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THE YEN AND ITS EAST ASIAN NEIGHBORS, 1980-95: COOPERATION OR COMPETITION?

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ABSTRACT

By looking at how an East Asian currency moves when the yen fluctuates sharply against the US dollar, we sometimes find that the reaction has been much more significant than would be suggested by the econometric estimates of the weight of the yen in nominal exchange rate determination. Moreover, the Korean won and the Malaysian ringgit have tended to move more closely with a depreciating yen, suggesting the countries' emphasis on export promotion. The Singapore dollar, on the other hand, has tended to move more closely with an appreciating yen, underscoring the importance attached to price stability. The paper concludes that, given the trend appreciation of the yen during the recent past, emphasis on price stability has contributed more to monetary cooperation in Asia than emphasis on export promotion.

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I. Introduction

There has recently been a marked increase in real economic integration among the Asian countries. For example, the share of intra-regional trade in the total exports of Asia (which excludes Japan) rose from 30.9 percent in 1986 to 45.7 percent in 1994, while the share of exports to the United States (US) declined from 34.0 to 24.5 percent during the same period (Kwan 1995). In the rapidly industrializing economies of Asia, the share of Japan is now considerably larger than that of the US in imports, although not in exports (Table 1). Japan is at least equal in importance to the US as a trading partner of most Asian countries.

Despite the increasing pace of intra-regional integration, the declining share of the US in international trade, and the significant status of Japan as a trading partner, the exchange rate policies of most East Asian countries remain that of limiting fluctuations in the nominal values of their currencies relative to the US dollar in one form or another. Most empirical studies as well as casual observation seem to suggest that the US dollar remains strong, and the Japanese yen remains marginal, as the anchor of the exchange rate policies in the region.

Against this background, the paper will examine the role of the Japanese yen in the exchange rate policies of selected Asian countries,[1] namely, Korea, Singapore, Malaysia, Indonesia, the Philippines and Thailand. This is not a new topic. The well-cited study of Frankel and Wei (1994), for example, has examined this very issue by econometrically estimating the implicit weights of the US dollar and the Japanese yen in the determination of the nominal values of major Asian currencies. The present study is meant

to complement the empirical findings obtained from the econometric approach by taking the alternative approach of observing the currency movements when the Japanese yen fluctuates sharply in one direction against the US dollar.

To be sure, the monetary authorities of Asian countries must assign different weights to variables which may enter the objective functions of their exchange rate policies, such as price stability, stability of nominal effective exchange rate indices, stability of real effective exchange rate indices, encouragement or discouragement of capital flows, accumulation of foreign exchange reserves, or export promotion. Then, the role of the yen in the exchange rate policy of a given country cannot be independent of the domestic and international environments within which the authorities are forced to operate. In this context, it is important to bear in mind that, during the past 15 years or so, the yen significantly appreciated against the US dollar in both nominal and real terms (Table 2). Under this environment, the decision to minimize its fluctuations against the yen would have meant that the authorities must accept some appreciation of their currency against the US dollar and the other Asian currencies.

If a large weight is given to export promotion in the objective function of the authorities, they may have been reluctant to tie their currency too closely with the appreciating yen, to the extent that nominal currency appreciation may work to reduce the growth of exports in the short run. Then, ex post, the currency in question must have moved closely with the US dollar and depreciated against the yen, such that its relationship with the yen may be characterized as "competitive" in that, relative to the yen, exchange rate stability was willingly sacrificed in favor of depreciation to preserve competitiveness.

On the other hand, if a large weight is given to price stability, the authorities may have been less willing to tolerate accepting nominal depreciation and hence higher domestic inflation, by tying the currency too closely to the US dollar. This may be a particularly pertinent consideration, given the significant share of Japanese goods in total imports. In this case, ex post, the currency in question must have moved with the yen and appreciated against the US dollar to a greater extent, and its relationship with the yen may be regarded as "cooperative", in that such behavior has tended to contribute to monetary cooperation in Asia by promoting greater exchange rate stability in the environment of secular yen appreciation.

Occasionally, however, the yen did depreciate against the US dollar on a sustained basis. On such occasions, the considerations of export promotion and price stability would have created exactly the opposite kind of reaction to the yen's fluctuation on the part of the monetary authorities. With greater emphasis on export promotion, the authorities would have been more willing to allow the currency concerned to depreciate along with the yen against the US dollar. With more emphasis on price stability, they would have been more unwilling to allow the currency to depreciate along with the yen. Thus, in the case of yen depreciation, export promotion would have encouraged greater exchange rate stability within Asia. However, throughout this paper, emphasis on price stability is regarded as "cooperative" behavior because, for the period taken as a whole, it has contributed more to promoting exchange rate stability within Asia.

The rest of the paper is organized as follows. Section II reviews the exchange rate arrangements of the six Asian countries, with some comments on the nominal and real exchange rate movements. Section III summarizes the

econometric estimates of the implicit weights of the US dollar and the Japanese yen in the determination of the nominal values of the currencies of the six Asian countries, as reported by Frankel and Wei (1994) and the more recent study of Kwan (1995). Section IV provides an additional insight into the relative weights of the US dollar and the Japanese yen in the determination of the values of the six Asian currencies by looking at how they move when the yen fluctuates sharply against the dollar. Sections V and VI take a look at the daily movements of the six Asian currencies during the periods of sharp yen appreciation or depreciation in the late 1980s and in 1995, respectively, in order to assess the response of the monetary authorities when the yen fluctuates sharply against the US dollar. Section VII presents concluding remarks.

II. An Overview of the Exchange Rate Arrangements and Movements of Selected Asian Countries

At the outset, it may be useful to review briefly the exchange rate arrangements of the six individual countries. According to official statements (IMF 1994), Korea, Singapore, Malaysia and Indonesia are classified as maintaining "other managed floating", while Thailand maintains a peg to a currency composite, or a currency basket. Of the six countries, only the Philippines is classified as maintaining a floating exchange rate system. In practice, however, Indonesia and the Philippines are similar in that the rupiah and the peso are both managed tightly in terms of their US dollar exchange rates over a short time horizon, while they have shown significant trend depreciation over a longer horizon (Table 2); their exchange rate system may more appropriately be classified as a crawling peg to the dollar.

Consistent with the crawling peg arrangement, both the Indonesian rupiah and the Philippine peso depreciated significantly against the US dollar in nominal terms over the period from 1980 to 1995: the rupiah depreciated from 627 to 2249 units per US dollar, and the peso moved from 7.51 to 25.71 units per US dollar, both on an annual average basis. In contrast, the other currencies showed relative stability against the US dollar over this period. The Korean won first depreciated from 607.43 to 881.45 units per US dollar between 1980 and 1986, but then appreciated to 671.46 units per US dollar in 1989. The Singapore dollar showed a fairly steady appreciation against the US dollar, rising from 2.14 to 1.42 units per US dollar between 1980 and 1995. The Malaysian ringgit and the Thai baht depreciated at a modest pace against the US dollar, with the ringgit falling from 2.18 to 2.50 units per US dollar and the baht from 20.48 to 24.80 units per US dollar over the period.

In real bilateral terms (on a wholesale price basis), the Korean won, the Singapore dollar, the Malaysian ringgit and the Indonesian rupiah generally depreciated against both the US dollar and the Japanese yen over the period, although they became much more stable during the latter part of the period (Table 2). The Philippine peso, in contrast, appreciated in real terms against the US dollar, although it depreciated against the Japanese yen over the period. Reflecting the higher rate of inflation, it even appreciated against the Japanese yen from 1988 to 1990 despite the significant nominal depreciation. Finally, the Thai baht appreciated against both the US dollar and the Japanese yen over the period.

(1) Korea

From February 1980 to March 1990, the won was officially linked to a basket of currencies, although it was effectively pegged to the US dollar.

On March 2, 1990, however, the Korean authorities adopted the so-called market average rate (MAR) system, by which the dollar exchange rate is in principle determined by supply and demand conditions in the market, subject to a type of daily price limit. The Bank of Korea sets the won/dollar rate on the basis of a weighted average of interbank rates for spot transactions of the previous day. On each business day, the won/dollar exchange rate in the interbank market is allowed to fluctuate within fixed margins (currently, one percent on either side) against the MAR of the previous day.

The real exchange rates of the Korean won against the US dollar and the Japanese yen closely followed the nominal exchange rates because the rate of inflation only slightly exceeded those in the US and Japan. Over the period 1980-95, the Korean won depreciated against both the US dollar and the Japanese yen, naturally with the extent of depreciation against the yen being much more significant. From 1990 to 1994, although the won remained relatively stable against the dollar, it depreciated by as much as 34 percent against the yen. From 1994 to 1995, however, it marginally appreciated against the yen.

(2) Singapore

The Monetary Authority of Singapore (MAS) "monitors the external value of the Singapore dollar against a trade-weighted basket of currencies, with the objective of promoting noninflationary sustainable economic growth" (IMF 1994). In Singapore, the central bank functions are performed by the Board of Commissioners of Currency (Currency Board) and the MAS. The Currency Board issues and redeems currency notes and coins, as demanded and backed by foreign assets. The MAS intervenes in the foreign exchange market whenever the exchange rate is out of line with the undisclosed target, which may well be changed from time to time. Given the openness and the small size of the

economy, price stability is paramount as an objective of exchange rate policy (Toh 1996).[2]

In real terms, the Singapore dollar depreciated against both the US dollar and the Japanese yen over the entire period of 1980-95. From 1986 to 1990, however, the Singapore dollar appreciated against both currencies. From 1990 to 1994, it depreciated against the yen by almost 30 percent, while it remained stable against the US dollar; from 1994 to 1995, it marginally appreciated against the yen. Judging from the behavior of the real exchange rate, it appears that, from about 1986, price stability became a particularly important objective of Singapore's exchange rate policy.

(3) Malaysia

From September 1975, the value of the ringgit has been determined by supply and demand conditions in the foreign exchange market by Bank Nagara Malaysia with a reference to the value determined by a basket of the currencies of the country's major trading partners. According to the IMF (1994), the central bank is said to intervene "only to maintain orderly market conditions and to avoid excessive fluctuations in the value of the ringgit".

In real terms, the ringgit depreciated against both the US dollar and the Japanese yen over the entire sample period. The depreciation was particularly substantial against the yen. From 1990, however, the ringgit began to appreciate moderately against the US dollar, in line with its nominal appreciation. However, it continued to depreciate against the yen until 1994, when it began to appreciate somewhat.

(4) Indonesia

With the devaluation of the rupiah in November 1978, the link with the US dollar was discontinued, and the middle rate of the rupiah began to be

determined by the value of a basket of currencies and other considerations, subject to periodic devaluations. Following the 45-percent devaluation of September 1986, however, Bank Indonesia launched the exchange rate policy of maintaining the real effective exchange rate at a stable level in order to maintain Indonesia's competitiveness in the light of higher domestic inflation relative to its major trading partners (Goelton 1996). From 1986 to 1994, the rupiah thus depreciated at a rate of roughly 5 percent against the US dollar per year in nominal terms.

Bank Indonesia continues to set the middle or reference rate of the rupiah in terms of the US dollar by taking into account the behavior of a basket of currencies of Indonesia's major trading partners. In September 1994, however, Bank Indonesia ceased to announce the middle rate and at the same time began to widen the intervention band around the middle rate in order to increase the risk of speculation in the rupiah. Currently, the intervention bank is approximately 3 percent on either side of the now undisclosed reference rate against the US dollar.

Although the Indonesian rupiah depreciated against both the US dollar and the Japanese yen over the entire period in real terms, it remained much more stable after 1986 in line with the stated objective of the exchange rate policy. In fact, it appreciated in real terms against the US dollar by about 20 percent from 1990 to 1995, while it depreciated against the yen by about 13 percent, indicating that the Indonesian authorities are concerned about the stability of the real effective exchange rate of the rupiah, in which the yen must have significant weight.

(5) Philippines

Prior to October 1984, the Central Bank had intervened to keep the peso/dollar exchange rate within a certain target range. Since then, the

value of the peso has in principle been determined freely in the foreign exchange market, though it is apparent that the central bank controls short-run fluctuations in the exchange rate. With the major liberalization of the foreign exchange market in 1992, there is presumably a greater role of market forces in the determination of the exchange rate.

Reflecting the much higher and variable rate of inflation in the Philippines as well as the frequency of changes in the target dollar exchange rate, the real exchange rate of the Philippine peso fluctuated greatly against the US dollar and the Japanese yen. From 1990 to 1995, the peso depreciated against the yen by over 14 percent, while it appreciated against the US dollar by nearly 18 percent in real terms. It is possible that, to the extent that the Philippine authorities have allowed the peso to appreciate substantially against the US dollar in real terms, they are paying some attention to the real effective exchange rate, in which the yen has significant weight.

(6) Thailand

The Thai baht was de facto pegged to the US dollar from 1981 to November 1984, when it was devalued by 14.7 percent. The baht was subsequently pegged to a weighted basket of currencies of Thailand's major trading partners. The basket is not disclosed, nor is the frequency with which the basket is changed. It is believed, however, that the weight of the US dollar was raised from about 50 percent to over 80 percent when the US dollar began to depreciate sharply against major currencies from late 1985 (Leeahtam 1991).

In the morning of every business day, the Bank of Thailand announces the central rates of major currencies against the baht. For the US dollar, the buying and selling rates are two satang below and above the central

rate. In a recent meeting of the Exchange Equalization Fund, however, the Governor of the Bank of Thailand is reported to have announced the possibility of widening the band from current two satang to four satang on either side of the central rate, in order to discourage short-term speculative capital inflows by increasing the cost of investing in the baht (Phatra Research Institute 1996).

In real terms, the Thai baht remained fairly stable against the US dollar from 1980 to 1985, but it began to appreciate sharply from 1985, when the yen began to appreciate against the US dollar. In contrast, while the baht appreciated against the yen during the earlier period in real terms (reflective of the fact that it was pegged to the appreciating dollar), it remained fairly stable against the yen in real terms from 1986 to 1995. As a result, from 1990 to 1995, the baht appreciated against the US dollar by nearly 30 percent.

III. The Implicit Weights of the US Dollar and the Japanese Yen: A Review of Frankel and Wei (1994) and Kwan (1995)

The well-cited study of Frankel and Wei (1994) was the first to estimate econometrically the implicit weights of the US dollar and the Japanese yen in the determination of the nominal values of major Asian currencies during the period of 1979-92. This study was replicated by Kwan (1995) on the basis of more recent data. Their major findings are summarized in Table 3, which seem to show that dominant weight is given to the US dollar in the determination of all of the six Asian currencies.[3]

According to Frankel and Wei (1994), however, the weight of the yen, although small, was significant in the Singapore dollar and became larger in the Malaysian ringgit and the Thai baht during the latest subperiod of 1991-

92 (not reported in the table). The recently increased weight of the yen is reported by Kwan (1995) for the Korean won, the Singapore dollar, the Malaysian ringgit and the Thai baht.

(1) Korea

According to the estimates of Frankel and Wei (1994) based on weekly data for the period of January 1979-May 1992, the share of the US dollar in the determination of the Korean won was 0.96 while the share of the Japanese yen was practically zero. In fact, they show that the Korean won remained linked more or less to the US dollar even after the introduction of the MAR system in March 1990. This finding is confirmed for the later period of January 1991-May 1995 by Kwan (1995) on the basis of monthly data. However, Kwan reports that, for the most recent subperiod of January-August 1995, the weight of the dollar declined to 0.8374, while that of the yen increased to 0.1737.

(2) Singapore

According to Frankel and Wei (1994), the Singapore dollar was the only Asian currency that consistently assigned weight to the yen throughout the entire period of 1979-92. The weight of the dollar was 0.75, while that of the yen was 0.13, when the weights were calculated for the entire sample. They also show that the weight of the yen doubled in the 1980s from around 5 percent to 10 percent, or from 10 percent to 20 percent, depending on the method of estimation (not reported in the table). For the most recent period, Kwan (1995) reports that the weight of the US dollar was 0.7459, while that of the yen was 0.1835.

(3) Malaysia

According to Frankel and Wei (1994), the weight of the yen in the Malaysian ringgit was extremely small in the early 1980s, and even

disappeared during the rest of the 1980s, but increased to about 14 percent in the early 1990s (not reported in the table). For the entire period, the weight of the yen was 0.07, while that of the dollar was 0.78. For the later subperiod of January 1991-May 1995, however, Kwan (1995) assigns virtually zero weight to the yen (0.0431), while greater weight is given to the US dollar (0.8411). For the most recent subperiod of January-August 1995, the yen's weight rose to 0.1561, while the share of the US dollar was 0.8728.

(4) Indonesia

Frankel and Wei (1994) report that, although the Indonesian rupiah remained tightly pegged to the US dollar until 1982, the dollar peg became looser in 1983. In 1985, the yen received significant weight, so much so that the weight exceeded that of the US dollar for the period 1985-86 (not reported in the table). Subsequently, however, the weight of the yen declined, disappearing altogether during the latest subperiod of 1991-92 (not reported in the table). For the entire sample period, the weights of the US dollar and the Japanese yen were estimated to be 0.95 and 0.16, respectively. The insignificant weight of the yen in more recent years is confirmed by Kwan (1995) for the subperiod of January 1991-May 1995 as well as for the subperiod of January-August 1995.

(5) Philippines

Although the peso depreciated significantly against the US dollar throughout the period in nominal terms, the estimated weight of the US dollar (about unity) indicates that the peso was closely linked to the US dollar. This suggests that, although the peso was devalued from time to time, its fluctuations against the US dollar were strictly managed over shorter intervals.

(6) Thailand

Until 1984, the Thai baht was de facto linked to the US dollar, so that the yen received no weight prior to that year. When the baht was delinked from the dollar, however, the yen began to receive some weight which, according to Frankel and Wei (1994), was in the neighborhood of 10 percent during 1985-86 when the nominal value of the US dollar was at its peak (not reported in the table). The weight of the yen became smaller during 1987-90, but rose again to 12 percent during the latest subperiod of 1991-92 (not reported in the table). For the entire sample, the weights of the US dollar and the Japanese yen were 0.91 and 0.05, respectively. For the more recent subperiod of January 1991-May 1995, Kwan (1995) reports 0.8202 and 0.1051 as the weights of the US dollar and the yen, respectively.

IV. Movements of Asian Currencies When the Yen Fluctuates Sharply against the US Dollar

While econometric estimation of the implicit weights of the US dollar and the Japanese yen is useful in revealing the relative covariances of the currency in question with the US dollar and the Japanese yen during a particular sample period, it can yield misleading interpretations unless proper caution is exercised. Most importantly, it must be borne in mind that the econometric approach stresses the covariances between the currency in question and the currencies included in the currency basket without much regard to the magnitude of the underlying changes in currency values. This point is important even if the currency in question is strictly pegged to a currency basket (i.e., Thailand) and the composition of the basket remains unchanged, as long as a fluctuation margin is provided around the central rate (Takagi 1988). Naturally, the problem becomes greater in the case of a

managed float of more discretionary nature (i.e., Korea, Singapore and Malaysia).

To understand this point, assume, for example, that the authorities of a country care deeply about the nominal stability of the currency against the Japanese yen and hence assigns a weight of 10 percent to the yen in the currency basket. If the yen is relatively stable against the US dollar, however, stability against the yen can be secured by simply pegging the currency to the US dollar, presumably the intervention currency, as long as the market rate remains within the prescribed margins around the theoretical rate. Then, the estimated weight of the yen may turn out to be zero.

On the other hand, if the yen sharply fluctuates against the US dollar in one direction, the policy of pegging the currency to the dollar will result in a sharp movement of the currency against the Japanese yen and may lead to a situation where the market rate goes out of the prescribed margins unless the market rate is changed in line with the weight of the yen in the country's exchange rate policy. The authorities will likely change the dollar rate so as to offset part of the fluctuations of the currency against the yen. In this case, the estimated weight of the yen may approach the theoretical value of 10 percent, or even higher if the maximum margin on both sides is utilized.

Thus, in order to assess the role of the Japanese yen in the exchange rate policies of the Asian countries, it is important not only to look at the econometric estimates of the weights of the dollar and the yen over some sample period but also to examine how the currencies move vis-a-vis the dollar and the yen, when the yen fluctuates sharply in one direction against the US dollar. For this purpose, we will next consider 12 episodes of large yen appreciation or depreciation (of at least 5 percent) against the US

dollar. There were 8 episodes of yen appreciation and 4 episodes of yen depreciation. Table 4 shows how much the Japanese yen and the other Asian currencies appreciated (when the figures are positive) or depreciated (when negative) against the US dollar during each of these 12 episodes.

The figures in parentheses indicate the direction of change of each Asian currency as a percent of the movement of the Japanese yen, which can be roughly interpreted as the weight of the yen during that episode.[4] For example, a negative figure in a parenthesis means that the movement of the yen and the movement of the currency in question are opposite of each other relative to the US dollar; a figure of 20, for example, means that the magnitude of the movement of the currency in question is 20 percent of the movement of the yen against the US dollar.

(1) Korea

When the episodes of yen appreciation or depreciation during 1982-95 are individually examined, we find that, when the yen depreciated, the won always depreciated against the US dollar three out of four times. The weight of the yen during the yen's depreciation ranged between 6 and 43 percent. On the other hand, when the yen appreciated against the US dollar, there were times when the won even depreciated against the US dollar. During the appreciation of the yen during December 1993-May 1995, however, the won also appreciated against the US dollar, with the implicit weight of the yen in the determination of the won corresponding to 20 percent.

(2) Singapore

When the currency value of the yen changed sharply against the US dollar, the weight of the yen in the determination of the Singapore dollar was consistently significant throughout the period, with the weight ranging between 10 and 55 percent. However, there were two exceptions: the

Singapore dollar appreciated against the US dollar by 4 percent during September 1989-April 1990, when the yen depreciated by 13 percent; and it remained stable against the US dollar during May 1995-September 1995, when the yen depreciated by almost 17 percent.

(3) Malaysia

In terms of individual episodes, the weight of the yen in the determination of the ringgit became consistently significant after the episode of November 1986-April 1987. The weight ranged between 8 and 32 percent.

(4) Indonesia

The yen even had a negative weight during August 1985-September 1986, meaning that the rupiah depreciated against the US dollar when the yen significantly appreciated against the US dollar. The rupiah generally depreciated against the US dollar whenever the yen depreciated against the US dollar. The weight of the yen for the most recent episode (May-September 1995) was about 10 percent, but this may simply reflect the fact that the yen depreciated against the US dollar when there was a trend depreciation of the rupiah.

(5) Philippines

Consistent with the fact that the peso depreciated against the US dollar in nominal terms during this period, the yen and the peso generally moved in the same direction only when the yen depreciated against the US dollar. The implicit weight of the yen becomes larger when the magnitude of the yen's movement against the US dollar is small. On the other hand, the implicit weight becomes small (or negative) when the yen's movement against the dollar is large, indicating that the yen plays little role in the peso's nominal exchange rate determination.

(6) Thailand

When the individual episodes are considered, it becomes clear that the weight of the yen in the determination of the baht was between 7 and 19 percent during 1985-95. The order of magnitude of these implied weights is similar to the econometrically estimated weights. Together with the fact that the weight of the yen was apparently symmetrical with respect to appreciation and depreciation, this seems to suggest that the Thai baht is pegged fairly strictly to a basket of currencies, in which the weight of the yen is stable.

V. The Daily Movements of Asian Currencies during the Periods of Sharp Yen Appreciation and Depreciation in the 1980s[5]

In the first half of the 1980s, the yen/dollar exchange rate fluctuated in the range of 200-270 yen per dollar, with the yen showing general weakening against the dollar from the middle of 1984 through the early part of 1985. Following the Plaza Agreement of September 22, 1985, however, the yen began to appreciate sharply from the pre-Plaza level of around 240 to reach the level of almost 200 yen per dollar in two months. The appreciation of the yen, from September 19 to November 25, amounted to almost 20 percent. The yen continued its trend appreciation throughout the rest of the 1980s, except for one notable period of substantial reversal from the latter part of 1988 through the first part of 1989. Somewhat more gradually than on other occasions, the yen depreciated from the high of 120.9 yen per dollar on November 24, 1988 to the low of 149.6 yen per dollar on June 15, 1989, a depreciation of almost 20 percent.

This section will take a detailed look at the daily movements of the Japanese yen and the Asian currencies against the US dollar during the

period immediately following the Plaza Agreement of 1985 (Figure 1-A and Figure 1-B) and a portion of the latter period of yen depreciation, namely, from January 3 to June 14, 1989 (Figure 2-A and Figure 2-B).

(1) Korea

During the first period when the yen was appreciating against the US dollar, the Korean won remained virtually pegged to the dollar. During the second period of sharp yen depreciation, the won moderately appreciated against the dollar. In either period, there is no evidence to suggest that the Korean authorities were paying much attention to the movement of the won against the yen.

(2) Singapore

During the first period of sharp yen appreciation, the Singaporean authorities allowed the Singapore dollar to appreciate along with the yen against the US dollar. The cumulative appreciation of the Singapore dollar over this period was almost 5 percent, as opposed to almost 20 percent for the yen. In contrast, when the yen depreciated in the early part of 1989, the Singapore dollar remained stable against the US dollar, underscoring the importance the Singaporean authorities attach to price stability.

(3) Malaysia

During the period of yen appreciation, the Malaysian authorities allowed the ringgit to appreciate moderately along with the yen against the US dollar. In contrast, during the time of yen depreciation, the ringgit initially depreciated somewhat, but subsequently appreciated marginally. On both occasions, the movement of the ringgit was similar to that of the Singapore dollar.

(4) Indonesia

On the first occasion of yen appreciation, the Indonesian rupiah remained stable against the US dollar, indicating that the rupiah was effectively pegged to the US dollar over this interval. When the yen depreciated in 1989, however, the rupiah moderately depreciated.

(5) The Philippines

On both occasions, the Philippine peso was virtually pegged to the US dollar.

(6) Thailand

When the yen appreciated, the Thai authorities allowed the baht to appreciate moderately along with the yen against the US dollar; when the yen depreciated, they depreciated the baht slightly along with the yen against the US dollar. From these two episodes, it appears that the Thai authorities strictly adhered to a basket peg and that the weight of the yen in the currency basket was reduced somewhat somewhere between 1985 and 1987 presumably in the light of the appreciating trend of the yen.

VI. The Daily Movements of Asian Currencies during the Periods of Sharp Yen Appreciation and Depreciation in 1995[6]

In 1995, the Japanese yen moved sharply against the US dollar on two occasions. On the first of these occasions, from March 1 to April 19, the yen appreciated against the US dollar by over 15 percent, rising from 96.75 to 81.08 yen per US dollar (Figure 3-A and Figure 3-B). On the second occasion, from August 1 to September 19, the yen reversed its position against the US dollar by depreciating by more than 15 percent, declining from 88.29 to 104.20 yen per US dollar (Figure 4-A and Figure 4-B). These two periods may be instructive in revealing not only the reaction of the monetary authorities but also how it might have changed since the 1980s.

(1) Korea

When the yen fluctuated sharply against the US dollar in either direction, the Korean authorities initially maintained the won/dollar exchange rate stable. It appears that a substantial adjustment of the won/dollar exchange rate takes place only after it is determined that the movement of the yen against the dollar is significant and more or less of permanent nature. It is interesting to note that when the yen sharply depreciated against the dollar from August 14 to August 17 (by as much as 5 percent in 3 days), the Korean authorities immediately reacted by depreciating the won (from 761.75 won per US dollar on August 15 to 787.65 won on August 18), indicating the greater weight they assign to a depreciating yen. It is clear that the depreciation of the Korean won in August 1995 was deliberate as the balance of foreign exchange reserves were increasing during this period.

(2) Singapore

When the yen appreciated, the Singaporean authorities allowed the Singapore dollar to appreciate moderately along with the yen against the US dollar. When the yen depreciated, however, the authorities kept the nominal value of the Singapore dollar virtually constant against the US dollar for two full business weeks before allowing the Singapore dollar to depreciate moderately in response to a further depreciation of the yen. This may reflect the importance of price stability in Singapore's exchange rate policy, hence the greater resistance to exchange rate depreciation and the greater propensity to accommodate the yen's exchange rate appreciation.

(3) Malaysia

On a daily basis, Malaysia's policy response was quite asymmetric with respect to the yen's depreciation and appreciation. When the yen

appreciated in March 1995, the nominal value of the ringgit remained extremely stable for most of the period, although it began to appreciate moderately against the US dollar during the very last part of the yen's appreciation phase. When the yen depreciated in August, however, the ringgit depreciated immediately against the US dollar so as to offset a portion of its appreciation against the yen.

(4) Indonesia

The nominal value of the Indonesian rupiah remained fairly constant against the US dollar on both occasions. In fact, it continued to depreciate against the US dollar at a moderate pace regardless of the movement of the yen against the dollar.

(5) Philippines

The behavior of the Philippine peso was similar to that of the Indonesian rupiah. Regardless of how the yen moved against the US dollar, the peso remained on a moderately depreciating trend against the dollar.

(6) Thailand

The Thai baht's movement was symmetrical with respect to the yen's appreciation and depreciation. In both cases, the baht moved so as to offset a portion of its movement against the yen, indicative of the policy of the Thai authorities to peg the baht fairly strictly to a currency basket, of which the yen is a component. Judging from the movement of foreign exchange reserves (not reported here), it is most likely that the Thai authorities sold foreign exchange in the market during the period of yen appreciation (so as to appreciate the baht), while they purchase foreign exchange during the period of yen depreciation (so as to depreciate the baht).

VII. Conclusion

By looking at how six East Asian currencies moved when the yen fluctuated sharply against the US dollar during 1980-95, we have found that the reaction was sometimes much more significant than would be suggested by the econometric estimates of the yen's weight in the determination of their nominal values. When the individual episodes of sharp yen fluctuation were examined, the "weight" of the yen often appeared larger than most of the econometric estimates taken from a longer sample period. The exceptions, however, were the Indonesian rupiah and the Philippine peso, both of which showed secular depreciation against the US dollar over the period. Clearly, the paramount objective of the Indonesian and Filipino exchange rate policies was to prevent a real appreciation of their currencies in the light of higher domestic inflation by consistently depreciating their currencies in nominal terms. In these countries, little attention was paid to the movement of the yen, although it is evident that the yen is prominently included in the real effective exchange rate indices.

Except for Thailand, which strictly adheres to a basket peg, the other countries have more recently shown asymmetric responses to the yen's depreciation and appreciation. The Korean won and the Malaysian ringgit have tended to move more closely with a depreciating yen, suggesting the emphasis placed on export promotion. In this sense, the yen is perceived in Korea and Malaysia as the currency of a competitor country in the export market.[7] On the other hand, the Singapore dollar has tended to move more closely with an appreciating yen, underscoring the importance the authorities attach to price stability in the exchange rate policy.

Emphasis on export promotion produces a more convergent movement with a depreciating yen and a more divergent movement with an appreciating yen.

Conversely, emphasis on price stability produces a more convergent movement with an appreciating yen and a more divergent movement with a depreciating yen. As things have turned out, because the yen showed sustained and significant appreciation against the US dollar for the sample period as a whole, an exchange rate policy targeted at price stability has contributed more to monetary cooperation in Asia by promoting intra-regional exchange rate stability, than a more competitive exchange rate policy targeted at export promotion.

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Footnotes

1. In discussing the role of the yen in Asia, there is also the separate question of how widely the yen is used in intra-regional transactions. The emphasis of the paper, however, is strictly on the importance of the yen in the determination of the nominal values of the East Asian currencies.

2. The term "low and stable domestic inflation" appeared as the official objective of Singapore's exchange rate policy for the first time in the 1989 issue of IMF's annual report on Exchange Arrangements and Exchange Restrictions.

3. The reported weights do not necessarily add up to unity because there may be other currencies or variables included in the estimation equations, sometimes with a negative weight.

4. Admittedly, this is a crude measure of the weight of the yen because there can be other currencies whose movements are being considered by the authorities. This measure is simply to be taken as a rough indication of how closely the currency in question moved with the yen ex post, relative to the US dollar. As another qualification, it should also be noted that this measure may underestimate the "weight" of the yen if the currency in question moves with the yen with a longer lag.

5. The daily exchange rate data were obtained from the Asian Wall Street Journal. The exchange rates for 1985 are mid rates at 5 p.m. in Hong Kong, while those for 1989 are selling rates at 3 p.m. in New York.

6. The daily exchange rate data, except for the Indonesian rupiah, were obtained from the Financial Times. The exchange rates are closing mid rates in London. The daily data for the rupiah were obtained from the Wall Street Journal. The exchange rates are selling rates at 3 p.m. in New York.

7. Although it is likely that the industrial composition of Korean exports is similar to that of Japanese exports, it is not clear to what extent Malaysian exports compete with Japanese exports. The characterization of the behavior of the Malaysian ringgit as "competitive" relative to the yen remains only tentative.

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Table 1. The Import and Export Shares of the US, Japan and the EU in Selected Asian Countries in 1994 (in percent of total)

countries	imports			exports			total trade		
	US	Japan	EU	US	Japan	EU	US	Japan	EU
Korea	21.6	25.4	13.0	21.4	14.1	10.6	21.2	19.6	11.7
Singapore	15.3	22.0	12.1	18.8	7.0	13.0	17.0	14.7	12.5
Malaysia	16.6	26.7	13.5	21.2	11.9	13.9	18.9	19.4	13.7
Indonesia	10.1	27.6	18.5	16.8	30.9	16.7	13.8	29.4	17.5
The Philippines	18.5	24.2	10.3	38.5	15.0	17.1	26.0	20.8	12.8
Thailand	11.3	30.4	14.4	23.2	18.0	15.7	16.5	25.0	15.0

(Source) IMF, Direction of Trade Statistics Yearbook, 1995.

Table 2. Nominal and Real Exchange Rates of the Japanese Yen Against the US Dollar and Selected Asian Currencies, 1980-95 (Annual Averages; 1990=100)

	United States		Korea		Singapore		Malaysia		Indonesia		Philippines		Thailand	
	nominal	real	nominal	real	nominal	real	nominal	real	nominal	real	nominal	real	nominal	real
1980	63.9	91.5	54.8	83.8	75.4	72.8	51.4	n.a.	21.7	63.0	19.7	94.2	73.3	109.6
1981	65.7	87.5	63.2	81.3	76.5	72.1	55.9	n.a.	22.5	60.2	21.3	90.1	78.3	108.4
1982	58.1	77.3	60.0	75.2	68.6	68.7	50.2	n.a.	20.9	52.5	20.4	79.5	66.4	92.8
1983	61.0	78.3	66.8	81.6	71.1	72.2	52.3	n.a.	30.1	61.8	27.9	91.4	67.1	89.8
1984	61.0	76.3	69.4	84.0	71.7	73.2	52.8	63.1	33.9	61.5	41.9	82.0	66.7	91.9
1985	60.7	75.5	74.6	88.5	73.7	76.0	55.7	67.2	36.6	62.8	46.5	76.0	64.9	88.4
1986	85.9	99.9	107.0	116.9	103.2	113.9	82.0	95.8	59.8	86.0	72.0	108.9	78.0	97.0
1987	100.1	109.3	116.3	121.9	116.3	115.0	93.2	101.1	89.3	107.4	84.7	113.0	97.7	110.4
1988	113.0	117.3	116.8	117.9	125.4	125.1	109.4	109.4	103.4	111.5	98.0	114.2	108.2	111.9
1989	105.0	106.5	99.6	101.6	112.9	112.6	105.1	103.9	100.8	104.5	93.8	101.3	103.2	104.6
1990	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
1991	107.5	107.5	111.4	106.6	102.4	107.0	109.3	105.3	113.8	106.1	121.5	107.3	103.1	96.7
1992	114.3	112.0	126.1	116.3	102.7	110.6	107.7	101.0	125.9	109.1	120.0	99.8	104.8	96.7
1993	130.2	120.9	147.7	129.2	116.1	125.7	123.9	110.3	147.5	114.9	145.3	117.6	114.2	101.8
1994	141.7	127.2	160.8	134.0	119.4	127.2	137.4	114.2	166.1	114.8	153.9	112.8	123.7	103.8
1995	153.9	132.3	167.7	132.4	120.4	127.0	142.5	111.3	187.8	112.7	162.8	114.6	134.5	103.5

Note: Bilateral real exchange rate indices are based on wholesale prices; an increase in the index means an appreciation of the yen against the currency of the country concerned.
Source: IMF, International Financial Statistics; author's estimates.

Table 3. The Implicit Weights of the US Dollar and the Japanese Yen in the Nominal Values of Selected Asian Currencies

currencies	Frankel and Wei (1994) (weekly)		Kwan (1995) (monthly)		Kwan (1995) (weekly)	
	January 1979-May 1992		January 1991-May 1995		January-August 1995	
	US dollar	Japanese yen	US dollar	Japanese yen	US dollar	Japanese yen
Korean Won	0.96	-0.01	0.9435	0.0623	0.8374	0.1737
Singapore Dollar	0.75	0.13	0.6897	0.1052	0.7459	0.1835
Malaysian Ringgit	0.78	0.07	0.8411	0.0431	0.8728	0.1561
Indonesian Rupiah	0.95	0.16	0.9896	-0.0005	0.9682	0.0102
Philippine Peso	1.07	-0.01	1.1464	-0.2359	1.0672	0.0252
Thai Baht	0.91	0.05	0.8202	0.1051	0.8593	0.0883

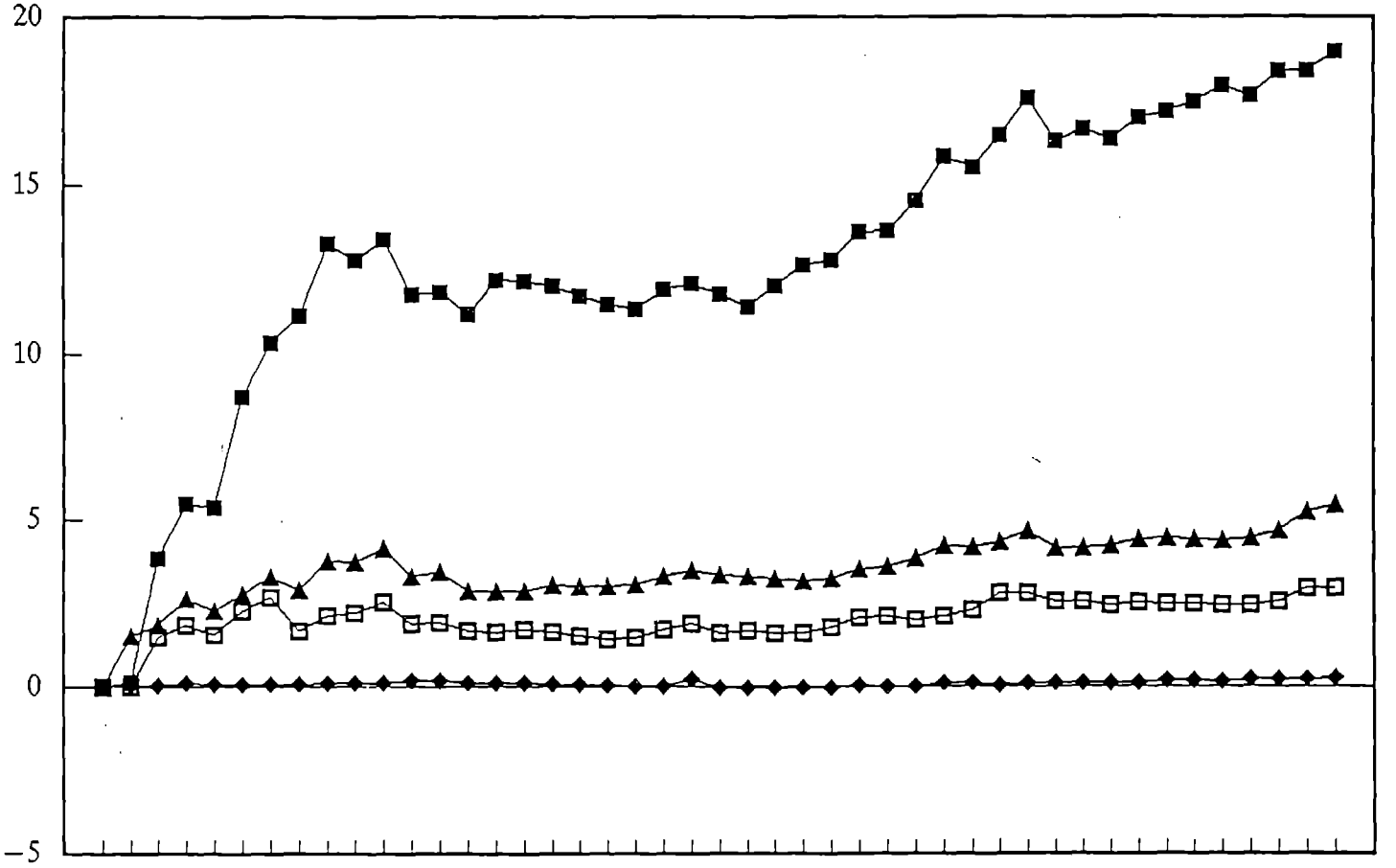
Table 4. Movements of Selected Asian Currencies Against the US Dollar during Periods of Sharp Yen/Dollar Exchange Rate Change

	Japanese yen	Korean won		Singapore dollar		Malaysian ringgit		Indonesian rupiah		Philippines peso		Thai baht	
(1) October 1982 to March 1984	21.0	-6.1	(-29)	5.7	(27)	2.7	(13)	-38.4	(-183)	-46.1	(-219)	0.0	(0)
(2) March 1984 to February 1985	-14.4	-6.2	(43)	-8.0	(55)	-11.9	(83)	-8.8	(61)	-27.1	(188)	-19.9	(138)
(3) August 1985 to September 1986	43.5	1.1	(2.6)	4.5	(10)	-5.6	(-13)	-37.8	(-87)	-9.5	(-22)	3.0	(6.8)
(4) November 1986 to April 1987	15.2	3.6	(24)	3.5	(23)	4.9	(32)	0.6	(3.6)	-0.2	(-1.5)	2.6	(17)
(5) September 1989 to April 1990	-13.5	-5.4	(40)	4.4	(-32)	-1.1	(8.0)	-2.6	(19)	-3.8	(29)	-0.9	(6.3)
(6) June 1990 to October 1990	16.7	0.3	(1.8)	7.6	(46)	0.4	(2.2)	-1.5	(-9.0)	-10.1	(-61)	2.8	(16)
(7) September 1991 to December 1991	5.9	-2.6	(-43)	3.6	(60)	0.7	(11)	-0.5	(-7.7)	1.3	(22)	-0.2	(-2.7)
(8) April 1992 to September 1992	11.3	-1.0	(-8.8)	3.9	(34)	1.2	(11)	-0.8	(-7.0)	2.7	(24)	2.1	(19)
(9) December 1992 to August 1993	18.0	-2.5	(-14)	2.4	(13)	2.5	(14)	-1.9	(-11)	-11.1	(-62)	1.4	(7.7)
(10) August 1993 to December 1993	-7.1	0.04	(-0.5)	-0.1	(2.0)	-5.8	(82)	-0.4	(5.4)	1.2	(-17)	-1.5	(21)
(11) December 1993 to May 1995	29.6	6.1	(21)	12.5	(42)	9.1	(31)	-5.8	(-20)	7.1	(24)	3.6	(12)
(12) May 1995 to September 1995	-16.7	-1.1	(6.5)	-0.1	(0.6)	-1.7	(10)	-1.7	(10)	1.0	(-6.2)	-1.8	(11)

Note: On the basis of end-of-month data; a positive number means an appreciation of the currency in question against the US dollar; figures in parentheses indicate the direction of change of each currency as a percent of the movement of the Japanese yen.

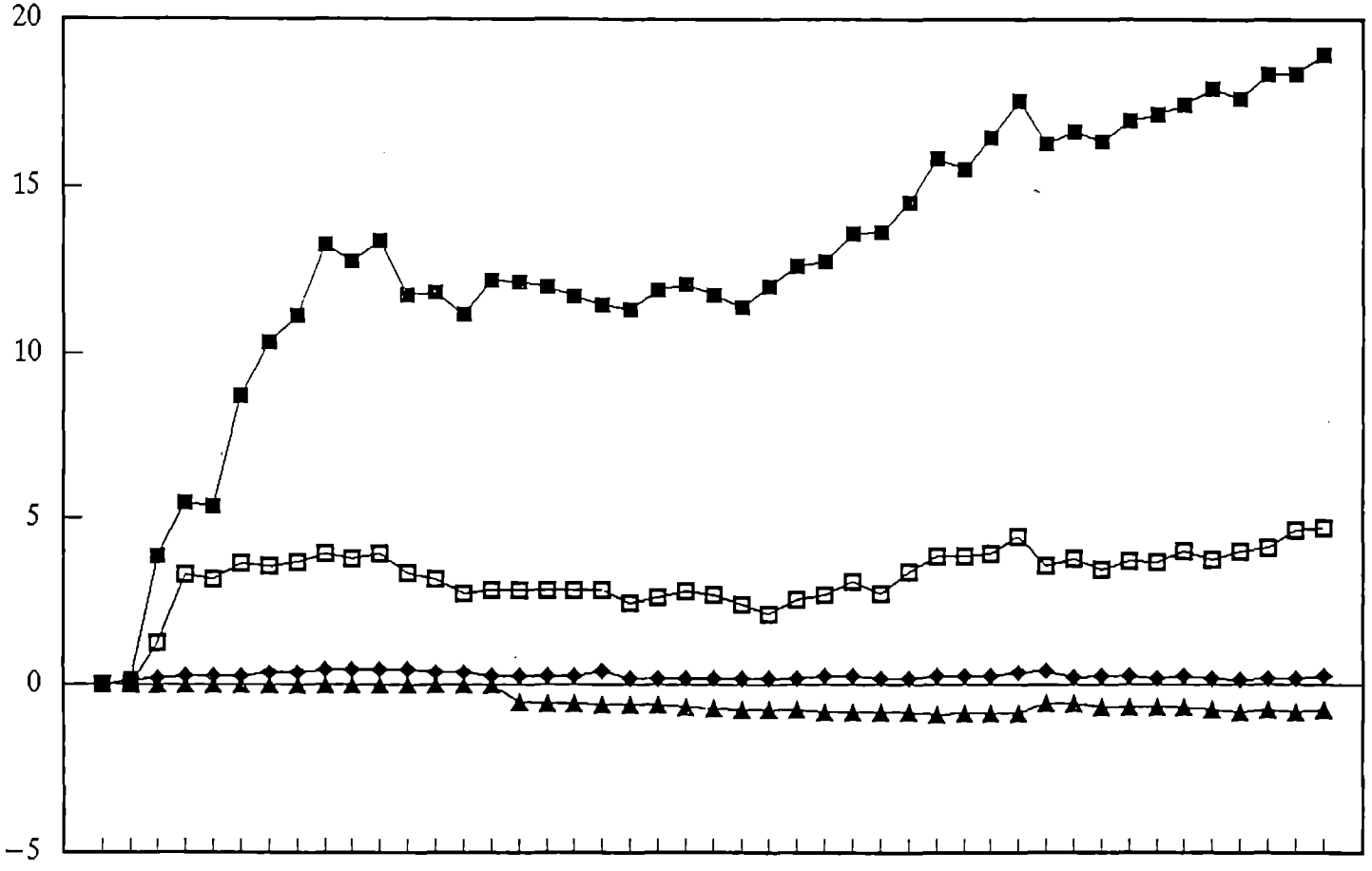
Source: IMF, International Financial Statistics.

Figure 1-A. Daily Movements of the Korean Won, the Singapore Dollar and the Malaysian Ringgit against the US Dollar during the Period of Sharp Yen Appreciation, September 19 - November 25, 1985.



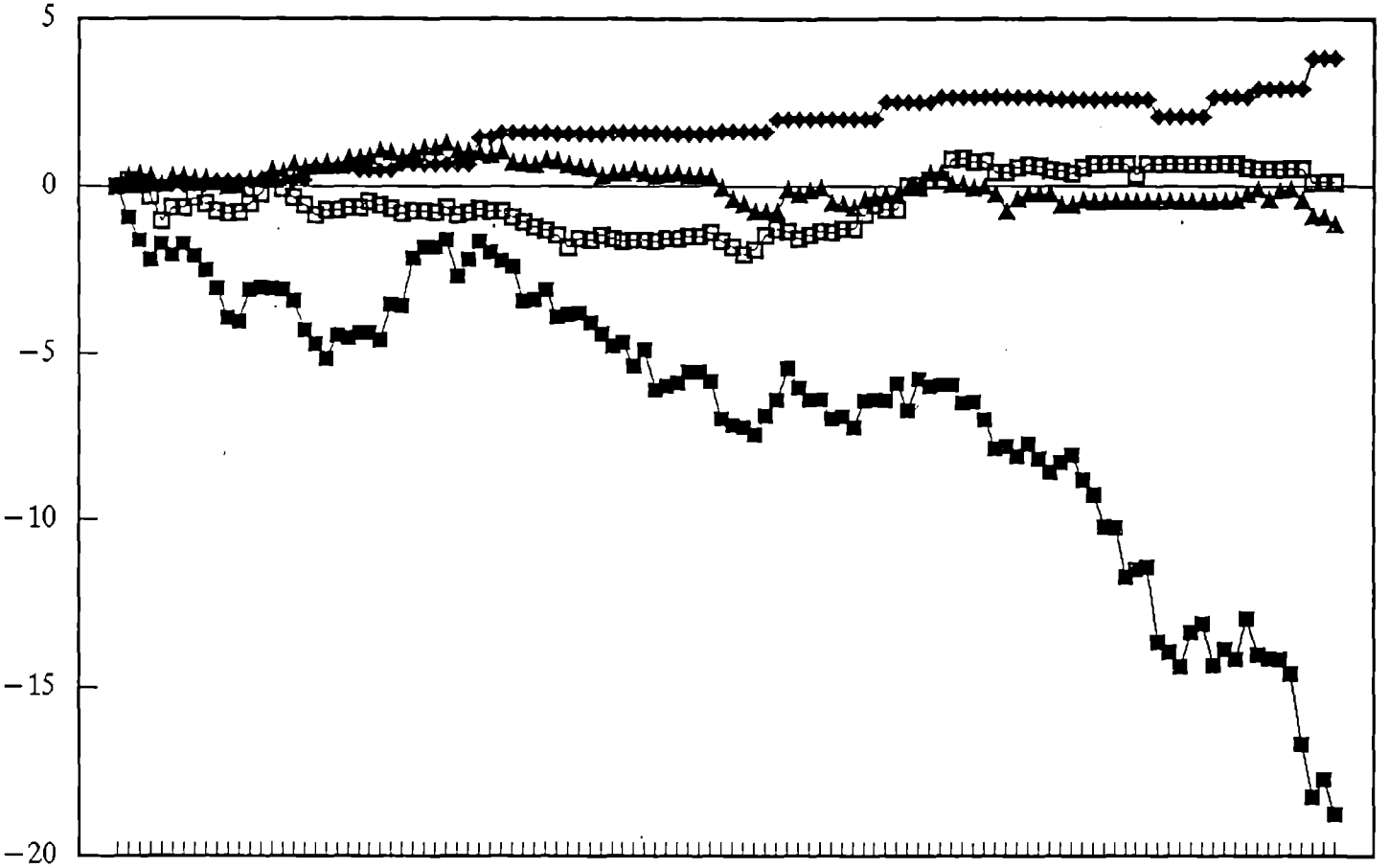
From September 19 to November 25, 1985.
In logarithmic change in basis points against the US dollar.

Figure 1-B. Daily Movements of the Indonesian Rupiah, the Philippine Peso and the Thai Baht against the US Dollar during the Period of Sharp Yen Appreciation, September 19 - November 25, 1985.



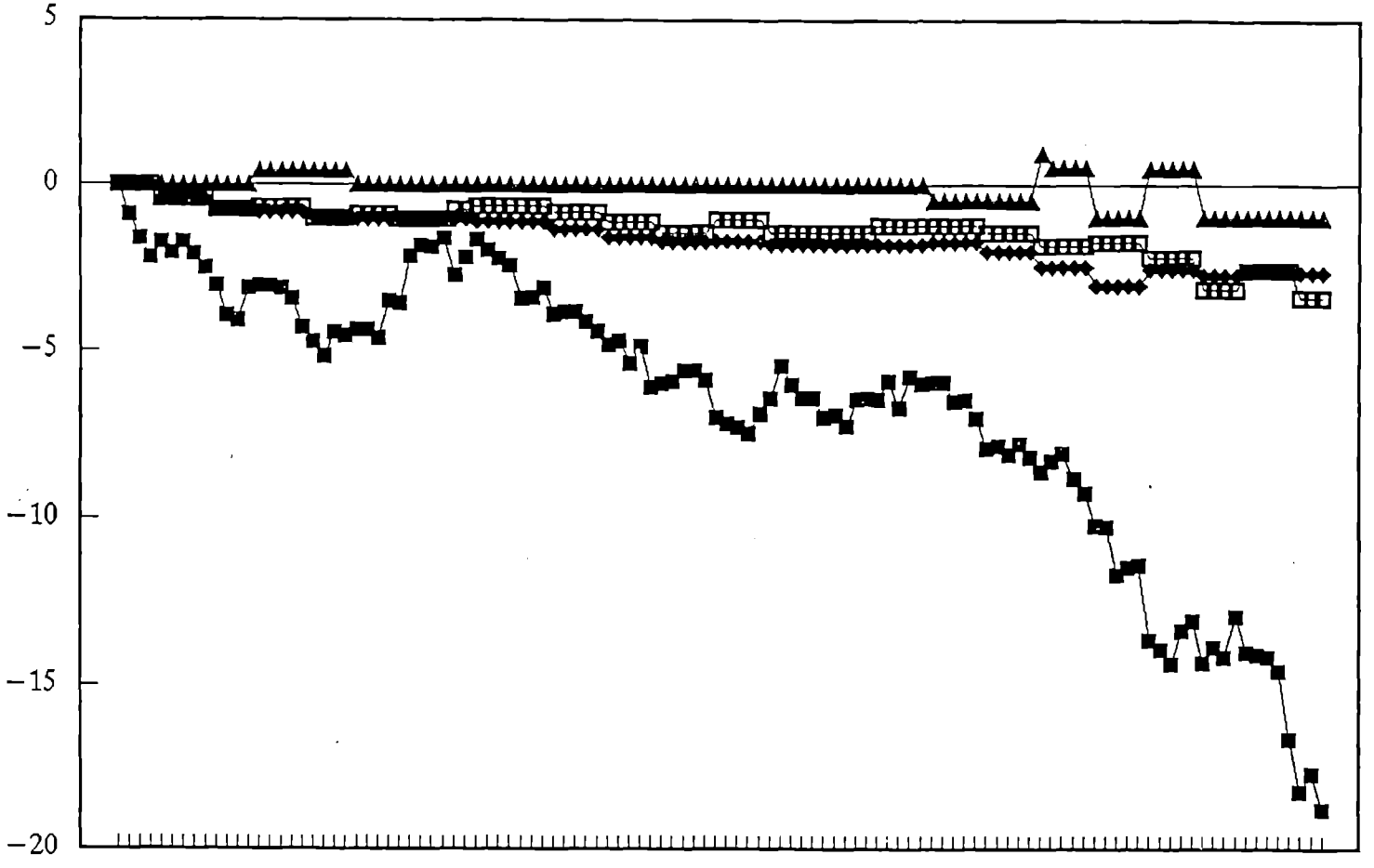
From September 19 to November 25, 1985.
In logarithmic change in basis points against the US dollar.

Figure 2-A. Daily Movements of the Korean Won, the Singapore Dollar and the Malaysian Ringgit against the US Dollar during the Period of Sharp Yen Depreciation, January 3 - June 14, 1989.



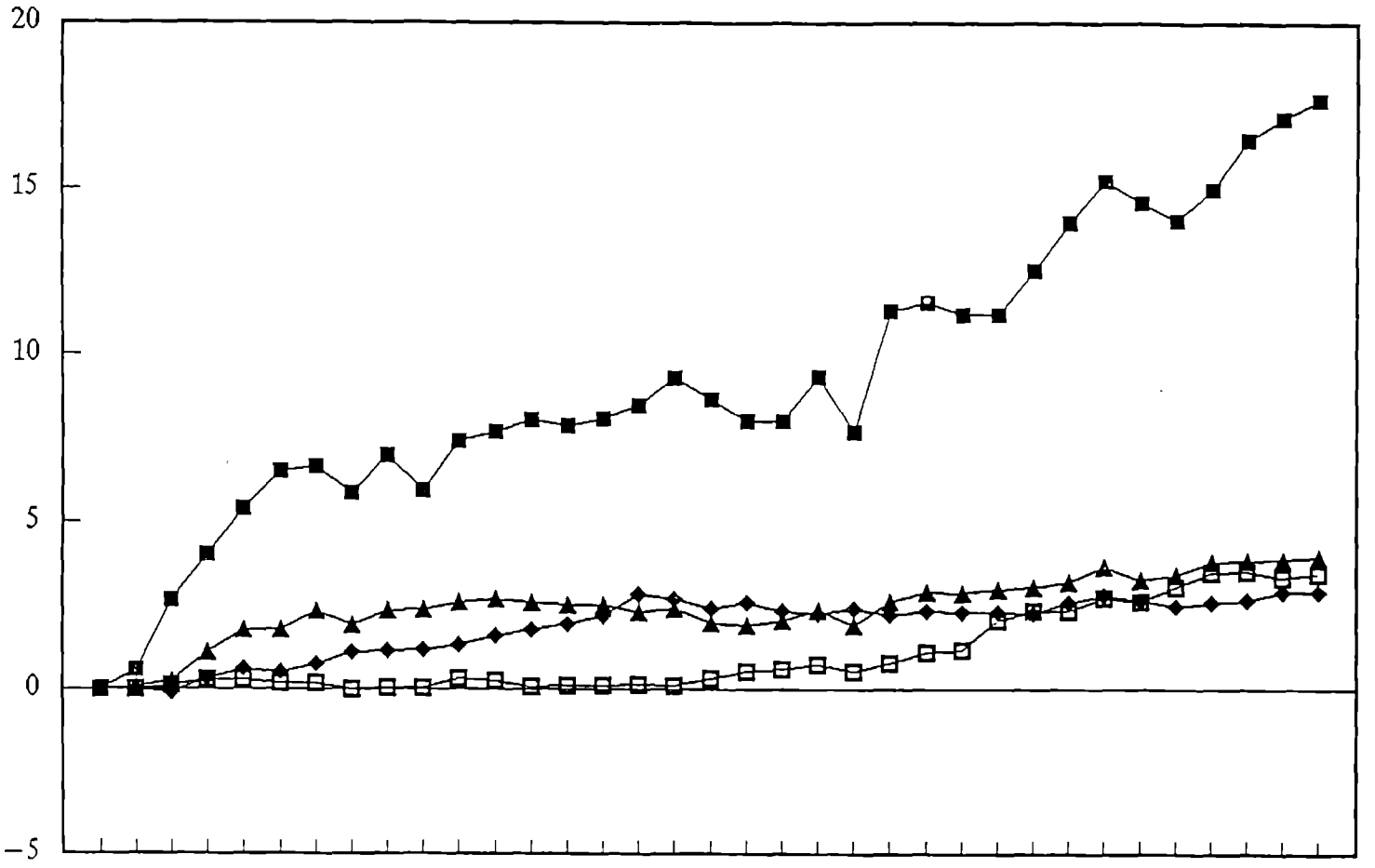
From January 3 to June 14, 1989.
In logarithmic change in basis points against the US dollar.

Figure 2-B. Daily Movements of the Indonesian Rupiah, the Philippine Peso and the Thai Baht against the US Dollar during the Period of Sharp Yen Depreciation, January 3 - June 14, 1989.



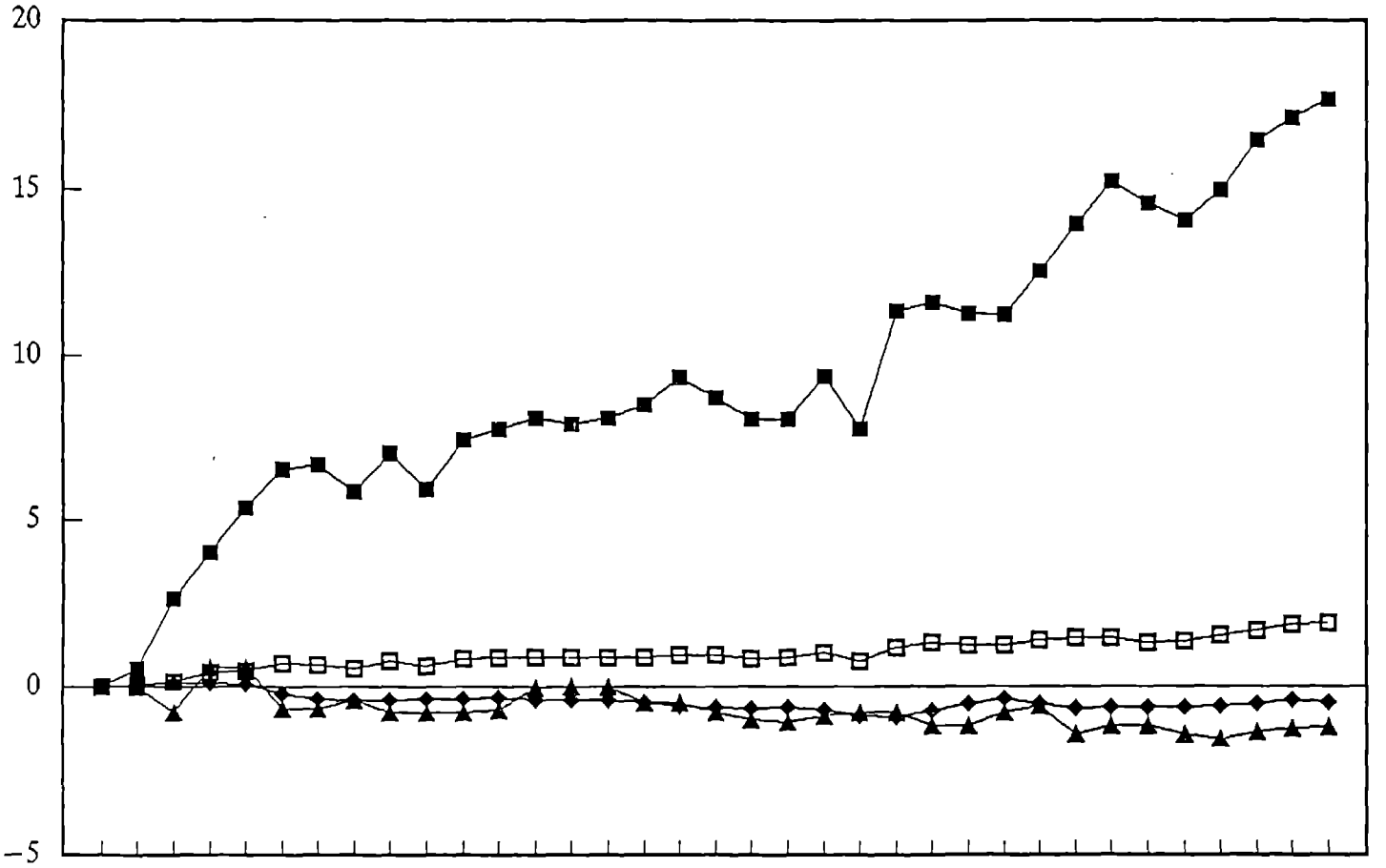
From January 3 to June 14, 1989.
In logarithmic change in basis points against the US dollar.

Figure 3-A. Daily Movements of the Korean Won, the Singapore Dollar and the Malaysian Ringgit against the US Dollar during the Period of Sharp Yen Appreciation, March 1 - April 19, 1995.



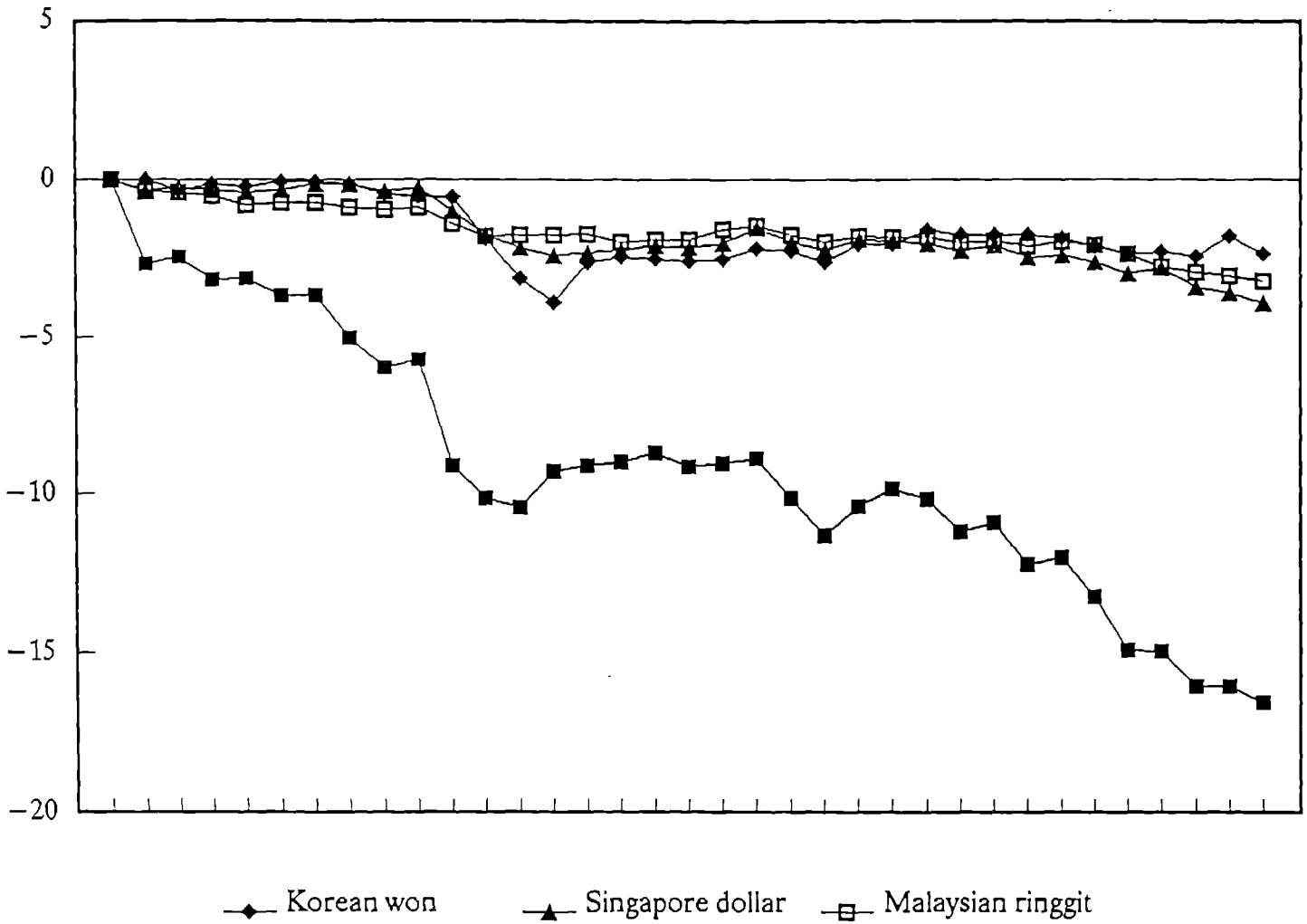
From March 1 to April 19, 1995.
In logarithmic change in basis points against the US dollar.

Figure 3-B. Daily Movements of the Indonesian Rupiah, the Philippine Peso and the Thai Baht against the US Dollar during the Period of Sharp Yen Appreciation, March 1 - April 19, 1995.



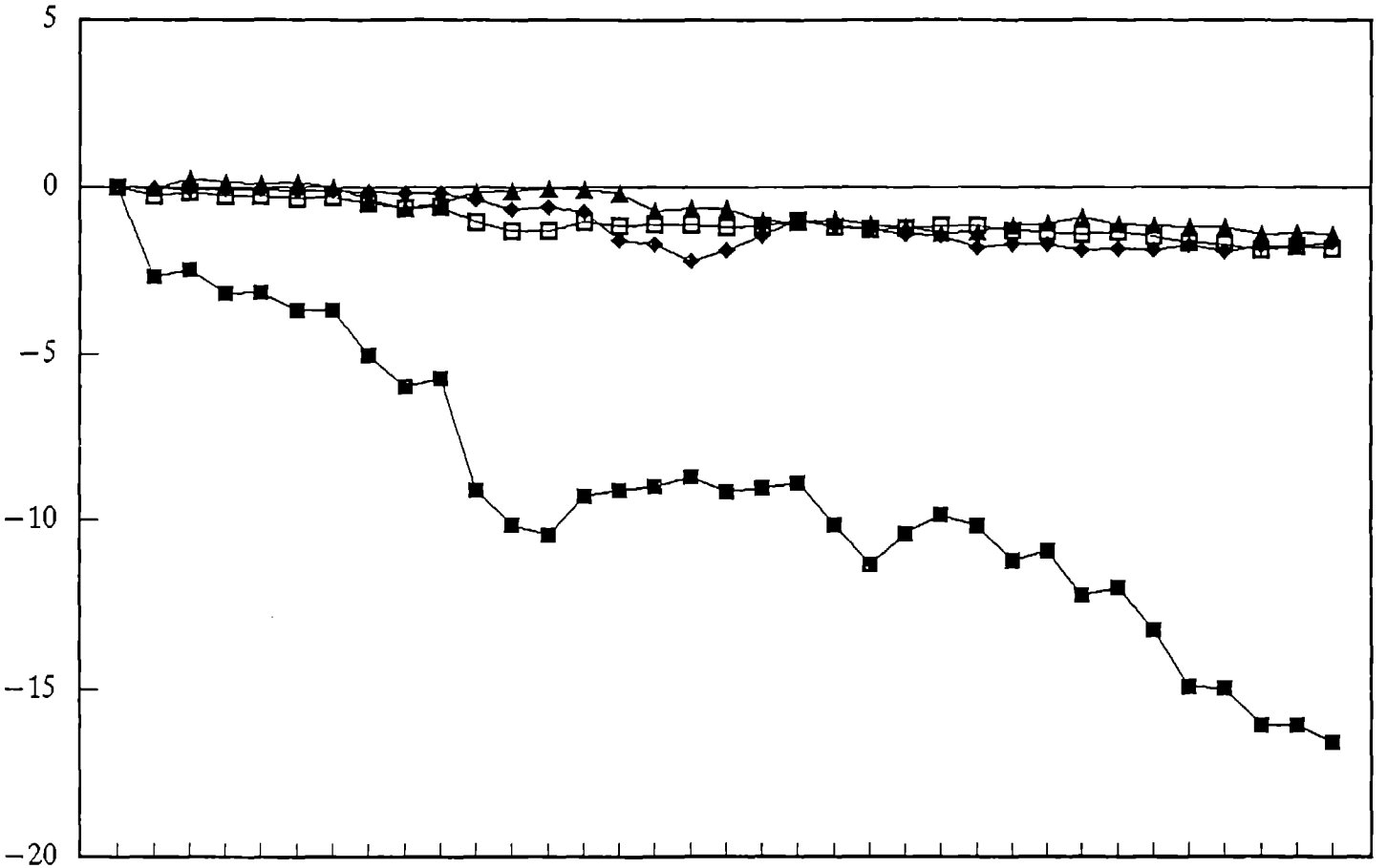
From March 1 to April 19, 1995.
In logarithmic change in basis points against the US dollar.

Figure 4-A. Daily Movements of the Korean Won, the Singapore Dollar and the Malaysian Ringgit against the US Dollar during the Period of Sharp Yen Depreciation, August 1 - September 19, 1995.



From August 1 to September 19, 1995.
In logarithmic change in basis points against the US dollar.

Figure 4-B. Daily Movements of the Indonesian Rupiah, the Philippine Peso and the Thai Baht against the US Dollar during the Period of Sharp Yen Depreciation, August 1 - September 19, 1995.



From August 1 to September 19, 1995.
In logarithmic change in basis points against the US dollar.