in supplying the latest quotes on exchange rates. Quotes will be used only as reference.
- (7) The trading between banks will be determined by the banks themselves, with trading volumes and exchange rates at which transactions are conducted reported to the task force immediately.

Technical Notes on the GAO/DRI Simulation

The DRI models were built on an income-expenditure framework with explicit incorporation of the flexible accelerator principle, dynamic multiplier, adaptive expectation, and time lags expressed in a polynomial distributed lag function. The models consist of equations ranging in number from 94 to 147, with behavioral equations ranging from 27 to 40. Each of the behavioral equations were estimated with the ordinary least squares method, and the models were solved through simultaneous simulations. Exports are typically determined by major trading partners' GNP and relative prices. Exchange rates affect relative prices. Similarly, imports are mainly determined by domestic GNP and relative prices.

DRI ran simulations using its macroeconomic model to determine the economic and trade impacts of a 10-percent nominal appreciation for each of the three Asian NIC currencies.¹ First, DRI estimated a baseline economic scenario for each Asian NIC assuming that their exchange rates remained at April 1988 levels. These baseline scenarios were estimated with all other exogenous variables at the levels used in DRI's quarterly baseline forecast. Then, simulations were run for each NIC assuming a 10-percent nominal appreciation. The appreciation was phased in between the second and the fourth quarters of 1988 and then these new exchange rates were held constant in 1989 and 1990. The impacts of the 10-percent nominal appreciation are measured as the differences in key variables (i.e., trade balance, real GNP growth rate) between the two simulations done for each country.

Two aspects of the simulations should be noted. First, they assume a further appreciation of the yen from 121 yen to a U.S. dollar in 1988 to 106 in 1989 and to 102 in 1990. Therefore, in the simulations, some potential effects of a 10-percent nominal currency appreciation are offset by the large yen appreciation. In other words, despite a 10-percent appreciation, U.S. importers may still find importing goods from these NICs relatively cheaper than competing imports from Japan.²

¹In all three simulations, the hypothetical NIC currency appreciation was constructed by depreciating the U.S. dollar against each currency by 10 percent.

²In the short term, South Korea, Taiwan, and Hong Kong may continue to supply exports that compete with products from Japan if other countries do not have immediate production or export capacity. In the long term, however, other sources could possibly enter the market, such as Thailand, Indonesia, and other Southeast Asian economies.

Chapter 4
Estimating Economic and Trade Impacts of
NIC Currency Appreciations

changes would be useful. These include (1) further opening their markets to foreign goods and services and (2) policies designed to strengthen domestic demand in order to help maintain income growth and hence increase imports. A comprehensive package of complementary policies in addition to exchange rate revaluation is needed to address the inherent bilateral trade imbalance problems.

1990. Similarly, merchandise exports and imports are virtually unaffected by the appreciation in both years.

Table 4.3: Simulation of an Appreciation of the Hong Kong Dollar^a

	(Growth in percent)					
	Baseline (No currency appreciation)			Simulation (10-percent appreciation)		
	1988	1989	1990	1988	1989	1990
Real GNP	5.6	6.0	6.1	5.3	5.4	5.9
Domestic demand:	6.0	7.5	7.4	6.1	7.3	6.9
Consumption	5.0	6.4	7.0	5.1	6.3	6.7
Gross domestic investment	8.8	10.5	8.4	8.7	9.8	7.6
Exports of goods and services ^b	7.7	9.7	8.2	5.5	7.1	8.0
Imports of goods and services ^b	8.2	11.1	9.2	6.1	8.6	8.9
GDP deflator ^c	9.2	12.4	8.2	5.2	8.2	8.2
Money supply (M2) ^d	32.6	34.2	26.6	26.0	27.3	25.4
	(Billions of U.S. dollars)					
Current account balance	\$4.6	\$5.0	\$5.2	\$4.4	\$4.6	\$4.8
Trade balance:	1.5	1.5	1.4	1.3	0.9	0.8
Merchandise exports	60.0	72.4	83.8	59.6	71.4	82.5
Merchandise imports	58.4	70.9	82.4	58.3	70.5	81.7
Trade balance with U.S.: ^e	8.6	8.0	7.6	8.5	7.8	7.4
Exports to U.S.	14.1	14.8	15.7	14.0	14.7	15.6
Imports from U.S.	5.4	6.8	8.1	5.5	6.9	8.2
Trade balance with Japan: ^e	-6.7	-7.0	-7.3	-6.8	-7.2	-7.5
Exports to Japan	3.7	4.3	4.9	3.5	4.1	4.7
Imports from Japan	10.3	11.3	12.2	10.3	11.3	12.2

^aThe simulation assumes a baseline exchange rate of HK\$7.8 to US\$1.00.

^bNational income account basis

^cgross domestic product.

^dCurrency in circulation and demand deposits plus time and savings deposits.

^eMerchandise trade.

Comparison With Other Studies

The overall trade impacts in the simulations are comparable to other studies we reviewed. For example, in a 1987 study using Wharton Econometric's Project Link model, a 10-percent nominal appreciation of the New Taiwan dollar produced about a \$2.5-billion reduction in the Taiwanese overall trade surplus in 1988 and 1989. These results are

Chapter 4
Estimating Economic and Trade Impacts of
NIC Currency Appreciations

	(Growth in percent)					
	Baseline (No currency appreciation)			Simulation (10-percent appreciation)		
	1988	1989	1990	1988	1989	1990
	(Billions of U.S. dollars)					
Current account balance	\$17.7	\$16.7	\$17.3	\$17.6	\$14.3	\$13.3
Trade balance:	18.2	17.8	19.0	18.2	15.4	15.1
Merchandise exports	66.3	79.5	94.3	67.5	80.3	94.4
Merchandise imports	48.1	61.7	75.3	49.3	65.0	79.3
Trade balance with U.S.:	11.7	7.8	4.5	11.8	6.2	2.5
Exports to U.S.	29.6	34.2	39.7	29.9	33.2	38.2
Imports from U.S.	17.9	26.5	35.2	18.0	27.0	35.8
Trade balance with Japan:	-2.6	-0.5	1.4	-2.4	-1.1	0.7
Exports to Japan	10.3	14.4	18.8	10.6	14.5	18.7
Imports from Japan	12.9	14.9	17.4	13.0	15.5	18.0

^aThe simulation assumes a baseline exchange rate of NT\$28.7 to US\$1.00.

^bNational income account basis.

^cGross domestic product.

^dCurrency in circulation and demand deposits plus time and savings deposits.

^eMerchandise trade.

South Korea

In the South Korean simulation, the GNP growth rate is estimated to decline by 1.4 percentage points in 1989 then recovers in 1990. Growth in domestic demand, consumption, and investment remain near or at baseline levels. (See table 4.2.) Growth rates for exports of goods and services are cut by over one-half in 1989, but are almost at the baseline level in 1990. Growth rates for imports of goods and services decline about one percentage point in both years. As in Taiwan, inflation is significantly reduced as a result of the currency appreciation. The appreciation has a greater effect on South Korea's current account balance (cut almost in half in 1990) and its overall trade balance (cut by almost two-thirds) when compared with Taiwan. However, the effects on the bilateral trade balance with the United States are smaller than those for Taiwan.

Estimating Economic and Trade Impacts of NIC Currency Appreciations

To estimate how an exchange rate appreciation can affect individual NIC trade and their economies, we contracted Data Resources, Inc. (DRI) to simulate hypothetical 10-percent appreciations in the currencies of Taiwan, South Korea, and Hong Kong.¹ These simulations were carried out in late April 1988, when the U.S. dollar was worth NT\$28.66, 750 South Korean won, and HK\$7.8.² The trade impacts of exchange rate changes have varying time lags. By assuming currency appreciations in 1988, the simulations estimated economic and trade changes most likely occurring in 1989 and 1990.

In the DRI simulations, a 10-percent nominal appreciation in the NIC currencies in 1988 yielded a reduction in their combined trade surplus with the United States of \$2.7 billion in 1989 and \$3.5 billion in 1990. The largest reductions occurred in Taiwan, \$1.6 billion in 1989 and \$2 billion in 1990. South Korea's trade surpluses with the United States were reduced by \$0.9 billion in 1989 and \$1.3 billion in 1990 and Hong Kong's were reduced by only about \$0.2 billion in both years.

Impact on Overall U.S. Trade Deficit

The simulation does not consider all possible consequences of exchange rate changes and cannot estimate the reduction in the overall U.S. trade deficit resulting from an appreciation in the NIC currencies. If the U.S. bilateral trade deficit with these NICs is reduced by \$2 billion to \$3 billion dollars, this does not mean that the overall U.S. trade deficit will decline by comparable amounts. The U.S. bilateral trade deficit with other countries may increase after NIC appreciations, because increased imports from these countries may replace imports from the NICs.

Related to this phenomenon, NIC exporters have already responded to actual currency appreciations by moving operations offshore and sourcing parts from lower cost countries. The former would shift the bilateral trade surplus of the NICs with the United States to other countries and the latter would help to maintain the strength of the NICs' exports in the face of currency appreciations.

¹We reviewed the structure of DRI's Asian macroeconomic models and requested further trade sector specifications conducive to our study. In the simulation design, the U.S. dollar was depreciated against each NIC currency by 10 percent.

²1988 year-end exchange rates and the actual depreciation of the U.S. dollar against the NIC currencies between April and December 1988 were as follows: Taiwan—28.2 (1 percent depreciation); South Korea—684.1 (9 percent depreciation); and Hong Kong—7.8 (unchanged).

appreciated their currencies to correct for potential past depreciations; however, they have chosen to appreciate the currencies gradually rather than through a large, one-shot approach. Their estimates of real effective appreciation differ from estimates used by analysts in the United States, largely due to index measurement differences.

Finally, U.S. Treasury officials and the South Korean and Taiwan governments disagree on how quickly currency appreciations should occur. Treasury pushed for rapid appreciation in both 1987 and 1988, noting that when intermittent, small appreciations did occur in either country, it did not affect exports. Taiwan and Korean officials prefer a slower pace for currency appreciation because it gives their export industries time to adjust to new cost/price relationships and allows the lagged impact on the domestic economy to be better understood and additional necessary economic policy adjustments made. Overall, officials in both countries disagree with the U.S. approach of focusing so heavily on NIC exchange rates without allowing adequate time for other policy modifications designed to liberalize imports, strengthen domestic demand, and diversify both import and export sources to take effect.

With Hong Kong, the U.S. government's position on currency appreciation has been less forceful; there have been no formal exchange rate negotiations with the United States that we could document. Treasury's complaint against Hong Kong is two-fold. First, the Hong Kong dollar has depreciated in real effective terms since it was linked to the U.S. dollar in 1983. Second, given the appreciations of the yen, the won, and the New Taiwan dollar against the U.S. dollar, Hong Kong exports to the United States are in a strengthened competitive position. Treasury faces difficulty in pressuring Japan, Taiwan, and South Korea for currency appreciations when exporters in these countries claim they would be losing out to cheaper exports from one of their main U.S. export market competitors—Hong Kong. As one alternative to changing the fixed exchange rate with the U.S. dollar, Treasury has suggested that Hong Kong consider using a basket of currencies approach in setting its exchange rate.

Hong Kong officials strongly reject U.S. government arguments for changes in its exchange rate. They argue that with a fixed exchange rate, economic and trade adjustments occur through changes in domestic money supply and inflation rates—which ultimately affect export and import prices. Hong Kong officials prefer this method of adjustment over currency revaluation. They further point to an overall current account that is roughly in balance to support their claim that currency

overall balance in trade to support their argument that the currency is not undervalued.

Other Hong Kong economists believed that the bilateral trade imbalance with the United States could be effectively reduced through further adjustment in the U.S. dollar exchange rates with other major currencies, such as the yen. In this way, U.S. exports could be placed in a price-advantaged position in the Hong Kong market. Because of the time lags associated with exchange rate effects on trade, it was not until 1988 that U.S.-Hong Kong trade was affected. The 1988 trade statistics show that U.S. exports to Hong Kong rose 43 percent over the same period in 1987, but U.S. imports from Hong Kong grew only 3 percent.⁷

Some trade economists have argued that Hong Kong should adopt a basket system for determining the value of the Hong Kong dollar. This system would eliminate the direct peg to the U.S. dollar and substitute in its place an exchange rate based upon a basket of major currencies, including those of major Hong Kong trading partners. We discussed this issue with several Hong Kong economists; most concluded that such a system is technically feasible for the colony but that it would be difficult to implement under the existing arbitrage arrangements. Specifically, some economists raised technical problems associated with the implementation of a basket⁸ while others feared a crisis of confidence in the foreign exchange market resulting from a change in the value of the Hong Kong dollar. Most economists we interviewed saw no overriding reason for abandoning the current linked exchange rate system. Some economists dismissed Hong Kong's rising inflation levels as grounds for currency revaluation because it was the normal adjustment process under a fixed exchange rate.

Hong Kong officials have publicly declared their intention to maintain the current fixed exchange rate. They seem willing to accept macroeconomic shocks to the economy in lieu of a change in the value of

⁷U.S. imports from Hong Kong might be expected to increase more under these circumstances. However, a 10-percent drop in Hong Kong garment exports to the United States (which comprise almost 50 percent of Hong Kong's total garment exports) during the first eight months of 1988 reduced the growth in total U.S. imports from Hong Kong.

⁸Among the problems cited were (1) the absence of a central bank, (2) difficulties in interest arbitrage needed between deposits of different currencies, (3) knowing the appropriate trade weights given the re-export nature of Hong Kong's trade with China, and (4) the impact of changing currency weights in the basket on cash arbitrage. For more detailed discussion, see John Greenwood, "Why the HK\$/US\$ Link Rate System Should Not Be Changed," in *Asian Monetary Monitor*, Nov.-Dec. 1984.

Hong Kong

Hong Kong government officials expressed doubts about the Hong Kong dollar being undervalued against the U.S. dollar. They cited the direct link of the Hong Kong dollar to the U.S. dollar and pointed out that the link is basically preserved in their open foreign exchange market through interest rate and cash arbitrage, not through direct market intervention. They noted that direct intervention is generally needed only in response to large speculative capital inflows. Moreover, by linking the Hong Kong dollar to the U.S. dollar, Hong Kong officials argue that they are implicitly tied to U.S. monetary policy and are basing their domestic economy's stability on external factors. In this way, the rigid link to the U.S. dollar—when it is volatile—can cause macroeconomic shocks to Hong Kong, with very low GNP growth rates in one year followed by very high ones the next.

Because of U.S. government pressure on Hong Kong to appreciate its currency and Hong Kong's reluctance to move from a fixed exchange rate, Hong Kong government officials noted that speculators have acquired abnormally large amounts of the local currency. Overseas investors, including large U.S. banks, have purchased large amounts of Hong Kong dollars and put them in short-term deposit accounts speculating on an appreciation of the currency. This speculation has weakened the workings of the linked system, since individuals have been willing to hold Hong Kong dollars in large amounts rather than exchanging them for other currencies. This influx of funds has had some expansionary effects on the local money supply and contributed to inflationary pressures. To downplay this speculative investment, the Hong Kong government passed provisions in March 1988 that permit it to institute a negative interest rate policy on bank accounts over a specific amount.⁵ This government initiative, clearly not favored by Hong Kong bankers and businessmen, seeks to discourage short-term speculative positions on a revaluation of the Hong Kong dollar. It also permits a reduction of large amounts of U.S. dollars that the government is believed to be holding as a result of defending (i.e., selling) the local currency against appreciation.

Some Hong Kong economists believe that the current linked exchange rate should not be dropped and that the current Hong Kong dollar to U.S. dollar exchange rate is acceptable. Some argued that Hong Kong is

⁵Hong Kong interest rates were already extremely low in 1988, with some types of accounts near zero. The combination of low interest rates and high inflation (7.4 percent in 1988) was already penalizing some account holders. However, speculators were willing to take this penalty—especially on a short-term basis—because of the large potential gain, should the government suddenly decide to appreciate the currency.

States contributed directly to the U.S. trade deficit, including a large budget deficit and strong consumer demand for imported products.

Officials in South Korea and Taiwan also argued that basic imbalances in domestic macroeconomic conditions within their own countries need to be addressed. They noted that currency appreciation by itself—without complementary policies to boost domestic demand—would have adverse economic impacts. This would include a reduction in both export growth and overall economic growth, leading to slower import growth. They expressed concern over quick, large exchange rate adjustments until the corresponding impact of further domestic economic adjustments are better known. Hong Kong officials maintained that their exchange rate system has an automatic adjustment mechanism and that appreciation of the Hong Kong dollar was not warranted.

Foreign trade economists and public officials in South Korea and Taiwan noted that policies adversely affecting their export sectors must be complemented with expenditure-expanding policies designed to achieve higher income and import growth levels. In their opinion, emphasizing currency appreciation without considering these policy changes could weaken their economies and be less effective in addressing NIC trade surpluses with the United States.

Taiwan

A Central Bank of China senior official that we interviewed argued that the Taiwanese government's intervention in the foreign exchange market (buying or selling of U.S. dollars) simply stabilizes wide fluctuations in the value of the New Taiwan dollar that otherwise would occur. He did not see this action as being any different from the normal functioning of central banks in the major industrialized countries who independently and cooperatively often intervene in foreign exchange markets to influence the value of the U.S. dollar.

Taiwanese officials argued that the country should adjust its exchange rate in a smooth, steady fashion rather than through quick, substantial "one-shot" appreciations. Many officials, public and private, expressed the belief that without knowing what the correct New Taiwan dollar to U.S. dollar exchange rate should be, it is quite possible that rapid appreciation could overshoot an equilibrium exchange rate consistent with an acceptable current account balance.

In addition, Taiwanese economists said that Taiwan has a serious private savings/investment imbalance. The savings to investment ratio is

U.S. and NIC Positions on Exchange Rate Movements

Since 1986, the U.S. Treasury has held formal discussions with Taiwan and South Korea concerning currency exchange rates. Treasury officials have concluded that low currency values in these two countries have contributed to their external trade surpluses since 1986, a large part of which is attributable to surpluses with the United States, a major trading partner for both. As such, Treasury has steadily pressured Taiwan and South Korea to appreciate the value of their currencies relative to the U.S. dollar to help reduce global trade imbalances and, specifically, the bilateral trade imbalance with the United States. Treasury also believes that the Hong Kong dollar should appreciate to help restore trade equilibrium with the United States.

For the most part, officials in the three Asian NICs argue that currency appreciation is being overemphasized by the U.S. government as a means of reducing U.S.-NIC trading imbalances. Many note that macroeconomic imbalances within the United States and strong import demand have played large roles in producing the U.S. trade deficit. In addition, they believe their economies must be given time to adjust to exchange rate changes that have already occurred.

Treasury's Response Under the 1988 Omnibus Trade Act

The Omnibus Trade and Competitiveness Act of 1988 requires the Secretary of the Treasury to make an annual report to the Congress by October 15 of each year assessing international economic policies, including exchange rates. The law also requires a written update of this report 6 months after it is delivered. Pursuant to the law, Treasury issued the first of these reports in October 1988.¹

Treasury's initial report attributed the Asian NICs' success in becoming significant forces in the international trading system, as indicated by large current account surpluses, to the (1) aggressive export orientation of the countries' economies, (2) hard work and initiative of their people, (3) lower levels of domestic consumption, and (4) the benefit derived from an expansion of the world trading system. However, Treasury noted that undervalued exchange rates have also been a major factor contributing to the increase in the external trade surpluses of Taiwan and South Korea.

Treasury concluded that currency undervaluation in South Korea and Taiwan was the "direct result of currency intervention by the central

¹U.S. Department of Treasury, Report to the Congress on International Economic and Exchange Rate Policy, Oct. 15, 1988.

1985 the New Taiwan dollar had depreciated by 5.7 percent in real terms relative to its average for 1980-82, and the Korean won had depreciated by 11.3 percent. The Hong Kong dollar, on the other hand, had appreciated by 3.3 percent. Even the most recent nominal appreciations of the New Taiwan dollar and Korean won have not completely offset earlier depreciations of the currencies. (See table 2.2.)

Table 2.2: NIC Real Effective Exchange Rates^a

	1981	1982	1983	1984	1985	1986	1987	1988
NT\$	101.8	96.6	94.6	97.1	94.3	88.4	93.7	98.7
Won	100.3	101.9	97.6	96.5	88.7	82.1	84.0	92.6
HK\$	98.7	101.4	95.0	99.5	103.3	93.3	89.2	89.8

^aThe 1980-82 base year average equals 100 by definition. Numbers lower than 100 imply depreciation of the foreign currency relative to the base year average. These are the "broad" indices published by Morgan Guaranty Trust Company. Currency weights in the indices are based on trade with 18 industrial and 22 developing countries and on export competition with those countries in other markets. Source: Morgan Guaranty Trust Co., *World Financial Markets*, Dec. 30, 1988 and Oct. 19, 1987 issues.

The Morgan index is one of the more commonly used real effective exchange rate indices. However, there are others. Estimates of how much the value of a currency has changed against foreign currencies can differ among these indices because they (1) include a different number of countries in computing a trade-weighted average, (2) use different weights for each country's currency in determining the average, and (3) use different estimates of price-level changes.

Rather than measuring the absolute value of a currency, these indices measure the movements of currency values against other currencies over time. Therefore, they cannot be used by themselves to determine if a currency is undervalued. However, Korean and Taiwanese analysts defend their positions on currency undervaluation by using these indices in conjunction with the assumption that a balanced current account implies a properly valued currency. They begin by setting the index value equal to 100 in a year of current account balance; for South Korea, this period is 1985-1986 and for Taiwan, it is 1979. Then, as long as the index remains near 100, they argue that their currencies are not undervalued.

Conclusions

Countries may intervene (buy or sell currencies) in foreign exchange markets or use administrative procedures to influence their currency values. These actions are taken periodically to help correct

Interest rates in Hong Kong are established by a cartel, the Hong Kong Association of Banks (HKAB), which represents the local banking community.¹⁹ The HKAB sets interest rates in a way which reinforces the arbitrage system. The HKAB sets both maximum deposit rates as well as minimum lending rates for Hong Kong banks; this, in turn, affects capital flows and the exchange rate in the private market.

Normally, low interest rates on deposits denominated in Hong Kong dollars would encourage individuals to convert their holdings into other currencies while higher rates would have the opposite effect. In early 1988, the government completed the design of a negative interest rate scheme and threatened to implement it unless large amounts of speculative capital inflows receded. The threat itself has been sufficient to curb these inflows.

Despite the Hong Kong government's claim that arbitrage keeps the open market rate very close to the fixed rate, it has intervened in the foreign exchange market from time to time to prevent excessive deviations between the two rates. This has been particularly true during periods of speculative purchases of Hong Kong dollars in anticipation of appreciation. In these instances, the Exchange Fund orders the buying or selling of sufficient U.S. dollars to counteract speculation and return the open market rate to the pegged rate. The Exchange Fund holds large reserves of U.S. dollars which provides the basis for assured currency convertibility; however, the exact figures are not public information. These reserves are also used to intervene in the market. We were unable to document any information on the level or frequency of this intervention.

Nominal Versus Real Effective Exchange Rate Changes in the 1980s

Exchange rate changes can be measured in nominal (not corrected for price level changes) or real (corrected for price level changes) terms. This can be done against one currency or against a trade-weighted basket of currencies. Measures in real terms against a basket of currencies are referred to as real effective exchange rate indices. Between 1980 and 1985, the U.S. dollar appreciated against the Korean won and Hong Kong dollar in nominal terms by 35 percent and 53 percent, respectively. These rates were comparable to the general appreciation of the dollar

¹⁹The HKAB is made up of representatives from 12 Hong Kong banks; three banks—The Bank of China, Hongkong & Shanghai Bank, and the Standard Chartered Bank—have permanent members. The HKAB normally meets every Saturday to determine lending and deposit rates for the following week.

The Linked Exchange Rate System in Hong Kong

Hong Kong's current exchange rate regime was created out of crisis, both economic and political. In 1982, negotiations between the United Kingdom and the People's Republic of China over the future reversion of Hong Kong to Chinese control resulted in a crisis of confidence in the economy. Many attempted to shift their dollar accounts and portfolios to other currencies, and the resulting panic led to a sharp depreciation in the currency by September 1983, the last month of the crisis. At the height of the crisis, the currency depreciated to a rate of HK\$9.6 to US\$1.00. To stop the erosion in the value of the Hong Kong dollar, the Hong Kong government switched to a fixed exchange rate system in October 1983 linking the currency to the U.S. dollar at the rate of HK\$7.8 to US\$1.00 and providing for free convertibility for banks between the two currencies at that fixed rate.¹⁶

The operation of the linked exchange rate system is similar to the classical gold standard in which the local currency is freely convertible into gold at a fixed rate. Just as the size of the government's gold supply determines the money supply under the gold standard, the Hong Kong government's supply of U.S. dollars determines the supply of Hong Kong dollars under the linked exchange rate system. The system works through the interbank currency market where two note-issuing banks, acting as agents for the government, convert currency for all other banks at the official parity. The note issuing banks—the Hongkong & Shanghai Bank and the Standard Charter Bank—issue currency, not the Hong Kong government.¹⁷ Individuals exchanging currency in the local foreign exchange market, however, obtain whatever exchange rate the open market currently bears. This rate can deviate slightly from the official rate because of margins involving the bank's holding, handling, and commission costs.

¹⁶The U.S. dollar was chosen over another major trading currency or a basket system for economic and political reasons. Economically, the United States was Hong Kong's largest trading partner and the U.S. dollar was the dominant international trading currency. Politically, the U.S. dollar was a neutral currency acceptable to both British and Chinese officials. The rate itself was substantially devalued by historical standards; however, some trade economists believe that a rate more appropriate from a competitive standpoint was not chosen because it would not have been credible with the market at that time.

¹⁷These banks must pay U.S. dollars at the parity rate to the government's Exchange Fund to obtain Certificates of Indebtedness against which they are entitled to issue new banknotes; the banknotes are redeemable at the same rate. In short, the two note-issuing banks actually act as agents for the Exchange Fund, enabling all Hong Kong banks to convert currency at the official parity. The other, non-note-issuing banks must pay the note-issuing banks US\$1.00 for every HK\$7.80 in new banknotes they obtain; when redeeming banknotes, the same rate applies.

The second method of intervention—labeled by analysts in Taiwan as “dirty intervention”—has involved transactions between the two surrogate banks without any real net activity occurring. For example, the BOT might sell US\$10 million to the ICBC and then the ICBC will turn around and sell this back to the BOT. These “dummy” transactions have been carried out in sufficient volume to affect the “closing rate” and slow down New Taiwan dollar appreciation. In this way, the CBC can fix the day’s interbank rate without directly intervening in the market. For example, officials at the FETC and the American Institute in Taiwan (AIT) said that this method of intervention was prevalent during the last quarter of 1987 and early 1988.¹⁰

The CBC—through its own market monitoring and computations—knows the volume of purchases needed each day to produce the “desirable” exchange rate. The CBC usually had these purchases made on its behalf either at the beginning of the foreign exchange market business day or just before the market closed. However, according to FETC officials, sometimes the intervention occurred after the local foreign exchange market was closed. It is clear that this action was on behalf of the CBC as a “correction” transaction to produce the exchange rate derived by government policy decision.

The CBC also intervened in the forward market during most of 1986 and the first 7 months of 1987 by buying forward contracts.¹¹ This intervention kept the forward exchange rate from appreciating, which helped to shield exporters from a rising New Taiwan dollar. And, by keeping the forward rate from going higher, the intervention avoided raising expectations and speculation in the spot market which would have driven the New Taiwan dollar even higher.

The implications of changes made to the foreign exchange market operations in April 1989 remain unclear at this point. It appears that movements in the daily exchange rates are not as restricted as under the

¹⁰In 1987, CBC-directed intervention accounted for two-thirds of all interbank transactions. FETC officials can determine whether transactions between the two surrogate banks are “dummy swaps” by noticing the large difference between the buying and selling rates compared to normal, ongoing interbank transactions and then verifying by phone whether any actual transactions have occurred between the two banks.

¹¹AIT estimated that half of Taiwan’s US\$50 billion in exports in 1987 were covered by this arrangement. Using an average weighted premium of 7.1 percent (i.e., the difference between the forward rate and the eventual spot rate), AIT estimated that the Taiwanese government paid out NT\$53 billion (US\$1.8 billion) worth of subsidies by the end of 1987. If interest rate differentials between Taiwan and the United States were considered in the calculation, the result could differ some from this estimate.

a 2.25-percent range above or below the “closing rate”³ of the previous transaction day (PTD). The actual calculation of each day’s closing rate is made by the Foreign Exchange Trading Center (FETC) which is organized by five government-owned banks.⁴ All interbank transactions are closed through the FETC, which acts much like a stock market by quoting buying and selling rates of exchange and electronically listing all transactions as they occur.

Recently, because of liberalizations in Taiwanese capital controls, the customer-bank foreign exchange market has grown in importance.⁵ The customer-bank foreign exchange market consists of a spot market and a forward market. In the spot market, the payment and the delivery of foreign exchange related to the transaction normally occur within a calendar week. In spot market non-cash transactions (e.g., bank drafts) below US\$30,000, a designated foreign exchange bank could set the New Taiwan (NT) dollar to U.S. dollar exchange rate at a level 5 NT cents above or below the PTD’s “closing rate”. For larger non-cash transactions, the range extended to 20 NT cents above or below the “closing rate.” For all cash transactions in the spot market, the range expanded to 40 NT cents above or below the PTD “closing rate”.⁶

In forward foreign exchange markets, individuals enter into contracts for the future exchange of currency at rates set at the time the contracts are made. Taiwanese exporters who contract for their future exports in U.S. dollars protect themselves from the risks of exchange rate fluctuations by entering into forward contracts. They are thus able to sell their future U.S. dollar proceeds at a fixed exchange rate which reflects expectations as to future exchange rates and is not limited to a specific range.

³The daily “closing rate” is a transaction-weighted average of the rates on all interbank currency exchange transactions.

⁴The Bank of Taiwan, the International Commercial Bank of China, the First Commercial Bank of Taiwan, the Chang Hwa Commercial Bank of Taiwan, and the Hwanan Commercial Bank.

⁵Prior to 1987, Taiwanese residents were not permitted to hold foreign exchange and could remit money overseas only with government permission. The government liberalized restrictions on capital inflows and outflows in July 1987, primarily to alleviate pressure on the New Taiwan dollar by imposing large ceilings on outflows and keeping relatively tight ceilings on inflows. Capital inflows from any source for individual accounts are limited to an annual amount of US\$50,000 (previously limited to US\$10,000). Capital outflows of up to US\$5 million can be taken out of the country on an annual basis by residents. In addition, export proceeds earned by exporting firms can be kept overseas indefinitely.

⁶Assuming the existing exchange rate of NT\$28.3 to US\$1.00, 40 NT cents would be approximately a 1.5-percent change.

Chapter 1
Growth in the U.S. Trade Deficit With the
Asian Newly Industrializing Countries

As requested, we did not obtain agency comments on this report. However, we discussed our work with officials at Treasury, State, Commerce, and the Office of the U.S. Trade Representative and incorporated their views in the report where appropriate. Our review was conducted between June 1987 and December 1988 in accordance with generally accepted government auditing standards.

On March 28, 1989, Taiwan announced some changes to its foreign exchange controls that became effective on April 3. The extent of the changes and their implications are unclear, and this report covers the period prior to the announced changes.

Tariffs

South Korea and Taiwan have eased import restrictions for selective import sectors in the last 2 years. Historically, the use of high tariff rates to protect domestic markets from foreign competition (especially finished goods) has been an important dimension of industrial policies in both Taiwan and South Korea. The result is that foreign products simply are not price competitive with locally produced goods and services. Although South Korea and Taiwan have lowered tariffs on many imported products, U.S. Treasury and State officials believe that the measures do not go far enough and have not been implemented in an expedient manner.

Non-Tariff Barriers

South Korea and Taiwan have also imposed a wide range of non-tariff import barriers, such as quotas, special taxes, and service fees, on imports. These barriers limit or penalize imports, making them less competitive with locally produced goods or services. Foreign banking, insurance, and business management services have been severely restricted although progress is being made toward opening these sectors. U.S. trade negotiators have argued for the elimination of these barriers, since many of the "infant" domestic industries are now firmly established.

**Sluggish Domestic
Economic Expansion**

Highly successful NIC export performance has led to high gross national product (GNP) growth levels, but this has been achieved at the expense of domestic consumption and improved living standards. For example, public and private consumption and investment as a percentage of GNP in Taiwan have declined in the 1980s. High savings rates in both Taiwan and South Korea (over 30 percent since 1986) compared to much lower investment rates have produced macroeconomic imbalances that have contributed to growing current account surpluses. U.S. officials argue that reforms designed to strengthen domestic demand for goods, services, and investments could provide the economic stimulus to offset the effects of lost exports resulting from appreciating NIC currencies.

**Objectives, Scope, and
Methodology**

Senator Lloyd Bentsen, Chairman of the Senate Committee on Finance, requested that we examine how currency exchange rates are determined in Taiwan, South Korea, and Hong Kong. We assessed whether these exchange rates were determined by market forces and evaluated how potential currency appreciations in these economies would affect U.S. trade balances with each and the overall U.S. trade deficit.

have produced a “triangular” trading relationship among the United States, Japan, and the Asian NICs.

Some trade analysts have also concluded that the Asian NICs have kept their currencies at artificially low levels in order to maintain their competitiveness and rapid, export-led economic growth.¹⁰ In addition, the U.S. government has repeatedly complained about high tariffs and non-tariff trade barriers which restrict U.S. exports to Taiwan and South Korea. This lack of market access has exacerbated the trade imbalance between the United States and some of the Asian NICs.¹¹

U.S. Concerns About Asian NIC Exchange Rate Policies

U.S.-Asian NIC trading problems stem from a wide range of trade and economic policies; nevertheless, NIC exchange rates remain a major area of contention. The central issue for the United States, particularly in Taiwan and South Korea, has been insufficient appreciation of these currencies against the U.S. dollar since late 1985.

Through government administrative practices or substantial foreign exchange market intervention, Taiwan and South Korea have kept their own currencies from appreciating at faster rates. The U.S. Treasury Department believes this undervaluation leads to an unfair pricing advantage for their exports in the world market, since the currency values do not reflect the underlying strength of their economies. Officials of these countries, however, argue that their exchange rate levels and rates of currency appreciation against the dollar since 1985 reflect economic fundamentals. They believe that government intervention or policy is being used to smooth out excessive fluctuations that could severely disrupt their economies.

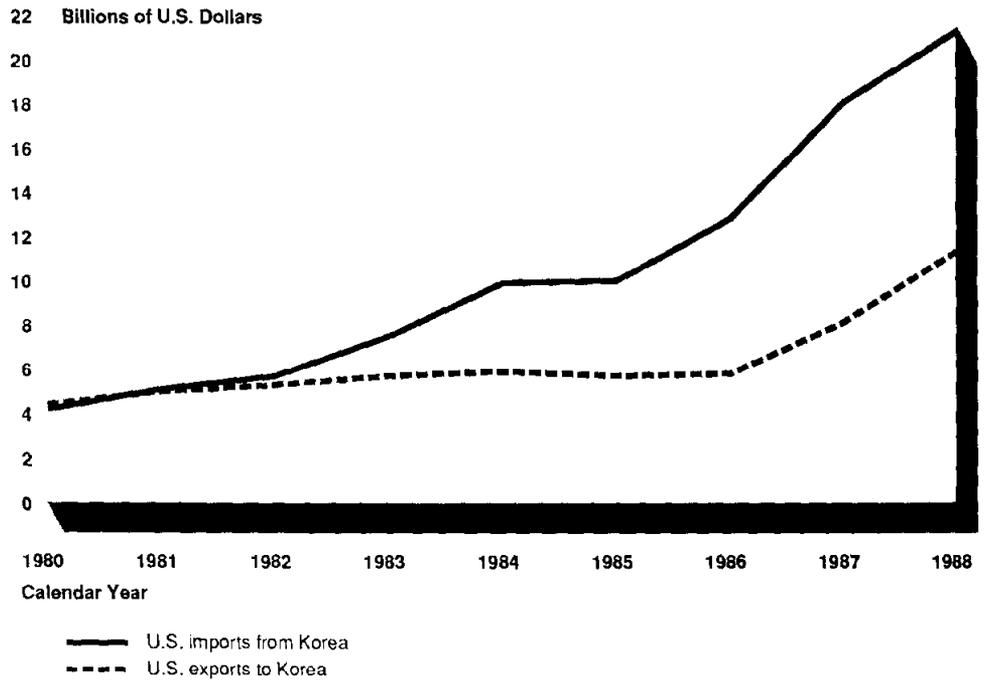
It is not clear how effective NIC currency appreciations by themselves would be in reducing the overall U.S. trade deficit. The 41-percent increase in the value of the New Taiwan dollar since 1985 has contributed to some recent reduction in the U.S. trade deficit with Taiwan; this improvement has been primarily caused by increased U.S. exports

¹⁰Bela Balassa and John Williamson, Adjusting to Success: Balance of Payments Policy in the East Asian NICs, Institute for International Economics, June 1987; Sung Yeung Kwack, “The Economic Development of the Republic of Korea, 1965-1981,” in Lawrence Lau, ed., Models of Development: A Comparative Study of Economic Growth in South Korea and Taiwan, Institute for Contemporary Studies, 1986; Kuo-shu Liang and Ching-ing Hou Liang, “Taiwan in the 1980s: Policies and Prospects,” Feb. 1988; S.C. Tsiang, “The R.O.C.’s Balance of Trade Problems and Trade Disputes with the U.S.,” Chung-Hua Institute for Economic Research, May 1987.

¹¹This does not apply to Hong Kong; it has one of the most open economies in the world.

Chapter 1
Growth in the U.S. Trade Deficit With the
Asian Newly Industrializing Countries

Figure 1.5: U.S. Trade With South Korea,
1980-88



Source: U.S. Department of Commerce data.

Import figures include the cost of insurance and freight.

Hong Kong has had a small, stable current account surplus since 1983 and an overall small trade deficit in the past few years. Even though Hong Kong has a trade surplus with the United States, it is fully offset by deficits with other countries, particularly Japan.

Factors Contributing to U.S.-Asian NIC Trade Imbalances

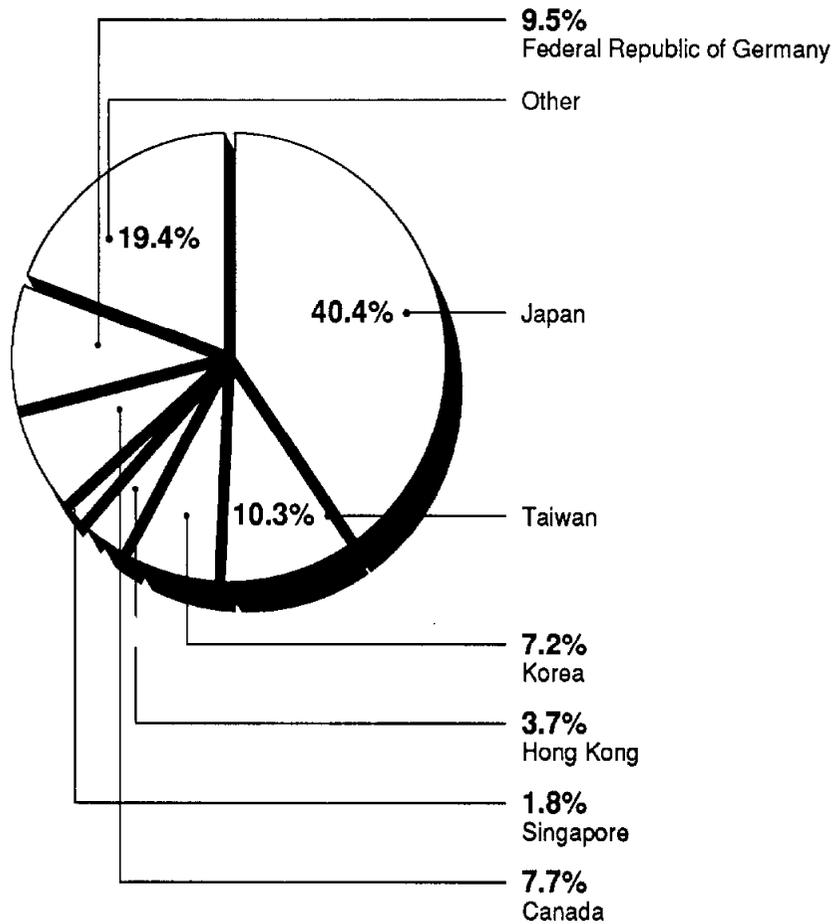
Increases in U.S. imports have been the primary cause of sharp increases in U.S. bilateral trade deficits with Taiwan, South Korea, and Hong Kong. U.S. imports from these countries rose from \$15.8 billion in 1980 to \$58.3 billion in 1988, a 269-percent increase. Taken together, the imports accounted for 6 percent of total U.S. imports in 1980, rising to nearly 13 percent in 1987 and 1988.⁷

Between 1980 and 1988, U.S. exports to these three NICs increased from \$11 billion to \$29 billion, or 164 percent, with the most significant increases occurring in 1988. Leading U.S. exports to the Asian NICs include (1) non-electrical and electrical machinery, (2) chemicals and related products, and (3) agricultural products. In 1980, U.S. exports to these three countries were 5 percent of total U.S. exports, rising slightly to 7.7 percent in 1987 and further to 9.0 percent in 1988.⁸ Figures 1.4, 1.5, and 1.6 graphically display how U.S. imports from the NICs have grown faster than U.S. exports to them.

⁷The leading import items from the three NICs include (1) electrical machinery and products, (2) clothing apparel and textiles, (3) footwear, and (4) toys, games, and sporting equipment.

⁸Comparing 1988 with 1987, the U.S. bilateral trade deficits declined by 21 percent with Hong Kong and 26 percent with Taiwan; it increased by less than 1 percent with South Korea. Part of the reduction in Taiwan's bilateral trade surplus with the United States reflects gold purchases of \$2.54 billion from the United States made by Taiwan's central bank—the Central Bank of China. If these gold imports are excluded, the actual U.S.-Taiwan bilateral trade deficit would have been \$16.8 billion instead of \$14.1 billion in 1988. U.S. officials maintain that this practice of counting gold purchases as commodity imports distorted U.S.-Taiwan bilateral trade statistics, inflating the apparent decline in Taiwanese trade surplus with the United States in 1988 by almost 50 percent.

Figure 1.2: U.S. Merchandise Trade Deficit With Leading Countries, 1988



Source: U.S. Department of Commerce. Percentages calculated using values for imports that include cost of insurance and freight. Data is not seasonally adjusted.

When trade statistics for the three NICs are grouped together, important distinctions among the three economies often become blurred. For example, although South Korea, Taiwan, and Hong Kong are collectively running substantial trade surpluses with the United States, their individual current account situations differ. (See fig. 1.3.) The current account balance measures the overall trade balance of goods and services plus the balance of income from financial transactions and transfer payments. Taiwan not only has a large bilateral trade surplus with the United States but also recorded an extremely large current account surplus of close to \$20 billion in 1987,⁵ the third largest current account surplus in

⁵80 to 90 percent of Taiwan's overall balance of payment surplus is generated from its trade surplus with the United States.

Growth in the U.S. Trade Deficit With the Asian Newly Industrializing Countries

Beginning in 1980, the U.S. trade deficit began increasing annually, with sharp increases occurring after 1982.¹ The trade deficit reached an unprecedented \$170 billion in 1987, but declined by 20 percent to \$137 billion in 1988.² Macroeconomic imbalances, such as the U.S. budget deficit, are recognized as the primary causes of the overall U.S. trade deficit.³ While bilateral trade balances are not the goal of trade policy, the U.S. government has paid special attention to the economic and trade policies of those countries whose bilateral trade surpluses with the United States have increased rapidly.

Recent Trends in U.S. Trade With the Asian NICs

As a group, three of the newly industrializing countries (NICs) of the Asian Pacific Rim—Taiwan, South Korea, and Hong Kong—have run trade surpluses with the United States throughout the 1980s, growing from \$4.9 billion in 1980 to \$35.4 billion in 1987.⁴ (See fig. 1.1.)

¹The term “trade deficit” as used in this report refers to the merchandise trade deficit (i.e., the difference between the import and exports of physical goods, such as manufactured products).

²This figure uses the customs value of imported goods plus freight and insurance costs; if only the customs value is used, the trade deficit figure is \$152.1 billion for 1987 and \$118.7 billion for 1988.

³For related discussion, see *The U.S. Trade Deficit: Causes and Policy Options for Solutions* (GAO/NSIAD-87-135, Apr. 1987).

⁴The U.S. government formally recognizes the government of South Korea and maintains contacts with the governments of Taiwan and Hong Kong. In this report, the term NIC is used to mean these three economies. Singapore—a fourth Asian NIC commonly cited for its economic success—was not included in our analysis because until 1987 its trade surpluses with the United States were less than \$1 billion.

Contents

Executive Summary		2
<hr/>		
Chapter 1		8
Growth in the U.S. Trade Deficit With the Asian Newly Industrializing Countries		8
	Recent Trends in U.S. Trade With the Asian NICs	8
	Factors Contributing to U.S.-Asian NIC Trade Imbalances	12
	U.S. Concerns About Asian NIC Exchange Rate Policies	16
	Other U.S./Asian NIC Trade Issues	17
	Objectives, Scope, and Methodology	18
<hr/>		
Chapter 2		21
Exchange Rate Regimes and Rate Movements in the Asian NICs		21
	Managed Floating Exchange Rate System in Taiwan	21
	Administratively Set Exchange Rate System in South Korea	25
	The Linked Exchange Rate System in Hong Kong	26
	Nominal Versus Real Effective Exchange Rate Changes in the 1980s	28
	Conclusions	30
<hr/>		
Chapter 3		32
U.S. and NIC Positions on Exchange Rate Movements		32
	Treasury's Response Under the 1988 Omnibus Trade Act	32
	Asian NIC Positions on Currency Appreciation	33
	Conclusions	39
<hr/>		
Chapter 4		42
Estimating Economic and Trade Impacts of NIC Currency Appreciations		42
	Impact on Overall U.S. Trade Deficit	42
	Estimated Currency Appreciation Effects on Individual NIC Economies	43
	Comparison With Other Studies	46
	Conclusions	47
<hr/>		
Appendixes		
	Appendix I: Technical Notes on the GAO/DRI Simulation	50
	Appendix II: Recent Changes in Taiwan's Exchange Rate System	52
	Appendix III: Major Contributors to This Report	55
<hr/>		
Tables		
	Table 2.1: Changes in NIC Currency Values	29

Japan because of trade barriers and the quality concerns of Japanese consumers. This has increased the importance of the large, relatively open U.S. market to exporters in these three countries.

U.S. trade deficits with South Korea and Taiwan also are exacerbated by systemic differences between their economies and that of the United States. Both South Korea and Taiwan have export-driven economies, high saving rates, and domestic markets largely protected from foreign competition by tariffs and non-tariff barriers. In contrast, the United States has a domestic demand-driven economy, a low saving rate, and a relatively open market. These differences have shifted the balance of trade heavily toward South Korea and Taiwan.

Exchange Rate Intervention

Exchange rate systems of these three Asian newly industrializing economies fall into two categories—fixed (Hong Kong) and managed floats (Taiwan and Korea). Within these two systems, the governments exercise different degrees of intervention to counter market forces, with Hong Kong exercising the least control and South Korea the most.

The Hong Kong dollar is freely convertible with the U.S. dollar at a fixed rate. Hong Kong lets its economy adjust to changes in its trade balance through fluctuations in its money supply and inflation rate rather than by changing the value of its currency. In this system, a trade surplus leads to an increase in the local money supply and inflation. The resulting higher prices make Hong Kong exports less competitive and should lead to a correction of the trade imbalance. Even with the fixed exchange rate system, the Hong Kong government has intervened periodically in the foreign exchange market. During 1987-88, it bought U.S. dollars largely to counter an inflow of speculative funds attracted by the anticipation of an appreciation in the currency.

Taiwan's central bank has intervened in the foreign exchange markets on a near daily basis. In some cases, the intervention smoothed out excessive fluctuations in the value of the currency compared to the prior day's closing rate. In other instances, however, the intervention in effect set the daily closing exchange rate and thus prevented appreciation that would have otherwise occurred.

The exchange rate for the South Korean won is not allowed to fluctuate freely on foreign exchange markets. South Korea's central bank sets the value relative to other currencies on a daily basis. This system, combined with government control of interest rates, tight restrictions on

Executive Summary

Purpose

Senator Lloyd Bentsen, Chairman of the Senate Finance Committee, requested that GAO examine how currency exchange rates are determined in Taiwan, South Korea, and Hong Kong. GAO assessed whether these exchange rates were determined by market forces and evaluated how potential currency appreciations in these economies would affect U.S. trade balances with each and the overall U.S. trade deficit.

Background

The Asian newly industrializing countries have run growing trade surpluses with the United States in the 1980s. U.S. trade deficits with Taiwan, South Korea, and Hong Kong represented more than one-fifth of the total U.S. trade deficit in 1987 and 1988. While correction of macroeconomic imbalances is necessary to deal with the overall U.S. trade deficit, the U.S. government considers currency appreciation by these three Asian economies—coupled with reductions in trade barriers in South Korea and Taiwan—an important step toward reducing trade imbalances.

Since 1985, the New Taiwan dollar and Korean won have appreciated relative to the U.S. dollar. However, the U.S. government maintains that these currencies are still undervalued because of central bank intervention, capital market controls, and administrative practices used by the Taiwanese and South Korean governments to achieve a competitive advantage.

The Hong Kong dollar has remained directly pegged to the U.S. dollar at the same rate since 1983. Although Hong Kong's overall trade account is roughly in balance, the United States is concerned about its continued trade deficit with the colony.

In exchange rate negotiations, U.S. Treasury officials have pressured Korea and Taiwan to revalue their currencies in line with market forces and the underlying strength of their economies. Treasury also believes that an appreciation of the Hong Kong dollar would help to reduce Hong Kong's trade imbalance with the United States.

Officials in Taiwan and South Korea have argued for smaller and slower appreciations of their currencies against the U.S. dollar. They believe that their trade surpluses with the United States will decline as measures to liberalize their import barriers are implemented and the lagged effects of actual currency appreciations are realized. Hong Kong officials believe no change in their exchange rate is necessary because of their open economy, existing adjustment mechanisms, and overall trade

