

An empirical study of East Asian Exchange Rate Arrangements *

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Abstract

The purpose of this paper is to investigate the behavior of emerging market East Asian currencies before, during and after the 1997 financial crisis. We examine the weights of the U.S. dollar and the Japanese yen in the determination of the values of the East Asian currencies using daily exchange rate data sets covering the pre-, mid- and post-crisis from January 1990 to November 2004. The empirical test results indicate that the East Asian currencies presently do not have the same de facto characteristics as they did before the crisis. During the crisis, the dollar's dominance declined in affected East Asia as a result of a general shift to more flexible exchange rate regimes. In the post-crisis period, the distribution of exchange rate arrangements of the East Asian economies is classified into two broad categories. One group is the case in some countries such as Malaysia, Hong Kong, China, Vietnam, Cambodia and Laos where the weight of the dollar has regained or kept prominence, while the other group is the case of Singapore, Thailand, Korea, Taiwan and The Philippines, Indonesia in which the dominance reduced and maintained a de jure or have approached to a de facto currency basket regime with significant weights on the U.S. dollar, the Japanese yen and the Euro. Further more the results of this paper also show that (1) the impact of the U.S. dollar on East Asian currencies has decreased while the impact of the Japanese yen on it has increased since 1997 financial crisis and (2) the reaction of East Asian currencies is quite different when the yen appreciates compared with when it depreciates in the pre-crisis and post-crisis period.

Key Words: Exchange rates, East Asia, Asymmetric impacts of the yen/dollar rate

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1. Introduction

Exchange rate regime is one of the central issues of the macroeconomic policies. There was a long-term debate over the merits of fixed exchange rate regimes versus floating exchange rate regimes. The debate, which is typically framed in terms of the trade-off between credibility and flexibility, has gone through several swings of pendulum. Recently, the debate on exchange rate regimes has become focused on whether the intermediate regimes such as crawling, target zones and basket pegs or the corner solutions with the “hard peg” or the “free float” are better.

After Asian crisis, many economists have refocused on exchange rate regimes of East Asian countries. Most views expressed the criticism that the pre-crisis U.S. dollar peg regime was one of the causes of the crisis. It was said that this regime induced short-term external over-borrowing and caused the appreciation of real exchange rates with the loss of competitiveness and increased the current account deficits. Then, the question arises as, after the crisis, whether the East Asian countries are simply returning to the pre-crisis US dollar standard or whether they have learned a lesson from the crisis and are finding another path to follow. That's the reason why the characteristics of the exchange rate regimes of the East Asian countries -before and after the crisis- remain a topic of considerable discussion.

In the pre-crisis period, it was obviously evident that currencies of most East Asian economies maintained de facto pegs to the U.S. dollar. Among the East Asian economies, Hong Kong was the only East Asian economy that adopted the fixed exchange rate regime backed by a currency board arrangement. It was, however, well known that currencies in the other East Asian economies had maintained highly stable values against the U.S. dollar since the mid-1980s (as Frankel and Wei [1994], Kwan [1995], and Ogawa [2001]).

In particular, as the depreciation of the Japanese yen against the U.S. dollar from April 1995 to the summer of 1997 reduced the export competitiveness and increased current account deficits in East Asian economies, the U.S. dollar peg regime is called one of the causes of the Asian crisis. Several economists have, thus, proposed the desirability of intermediate exchange rate regimes in East Asia that might stabilize their effective exchange rates (as Williamson [1999,2000], Rajan [2002]). In contrast, the bipolar or two corner solution view of exchange rates states that intermediate

policy regimes between hard pegs and floating are not sustainable (as Fischer [2001]).

In the post-crisis period, Hong Kong kept its currency board arrangement and the Chinese Renminbi, the Vietnamese Dong, the Laos Kip, the Cambodia Riel virtually maintained its pegs to the U.S. dollar. After experiencing some transitional regimes, Malaysia started fixing ringgit to the U.S. dollar on September 1st 1998. In contrast, Thailand, Indonesia, Korea, the Philippines have adopted independent float since the Asian crisis and Singapore, Taiwan kept its managed float exchange rate regime.

After going through values devaluations and high volatility in 1997-1998, the currencies of the Asian region have mostly stabilized over the past four couples of years. Some observers, however, have interpreted this stability as evidence that the East Asian currencies are reverting back to de facto dollar pegs (as McKinnon [2000,2004]). It is concluded that the so-called floating exchange rate regimes of the East Asian countries are not really floating and both the crisis, non-crisis countries of East Asia have returned to formal or informal dollar pegging, which is statistically indistinguishable from what they were doing before the crisis.

Against this background, this paper aims to examine the weights of the U.S. dollar the Japanese yen and the Euro in the determination of the nominal values of East Asian currencies with daily exchange rate data covering the period from January 1990 to November 2004. And then, it is continued by a discussion about (1) whether the impact of the Japanese yen in determining the values of post-crisis East Asian currencies has increased since the 1997 financial crisis and (2) the reaction of East Asian currencies when the yen appreciates compared with when the yen depreciates in the pre-crisis and post-crisis period. Our methodology for empirical investigation follows closely those in the previous literature, but improve them in some important aspects. First, the weights of the Japanese yen and the Euro in the post-crisis period from January 1999 to November 2004 of this paper are statistically higher than in other articles, implying the more transition to the currency basket regime of the East Asian countries recently. Second, our paper shows the differences of the reaction of those countries when the yen appreciates compared with when it depreciates in the pre-crisis and post-crisis period by econometric estimates.

The rest of this paper is organized as follows.

In section 2, following Frankel and Wei (1994), the exchange rate changes of each East Asian currency are regressed on those of the U.S. dollar, the Japanese yen and the

Euro.

After explaining the method of estimations and the data in previous section, section 3 investigates how large the impacts of major world currencies on East Asian countries in the pre-, mid- and post-crisis periods in the case all of the exchange rates are denominated by a common numéraire currency such as the Swiss Franc.

The Swiss Franc has a desirable property as a numéraire because it is widely transacted in international markets but has little linkage with the East Asian currencies. However, the choice of the numéraire might be arbitrary. And this issue will be revisited in section 4, where the test results for the case Australian Dollar is used as a numéraire are presented.

In section 5, we examine in more detail the movements of estimated coefficients of the twelve exchange rates for the whole pre-, mid- and post-crisis periods to investigate how these currencies changed their correlations with the Japanese yen from the pre-crisis period to the post-crisis period by conducting rolling regression analysis. And then, the estimation results indicate the null hypothesis that the relative impact of the Japanese yen remains the same before and after the crisis should be rejected in favor of the alternative view that it has increased since the financial crisis for the six East Asian countries which not involving dollar-peg policy.

Section 6 tests the asymmetric of the impact of Japanese yen on the determination of the values of the East Asian currencies. The estimation investigates long periods (pre-crisis and post-crisis periods) with data corresponding to both yen appreciation and depreciation.

At last, section 7 summarizes our main results and refers to their implications.

2. The Weights of the U.S. dollar, the Japanese yen and the Euro before and after Asian crisis - Estimation Method and Data

According to the IMF classification, see Table 1, before and after the crisis, Hong Kong kept its currency board arrangement; the Chinese Renminbi, the Vietnamese Dong, the Laos Kip, the Cambodia Riel virtually kept its pegs to the U.S. dollar; Singapore, Taiwan kept its managed floating. Malaysia, on the contrary, shifted from managed float to dollar fixed exchange rate regime in 1998. Indonesia, Korea, Thailand and the Philippines moved from managed float to independent float exchange rate

regime. The IMF classification of exchange rate arrangement is based on member countries' formally announced regimes. In fact, because almost all the East Asian countries generally keep secret about the implicit weight on the anchor of their currencies fixed, it is important to infer policies by observing actual behavior rather than relying on official pronouncements, and by estimating the implicit weights econometrically. Therefore, to understand what exchange rate regimes are actually in place, here comes the necessity to examine statistically the behavior of observed exchange rates.

We begin here by examining the relative importance of the anchor currency roles of the U.S. dollar, the Japanese yen, and the European euro in the exchange rate policies of twelve developing East Asian countries, including the Asian NIEs (Hong Kong, Korea, Singapore and Taiwan), the ASEAN-4 (Indonesia, Malaysia, the Philippines and Thailand), the smaller ASEAN-3 (Vietnam, Cambodia and Laos) and China, before, during and after the 1997 financial crisis with using Frankel and Wei (1994) model.

A test for high frequency pegging was developed by Frankel and Wei (1994), and it has been used subsequently by Kwan (1995), Kawai and Akiyama (1998), McKinnon (2000) and Ogawa (2001) in the context of post-crisis exchange rate behavior seen among the East Asian economies. In this approach, an independent currency is chosen as an arbitrary numéraire for measuring the exchange rate variation. The goal here is to estimate the weight a currency assigns to another currency for a given frequency. The regression model, where the value of domestic currency compared with the independent currency is regressed against the major world currencies, is-

$$\Delta e(\text{Home}/SF)_t = \beta_0 + \beta_1 \Delta e(\text{USD}/SF)_t + \beta_2 \Delta e(\text{JPY}/SF)_t + \beta_3 \Delta e(\text{EUR}/SF)_t + \mu_t \quad (1)$$

where SF is the Swiss Franc, USD is the U.S. dollar, JPY is the Japanese yen, EUR is the Euro; $\Delta e(\text{Home}/SF)_t$ is now the daily change in the log exchange rate of domestic currency on date t , β_0 is the constant term, β_k ($k = 1,2,3$) is the coefficient on the daily change in the log exchange rate of currency k , and μ_t is the residual term.

Here, we use daily exchange rates into the regression test of the changes in the values of the domestic currency against the changes in the values of that anchor currencies. The data set was downloaded from DataStream. All exchange rates are expressed vis-à-vis the Swiss Franc. Using daily data from January 1990 up to

November 2004, we estimate equation (1) in three periods: the pre-crisis period of January 1990- June 1997, the mid-crisis period of July 1997- December 1998, and the post-crisis period of January 1999- November 2004. Still more the pre-crisis period is also broken into five 18-month sub-periods: (i)January 1990-June1991, (ii)July1991-December 1992, (iii)January 1993-June1994, (iv)July1994-December 1995, (v)January 1996-June1997; and the post-crisis period is broken into four 18-month sub-periods: (vii)January 1999-June2000, (viii)July2000-December2001, (ix)January2002- June2003, (x) July 2003- November2004.

It is not controversial that Asian crisis started with the Thai baht depreciation of July 2nd 1997. In contrast, it is still inconclusive as to when the financial crisis finished or whether it is really over. However, as Kawai and Akiyama (2001) show by regarding exchange rate volatility, the values of East Asian currencies began to show relative stability from November 1998. This paper computes the CUSUM statistics of the estimations based on the weekly data for the pre-crisis period and the post-crisis period to explore the presence of the structural break in these two sample periods. The technique is appropriate for time-series data and might be used if one is uncertain about when a structural change might have taken place. The CUSUM test takes the cumulative sum of recursive residuals and plots its value against the upper $(K, \pm 3a(T-k)^{1/2}$ and lower $(K, \pm a(T-k)^{1/2}$ bounds of the 95% confidence interval at each point.¹ In fact, as illustrated in Figure 1 and 2, the CUSUM statistics of equation (1) for the two sample periods are within the 95% confidence bands. It indicates relative stability in the estimated parameter values. Therefore, this paper sets the crisis-period to be from July 1997 to December 1998.

Here, the estimated standard error of the residual interpreted as a measure of the exchange rate volatility. The coefficients on the right-hand side exchange rates, β_k , are interpreted as the weights in a currency basket assigned by the country's authorities. The hypothesis here is that every country attempts to stabilize its exchange rate to a basket of multiple currencies. A single currency peg is a special case, where the coefficient on the target currency for exchange rate pegging closes to unity, the coefficients on the other countries all close to zero, and the value of standard error of regression residuals closes to zero. If one country's currency is not pegged rigidly, the estimated coefficient for this target currency will close to unity and be statistically significant. At that case, the standard error of residuals will take a sufficiently small

¹ $a = 0.948$ for 95% level

value. If one country's currency is tightly pegged, or stabilized to a basket of multiple currencies, then the estimated coefficient for this target currency should be statistically significant and its sum should approximately close to unity. On the other hand, if one country's currency is a purely flexible exchange rate regime, no estimated coefficient for this target currency should be statistically significant, and the standard error of the residuals should be large.

3. The Estimation Results: The Case of using the Swiss Franc as a numéraire

The results of the estimation of equation (1) are reported in Table 2.

3.1 Pre-crisis

The regression results show that in the pre-crisis years from January 1990 to June 1997 for twelve East Asian currencies in the sample, in all countries, the estimated coefficient of the U.S. dollar is very large and in most of cases statistically indistinguishable from being equal to one. In contrast, the estimated coefficients of the Japanese yen are small for all the time in all countries. The adjusted R^2 is close to one, and the estimated standard error of regression is small for almost all economies—particularly Korea, Thailand, Indonesia, Malaysia and Hong Kong. In the case of Taiwan, China and the Philippines, the adjusted R^2 is somewhat lower and the estimated standard error of regression somewhat higher. In the case of Singapore the dollar coefficients are somewhat lower, though greater than 0.73 and highly significant, due to their formal currency basket arrangements.

These results support virtually that all of twelve East Asian regressions feature large magnitude of the dollar coefficient estimates, accompanied by very small standard errors. It is clearly evident that the currencies maintained de facto pegs to the U.S. dollar in the pre-crisis years. The regressions also show very small effects of the Japanese yen and the Euro on the currencies, although the coefficient estimate on the Japanese yen is significant in a majority of the regression.

3.2 Crisis

The regression results show that in the mid-crisis period from period from July 1997 to December 1998 for twelve East Asian currencies in the sample, many former crisis countries in East Asia experience noticeable declines in the dollar weights and in the adjusted R^2 . This is particularly in Thailand and Indonesia. In the case of the Philippines, Korea and Malaysia, the estimated coefficients on the U.S. dollar do not decline noticeably, but the adjusted R^2 decline sharply and the estimated standard error of the regression rises sharply. In the case of Singapore and Taiwan, which are not directly affected by the crisis, the U.S. dollar coefficients and the adjusted R^2 also decline.

In contrast, the estimated coefficients of the Japanese yen rise in a significant way in some countries, as in Singapore, Thailand, Indonesia, The Philippines and Malaysia. Only in Korea and China, the Japanese yen coefficients are statistically insignificant.

The regressions show the importance of the Japanese yen in the currency baskets of many countries during the crisis while the Euro coefficients still remain to be small.

3.3 Post-crisis

The regression results show that in the post-crisis years from January 1999 to November 2004 for twelve East Asian currencies in the sample, in all countries, it reflects the large swings in exchange rate arrangements than in the pre-crisis period.

Some countries have changed its arrangements since pre-crisis, while a few others have returned to the pre-crisis pattern of dollar-based exchange rates. It means that the distribution of exchange rate arrangements of the East Asian economies is classified into two broad categories. At one extreme, the economies that have kept a stable dollar peg throughout the period, such as Hong Kong and China, have the dollar coefficients and the adjusted R^2 at levels close to one, the estimated standard error of regression is smaller than in the pre-crisis period. Malaysia returned to a formal dollar-peg arrangement, and the regression result confirms it. In contrast, at the other extreme, the standard error of the estimates are uniformly much larger, as well as substantially lower adjusted R^2 results, suggest that the degree to which the currencies are linked to the dollar is relatively less than in the pre-crisis period, such as Korea, Singapore,

Thailand, the Philippines, Taiwan and Indonesia. In these countries, the estimated coefficients of the Japanese yen statistically take values of 0.1-0.3 for all time and the estimated coefficients of the Euro also rise in a significant way in some sub-sample periods. These currencies' dominances reduced and appear to have shifted to a de facto currency basket regime with significant large weight on the U.S. dollar, and a smaller, but significant weight on the Japanese yen and the Euro. For these countries, we cannot conclude that they have reverted to the pre-crisis dollar pegs exchange rate arrangements or that they have shifted to freely floating exchange rate policies.

The results suggest that the currency regimes of Korea, Thailand, the Philippines, Taiwan and Indonesia currencies have moved in the direction of the greater flexibility, but not to the extreme pole of clean floating. With regard to policy implications, we conclude that countries that are not prepared to accept the constraints of a hard peg, or the polar extreme of free floating, it resist real appreciation could be preferable in some conditions over the de facto currency basket regime.

For the whole sample period, the weights of the Japanese yen in the determination of East Asian currencies are estimated to be much smaller than the weights of the U.S. dollar. However, the weights of the Japanese yen and especially, the weights of the Euro are higher than in all other previous articles, implying the weights of the Japanese yen and of the Euro have increased after the financial crisis. The post-crisis result table classifies twelve developing East Asian economies into two broad categories according to their estimated coefficient results, that is, pegged and basket pegs regime.

4. The Estimation Results: The Case of using the Australian dollar as a numéraire

In the last section, we have made estimations with using the Swiss Franc as a numéraire currency. The Swiss Franc has a desirable property as a numéraire because it is widely transacted in international markets but has little linkage with the East Asian currencies. However, the choice of the numéraire might be arbitrary. In particular, when there is an idiosyncratic shock on the Swiss Franc, the exchange rates denominated by the Swiss Franc would show spurious correlations in equation (1). Therefore, in order to test the robustness of the results, the entire tests are then repeated in this section by using a different numéraire, which carries little weight in

Asia's trade- the Australian Dollar.

The results of the estimation of equation (1) are summarized in Table 3.

Similar to the results using the Swiss Franc as numéraire, the results using the Australian Dollar shown that the estimated coefficients of the U.S. dollar in all countries are significantly positive throughout the pre-, mid- and post-crisis periods. From the table, in the pre-crisis period, we can easily see that the weights of the U.S. dollar were an approximate unity and those of the Japanese yen were negligible for all countries except the Singapore dollar, the Thai baht and the Malaysia Ringgit. In these countries, the weights of the U.S. dollar were smaller than 0.9 and those of the Japanese yen were sometime statistically significant in some sub-sample periods. However, even for these currencies, the weights of U.S. dollar had dominant weights.

In contrast, for the sample of mid-crisis period, we can see that the weight of the U.S. dollar became slightly smaller than that in the previous period. The estimated weight of the Japanese yen became larger than the weight before. The results indicate that the weight of the U.S. dollar declined and the weight of the Japanese yen had risen in mid-crisis period.

At last, in the case of the post-crisis period, these currencies increased correlations with the Japanese yen and the Euro. For the countries such as Korea, Singapore, Thailand, the Philippines, Taiwan and Indonesia, the standard error of the estimates are uniformly much larger, as well as substantially lower adjusted R^2 results, suggest that the degree to which those are linked to the dollar is relatively less than in the pre-crisis period. In contrast, our results shown that the dollar coefficients and the adjusted R^2 at levels close to one in the case of the countries involving dollar-peg regime such as Hong Kong, Malaysia, China, Viet Nam, Cambodia and Laos.

The results suggest that the East Asian currencies assigned statistically significant and large weights to the dollar on their day-to-day movements before the crisis, and have indeed continued to do so in post-crisis. However, comparisons with the range of the other currencies show that this is not a fairly common trait across various regimes. Moreover, the results from the post-crisis data do not support the view that the East Asian currencies have fully reverted to behavior that is statistically indistinguishable from pre-crisis characteristics. In all periods, in all countries, the results using the Australian dollar as numéraire had similar feature as those in the case using the Swiss Franc as numéraire.

5. The weights of the Japanese yen before and after the financial crisis

For the whole sample period, the weights of the Japanese yen in the determination of East Asian currencies are estimated to be much smaller than the weights of the U.S. dollar. However, the weights of the Japanese yen are higher than in other articles that not explored to recent days, implying the weights of the Japanese yen have increased after the financial crisis. This also implies that the financial crisis may have made a structural break in the relationship between East Asian currencies and the Japanese yen.

In this section, we examine in more detail the movements of estimated coefficients of the twelve exchange rates for the whole pre-, mid- and post-crisis periods to investigate how these currencies changed their correlations with the Japanese yen particularly in the post-crisis period.

Rolling regression:

Based on high frequency day-to-day observations, we make rolling regression of equation (1) and calculated the coefficients of the U.S. dollar, the Japanese yen and the Euro in whole the sample periods from January 1990 to November 2004. This 14-year period is divided into a series of 3-month sub-samples, by rolling over the sample by one month each. We start the estimation by using the starting day of the first sub-sample period as January 1990 and the ending day is the end of the third month after. We, however, changed the starting day of the next sub-sample period month by month. Total of 177 regressions are run and the results are reported in Table 6. Figure 3 shows how the estimated coefficients of the U.S. dollar, the Japanese yen and the Euro changed in our rolling regressions.

The figure clearly reveals that countries under stable peg throughout the period, such as Hong Kong, China and Malaysia after September 1998, have maintained the weights on the U.S. dollar at levels close to unity. The estimated regression coefficients of the Japanese yen and the Euro were negligible. Therefore, the plot lines of the Japanese yen moved around X axis over time.

In contrast, other currencies exhibit different exchange rate behavior in the entire sample period. In these economies, the weights of the US dollar were all close to unity

and significant in the pre-crisis period. But in the mid-crisis period, the dollar weights began to fall and its movement sequence became more intricate for 8 to 13 months depending on countries.

However, the changes of the weights were more drastic after the crisis. As the US dollar weights began to decline during the crisis, the weights of the Japanese yen and the Euro began to rise and became statistically significant in almost all countries. Striking changes are observed in the plot lines of those in Singapore, Korea, Thailand and Indonesia. We can see that in those cases, the coefficients of the Japanese yen were approximately equal to 0.2, while those of the U.S. dollar decreased to 0.7 or 0.8. Moreover, the Philippines and Taiwan were less changed after Asian crisis but the weights of the Japanese yen had a tendency to appreciate in the last of the sample period.

The weight on the Japanese yen has in twelve East Asian countries increased over time (most clearly in the cases of the Korean won, the Indonesian rupiah, the Thai baht, the Philippines peso and the New Taiwan dollar). The results imply that the weights in these countries approximately turned out to the currency basket levels recently. It suggests that the dollar has a tendency to decline its dominant role in East Asian exchange rate management because the yen is increasingly used to invoice intra-Asian trade, and the Asian countries have slowly shifted the composition of their external debt away from the dollar and toward the yen.

Hypothesis test:

As greater scientific evidence, a formal statistical test of the weights of the Japanese yen before and after the Asian crisis are not the same, is introduced here. This test is performed for all currencies except the Chinese Renminbi, the Hong Kong Dollar, the Malaysian Ringgit, the Vietnamese Dong, the Cambodia Riel and the Laos Kip, which are now firmly pegged to the dollar for any frequency of observation.

The null hypothesis that the weight of the Japanese yen remains the same across the pre-crisis and post-crisis periods is tested against the alternative that it has increased after financial crisis. Specifically, the null and the alternative hypothesis will be the following:

$$H_0 : \beta_2^1 = \beta_2^2$$

$$H_1 : \beta_2^1 < \beta_2^2$$

where β_2^1 and β_2^2 are the weights of the Japanese yen in the pre-crisis period and in the post-crisis period.

The null hypothesis can be tested by computing the following statistic:

$$\frac{\hat{\beta}_2^2 - \hat{\beta}_2^1}{\hat{s}_2^2}$$

where, $\hat{\beta}_2^1$ and $\hat{\beta}_2^2$ are the estimated values for β_2^1 and β_2^2 , and \hat{s}_2^2 is the standard errors of β_2^2 . If the statistic is higher than 1.645 or 1.960, then the null hypothesis is rejected at the 5% or 1% significance level.

The results of the statistics of hypothesis test are reported in Table 5. At the 1% level of significance, this null hypothesis is rejected in five out of the six countries except Taiwan, supporting the alternative view that the weight of Japanese yen has increased in the post-crisis period.

6. The impacts of the Japanese yen /U.S. dollar exchange rate on East Asian Exchange Rate: Test of Coefficient Dummies

We have shown that the East Asian currencies placed quite different weights on the Japanese yen, the Euro and the US dollar before and after the crisis. In the last section, we observed the changing of the estimated coefficients of the Japanese yen in the whole sample period by rolling equation (1). The results thus suggest that it had a big change on the determinants of those countries in the post-crisis period. In this section, we explore whether the impacts of the Japanese yen on the six selected East Asian countries, which not involving dollar-peg policy, differs in the pre-crisis period and the post-crisis period when the Japanese yen appreciates compared with when it depreciates.

First, we need to note that the Japanese yen/U.S. dollar exchange rate had structural breaks several times in the period from January 1990 to December 2004. Figure 2 draws movements of the yen/dollar exchange rates in all period. It shows that

the Japanese yen steadily appreciated against the U.S. dollar and that the rate of depreciation was accelerated from April 1990 to April 1995, August 1998 to December 1999 and from February 2002 to the ends of December 2004. However, after that, the yen, in turn, started depreciating against the U.S. dollar and that the depreciation had continued in two times, from April 1995 to the end of August 1998 and from December 1999 to February 2002. This indicates that if those East Asian countries had asymmetric responses to appreciation and depreciation of the yen/dollar exchange rates, they could have had different correlations with the U.S. dollar and the Japanese yen before and after the financial crisis.

The purpose of this section is to investigate whether those East Asian countries showed different responses to appreciation and depreciation of the Japanese yen in the pre-crisis and post-crisis periods. The regression model, where the local currency's value against the independent currency is regressed to determine the existence of asymmetric responses, is

$$\Delta e(\text{Home}/\text{SF})_t = \alpha_0 + \alpha_1 \Delta e(\text{USD}/\text{SF})_t + \alpha_2 \Delta e(\text{JPY}/\text{SF})_t + \alpha_3 \Delta e(\text{EUR}/\text{SF})_t + \alpha_4 D_t \Delta e(\text{USD}/\text{SF})_t + \alpha_5 D_t e(\text{JPY}/\text{SF})_t + \mu_t \quad (2)$$

where D_t is a dummy variables which takes one when the Japanese yen depreciated against the U.S. dollar but takes zero otherwise.

This equation was estimated for two sub-sample periods, one for the pre-crisis period (period 1: January 1990 to June 1997) and the other for the post-crisis period (period 2: January 1999 to November 2004). Moreover, the data set for each period (period 1 and 2) was split into two groups, one with the appreciating yen (27 April 1990 to 19 April 1995, 19 May 1999 to 3 January 1999, 24 January 2002 to 30 November 2004) and the other with the depreciating yen (19 April 1995 to 18 May 1999, 4 January 2000 to February 2002). Dummy variable D_t took one in the period when the Japanese yen depreciated and took zero otherwise.

The estimation results for the two sub-sample periods are reported in Table 6.

In all cases, the estimated coefficients of variables without the dummy had similar feature with those in Tables 2 and 3. The estimated coefficients of the U.S. dollar took the values close to one and were statistically significant in both the pre- and post-crisis periods. The estimated coefficients of the Japanese yen were, however, very small and

were far from significant in the pre-crisis period and turned out to be statistically significant in almost all the countries except the countries involving fixed exchange rate regime in the post-crisis period.

In the pre-crisis period, the estimated coefficients of the U.S. dollar multiplied by the dummy variable and the estimated coefficients of the Japanese yen multiplied by the dummy variable were insignificant. In contrast, in the case of the post-crisis period, the coefficients changed to be statistically significant and always had opposite sign in the countries involving de facto currency basket regime, while those had same sign in the others countries. Concerning the case of the Philippines, Korea and Thailand, the coefficients of the U.S. dollar with the dummy variable had negative sign and the Japanese yen with the dummy variable had positive sign. This implies that the Philippines Peso, the Korea Won and the Thai Baht had smaller responses to the U.S. dollar and larger responses to the Japanese yen when the yen depreciates against the U.S. dollar. The estimated coefficients of the U.S. dollar with the dummy variable were around -0.1 , while the estimated coefficients of Japanese yen with the dummy variable had the same absolute values but different sign.

In the case of Singapore, Indonesia and Taiwan, the coefficients of the U.S. dollar with the dummy variable had positive sign and the Japanese yen with the dummy variable had negative sign. This implies that the Singapore dollar, the Indonesian Rupiah and the New Taiwan dollar had smaller responses to the Japanese yen and larger responses to the U.S. dollar when the yen depreciates against the U.S. dollar.

Here, by looking at how the East Asian currencies moved when the yen fluctuated sharply against the U.S. dollar during the pre- and post-crisis period, we have found that the reaction was sometimes much more significant than it would be suggested by the estimates of the yen's weight in the determination of their nominal values. The Korean won, the Thai baht and the Philippines peso have tended to move more closely with a depreciating yen. On the other hand, the Singapore dollar, the Indonesian rupiah and the New Taiwan dollar have tended to move more closely with an appreciating yen. These findings should be interpreted to be similar to those of Takagi (1996). In his analysis to periods when the Japanese currency fluctuated sharply against the U.S. dollar, Takagi (1996) interpreted the tendency for the Korean won to follow a depreciating yen as that these countries regard Japan as a close competitor in international markets, and for the Singapore dollar to closely follow an appreciating yen

as the authorities ward off imported inflation. These asymmetric responses, reflecting different national priorities attached to export competitiveness and price stability, would clearly complicate efforts to design a collective currency peg. Concerning the findings of this section, our results were similar to Takagi's results but for the post-crisis period and not only for the Korean won and the Singapore dollar but also other countries. This paper investigates longer periods (the pre-crisis and the post-crisis periods), with data corresponding to both yen appreciation and depreciation. In the pre-crisis period, the findings of this section do not indicate that the impact of the depreciating yen differed from that of the appreciating yen. In contrast, in the case of the post-crisis period, the impact of the yen on those countries appeared to be greater and have tended to move more closely with an appreciating or depreciating, due to the emphasis of their authorities.

7. Summary and Conclusion

Choosing an appropriate exchange rate regime is one of the most fundamental policy issues in open economies since each regime has both advantages and disadvantages. We should consider what is the desirable type of regional common currency to introduce into East Asia in the future because East Asian countries have experienced the currency crisis and had a lesson that monetary authorities should not adopt the de facto dollar peg system or another currency crisis might occur. It follows that it is not desirable for a regional common currency to be based on the U.S. dollar as the anchor currency. Thus, the question arises now is: what kind of exchange rate policies that the East Asian countries have taken after the crisis?

The purpose of this paper is to investigate the behavior of emerging market East Asian currencies before, during and after the 1997 financial crisis. Based on high-frequency day-to-day observations, we examined the determinants of the exchange rates of twelve East Asian countries: the Philippines, Singapore, Thailand, Korea, Taiwan, and Indonesia; China, Malaysia, Hong Kong, Vietnam, Cambodia and Laos. And then, we discussed about (1) whether the impact of the Japanese yen in determining the values of post-crisis East Asian currencies has increased since the 1997 crisis and about (2) the reaction of East Asian currencies when the yen appreciates

compared with when it depreciates in the pre-crisis and post-crisis period.

First, by using the regression equations of Frankel and Wei (1994), we found that the distribution of exchange rate arrangements of the East Asian economies in the post-crisis is classified into two broad categories. One group is the case in some countries such as Malaysia, Hong Kong, China, Vietnam, Cambodia and Laos where the weight of the dollar has regained or kept prominence, while the other group is the case of Singapore, Thailand, Korea, Taiwan and The Philippines, Indonesia in which the dominance reduced and maintained a de jure or have approached to a de facto currency basket regime with significant weights on the U.S. dollar, the Japanese yen and the Euro. The estimation results of the countries at the U.S. dollar pegged group reported that those have kept a stable dollar peg throughout the pre-, mid- and post-crisis period. In contrast, at the other group, the impact of the U.S. dollar on those currencies has decreased while the impact of the Japanese yen on it has increased since 1997 financial crisis.

Second, we further found through conducting hypothesis test and rolling regression analysis, that the null hypothesis that the weight of the Japanese yen remains the same before and after the Asian crisis was strongly rejected in almost all the six de facto currency basket countries, supporting the alternative view that it has increased in the post-crisis period.

Third, asymmetric impacts of the Japanese yen/U.S. dollar rate on East Asian Exchange Rates are also found. In the pre-crisis and post-crisis period, the reaction of East Asian currencies is quite different when the yen appreciates compared with when it depreciates. In the post-crisis period, the Korean won, the Thai Baht and the Philippines Peso were more responsive to the yen when the yen was depreciating, the Singapore Dollar, the Indonesian Rupiah and the New Taiwan Dollar were more responsive to the yen when the yen was appreciating, while these features had not been seen in the pre-crisis period.

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Table 1: Exchange rate regime classification in East Asia

Country	31-January-1991	31-January-1999	30-April-2003
Philippines	MF	IF	IF
Singapore	MF	MF	MF
Taiwan	MF	MF	MF
Korea	MF	IF	IF
Thailand	FP	IF	MF
Indonesia	CP	IF	MF
Hong Kong	CBA	CBA	CBA
Malaysia	HB	FP	FP
China	MF	FP	FP
Vietnam	MF	HB	MF
Cambodia	MF	MF	MF
Laos	MF	MF	MF

Sources: Fisher (2001), Kawai (2002) and IMF Annual Report on Exchange Arrangements

Key:

CBA= Currency Board

CP= Crawling Peg

FP= Other conventional fixed pegs

IF= Independently Floating

HB= Pegged rate in horizontal band

MF= Managed Float with no pre-announced exchange rate path

**Table 2: Regression Results of Daily Exchange Rate Movements:
Pre-crisis, Mid-crisis, and Post-crisis Periods
Numéraire: Swiss Franc**

Philippines Peso

Period	Cons.	USD	JPY	EURO	R2-adj	D.W.	Std-res	No.obs.
90.01-91.06	0.001 +	1.029 **	0.038	0.006	0.6882	1.825	0.00577	389
91.07-92.12	0.000	1.050 **	-0.106	0.098 +	0.6703	1.322	0.00645	394
93.01-94.06	0.000	0.996 **	-0.009	-0.067	0.6162	1.293	0.00537	390
94.07-95.12	0.000	0.981 **	0.057	-0.051	0.7794	1.587	0.00431	391
96.01-97.06	0.000	1.005 **	-0.005	-0.003	0.9937	1.741	0.00047	391
97.07-98.12	0.001	0.878 **	0.288 **	-0.014	0.1883	1.464	0.01442	393
99.01-00.06	0.000	0.911 **	0.087 **	0.043	0.7420	1.686	0.00401	391
00.07-01.12	0.000	1.023 **	0.018	-0.178 *	0.3936	1.489	0.00871	391
02.01-03.06	0.000	0.841 **	0.081 *	0.101 *	0.7009	1.969	0.00381	390
03.07-04.11	0.000	0.934 **	0.054 +	-0.036	0.8543	2.042	0.00302	371

Singapore Dollar

Period	Cons.	USD	JPY	EURO	R2-adj	D.W.	Std-res	No.obs.
90.01-91.06	0.000 +	0.734 **	0.073 **	0.206 **	0.9188	1.810	0.00216	389
91.07-92.12	0.000	0.768 **	0.083 **	0.157 **	0.9461	1.875	0.00189	394
93.01-94.06	0.000	0.843 **	0.052 **	0.129 **	0.9223	1.612	0.00193	390
94.07-95.12	0.000 +	0.789 **	0.101 **	0.117 **	0.9383	1.542	0.00191	391
96.01-97.06	0.000	0.798 **	0.097 **	0.143 **	0.9304	1.822	0.00151	391
97.07-98.12	0.000	0.635 **	0.345 **	0.204 *	0.4776	1.698	0.00690	393
99.01-00.06	0.000	0.868 **	0.089 **	0.086 **	0.8501	1.785	0.00279	391
00.07-01.12	0.000	0.826 **	0.135 **	0.045 +	0.8923	1.671	0.00238	391
02.01-03.06	0.000	0.650 **	0.246 **	0.179 **	0.8516	1.962	0.00228	390
03.07-04.11	0.000	0.631 **	0.229 **	0.205 **	0.9178	1.984	0.00205	371

New Taiwan Dollar

Period	Cons.	USD	JPY	EURO	R2-adj	D.W.	Std-res	No.obs.
90.01-91.06	0.000	1.021 **	0.061	0.020	0.1515	2.277	0.02013	389
91.07-92.12	0.000	0.781 *	0.373	0.563 *	0.1071	2.530	0.03187	394
93.01-94.06	0.000	0.982 **	0.068	0.036	0.6270	1.949	0.00568	390
94.07-95.12	0.000	0.963 **	0.050 *	0.051 *	0.9307	1.451	0.00230	391
96.01-97.06	0.000	0.945 **	0.011	0.041 *	0.9501	2.051	0.00131	391
97.07-98.12	0.000	0.851 **	0.108 **	0.089	0.6019	1.223	0.00507	393
99.01-00.06	0.000	0.976 **	-0.004	0.039 +	0.9085	1.950	0.00213	391
00.07-01.12	0.000 **	0.970 **	0.010	0.000	0.9064	1.520	0.00225	391
02.01-03.06	0.000	0.862 **	0.074 **	0.106 **	0.9151	1.600	0.00182	390
03.07-04.11	0.000	0.877 **	0.096 **	0.077 **	0.9056	1.846	0.00240	371

Korean Won

Period	Cons.	USD	JPY	EURO	R2-adj	D.W.	Std-res	No.obs.
90.01-91.06	0.000	1.007 **	-0.014	-0.018	0.9336	1.147	0.00215	389
91.07-92.12	0.000	1.029 **	-0.016	-0.019	0.8097	1.185	0.00446	394
93.01-94.06	0.000	1.013 **	-0.020 *	0.001	0.9719	1.752	0.00121	390
94.07-95.12	0.000	0.981 **	0.080 **	-0.041 +	0.9329	1.399	0.00221	391
96.01-97.06	0.000 **	0.957 **	0.064 **	0.023	0.8599	1.475	0.00238	391
97.07-98.12	0.001	1.149 **	0.043	0.090	0.0902	1.235	0.02430	393
99.01-00.06	0.000	0.971 **	0.066 **	-0.038	0.7451	1.338	0.00400	391
00.07-01.12	0.000	0.869 **	0.297 **	-0.128 *	0.6699	2.042	0.00553	391
02.01-03.06	0.000	0.692 **	0.279 **	0.155 *	0.4920	2.028	0.00583	390
03.07-04.11	0.000	0.773 **	0.216 **	0.097 *	0.7901	1.894	0.00384	371

Note: + significant at 10%; * significant at 5%; ** significant at 1%

Table 2: (continued)
Pre-crisis, Mid-crisis, and Post-crisis Periods
Numéraire: Swiss Franc

Thai Baht

	Cons.	USD	JPY	EURO	R2-adj	D.W.	Std-res	No.obs.
90.01-91.06	0.000	0.956 **	0.031 *	0.034 *	0.9545	1.287	0.00176	389
91.07-92.12	0.000	0.960 **	0.020	0.032 **	0.9779	1.061	0.00134	394
93.01-94.06	0.000	0.967 **	0.012	0.014	0.9778	1.212	0.00105	390
94.07-95.12	0.000	0.875 **	0.070 **	0.053 **	0.9883	1.756	0.00084	391
96.01-97.06	0.000	0.833 **	0.178 **	0.133	0.4777	1.136	0.00618	391
97.07-98.12	0.001	0.609 **	0.312 **	0.104	0.1006	1.657	0.01722	393
99.01-00.06	0.000	0.816 **	0.125 **	0.054	0.5931	1.687	0.00532	391
00.07-01.12	0.000	0.840 **	0.195 **	-0.026	0.7630	1.597	0.00400	391
02.01-03.06	0.000	0.683 **	0.199 **	0.185 **	0.6704	2.066	0.00385	390
03.07-04.11	0.000	0.747 **	0.203 **	0.128 **	0.9053	1.504	0.00235	371

Indonesian Rupiah

	Cons.	USD	JPY	EURO	R2-adj	D.W.	Std-res	No.obs.
90.01-91.06	0.000 +	0.956 **	0.030	0.041 +	0.9097	1.447	0.00255	389
91.07-92.12	0.000 **	1.002 **	-0.005	0.000	0.9901	1.472	0.00090	394
93.01-94.06	0.000 *	0.998 **	0.010	-0.008	0.9739	1.519	0.00116	390
94.07-95.12	0.000 *	0.992 **	-0.013	0.016	0.9711	1.621	0.00144	391
96.01-97.06	0.000 *	1.011 **	0.001	-0.001	0.9381	1.803	0.00153	391
97.07-98.12	0.003	0.499	0.686 *	-0.114	0.0146	1.630	0.05315	393
99.01-00.06	0.000	0.871 **	0.261 **	0.019	0.1836	1.512	0.01590	391
00.07-01.12	0.001	1.240 **	-0.004	-0.260 *	0.3024	1.577	0.01255	391
02.01-03.06	0.000	0.779 **	0.080	0.235 **	0.4652	1.763	0.00623	390
03.07-04.10	0.000	0.808 **	0.186 **	0.072	0.6925	1.789	0.00496	371

Hong Kong Dollar

Period	Cons.	USD	JPY	EURO	R2-adj	D.W.	Std-res	No.obs.
90.01-91.06	0.000	0.993 **	-0.001	0.006	0.9972	1.234	0.00043	389
91.07-92.12	0.000	0.998 **	-0.011	0.009 +	0.9957	2.280	0.00060	394
93.01-94.06	0.000	0.992 **	0.000	0.009 *	0.9975	1.875	0.00036	390
94.07-95.12	0.000	0.997 **	0.001	0.003	0.9994	1.460	0.00020	391
96.01-97.06	0.000	0.998 **	0.009 **	-0.007 +	0.9978	2.202	0.00028	391
97.07-98.12	0.000	1.001 **	0.006 *	0.001	0.9936	2.109	0.00053	393
99.01-00.06	0.000 **	1.000 **	0.001	0.000	0.9998	1.965	0.00010	391
00.07-01.12	0.000	1.000 **	0.000	0.000	0.9999	1.749	0.00007	391
02.01-03.06	0.000	1.001 **	0.000	0.000	0.9996	1.890	0.00012	390
03.07-04.11	0.000	0.972 **	0.021 **	0.023 **	0.9949	1.305	0.00054	371

Malaysian Ringgit

	Cons.	USD	JPY	EURO	R2-adj	D.W.	Std-res	No.obs.
90.01-91.06	0.000	0.892 **	0.032 **	0.094 **	0.9738	1.838	0.00128	389
91.07-92.12	0.000	0.880 **	0.028	0.070 **	0.9478	1.564	0.00196	394
93.01-94.06	0.000	0.901 **	0.001	0.027	0.8167	1.271	0.00307	390
94.07-95.12	0.000	0.871 **	0.060 **	0.080 **	0.9528	1.494	0.00174	391
96.01-97.06	0.000	0.890 **	0.035 *	0.078 **	0.9235	1.632	0.00162	391
97.07-98.12	0.001	0.883 **	0.303 **	-0.018	0.1831	1.480	0.01491	393
99.01-00.06	0.000	1.001 **	0.000	0.003	0.9989	2.432	0.00023	391
00.07-01.12	0.000	1.000 **	0.000	0.000	1.0000	2.426	0.00000	391
02.01-03.06	0.000	1.000 **	0.000	0.000	1.0000	2.375	0.00000	390
03.07-04.11	0.000	1.000 **	0.000	0.000	1.0000	1.006	0.00000	371

Note: + significant at 10%; * significant at 5%; ** significant at 1%

Table 2: (continued)
Pre-crisis, Mid-crisis, and Post-crisis Periods
Numéraire: Swiss Franc

Chinese Renminbi

	Cons.	USD	JPY	EURO	R2-adj	D.W.	Std-res	No.obs.
90.01-91.06	0.000	1.024 **	-0.035	0.011	0.7145	1.005	0.00518	389
91.07-92.12	0.000	1.045 **	-0.041	-0.061 *	0.8900	1.105	0.00320	394
93.01-94.06	0.001	0.969 **	0.084	0.057	0.1159	2.002	0.01993	390
94.07-95.12	0.000 *	1.030 **	-0.001	-0.030 **	0.9829	1.247	0.00112	391
96.01-97.06	0.000	1.018 **	-0.010	-0.013	0.9344	2.642	0.00157	391
97.07-98.12	0.000	0.996 **	0.001	-0.002	0.9917	1.999	0.00060	393
99.01-00.06	0.000	1.001 **	0.000	0.004	0.9943	1.048	0.00051	391
00.07-01.12	0.000	1.000 **	0.000	-0.001	1.0000	1.911	0.00004	391
02.01-03.06	0.000	1.007 **	-0.002	0.002	0.9870	2.410	0.00073	390
03.07-04.11	0.000	1.011 **	-0.008	-0.010	0.9744	1.993	0.00124	371

Vietnamese Dong

	Cons.	USD	JPY	EURO	R2-adj	D.W.	Std-res	No.obs.
90.01-91.06	0.001 *	0.588 **	-0.193 +	0.276 *	0.1262	1.062	0.01363	389
91.07-92.12	0.001	0.565 **	-0.002	0.261 +	0.1138	1.056	0.01634	394
93.01-94.06	0.000	0.402 **	-0.111	0.526 **	0.2208	1.097	0.00903	390
94.07-95.12	0.000	0.589 **	-0.040	0.436 **	0.6125	1.261	0.00574	391
96.01-97.06	0.000	0.689 **	-0.035	0.423 **	0.5744	1.692	0.00483	391
97.07-98.12	0.000 +	1.013 **	0.036	-0.033	0.6172	1.467	0.00524	393
99.01-00.06	0.000 **	0.998 **	0.000	-0.001	0.9995	1.849	0.00015	391
00.07-01.12	0.000 **	1.001 **	-0.003	0.002	0.9985	0.955	0.00027	391
02.01-03.06	0.000 **	1.002 **	-0.002	-0.002	0.9989	1.851	0.00021	390
03.07-04.11	0.000 *	0.994 **	0.008	0.002	0.9959	1.639	0.00049	371

Cambodia Riel

	Cons.	USD	JPY	EURO	R2-adj	D.W.	Std-res	No.obs.
90.01-91.06	0.003	0.580	-0.523	0.257	0.0035	1.001	0.04559	389
91.07-92.12	0.003	0.353	0.313	0.337	0.0144	1.019	0.04287	394
93.01-94.06	0.001	0.235	0.194	0.754 *	0.0240	1.015	0.03380	390
94.07-95.12	-0.001	0.703 **	0.060	0.351 +	0.1445	1.061	0.01884	391
96.01-97.06	0.000	0.969 **	-0.184	0.237	0.1656	1.059	0.01356	391
97.07-98.12	0.001	1.296 **	0.099	-0.428 +	0.1421	1.163	0.01876	393
99.01-00.06	-0.004	-3.710	-2.590	3.800	-0.0018	1.990	0.51888	391
00.07-01.12	0.000	0.943 **	0.042	0.074 *	0.7764	1.442	0.00385	391
02.01-03.06	0.000	0.996 **	-0.002	0.000	0.9845	1.641	0.00079	390
03.07-04.11	0.000	1.018 **	-0.024	-0.014	0.8637	1.651	0.00302	371

Laos Kip

	Cons.	USD	JPY	EURO	R2-adj	D.W.	Std-res	No.obs.
90.01-91.06	0.000	0.461 **	0.011	0.466 **	0.1809	1.055	0.01305	389
91.07-92.12	0.000	0.348 **	0.052	0.538 **	0.2765	1.111	0.00943	394
93.01-94.06	0.000	0.411 **	-0.078	0.467 **	0.2509	1.139	0.00804	390
94.07-95.12	0.001	0.606 **	0.039	0.481 **	0.2707	1.069	0.01275	391
96.01-97.06	0.000	0.711 **	-0.056	0.394 **	0.5587	1.372	0.00494	391
97.07-98.12	0.004 *	0.715 *	-0.268	0.185	0.0180	1.198	0.03163	393
99.01-00.06	-0.004	-5.447	-3.810	4.733	-0.0012	1.988	0.72639	391
00.07-01.12	0.000	0.940 **	0.030	-0.113 **	0.6899	1.608	0.00445	391
02.01-03.06	0.000	0.996 **	-0.002	0.000	0.9844	1.644	0.00079	390
03.07-04.11	0.000	1.002 **	-0.030	-0.019	0.9223	1.397	0.00216	371

Note: + significant at 10%; * significant at 5%; ** significant at 1%

**Table 3: Regression Results of Daily Exchange Rate Movements:
Pre-crisis, Mid-crisis, and Post-crisis Periods
Numeraire: Australian Dollar**

Philippines Peso

	Cons.	USD	JPY	EURO	R2-adj	D.W.	Std-res	No.obs.
90.01-91.06	0.001 +	1.053 **	0.015	-0.036	0.5061	1.830	0.00578	389
91.07-92.12	0.000	0.990 **	-0.141 *	0.075 +	0.2792	1.316	0.00645	394
93.01-94.06	0.000	1.080 **	0.001	-0.011	0.5567	1.281	0.00537	390
94.07-95.12	0.000	0.884 **	0.072 *	-0.045	0.5306	1.598	0.00429	391
96.01-97.06	0.000	1.003 **	-0.003	-0.001	0.9880	1.746	0.00047	391
97.07-98.12	0.001	0.776 **	0.206 *	-0.163	0.1575	1.495	0.01437	393
99.01-00.06	0.000	0.839 **	0.073 **	0.007	0.7012	1.709	0.00397	391
00.07-01.12	0.000	1.037 **	0.039	-0.092	0.4532	1.505	0.00874	391
02.01-03.06	0.000	0.841 **	0.073 +	0.087 *	0.6812	1.969	0.00381	390
03.07-04.11	0.000	0.937 **	0.045	-0.018	0.8635	2.047	0.00302	371

Singapore Dollar

	Cons.	USD	JPY	EURO	R2-adj	D.W.	Std-res	No.obs.
90.01-91.06	0.000 +	0.725 **	0.068 **	0.198 **	0.8746	1.812	0.00216	389
91.07-92.12	0.000	0.742 **	0.074 **	0.153 **	0.8352	1.867	0.00189	394
93.01-94.06	0.000	0.838 **	0.046 **	0.112 **	0.8993	1.624	0.00193	390
94.07-95.12	0.000 +	0.810 **	0.095 **	0.114 **	0.8847	1.536	0.00191	391
96.01-97.06	0.000	0.805 **	0.082 **	0.117 **	0.8951	1.851	0.00151	391
97.07-98.12	0.000	0.462 **	0.208 **	0.008	0.3671	1.789	0.00654	393
99.01-00.06	0.000	0.848 **	0.084 **	0.053 *	0.8441	1.793	0.00280	391
00.07-01.12	0.000	0.806 **	0.132 **	0.028	0.9101	1.676	0.00237	391
02.01-03.06	0.000	0.626 **	0.210 **	0.126 **	0.8403	1.982	0.00229	390
03.07-04.11	0.000	0.639 **	0.202 **	0.144 **	0.9145	2.029	0.00207	371

New Taiwan Dollar

	Cons.	USD	JPY	EURO	R2-adj	D.W.	Std-res	No.obs.
90.01-91.06	0.000	1.021 **	0.027	-0.040	0.0684	2.282	0.02014	389
91.07-92.12	0.000	0.675	-0.091	0.150	0.0031	2.541	0.03210	394
93.01-94.06	0.000	0.955 **	0.047	-0.024	0.4897	1.968	0.00569	390
94.07-95.12	0.000	0.960 **	0.014	0.020	0.8166	1.448	0.00233	391
96.01-97.06	0.000	0.964 **	0.010	0.044 *	0.9169	2.046	0.00131	391
97.07-98.12	0.000	0.844 **	0.101 **	0.049	0.7028	1.224	0.00507	393
99.01-00.06	0.000	0.984 **	-0.004	0.032 +	0.9106	1.949	0.00212	391
00.07-01.12	0.000 **	0.962 **	0.012	0.006	0.9219	1.534	0.00224	391
02.01-03.06	0.000	0.874 **	0.063 **	0.084 **	0.9078	1.594	0.00182	390
03.07-04.11	0.000	0.878 **	0.093 **	0.046 +	0.9087	1.846	0.00243	371

Korean Won

	Cons.	USD	JPY	EURO	R2-adj	D.W.	Std-res	No.obs.
90.01-91.06	0.000	0.997 **	-0.006	-0.004	0.8717	1.143	0.00215	389
91.07-92.12	0.000	0.969 **	-0.022	-0.014	0.4391	1.186	0.00445	394
93.01-94.06	0.000	1.001 **	-0.017 +	0.005	0.9548	1.752	0.00121	390
94.07-95.12	0.000	0.928 **	0.073 **	-0.051 *	0.8245	1.388	0.00220	391
96.01-97.06	0.000 **	0.950 **	0.048 *	-0.007	0.7631	1.488	0.00239	391
97.07-98.12	0.001	1.026 **	-0.059	-0.166	0.0756	1.236	0.02429	393
99.01-00.06	0.000	0.960 **	0.064 *	-0.038	0.7291	1.341	0.00400	391
00.07-01.12	0.000	0.824 **	0.287 **	-0.180 **	0.6718	2.040	0.00551	391
02.01-03.06	0.000	0.694 **	0.233 **	0.080	0.4678	2.041	0.00586	390
03.07-04.11	0.000	0.780 **	0.191 **	0.025	0.7802	1.909	0.00386	371

Note: + significant at 10%; * significant at 5%; ** significant at 1%

Table 3: (continued)
Pre-crisis, Mid-crisis, and Post-crisis Periods
Numeraire: Australian Dollar

Thai Baht

	Cons.	USD	JPY	EURO	R2-adj	D.W.	Std-res	No.obs.
90.01-91.06	0.000	0.936 **	0.024 +	0.020	0.9083	1.270	0.00176	389
91.07-92.12	0.000	0.964 **	0.013	0.025 **	0.9074	1.058	0.00134	394
93.01-94.06	0.000	0.963 **	0.015 +	0.019 *	0.9666	1.215	0.00105	390
94.07-95.12	0.000	0.883 **	0.071 **	0.054 **	0.9735	1.754	0.00084	391
96.01-97.06	0.000	0.858 **	0.120 *	0.036	0.3411	1.130	0.00621	391
97.07-98.12	0.001	0.408 *	0.157	0.022	0.0553	1.688	0.01695	393
99.01-00.06	0.000	0.768 **	0.118 **	0.053	0.5760	1.688	0.00530	391
00.07-01.12	0.000	0.822 **	0.192 **	-0.043	0.7898	1.607	0.00400	391
02.01-03.06	0.000	0.681 **	0.173 **	0.144 **	0.6667	2.065	0.00385	390
03.07-04.11	0.000	0.753 **	0.184 **	0.066 **	0.9012	1.503	0.00239	371

Indonesian Rupiah

	Cons.	USD	JPY	EURO	R2-adj	D.W.	Std-res	No.obs.
90.01-91.06	0.000 +	0.926 **	0.020	0.023	0.8221	1.478	0.00255	389
91.07-92.12	0.000 **	0.994 **	-0.004	0.002	0.9554	1.475	0.00090	394
93.01-94.06	0.000 *	1.022 **	0.006	-0.007	0.9613	1.510	0.00116	390
94.07-95.12	0.000 *	1.005 **	-0.011	0.018	0.9227	1.616	0.00144	391
96.01-97.06	0.000 *	1.048 **	-0.008	-0.006	0.8936	1.818	0.00152	391
97.07-98.12	0.002	0.023	0.318	-0.316	-0.0045	1.647	0.05267	393
99.01-00.06	0.000	0.777 **	0.238 *	-0.097	0.1266	1.507	0.01591	391
00.07-01.12	0.000	1.194 **	-0.005	-0.277 **	0.2899	1.584	0.01254	391
02.01-03.06	0.000	0.749 **	0.034	0.169 **	0.4165	1.775	0.00624	390
03.07-04.11	0.000	0.817 **	0.154 **	0.006	0.6829	1.795	0.00497	371

Hong Kong Dollar

	Cons.	USD	JPY	EURO	R2-adj	D.W.	Std-res	No.obs.
90.01-91.06	0.000	0.990 **	0.000	0.007 *	0.9944	1.237	0.00043	389
91.07-92.12	0.000	1.003 **	-0.007	0.011 **	0.9806	2.279	0.00060	394
93.01-94.06	0.000	0.991 **	0.000	0.008 *	0.9960	1.882	0.00036	390
94.07-95.12	0.000	0.996 **	0.001	0.003	0.9983	1.461	0.00020	391
96.01-97.06	0.000	0.994 **	0.010 **	-0.007 +	0.9958	2.214	0.00028	391
97.07-98.12	0.000	1.002 **	0.007 *	-0.005	0.9960	2.125	0.00053	393
99.01-00.06	0.000 **	1.000 **	0.001	0.000	0.9998	1.978	0.00010	391
00.07-01.12	0.000	1.000 **	0.000	0.000	0.9999	1.750	0.00007	391
02.01-03.06	0.000	1.000 **	-0.001	-0.001	0.9995	1.869	0.00012	390
03.07-04.11	0.000	0.972 **	0.020 **	0.013 *	0.9952	1.307	0.00055	371

Malaysian Ringgit

	Cons.	USD	JPY	EURO	R2-adj	D.W.	Std-res	No.obs.
90.01-91.06	0.000	0.889 **	0.026 **	0.083 **	0.9507	1.851	0.00129	389
91.07-92.12	0.000	0.874 **	0.041 +	0.082 **	0.8213	1.573	0.00196	394
93.01-94.06	0.000	0.910 **	0.020	0.076 **	0.7752	1.278	0.00309	390
94.07-95.12	0.000	0.898 **	0.052 **	0.075 **	0.8984	1.496	0.00174	391
96.01-97.06	0.000	0.906 **	0.032 *	0.077 **	0.8804	1.627	0.00162	391
97.07-98.12	0.001	0.602 **	0.083	-0.236	0.0611	1.514	0.01437	393
99.01-00.06	0.000	1.000 **	-0.001	0.000	0.9988	2.440	0.00023	391
00.07-01.12	0.000	1.000 **	0.000 *	0.000	1.0000	2.251	0.00000	391
02.01-03.06	0.000	1.000 **	0.000	0.000	1.0000	2.270	0.00000	390
03.07-04.11	0.000	1.000 **	0.000	0.000	1.0000	1.001	0.00000	371

Note: + significant at 10%; * significant at 5%; ** significant at 1%

Table 3: (continued)
Pre-crisis, Mid-crisis, and Post-crisis Periods
Numeraire: Australian Dollar

Chinese Renminbi

	Cons.	USD	JPY	EURO	R2-adj	D.W.	Std-res	No.obs.
90.01-91.06	0.000	1.021 **	-0.035	0.011	0.5444	1.005	0.00518	389
91.07-92.12	0.000	0.972 **	-0.016	-0.027	0.6021	1.093	0.00320	394
93.01-94.06	0.001	1.110 **	0.030	-0.018	0.0863	1.999	0.01992	390
94.07-95.12	0.000 *	1.050 **	-0.002	-0.030 **	0.9527	1.230	0.00111	391
96.01-97.06	0.000	1.034 **	-0.010	-0.009	0.8839	2.642	0.00157	391
97.07-98.12	0.000	0.996 **	0.002	0.002	0.9949	1.997	0.00060	393
99.01-00.06	0.000	1.006 **	0.001	0.001	0.9943	1.063	0.00051	391
00.07-01.12	0.000	1.000 **	0.000	0.000	1.0000	1.914	0.00004	391
02.01-03.06	0.000	1.014 **	-0.002	0.000	0.9847	2.406	0.00073	390
03.07-04.11	0.000	1.012 **	-0.012	-0.010	0.9760	2.000	0.00125	371

Vietnamese Dong

	Cons.	USD	JPY	EURO	R2-adj	D.W.	Std-res	No.obs.
90.01-91.06	0.001 *	0.472 **	-0.089	0.464 **	0.1329	1.065	0.01375	389
91.07-92.12	0.001	0.642 **	0.120	0.361 **	0.1019	1.065	0.01636	394
93.01-94.06	0.000	0.307 *	-0.043	0.652 **	0.3353	1.115	0.00907	390
94.07-95.12	0.000	0.423 **	-0.018	0.443 **	0.4370	1.259	0.00569	391
96.01-97.06	0.000	0.665 **	-0.062	0.369 **	0.4410	1.694	0.00484	391
97.07-98.12	0.000	0.993 **	0.021	-0.052	0.6995	1.476	0.00524	393
99.01-00.06	0.000 **	0.998 **	0.000	0.001	0.9995	1.846	0.00015	391
00.07-01.12	0.000 **	1.001 **	-0.003	0.003	0.9988	0.956	0.00027	391
02.01-03.06	0.000 **	1.003 **	-0.001	-0.001	0.9987	1.871	0.00021	390
03.07-04.11	0.000 *	0.993 **	0.010 +	0.002	0.9963	1.640	0.00049	371

Cambodia Riel

	Cons.	USD	JPY	EURO	R2-adj	D.W.	Std-res	No.obs.
90.01-91.06	0.003	0.603	-0.296	0.665 +	0.0147	1.001	0.04579	389
91.07-92.12	0.003	0.592	0.348	0.330	0.0145	1.016	0.04286	394
93.01-94.06	0.002	-0.308	0.225	0.624 *	0.0197	1.000	0.03372	390
94.07-95.12	-0.001	0.354	0.024	0.295 +	0.0346	1.059	0.01878	391
96.01-97.06	0.000	1.052 **	-0.202	0.227	0.0962	1.059	0.01356	391
97.07-98.12	0.001	1.397 **	0.177	-0.372 *	0.2149	1.151	0.01870	393
99.01-00.06	-0.004	-2.170	-2.162	6.412	-0.0007	1.991	0.51913	391
00.07-01.12	0.000	0.949 **	0.034	0.045	0.8108	1.446	0.00386	391
02.01-03.06	0.000	0.998 **	0.000	0.004	0.9816	1.643	0.00079	390
03.07-04.11	0.000	1.013 **	-0.006	0.013	0.8779	1.654	0.00302	371

Laos Kip

	Cons.	USD	JPY	EURO	R2-adj	D.W.	Std-res	No.obs.
90.01-91.06	0.000	0.496 **	0.033	0.505 **	0.1994	1.057	0.01305	389
91.07-92.12	0.000	0.362 **	0.093	0.573 **	0.3270	1.121	0.00943	394
93.01-94.06	0.000	0.312 **	-0.005	0.605 **	0.3804	1.174	0.00809	390
94.07-95.12	0.001	0.523 **	-0.025	0.420 **	0.1388	1.057	0.01276	391
96.01-97.06	0.000	0.645 **	-0.067	0.356 **	0.4106	1.375	0.00494	391
97.07-98.12	0.004 *	0.776 *	-0.211	0.489	0.0765	1.205	0.03168	393
99.01-00.06	-0.004	-3.416	-3.199	8.816	-0.0011	1.989	0.72688	391
00.07-01.12	0.000	0.976 **	0.054	-0.008	0.7613	1.602	0.00451	391
02.01-03.06	0.000	0.998 **	0.000	0.005	0.9816	1.647	0.00079	390
03.07-04.11	0.000	0.996 **	-0.009	0.027	0.9317	1.418	0.00217	371

Note: + significant at 10%; * significant at 5%; ** significant at 1%

Table 4: Regression Results of Daily Exchange Rate Movements:

	Period	Cons.	USD	JPY	EURO	R2-adj	Std-res
PHP (Philippines Peso)	1990.01 ~ 1997.06	0.000	0.992 ** (0.021)	0.011 (0.019)	0.008	0.7117	0.005
	1999.01 ~ 2004.11	0.000 +	0.926 ** (0.028)	0.071 ** (0.023)	(0.033)	0.6088	0.005
SGD (Singapore Dollar)	1990.01 ~ 1997.06	0.000 **	0.778 ** (0.008)	0.078 ** (0.007)	0.157 **	0.9315	0.002
	1999.01 ~ 2004.11	0.000	0.753 ** (0.013)	0.157 ** (0.010)	0.119 **	0.8736	0.002
KRW (Korean Won)	1990.01 ~ 1997.06	0.000 *	0.997 ** (0.011)	0.016 (0.011)	(0.017)	0.8914	0.003
	1990.01 ~ 1997.06	0.000	0.850 ** (0.025)	0.190 ** (0.021)	0.000	0.6641	0.005
TWD (New Taiwan Dollar)	1990.01 ~ 1997.06	0.000	0.937 ** (0.071)	0.102 (0.067)	0.170 *	0.1930	0.017
	1999.01 ~ 2004.11	0.000	0.928 ** (0.011)	0.034 ** (0.009)	0.050 **	0.9064	0.002
THB (Thai Baht)	1990.01 ~ 1997.06	0.000	0.923 ** (0.012)	0.059 ** (0.012)	0.040 **	0.8640	0.003
	1999.01 ~ 2004.11	0.000	0.784 ** (0.021)	0.173 ** (0.017)	0.070 **	0.7268	0.004
IDR (Indonesia Rupiah)	1990.01 ~ 1997.06	0.000 **	0.989 ** (0.007)	0.008 (0.006)	0.012 +	0.9587	0.002
	1999.01 ~ 2004.11	0.000	0.912 ** (0.056)	0.176 ** (0.046)	(0.017)	0.3046	0.011

Note: (1) + significant at 10%; * significant at 5%; ** significant at 1%

(2) Numbers in parentheses are standard errors.

TABLE 5: The hypothesis test statistics

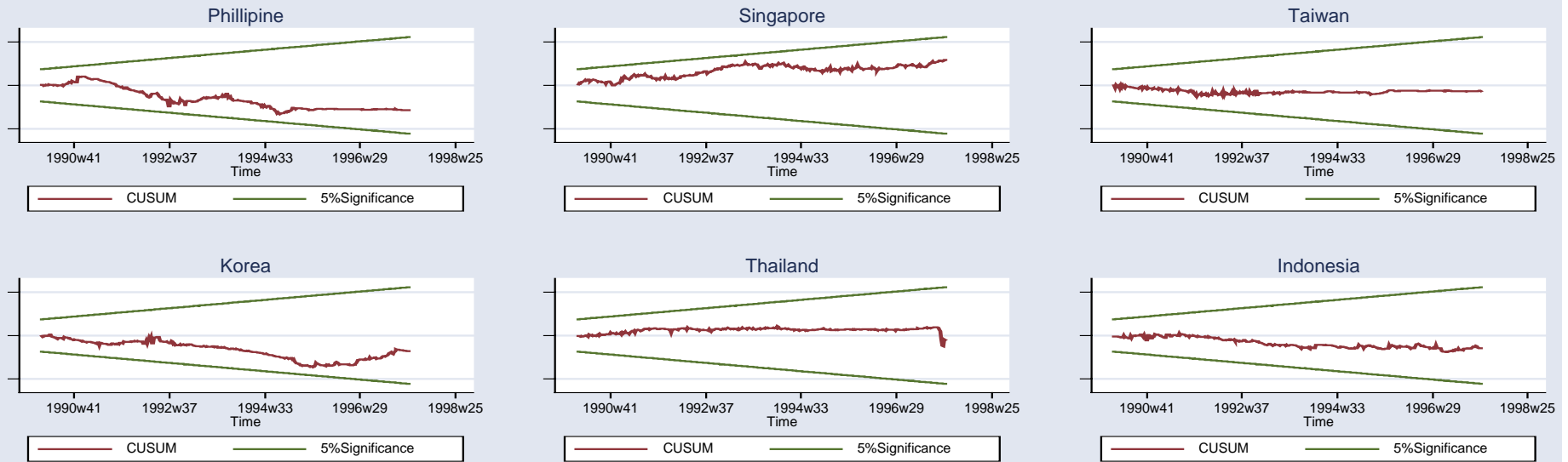
Country	Singapore	Korea	Philippines	Thailand	Indonesia	Taiwan
Statistic	7.741	8.433	2.666	6.758	3.680	-7.487

Table 6: The impacts of Yen-Dollar Rate on Exchange Rate Movements of East Asia

	Period	Cons.	USD	JPY	EURO	USD's Dum	JPY's Dum	R2-adj	D.W.	Std-res
PHP (Philippines Peso)	1990.01~ 1997.06	0.000	0.977 **	0.003	0.007	0.032	0.021	0.7118	1.484	0.00496
	1999.01~ 2004.11	0.000	0.969 **	0.025 *	-0.034	-0.094 +	0.091 *	0.6095	1.654	0.00540
SGD (Singapore Dollar)	1990.01~ 1997.06	0.000 **	0.781 **	0.070 **	0.155 **	-0.003	0.034 *	0.9316	1.729	0.00190
	1999.01~ 2004.11	0.000	0.717 **	0.175 **	0.120 **	0.095 **	-0.046 *	0.8748	1.828	0.00244
TWD (New Taiwan Dollar)	1990.01~ 1997.06	0.000	0.956 **	0.115	0.179 *	-0.091	-0.073	0.1927	2.464	0.01712
	1999.01~ 2004.11	0.000	0.906 **	0.065 **	0.050 **	0.052 *	-0.063 **	0.9070	1.733	0.00218
KRW (Korean Won)	1990.01~ 1997.06	0.000 *	1.009 **	0.006	-0.018	-0.024	0.021	0.8914	1.270	0.00271
	1999.01~ 2004.11	0.000	0.889 **	0.146 **	-0.001	-0.084 +	0.086 *	0.6647	1.884	0.00495
THB (Thai Baht)	1990.01~ 1997.06	0.000	0.927 **	0.059 **	0.041 **	-0.009	0.000	0.8638	1.136	0.00301
	1999.01~ 2004.11	0.000	0.814 **	0.123 **	0.070 **	-0.062 +	0.096 **	0.7278	1.741	0.00405
IDR (Indonesia Rupiah)	1990.01~ 1997.06	0.000 **	0.991 **	0.008	0.013 +	-0.009	-0.001	0.9587	1.540	0.00161
	1999.01~ 2004.11	0.000	0.820 **	0.219 **	-0.016	0.242 *	-0.107	0.3061	1.570	0.01096
HKD (HongKong Dollar)	1990.01~ 1997.06	0.000	0.994 **	-0.002	0.006 **	-0.001	0.003	0.9974	1.907	0.00039
	1999.01~ 2004.11	0.000	0.992 **	0.008 **	0.004 **	0.006 *	-0.007 **	0.9984	1.408	0.00028
MYR (Malaysian Ringgit)	1990.01~ 1997.06	0.000	0.891 **	0.023 *	0.073 **	-0.012	0.015	0.9280	1.453	0.00203
	1999.01~ 2004.11	0.000	1.000 **	0.000	0.001	0.001	0.000	0.9997	2.437	0.00011
CHY (Chinese Renminbi)	1990.01~ 1997.06	0.000	1.014 **	0.010	-0.013	0.013	-0.028	0.4165	1.916	0.00933
	1999.01~ 2004.10	0.000	1.005 **	-0.001	-0.001	-0.002	-0.001	0.9885	2.003	0.00076
VND (Vietnamese Dong)	1990.01~ 1997.06	0.000 +	0.572 **	-0.093	0.366 **	0.028	-0.032	0.2189	1.096	0.01090
	1999.01~ 2004.11	0.000 **	0.997 **	0.003	0.001	0.003	-0.003	0.9980	1.497	0.00031
KHR (Cambodia Riel)	1990.01~ 1997.06	0.002 +	0.556 **	-0.060	0.386 *	0.049	-0.085	0.0276	1.011	0.03347
	1999.01~ 2004.11	0.000	0.670	-0.061	0.922	-1.065	-2.194	-0.0001	1.996	0.26081
LAK (Laos Kip)	1990.01~ 1997.06	0.000	0.456 **	-0.013	0.509 **	0.061	-0.034	0.2646	1.095	0.01011
	1999.01~ 2004.11	0.001	0.614	-0.226	1.075	-1.518	-2.986	0.0000	1.993	0.36513

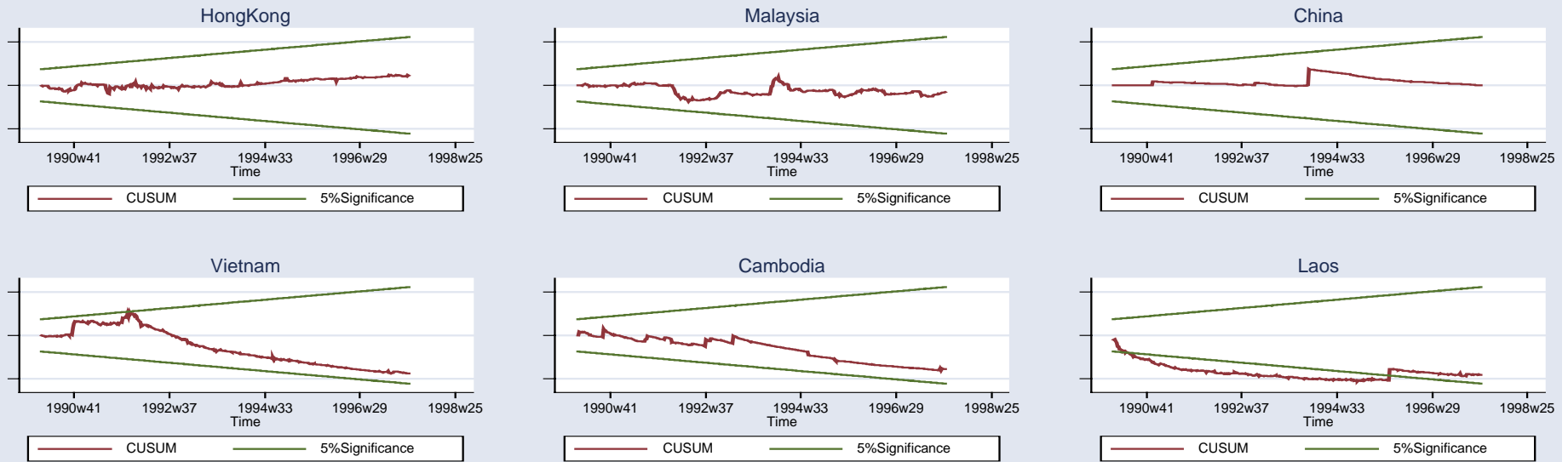
Note: + significant at 10%; * significant at 5%; ** significant at 1%

CUSUM test for the pre-crisis period



Source: Datastream

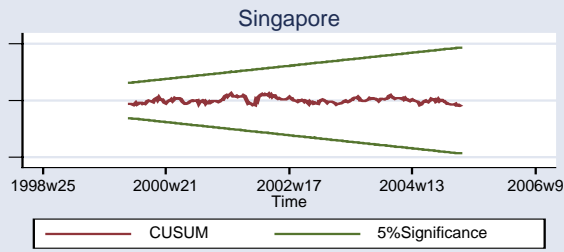
CUSUM test for the pre-crisis period



Source: Datastream

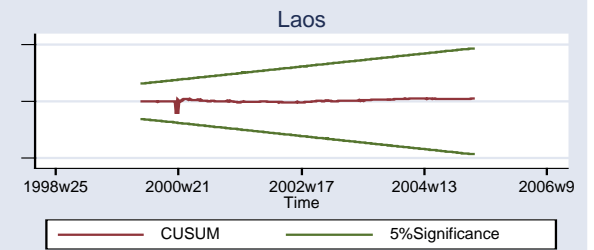
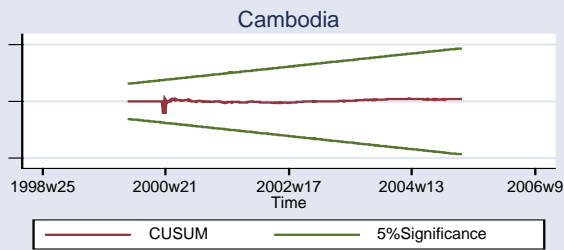
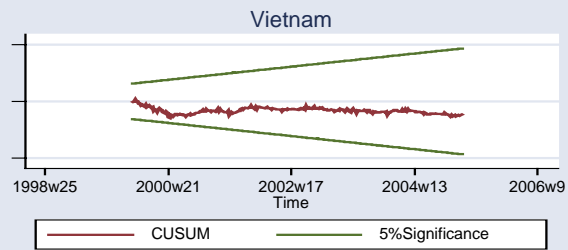
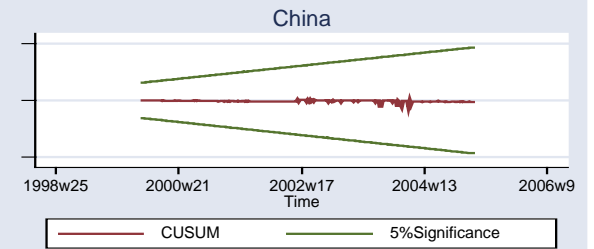
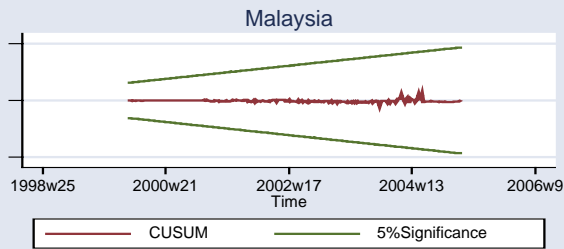
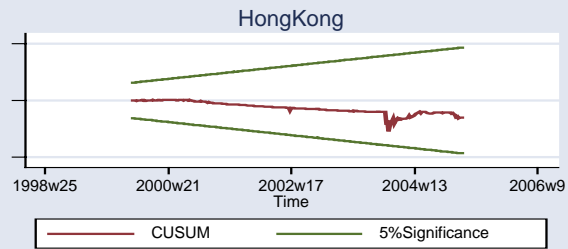
Figure 1: CUSUM test for the Pre-crisis Period

CUSUM test for the post-crisis period



Source: Datastream

CUSUM test for the post-crisis period

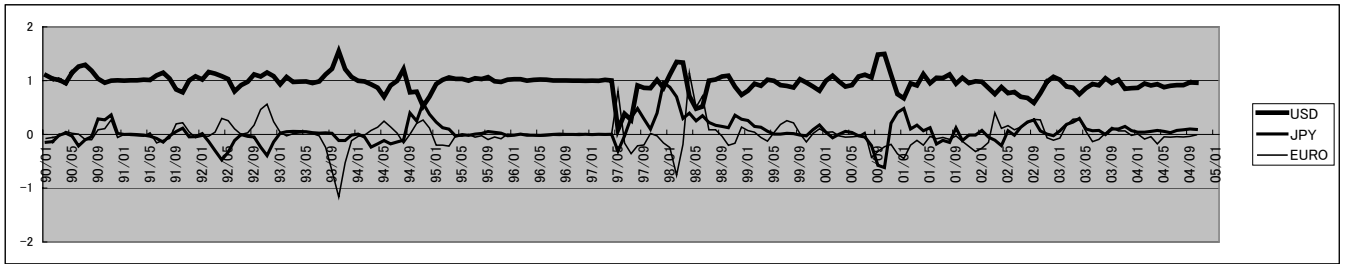


Source: Datastream

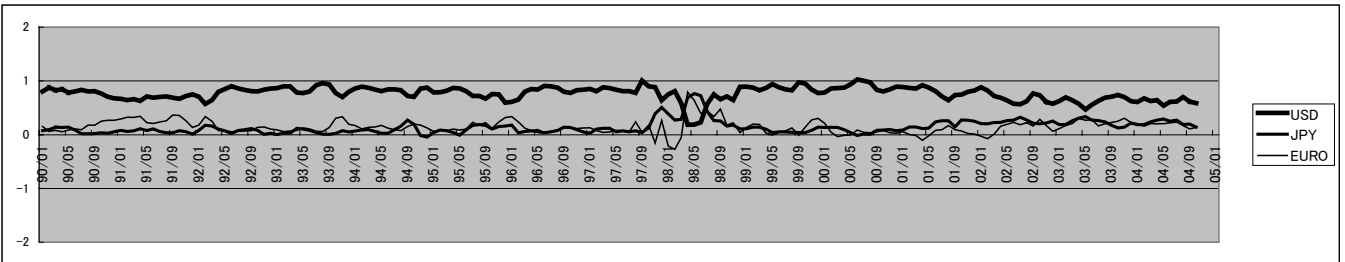
Figure 2: CUSUM test for the Post-crisis Period

Figure 3: Estimated Coefficients of the U.S. dollar, the Japanese yen and the Euro

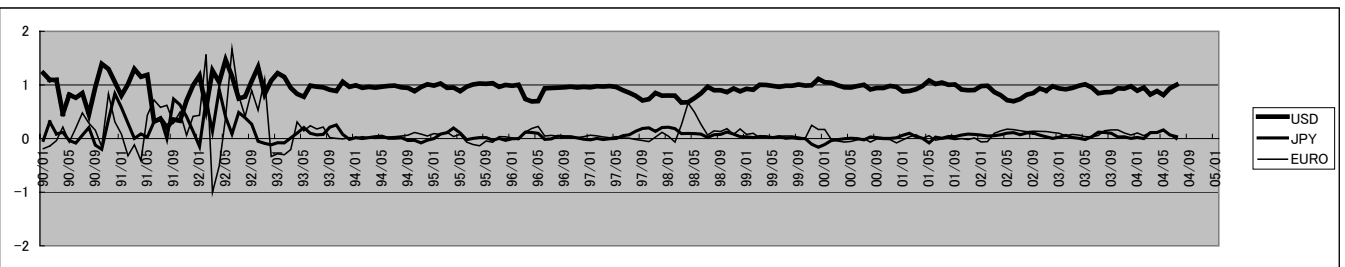
Philippines Peso



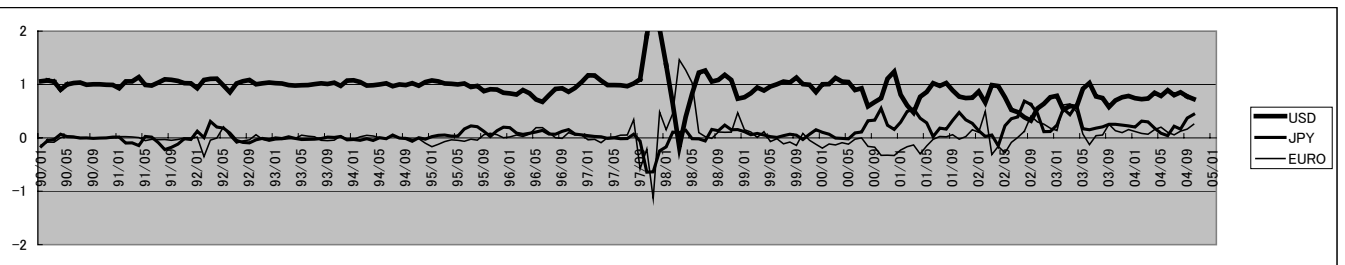
Singapore Dollar



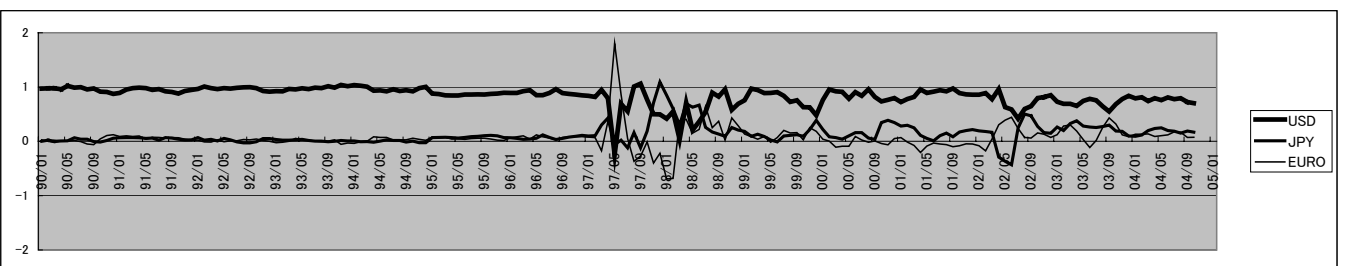
New Taiwan Dollar



Korean Won



Thai Baht



Indonesian Rupiah

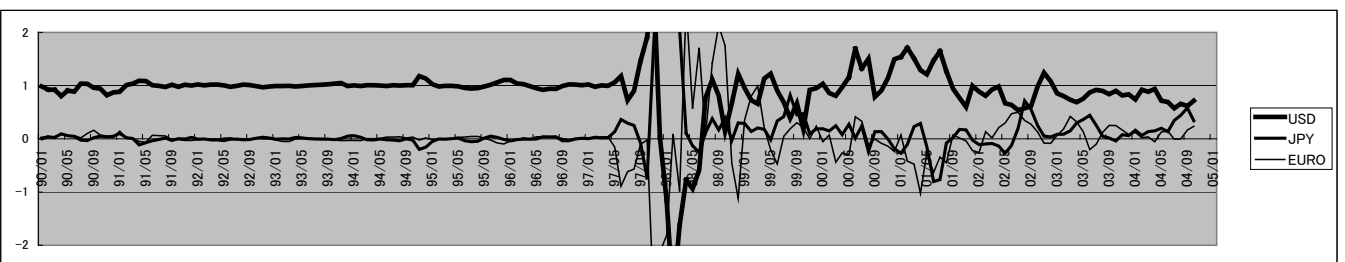
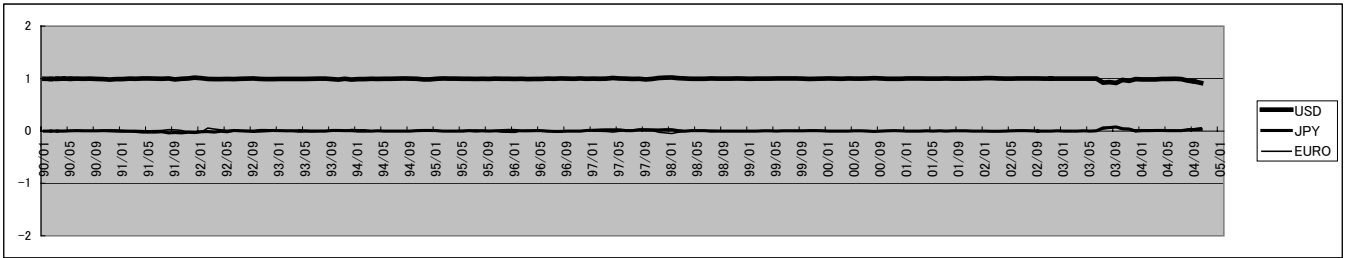
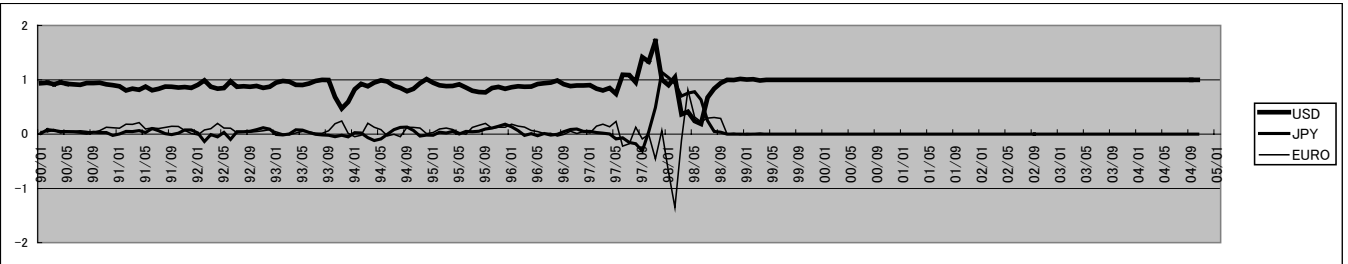


Figure 3: Estimated Coefficients of the U.S. dollar, the Japanese yen and the Euro (continued)

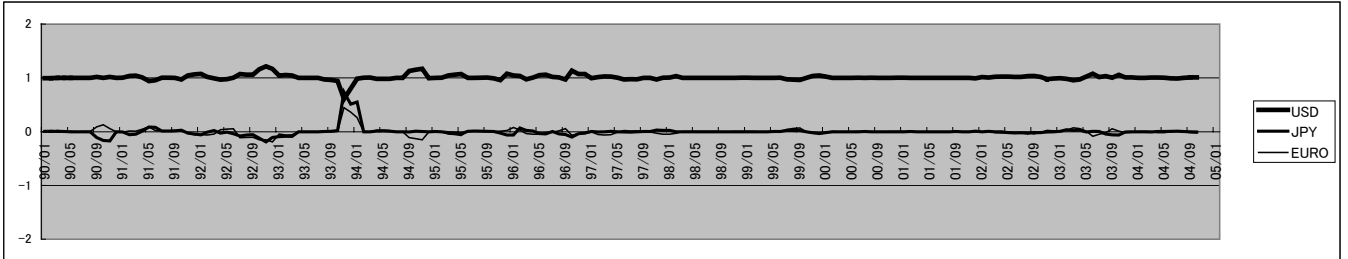
Hong Kong Dollar



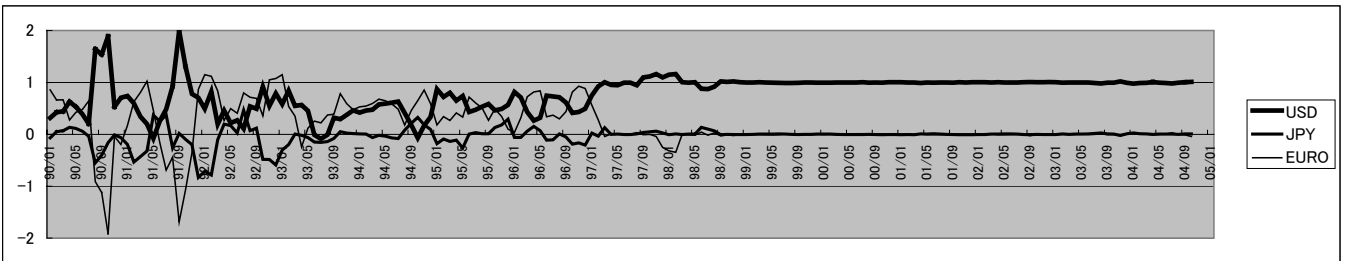
Malaysian Ringgit



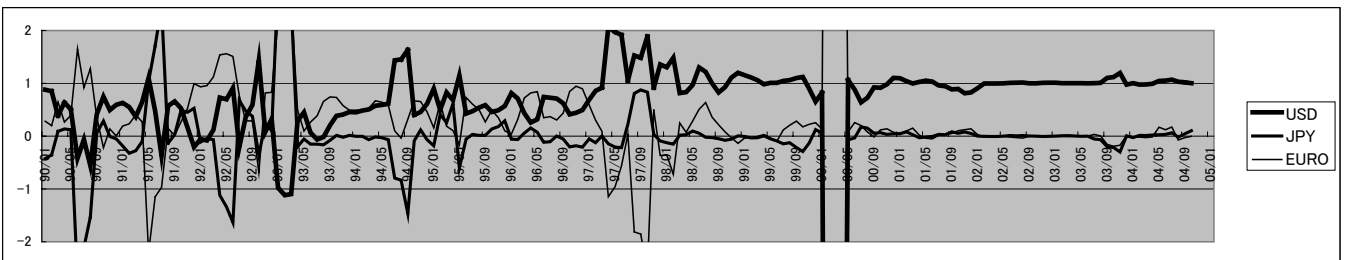
Chinese Renminbi



Vietnamese Dong



Cambodia Riel



Laos Kip

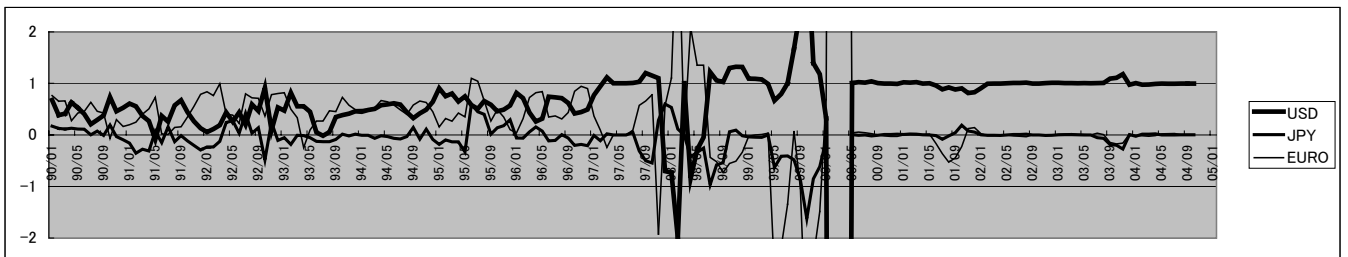
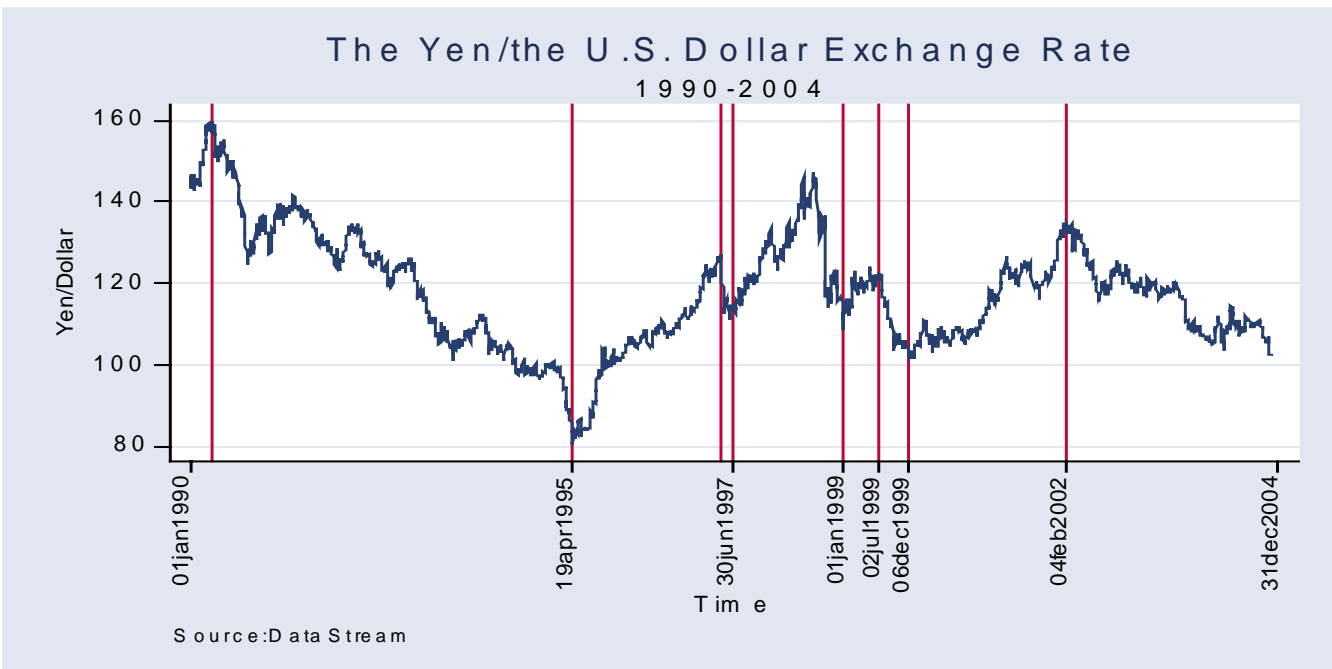
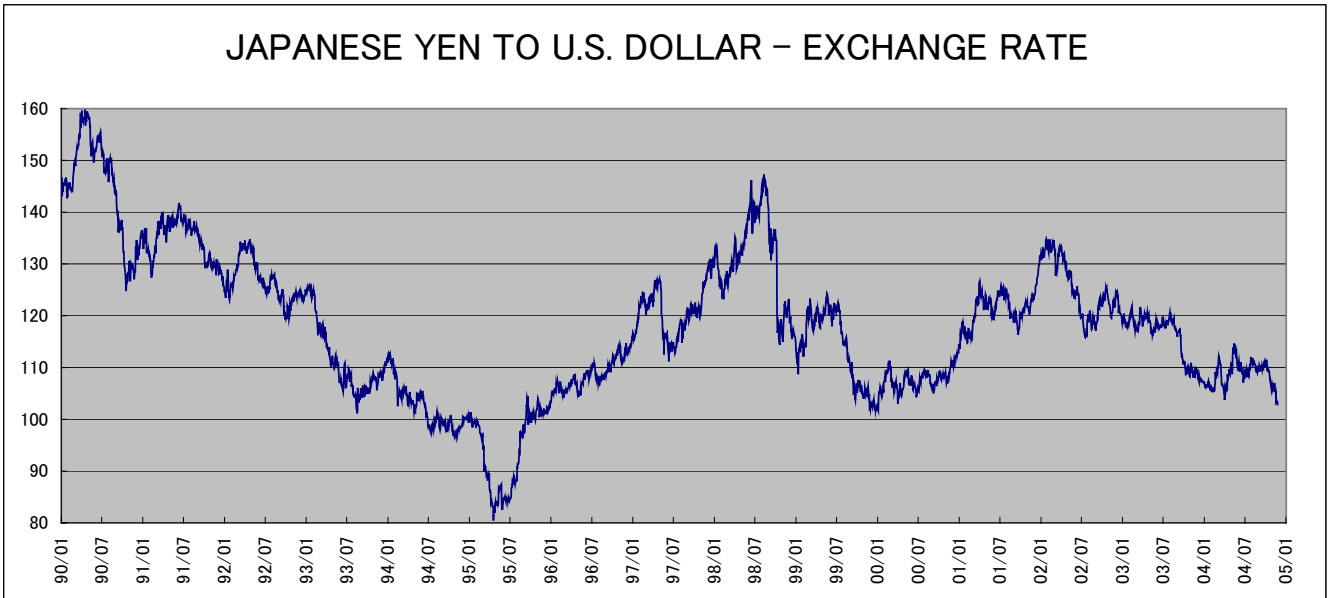


Figure 4: Movements of the Yen/Dollar Exchange Rate



Period	USD	JPY	EUR	Cons.	R2-adj	D.W.	Std-res	No. obs.	Period	USD	JPY	EUR	Cons.	R2-adj	D.W.	Std-res	No. obs.
90:01-90:03	1.096 **	-0.146 *	-0.073	0.000	0.9230	1.429	0.00235	63	90:01-90:03	0.804 **	0.076	0.152 **	0.000	0.9432	1.795	0.00192	64
90:02-90:04	-0.135 *	-0.057	0.001	0.000	0.7992	1.259	0.00274	64	90:02-90:04	0.874 **	0.094 **	0.063 *	0.000	0.9529	1.843	0.00127	63
90:03-90:05	-0.010	-0.030	0.000	0.000	0.8692	1.087	0.00238	65	90:03-90:05	0.891 **	0.081 **	0.000	0.000	0.9388	1.763	0.00229	66
90:04-90:06	0.054	0.022	0.004	0.000	0.9007	1.155	0.00263	65	90:04-90:06	0.843 **	0.131 **	0.052 +	0.000 +	0.9844	1.848	0.00124	65
90:05-90:07	1.146 **	-0.034	0.020	0.001	0.9002	1.352	0.00214	66	90:05-90:07	0.783 **	0.140 **	0.088 +	0.000	0.9517	2.107	0.00153	66
90:06-90:08	1.251 **	-0.007	0.000	0.000	0.8311	1.392	0.00235	66	90:06-90:08	0.804 **	0.107 *	0.061 *	0.000	0.9454	2.134	0.00141	66
90:07-90:09	1.294 **	-0.101	-0.096	0.001 +	0.8290	1.200	0.00459	65	90:07-90:09	0.831 **	0.018	0.093	0.000	0.9789	1.838	0.00294	65
90:08-90:10	1.185 **	-0.042	-0.088	0.000	0.8044	1.076	0.00428	66	90:08-90:10	0.017	0.179 *	-0.001 +	0.000	0.8841	1.834	0.00307	66
90:09-90:11	1.034 **	0.288	0.086	0.002	0.3987	1.911	0.01313	65	90:09-90:11	0.809 **	0.020	0.177 *	0.000	0.8575	1.776	0.00307	65
90:10-90:12	0.958 **	0.108	0.108	0.001	0.8320	1.001	0.00284	66	90:10-90:12	0.804 **	0.034	0.034	0.000	0.9204	1.537	0.00309	66
90:11-91:01	0.998 **	0.016	0.289	0.005	0.001	0.289	0.001	66	90:11-91:01	0.707 **	0.029	0.267 **	0.000	0.9100	1.673	0.00196	66
90:12-91:02	1.005 **	0.016	-0.056 +	0.000	0.9871	1.110	0.00089	66	90:12-91:02	0.678 **	0.051	0.286 **	0.000	0.9150	1.489	0.00195	64
91:01-91:03	1.005 **	0.000	-0.000	0.000	0.9000	2.450	0.00000	66	91:01-91:03	0.680 **	0.060 **	0.000	0.000	0.9895	1.745	0.00200	64
91:03-91:05	1.008 **	-0.004	-0.022 **	0.000	0.9989	0.934	0.00031	63	91:02-91:04	0.643 **	0.061	0.326 **	0.000 +	0.9366	1.805	0.00201	63
91:05-91:07	1.001 **	-0.001	-0.003 **	0.000	0.9988	1.151	0.00034	66	91:03-91:05	0.662 **	0.072	0.321 **	0.000	0.9290	2.249	0.00224	66
91:06-91:08	1.048 **	-0.073	-0.159 **	0.001 +	0.9508	1.012	0.00263	66	91:04-91:06	0.675 **	0.076	0.240 **	0.000	0.9436	2.026	0.00234	65
91:07-91:09	1.196 **	-0.142	-0.112 +	-0.001 +	0.9193	0.751	0.00204	66	91:05-91:07	0.714 **	0.077	0.222 **	0.000	0.9405	2.259	0.00266	65
91:08-91:10	1.040 **	0.020	0.000	0.000	0.9408	1.468	0.00411	66	91:06-91:08	0.688 **	0.106 *	0.200 **	0.000 +	0.9642	1.599	0.00146	66
91:09-91:11	0.837 **	0.054	0.194 +	0.000	0.7605	1.488	0.00373	65	91:07-91:09	0.703 **	0.080	0.233 **	0.000	0.9584	1.579	0.00238	66
91:10-91:12	1.015 **	0.115	0.215 **	0.000	0.7921	1.569	0.00337	66	91:08-91:10	0.689 **	0.035	0.366 **	0.000	0.9440	1.851	0.00156	65
91:11-92:01	1.003 **	-0.045	0.000	0.000	0.9355	1.407	0.00229	66	91:09-91:12	0.664 **	0.074	0.357 **	0.000	0.9104	1.905	0.00197	66
91:12-92:02	1.029 **	-0.041	-0.061	-0.001 +	0.9408	1.470	0.00247	65	91:10-91-12	0.717 **	0.055	0.292 **	0.000	0.9181	2.122	0.00253	66
92:01-92:03	1.070 **	0.013	-0.036	-0.001 +	0.8485	1.200	0.00407	65	91:12-92:02	0.748 **	0.008	0.134 *	0.000	0.9256	2.164	0.00212	65
92:02-92:04	1.159 **	-0.123	-0.035	0.000	0.7063	1.298	0.00498	64	92:01-92:03	0.705 **	0.082	0.181 **	0.000	0.8920	1.761	0.00265	65
92:03-92:05	1.130 **	-0.303 +	0.043	0.000	0.6884	1.002	0.00504	65	92:02-92:04	0.676 **	0.176 *	0.338 **	0.000	0.9249	1.822	0.00246	64
92:04-92:06	1.083 **	-0.475 **	0.295 +	0.000	0.6910	1.039	0.00479	65	92:03-92:05	0.644 **	0.163 +	0.250 **	0.000	0.9794	1.734	0.00234	65
92:05-92:07	1.028 **	-0.332 *	0.255 +	0.000	0.7594	0.922	0.00452	66	92:04-92:06	0.795 **	0.105 +	0.077	0.000	0.9521	2.248	0.00145	65
92:06-92:08	0.915 **	-0.076	0.255 +	0.000	0.7186	0.940	0.00421	66	92:05-92:07	0.847 **	0.071 +	0.074 +	0.000	0.9750	2.222	0.00163	66
92:07-92:09	0.915 **	-0.001	-0.001	0.000	0.7501	1.558	0.01142	66	92:06-92:08	0.801 **	0.019	0.069	0.000	0.9489	1.801	0.00163	66
92:08-92:10	0.977 **	-0.037	0.028	0.000	0.7029	1.549	0.01140	66	92:07-92:09	0.878 **	0.078 *	0.064 **	0.000	0.9872	1.633	0.00114	66
92:09-92:11	1.011 **	-0.056	0.174 **	0.000	0.7115	0.917	0.00161	65	92:08-92-10	0.834 **	0.092 +	0.067 **	0.000	0.9815	1.275	0.00147	65
92:10-92:12	1.036 **	-0.238	0.462 **	-0.001	0.7029	1.549	0.01768	66	92:09-92-11	0.815 **	0.116 **	0.074 **	0.000	0.9815	1.275	0.00147	65
92:11-93:01	1.133 **	-0.393	0.559 **	0.001	0.5858	1.031	0.00892	65	92:10-92-12	0.873 **	0.082	0.136 **	0.000	0.9731	1.575	0.00157	66
92:12-93:02	1.051 **	-0.141	0.021	0.000	0.6971	0.967	0.00721	65	92:11-93:01	0.837 **	0.004	0.144 **	0.000	0.9573	1.303	0.00176	65
93:01-93:03	0.930 **	0.022	0.042	0.000	0.6979	1.036	0.00492	64	92:12-93:02	0.866 **	0.057	0.124 **	0.000	0.9614	1.411	0.00164	64
93:02-93:04	1.068 **	0.050	-0.028	0.001 +	0.8423	1.172	0.00243	65	93:01-93:03	0.888 **	0.032	0.058	0.000	0.9821	1.612	0.00132	65
93:03-93:05	0.974 **	0.056	0.014	0.001 *	0.8603	1.171	0.00227	66	93:02-93:05	0.988 **	0.028	0.068 +	0.000	0.9696	1.704	0.00125	66
93:04-93:06	0.981 **	0.052	0.000	0.000	0.8231	1.000	0.00349	66	93:03-93:06	0.828 **	0.117 **	0.082 **	0.000	0.9829	1.871	0.00163	66
93:05-93:07	0.985 **	0.048	0.037	0.001	0.6635	1.649	0.00543	65	93:04-93:07	0.774 **	0.102 +	0.106 *	0.000	0.9861	1.820	0.00225	65
93:06-93:08	0.957 **	0.030	0.017	0.001	0.6315	1.514	0.00543	66	93:05-93:08	0.872 **	0.081 +	0.126 *	0.000	0.9636	1.710	0.00233	66
93:07-93:09	0.984 **	0.027	0.000	0.000	0.6307	1.027	0.00691	66	93:06-93:09	0.930 **	0.092	0.065 *	0.000	0.9855	1.820	0.00233	66
93:08-93:10	1.116 **	0.028	-0.240	0.000	0.5890	1.566	0.00679	65	93:07-93:10	0.963 **	0.009	0.059	0.000	0.9175	1.637	0.00239	65
93:09-93-11	1.221 **	0.019	-0.681 +	0.000	0.3492	1.383	0.00890	65	93:08-93-11	0.931 **	0.004	0.131	0.000	0.8828	1.613	0.00243	65
93:10-93-12	1.157 **	-0.010	-0.001	0.000	0.4547	0.957	0.00857	66	93:09-93-12	0.970 **	0.071	0.207 **	0.000	0.9476	1.945	0.00246	66
93:11-94:01	1.214 **	-0.115	-0.528 +	-0.001	0.3539	1.099	0.00702	66	93:10-93-12	0.968 **	0.076 +	0.331 **	0.000	0.9240	1.573	0.00179	66
93:12-94:02	1.087 **	-0.019	-0.002	0.000	0.8700	1.127	0.00281	64	93:11-94:01	0.932 **	0.048	0.193 **	0.000	0.9071	1.577	0.00210	64
94:01-94:03	0.934 **	0.006	-0.037	0.000	0.9124	1.986	0.00188	64	94:01-94:03	0.862 **	0.086 +	0.168 **	0.000	0.8971	1.676	0.00212	64
94:02-94:04	0.985 **	0.040	0.051 +	0.000	0.8402	1.041	0.00147	64	94:02-94:04	0.940 **	0.042	0.170 **	0.000	0.9254	1.700	0.00212	64
94:03-94:05	0.930 **	-0.238 **	0.076	0.000	0.7180	1.103	0.00333	66	94:03-94:05	0.897 **	0.097 +	0.137 **	0.000 +	0.9247	1.928	0.00161	66
94:04-94:06	0.887 **	-0.177 +	0.132	0.000	0.6434	1.106	0.00388	65	94:04-94:06	0.841 **	0.060	0.140 **	0.000	0.9267	1.735	0.00195	65
94:05-94:07	0.988 **	-0.115	0.244 **	0.000	0.5467	1.074	0.00388	65	94:05-94:07	0.901 **	0.091	0.121 **	0.000	0.9441	1.704	0.00195	65
94:06-94:08	0.907 **	-0.176 +	0.139	0.000	0.6089	1.074	0.00534	66	94:06-94:08	0.844 **	0.028	0.123 **	0.000 +	0.9452	1.445	0.00044	66
94:07-94:09	0.994 **	-0.138	0.022	-0.001	0.5703	1.001	0.00598	66	94:07-94:09	0.842 **	0.092 **	0.093 **	0.000	0.9474	1.182	0.00129	66
94:08-94-10	1.121 **	-0.010	-0.001	0.000	0.6524	0.969	0.00524	66	94:08-94-10	0.930 **	0.092 **	0.093 **	0.000	0.9410	1.424	0.00149	66
94:09-94-11	0.781 **	0.396 +	0.001	-0.001	0.5519	1.187	0.00552	64	94:09-94-11	0.720 **	0.269 **	0.151 **	0.000 +	0.9610	1.423	0.00147	65
94:10-94-12	0.794 **	0.247	0.206	-0.001	0.6087	1.068	0.00516	65	94:10-94-12	0.850 **	0.193 **	0.197 **	0.000	0.9425	1.780	0.00212	65
94:11-95:01	0.524 **	0.225	0.000	0.000	0.4813	2.151	0.00662	66	94:11-95:01	0.877 **	-0.015	0.179 **	0.000	0.8533	1.846	0.00145	66
94:12-95:02	0.571 **	0.071	0.001	0.000	0.5711	1.001	0.00620	65	94:12-95:02	0.877 **	-0.046	0.124 **	0.000	0.8573	1.827	0.00145	66
95:01-95:03	0.938 **	0.228 +	-0.203 **	0.001	0.7075	2.560	0.00591	65	95:01-95:03	0.785 **	0.038	0.061	0.000	0.9196	1.820	0.00226	65
95:02-95:04	1.015 **	-0.124 +	-0.200 **	0.001 +	0.9010	1.396	0.00357	63	95:02-95:04	0.790 **	0.085 +	0.084 +	0.000	0.9531	1.820	0.00253	63
95:03-95:05	0.954 **	0.0															

Table 7: Rolling Regression Results of Exchange Rate Movements (continued)

Time Dollar	US Dollar										Euro Area									
	USD	JPY	EUR	Cons.	R2-adj	D.W.	Std-Res	No. obs.	USD	JPY	EUR	Cons.	R2-adj	D.W.	Std-Res	No. obs.				
90:01-90:03	1.221 **	-0.322	-0.188	-0.001	0.1445	1.798	0.01967	64	90:01-90:03	1.060 **	-0.159 *	-0.134 *	0.001 +	0.8965	1.525	0.00255	64			
90:02-90:04	1.094 +	-0.031	-0.142	0.001	0.0753	1.858	0.02033	63	90:02-90:04	1.074 **	-0.049	-0.077	0.000	0.8849	1.223	0.00214	63			
90:03-90:05	1.091 +	0.089	-0.039	0.000	0.0925	1.891	0.03356	66	90:03-90:05	1.048	0.068	0.030	0.000	0.8968	1.299	0.00200	66			
90:04-90:06	0.857 *	0.117	0.216	0.000	0.0283	2.079	0.01862	65	90:04-90:06	0.905 **	0.096 +	0.002	0.000 +	0.9192	1.307	0.00184	65			
90:05-90:07	0.419 *	-0.037	-0.066	0.001	0.0916	2.352	0.01363	66	90:05-90:07	1.000 **	0.024	0.034	0.000	0.9466	1.102	0.00174	66			
90:06-90:08	0.781 +	-0.068	0.001	0.000	0.1198	2.460	0.01463	66	90:06-90:08	1.037 **	0.017	0.034	0.000	0.9644	1.116	0.00176	66			
90:07-90:09	0.848 +	0.061	0.477	0.000	0.0297	2.611	0.01859	65	90:07-90:09	1.037 **	-0.005	0.004	0.000	0.9789	1.068	0.00134	65			
90:08-90:10	0.450 +	0.207	0.286	0.001	0.0709	2.258	0.02208	66	90:08-90:10	0.997 **	-0.002	0.002	0.000	0.9999	0.914	0.00008	66			
90:09-90:11	0.961 +	-0.123	0.158	0.000	0.0721	2.324	0.02265	65	90:09-90:11	1.002 **	-0.008 +	0.000	0.000	0.9993	0.993	0.00020	65			
90:10-90:12	1.383 **	0.201	0.120	0.000	0.1201	2.460	0.01912	63	90:10-90:12	1.008 **	0.000	0.000	0.000	0.9888	0.988	0.00000	63			
90:11-91:01	1.298 **	0.351	0.832	0.000	0.2060	2.220	0.02206	66	90:11-91:01	0.996 **	0.000	-0.002	0.000	0.9958	1.007	0.00048	66			
91:02-91:02	1.053 +	0.837	0.312	0.000	0.1572	2.335	0.02419	64	91:02-91:02	0.992 **	0.011	0.002	0.000	0.9858	1.040	0.00044	64			
91:01-91:03	0.802	0.010	0.085	0.000	0.2921	2.041	0.01730	64	91:01-91:03	0.911	0.011	0.001	0.000	0.9467	1.048	0.00047	64			
91:02-91:04	0.287	-0.321	0.000	0.000	0.1674	2.737	0.02064	63	91:02-91:04	1.057 **	-0.096	0.023	0.000	0.9573	1.029	0.00389	63			
91:03-91:05	1.298 **	0.002	-0.118	0.000	0.2280	2.532	0.02148	66	91:03-91:05	1.059 **	-0.092	0.016	0.000	0.9731	1.028	0.00381	66			
91:04-91:06	0.412	0.151	0.140	0.000	0.1402	2.223	0.01734	65	91:04-91:06	1.136 **	-0.144 +	0.006	0.000	0.9644	1.036	0.00322	65			
91:05-91:07	1.188 +	0.025	0.436	0.000	0.1763	2.378	0.02294	66	91:05-91:07	0.992 **	0.029	-0.054	0.000	0.9800	1.022	0.00127	66			
91:06-91:08	0.317	0.719	0.000	0.000	0.0489	2.299	0.02240	65	91:06-91:08	0.979 **	0.011	-0.029	0.000	0.9679	1.061	0.00156	65			
91:07-91:09	0.372	0.389	0.582	-0.001	0.0812	2.317	0.02148	66	91:07-91:09	1.039 **	-0.090	-0.036	0.000	0.9442	1.474	0.00202	66			
91:08-91:10	0.208	0.208	0.000	0.000	0.298	1.910	0.01832	65	91:08-91:10	1.029 **	-0.220 **	0.001	0.000	0.9302	1.352	0.00200	65			
91:09-91:11	0.356	0.737	0.291	0.000	0.0996	2.145	0.01769	65	91:09-91:11	1.086 **	-0.178 **	-0.045	0.000	0.9221	1.463	0.00197	65			
91:10-91:12	0.230	0.629	0.480	0.001	0.1176	2.197	0.01887	66	91:10-91:12	1.065 **	-0.120 **	-0.032	0.000	0.9450	1.004	0.00184	66			
91:11-92:01	0.710 *	0.408	0.737	0.000	0.1737	2.177	0.01717	66	91:11-92:01	1.023 **	0.000	0.000	0.000	0.9814	1.091	0.00066	66			
91:12-92:02	0.992	0.138	0.414	0.000	0.1181	2.810	0.02666	65	91:12-92:02	1.020 **	-0.003	0.000	0.000	0.9541	1.003	0.00208	65			
92:01-92:03	0.586	-0.145	0.433	0.001	0.0789	2.898	0.03247	65	92:01-92:03	0.930 **	0.127	0.014	0.000	0.8083	1.304	0.00463	65			
92:02-92:04	0.215	1.568	0.000	0.001	0.0455	2.910	0.02962	64	92:02-92:04	0.905	-0.251	0.000	0.000	0.8274	1.217	0.00621	64			
92:03-92:05	1.288	0.133	-1.002	0.000	-0.0014	2.651	0.03793	65	92:03-92:05	1.105 **	0.308	-0.041	0.001	0.4957	1.178	0.00939	65			
92:04-92:06	1.052	-0.513	0.449	0.000	0.0232	2.449	0.03888	65	92:04-92:06	1.110 **	0.202	-0.007	0.000	0.4811	1.207	0.00903	65			
92:05-92:07	1.408 +	0.404	0.396	-0.002	0.1234	2.527	0.03549	66	92:05-92:07	0.979 **	0.180	0.206	0.000	0.6499	1.142	0.00790	66			
92:06-92:08	1.163	0.177	0.177	0.000	0.0857	2.291	0.03002	66	92:06-92:08	0.908	0.091	0.000	0.000	0.8023	0.902	0.00000	66			
92:07-92:09	0.747	0.489	0.801	-0.001	0.1205	2.474	0.03562	66	92:07-92:09	1.016 **	-0.048	0.000	0.000	0.9407	1.128	0.00240	66			
92:08-92:10	0.781	0.388	0.412	0.000	0.0680	2.738	0.04086	65	92:08-92:10	1.062 **	-0.085	-0.056	0.000	0.9236	1.115	0.00327	65			
92:09-92:11	1.073	0.173	0.173	0.000	0.1522	2.524	0.034	64	92:09-92:11	1.022 **	-0.001	0.000	0.000	0.9152	1.152	0.00312	64			
92:10-92:12	0.356	-0.051	0.227	0.002	0.0901	2.456	0.034	64	92:10-92:12	1.001 **	-0.038	0.060	0.000	0.9466	1.108	0.00243	64			
92:11-93:01	0.829	-0.092	1.105	0.000	0.1013	2.181	0.03220	65	92:11-93:01	1.022 **	-0.008	-0.029	0.000	0.9764	1.132	0.00144	65			
93:02-93:02	-0.111	0.281	0.000	0.000	0.0555	2.021	0.03291	64	93:02-93:02	1.033 **	0.029	0.000	0.000	0.9729	1.441	0.00121	64			
93:01-93:03	0.875	-0.223	0.000	0.000	0.4777	2.136	0.03684	64	93:01-93:03	1.026 **	0.000	-0.038	0.000	0.9731	2.121	0.00132	64			
93:02-93:04	1.148 **	-0.079	-0.300	0.000	0.5862	2.321	0.03628	65	93:02-93:04	1.019 **	-0.011	-0.030	0.000	0.9890	1.122	0.00144	65			
93:03-93:05	0.947 **	0.010	-0.208	0.000	0.5202	2.258	0.03632	66	93:03-93:05	0.983 **	-0.020	-0.015	0.000	0.9817	1.522	0.00069	66			
93:04-93:06	0.831 **	0.208	0.000	0.000	0.1404	2.533	0.03940	66	93:04-93:06	0.981 **	-0.010	0.000	0.000	0.9760	1.062	0.00069	66			
93:05-93:07	0.779 **	0.208 +	0.143	0.001	0.5290	2.400	0.03662	65	93:05-93:07	0.983 **	-0.032	0.049	0.000	0.9578	1.304	0.00157	65			
93:06-93:08	0.990 **	0.096	0.239	0.000	0.6402	2.311	0.03662	66	93:06-93:08	0.987 **	-0.028	0.031	0.000	0.9577	1.403	0.00163	66			
93:07-93:09	0.966 **	0.177	0.000	0.000	0.6406	2.290	0.03662	66	93:07-93:09	0.987 **	-0.023	0.031	0.000	0.9577	1.403	0.00163	66			
93:08-93:10	0.956 **	0.216	0.000	0.000	0.6402	2.475	0.03662	65	93:08-93:10	1.022 **	-0.014	-0.046	0.000	0.9578	1.858	0.00108	65			
93:09-93:11	0.908 **	0.212	0.019	0.000	0.5540	2.439	0.03662	65	93:09-93:11	1.010 **	0.012	-0.052	0.000	0.9780	1.608	0.00100	65			
93:10-93:12	0.828 **	0.255	0.000	0.000	0.2516	2.910	0.03662	65	93:10-93:12	1.010 **	0.012	-0.052	0.000	0.9780	1.608	0.00100	65			
93:11-94:01	0.958 **	0.076	-0.006	0.000	0.7233	2.008	0.03438	66	93:11-94:01	0.974 **	0.029	0.033	0.000	0.9650	1.838	0.00125	66			
93:12-94:02	0.885 **	-0.013	0.017	0.000	0.8596	1.655	0.03270	64	93:12-94:02	1.072 **	-0.038	-0.022	0.000	0.9929	1.817	0.00128	64			
94:01-94:03	0.991 **	0.020	0.006	0.000	0.9540	1.905	0.03138	64	94:01-94:03	1.081 **	-0.032	-0.022	0.000	0.9597	2.035	0.00159	64			
94:02-94:04	0.946 **	0.046	0.000	0.000	0.9400	2.102	0.03138	64	94:02-94:04	1.048 **	-0.020	-0.047	0.000	0.9829	1.892	0.00160	64			
94:03-94:05	0.957 **	0.017	0.015	0.000 +	0.9373	1.955	0.03145	66	94:03-94:05	1.063 **	0.045	0.000	0.000	0.9646	1.728	0.00110	66			
94:04-94:06	0.949 **	0.036	0.002	0.000 +	0.9384	1.467	0.03144	65	94:04-94:06	1.083 **	-0.048 +	0.035	0.000	0.9742	1.779	0.00094	65			
94:05-94:07	0.968 **	0.015	0.000	0.000	0.9441	1.650	0.03145	66	94:05-94:07	1.063 **	-0.048 +	0.035	0.000	0.9742	1.779	0.00094	66			
94:06-94:08	0.981 **	0.009	0.028	0.000 +	0.9606	2.061	0.03153	66	94:06-94:08	1.063 **	-0.015	-0.002	0.000	0.9859	1.722	0.00092	66			
94:07-94:09	0.988 **	0.007	0.038	0.000 +	0.9603	2.007	0.03154	66	94:07-94:09	1.067 **	0.054 +	0.033	0.000	0.9840	1.580	0.00097	66			
94:08-94:10	0.988 **	0.007	0.038	0.000 +	0.9603	2.007														

Table 7: Rolling Regression Results of Exchange Rate Movements (continue)

Indonesia Rupiah										Indonesia Rupiah									
Period	USD	JPY	EURO	Cons.	R2-adj	D.W	Std-err	Noobs.	Period	USD	JPY	EURO	Cons.	R2-adj	D.W	Std-err	Noobs.		
90:01-90:03	0.968 **	0.001	0.028	0.000	0.9700	1.007	0.00144	64	90:01-90:03	0.982 **	0.016	-0.017	0.000 **	0.9951	1.256	0.00057	64		
90:03-90:04	0.975 **	0.003	0.000	0.000	0.9577	1.031	0.00108	63	90:03-90:04	0.992 **	0.035	0.021	0.000	0.9249	1.591	0.00162	64		
90:04-90:05	0.977 **	0.000	-0.020	0.000	0.9416	1.073	0.00151	65	90:04-90:05	0.921 **	0.026	0.034	0.000	0.9536	0.979	0.00158	66		
90:05-90:06	0.958 **	0.007	0.000	0.000	0.9458	1.077	0.00149	66	90:05-90:06	0.807 **	0.091 +	0.101	0.000	0.8800	1.057	0.00247	65		
90:06-90:07	0.956 **	0.002	0.000	0.000	0.9617	1.102	0.00174	66	90:06-90:07	0.956 **	0.056	0.055	0.000	0.9204	0.775	0.00204	66		
90:07-90:08	0.989 **	0.063 +	0.014	0.000	0.9671	1.121	0.00148	66	90:07-90:08	0.887 **	0.045	0.059	0.000	0.9206	1.101	0.00217	66		
90:08-90:09	0.999 **	0.040	-0.005	0.000	0.9672	1.121	0.00167	65	90:08-90:09	0.936 **	-0.025	0.019	0.000	0.9628	2.050	0.00179	65		
90:09-90:10	0.956 **	0.041	-0.052	0.000	0.9471	1.581	0.00202	66	90:09-90:10	0.932 **	-0.034	0.098	0.000	0.8883	1.743	0.00340	66		
90:10-90:11	0.972 **	0.000	0.000	0.000	0.9611	1.451	0.00198	66	90:10-90:11	0.966 **	0.021	0.023	0.000	0.9332	0.812	0.00233	66		
90:11-91:01	0.908 **	0.016	0.107 +	0.000	0.9412	1.345	0.00178	66	90:11-91:01	0.817 **	0.037	0.056	0.000	0.7761	1.377	0.00336	66		
91:01-91:02	0.974 **	0.000	0.000	0.000	0.9573	1.453	0.00218	66	91:01-91:02	0.949 **	0.048	0.048	0.000	0.8489	1.453	0.00289	66		
91:01-91:03	0.901 **	0.064 +	0.000	0.000	0.9513	1.463	0.00160	64	91:01-91:03	0.883 **	0.104	0.144 +	0.000	0.8344	1.397	0.00322	64		
91:02-91:04	0.953 **	0.069	0.100 +	0.000	0.9585	1.099	0.00200	63	91:02-91:04	1.010 **	0.022	0.019	0.000	0.9449	0.982	0.00238	63		
91:04-91:06	0.982 **	0.060	0.000	0.000	0.9711	1.043	0.00168	65	91:04-91:06	1.033 **	0.006	0.006	0.000	0.9240	0.923	0.00273	65		
91:05-91:07	0.980 **	0.054 +	0.000	0.000	0.9881	1.175	0.00100	66	91:05-91:07	1.085 **	-0.075	-0.063	0.000	0.9583	1.684	0.00194	66		
91:06-91:08	0.940 **	0.061 +	0.077 **	0.000	0.9893	1.073	0.00091	65	91:06-91:08	1.005 **	-0.035	0.065 +	0.000	0.9771	0.999	0.00153	65		
91:07-91:09	0.964 **	0.000	0.000	0.000	0.9894	1.071	0.00071	65	91:07-91:09	1.002 **	0.000	0.081	0.000	0.9881	1.128	0.00198	65		
91:08-91:10	0.918 **	0.067 **	0.062 **	0.000	0.9900	0.831	0.00072	66	91:08-91:10	0.976 **	0.014	0.056 **	0.000 +	0.9880	1.448	0.00081	66		
91:09-91:11	0.908 **	0.062 **	0.069 **	0.000	0.9916	0.814	0.00062	65	91:09-91:11	1.013 **	-0.029 +	-0.015	0.000	0.9934	1.793	0.00056	65		
91:10-91:12	0.978 **	0.040	0.000	0.000	0.9941	0.993	0.00209	66	91:10-91:12	0.979 **	0.005	-0.012	0.000	0.9688	1.818	0.00121	66		
91:11-92:01	0.927 **	0.026	0.041	0.000	0.9400	0.988	0.00220	66	91:11-92:01	0.914 **	-0.002	-0.029	0.000	0.9811	2.045	0.00127	66		
91:12-92:03	0.947 **	0.030	0.019	0.000	0.9337	0.982	0.00244	65	91:12-92:03	0.999 **	0.026	-0.028	0.000	0.9803	2.024	0.00135	65		
92:01-92:03	0.987 **	0.060	0.000	0.000	0.9545	1.284	0.00144	65	92:01-92:03	0.963 **	0.006	-0.019	0.000 +	0.9633	1.646	0.00079	65		
92:02-92:04	1.009 **	0.022	-0.012	0.000	0.9661	1.307	0.00140	64	92:02-92:04	1.003 **	-0.003	-0.006	0.000	0.9931	1.760	0.00061	64		
92:03-92:05	0.979 **	0.035	-0.013	0.000	0.9816	1.483	0.00103	65	92:03-92:05	1.018 **	-0.021	-0.005	0.000 +	0.9957	1.083	0.00050	65		
92:04-92:06	0.991 **	0.006	0.030	0.000	0.9807	1.385	0.00100	65	92:04-92:06	1.018 **	-0.021	-0.011	0.000	0.9946	1.083	0.00054	65		
92:05-92:07	0.987 **	0.000	0.000	0.000	0.9879	1.058	0.00108	66	92:05-92:07	1.002 **	0.000	0.000	0.000	0.9928	0.932	0.00062	66		
92:06-92:08	0.969 **	0.027	0.012	0.000	0.9806	0.935	0.00112	66	92:06-92:08	0.977 **	0.007	0.020	0.000	0.9738	0.837	0.00062	66		
92:07-92:09	0.984 **	-0.010	0.011	0.000	0.9875	1.023	0.00119	66	92:07-92:09	0.997 **	-0.009	-0.016	0.000	0.9952	1.209	0.00074	66		
92:08-92:10	0.994 **	-0.021	0.041	0.000	0.9941	1.201	0.00141	66	92:08-92:10	0.997 **	-0.009	-0.016	0.000	0.9944	2.45	0.00074	66		
92:09-92:11	1.000 **	-0.030	0.058	0.000	0.9858	1.216	0.00139	65	92:09-92:11	1.012 **	-0.010	-0.009	0.000 +	0.9919	1.185	0.00111	65		
92:10-92:12	0.979 **	-0.006	0.042	0.000	0.9850	1.197	0.00125	66	92:10-92:12	0.989 **	0.010	0.013	0.000	0.9910	1.077	0.00098	66		
92:11-93:01	0.926 **	0.026	0.026	0.000	0.9522	0.992	0.00121	66	92:11-93:01	0.996 **	0.000	0.000	0.000	0.9925	1.042	0.00091	66		
92:12-93:02	0.915 **	0.051 +	-0.001	0.000	0.9931	0.969	0.00071	64	92:12-93:02	0.992 **	0.014	0.000	0.000	0.9980	1.034	0.00039	64		
93:01-93:03	0.924 **	0.034	-0.024	0.000	0.9833	0.999	0.00096	64	93:01-93:03	0.991 **	-0.007	-0.024	0.000	0.9880	1.023	0.00092	64		
93:02-93:04	0.918 **	0.023	-0.017	0.000	0.9776	1.010	0.00107	65	93:02-93:04	0.994 **	-0.001	-0.049 +	0.000	0.9832	1.085	0.00097	65		
93:03-93:05	0.966 **	0.000	0.000	0.000	0.9403	0.905	0.00104	64	93:03-93:05	0.994 **	-0.001	-0.002	0.000	0.9793	1.081	0.00097	64		
93:04-93:06	0.955 **	0.027	0.054	0.000	0.9711	1.186	0.00144	65	93:04-93:06	0.982 **	0.027	-0.004	0.000	0.9888	1.065	0.00088	65		
93:05-93:07	0.977 **	0.036	0.021	0.000	0.9651	1.298	0.00142	65	93:05-93:07	0.992 **	0.019	0.006	0.000 +	0.9905	1.075	0.00074	65		
93:08-93:08	0.984 **	0.000	0.000	0.000	0.9718	1.093	0.00143	66	93:08-93:08	0.996 **	0.000	0.000	0.000	0.9905	1.075	0.00074	66		
93:07-93:09	0.988 **	0.004	0.004	0.000	0.9861	1.400	0.00089	66	93:07-93:09	1.012 **	-0.004	0.004	0.000	0.9935	1.090	0.00062	66		
93:08-93:10	0.980 **	0.003	0.000	0.000	0.9857	1.204	0.00095	65	93:08-93:10	1.015 **	-0.008	0.009	0.000	0.9946	1.024	0.00060	65		
93:09-93:11	0.987 **	0.000	0.000	0.000	1.0228	1.122	0.00101	66	93:09-93:11	1.012 **	-0.007	-0.009	0.000	0.9968	1.045	0.00060	66		
93:10-93:12	0.987 **	0.001	0.030	0.000	0.9731	1.195	0.00108	66	93:10-93:12	1.037 **	-0.016	-0.025	0.000	0.9799	1.038	0.00094	66		
93:11-94:01	1.036 **	0.016	-0.053	0.000	0.9812	1.042	0.00091	66	93:11-94:01	1.048 **	0.008	-0.032	0.000	0.9466	1.282	0.00158	66		
93:12-94:02	1.017 **	0.006	-0.031	0.000	0.9836	1.336	0.00089	64	93:12-94:02	1.042 **	0.000	-0.033	0.000	0.9825	2.784	0.00226	64		
94:02-94:03	1.033 **	0.000	0.000	0.000	1.0101	1.000	0.00091	66	94:02-94:03	1.042 **	0.000	0.000	0.000	0.9824	0.806	0.00092	66		
94:02-94:04	1.023 **	-0.006	-0.000	0.000	0.9851	1.446	0.00087	64	94:02-94:04	1.039 **	0.029	-0.032	0.000	0.9508	2.103	0.00192	64		
94:03-94:05	1.004 **	-0.002	0.000	0.000	0.9831	1.000	0.00076	66	94:03-94:05	1.008 **	-0.018	0.005	0.000 +	0.9913	1.672	0.00054	66		
94:04-94:06	0.934 **	0.017	0.000	0.000	0.9811	1.121	0.00095	65	94:04-94:06	1.004 **	0.000	0.000	0.000	0.9913	1.229	0.00054	65		
94:05-94:07	0.936 **	0.004	0.073 **	0.000	0.9855	1.149	0.00084	66	94:05-94:07	1.001 **	-0.004	0.009	0.000	0.9956	1.167	0.00047	66		
94:06-94:08	0.918 **	0.030	0.071 **	0.000	0.9877	1.124	0.00082	66	94:06-94:08	0.994 **	-0.020	0.033 +	0.000	0.9909	1.159	0.00073	66		
94:07-94:09	0.955 **	0.000	0.000	0.000	0.9871	1.067	0.00071	66	94:07-94:09	0.997 **	-0.027	0.000	0.000	0.9892	1.259	0.00062	66		
94:08-94:10	0.928 **	0.015	0.028 **	0.000	0.9769	1.040	0.00092	66	94:08-94:10	1.001 **	-0.036	0.041 +	0.000	0.9880	1.332	0.00076	66		
94:09-94:11	0.941 **	-0.013	0.027	0.000	0.9781	1.033	0.00088	65	94:09-94:11	1.007 **	0.001	0.014	0.000	0.9888	1.432	0.00067	65		
94:10-94:12	0.921 **	0.00																	

Table 7: Rolling Regression Results of Exchange Rate Movements (continue)

HongKong Dollar										Malaysia Ringgit									
Period	USD	JPY	EURO	Cons.	R2-adj	D.W	Std-err	No obs.		Period	USD	JPY	EURO	Cons.	R2-adj	D.W	Std-err	No obs.	
90:01-90:03	0.994 **	0.000	-0.001	0.000	0.9993	1.557	0.00022	64		90:01-90:03	0.937 **	0.015	0.045 +	0.000	0.8833	2.032	0.00105	64	
90:03-90:04	0.990 **	0.007	0.000	0.000	0.9989	1.935	0.00023	63		90:03-90:05	0.943 **	0.032 **	0.040	0.000	0.9096	1.929	0.00027	66	
90:04-90:05	0.995 **	0.000	0.006	0.000	0.9985	1.605	0.00025	66		90:05-90:07	0.920 **	0.067 **	0.070 **	0.000	0.8993	2.046	0.00113	66	
90:05-90:06	0.999 **	-0.003	0.000	0.000	0.9984	1.475	0.00025	65		90:06-90:08	0.951 **	0.047 **	0.023	0.000	0.9724	2.107	0.00109	65	
90:06-90:07	0.995 **	0.005	0.000	0.000	0.9983	1.710	0.00029	66		90:07-90:09	0.945 **	0.045	0.061 **	0.000	0.9811	2.164	0.00106	66	
90:07-90:08	0.998 **	0.004	0.004	0.000	0.9979	1.474	0.00038	66		90:08-90:10	0.917 **	0.043 +	0.048 **	0.000	0.9892	1.874	0.00079	66	
90:08-90:10	0.996 **	0.005	0.000	0.000	0.9983	1.428	0.00038	65		90:09-90:11	0.934 **	0.034 +	0.061 **	0.000	0.9916	1.814	0.00079	66	
90:09-90:11	0.998 **	0.001	-0.003	0.000	0.9982	1.854	0.00038	66		90:10-90:12	0.939 **	0.014	0.048 **	0.000	0.9927	1.920	0.00076	66	
90:10-90:12	0.989 **	0.004	0.002	0.000 +	0.9980	1.811	0.00035	66		90:11-90:01	0.911 **	0.025 +	0.063 +	0.000	0.9713	1.879	0.00103	66	
90:11-90:01	0.982 **	0.003	0.017 +	0.000	0.9983	2.079	0.00030	66		90:11-90:01	0.916 **	0.027	0.124 **	0.000	0.9486	1.452	0.00168	66	
90:11-90:02	0.987 **	-0.003	0.012 +	0.000	0.9983	2.079	0.00030	64		91:01-91:02	0.914 **	0.024	0.124 **	0.000	0.9556	1.551	0.00162	64	
91:01-91:03	0.989 **	-0.007	0.012 +	0.000	0.9983	2.096	0.00031	64		91:01-91:03	0.879 **	0.002	0.106 **	0.000	0.9591	1.752	0.00148	64	
91:02-91:04	1.000 **	-0.007	0.000	0.000	0.9990	1.887	0.00029	63		91:02-91:04	0.803 **	0.050	0.182 **	0.000	0.9746	1.714	0.00137	63	
91:03-91:05	0.996 **	-0.010	0.010	0.000	0.9989	1.815	0.00029	65		91:03-91:05	0.815 **	0.045	0.178 **	0.000	0.9687	1.723	0.00145	65	
91:04-91:06	1.003 **	-0.020	0.000	0.000	0.9926	1.800	0.00080	65		91:04-91:06	0.803 **	0.066 +	0.212 **	0.000	0.9670	2.286	0.00160	65	
91:05-91:07	1.002 **	-0.021	0.001	0.000	0.9988	1.216	0.00085	66		91:05-91:07	0.875 **	0.030	0.095 +	0.000	0.9712	2.212	0.00141	66	
91:06-91:08	0.999 **	-0.019	0.006	0.000	0.9942	1.397	0.00045	65		91:06-91:08	0.807 **	0.105 **	0.116 **	0.000	0.9837	1.403	0.00101	65	
91:07-91:09	0.997 **	0.011	0.000	0.000	0.9945	2.377	0.00060	66		91:07-91:09	0.803 **	0.091	0.164 **	0.000	0.9762	1.275	0.00116	66	
91:08-91:10	1.001 **	-0.036 +	0.026 +	0.000	0.9915	2.192	0.00067	66		91:08-91:10	0.875 **	0.006	0.121 **	0.000	0.9704	1.640	0.00116	66	
91:09-91:11	0.983 **	-0.032	0.021	0.000	0.9884	2.240	0.00073	65		91:09-91:11	0.872 **	-0.010	0.142 **	0.000	0.9706	1.727	0.00113	65	
91:10-91:12	0.994 **	-0.036	0.000	0.000	0.9812	2.574	0.00093	66		91:10-91:12	0.857 **	0.017	0.141 **	0.000	0.9744	1.112	0.00101	66	
91:11-92:01	1.004 **	-0.023	-0.026	0.000	0.9805	2.365	0.00092	66		91:11-92:01	0.885 **	0.074	0.069	-0.001	0.9360	1.543	0.00221	66	
91:12-92:02	1.005 **	-0.016	-0.024	0.000	0.9927	2.360	0.00091	65		91:12-92:02	0.852 **	0.074	0.010	-0.001 **	0.9344	1.553	0.00225	65	
92:01-92:03	0.999 **	-0.016	-0.024	0.000	0.9957	1.537	0.00059	65		92:01-92:03	0.865 **	0.022	0.069	0.000	0.9698	1.591	0.00295	65	
92:02-92:04	0.991 **	-0.012	0.053 **	0.000	0.9960	1.923	0.00048	64		92:02-92:04	0.992 **	-0.138	0.077	-0.001 +	0.8711	1.463	0.00261	64	
92:03-92:05	0.989 **	-0.021	0.037 +	0.000	0.9958	1.935	0.00049	65		92:03-92:05	0.871 **	-0.011	0.101	0.000	0.8493	1.732	0.00288	65	
92:04-92:06	0.988 **	-0.007	0.019	0.000	0.9961	1.679	0.00045	65		92:04-92:06	0.835 **	-0.049	0.199 +	0.000	0.8597	1.579	0.00265	65	
92:05-92:07	0.987 **	-0.015	0.017	0.000	0.9970	1.878	0.00039	66		92:05-92:07	0.835 **	-0.031	0.199 +	0.000	0.8717	1.669	0.00269	66	
92:06-92:08	0.987 **	0.009	0.017	0.000	0.9965	2.478	0.00041	66		92:06-92:08	0.878 **	-0.098	0.106 +	0.000	0.9508	1.574	0.00173	66	
92:07-92:09	0.996 **	0.001	0.000	0.000	0.9982	2.445	0.00039	66		92:07-92:09	0.874 **	0.043 +	0.025 +	0.000	0.9919	1.500	0.00089	66	
92:08-92:10	0.998 **	0.008	0.000	0.000	0.9988	2.060	0.00037	65		92:08-92:10	0.878 **	0.042	0.025 +	0.000	0.9904	1.724	0.00091	65	
92:09-92:11	1.001 **	-0.008	0.010 +	0.000	0.9987	2.003	0.00033	65		92:09-92:11	0.874 **	0.054 +	0.038 +	0.000	0.9906	1.739	0.00106	65	
92:10-92:12	0.997 **	-0.003	0.023 +	0.000	0.9979	2.462	0.00048	66		92:10-92:12	0.887 **	0.082	0.048	0.001 **	0.9883	1.524	0.00178	66	
92:11-93:01	0.991 **	0.021	0.026 +	0.000	0.9970	2.522	0.00046	66		92:11-93:01	0.871 **	0.118	0.060	0.000	0.9900	1.206	0.00200	66	
92:12-93:02	0.987 **	-0.010	0.000	0.000	0.9980	1.872	0.00039	64		92:12-93:02	0.878 **	0.089	0.081	0.001 +	0.9526	1.526	0.00246	64	
93:01-93:03	0.991 **	0.004	0.000	0.000	0.9995	1.200	0.00017	64		93:01-93:03	0.947 **	-0.007	0.039	0.000	0.9328	1.589	0.00203	64	
93:02-93:04	0.993 **	0.001	0.003	0.000	0.9995	2.130	0.00017	65		93:02-93:04	0.978 **	0.015	0.005	0.000	0.9613	2.244	0.00148	65	
93:03-93:05	0.993 **	0.005	0.000	0.000	0.9995	2.001	0.00015	65		93:03-93:05	0.933 **	0.005	0.005	0.000	0.9771	1.685	0.00177	65	
93:04-93:06	0.990 **	-0.004	0.002	0.000	0.9985	1.824	0.00049	65		93:04-93:06	0.909 **	0.080 +	0.021	0.000	0.9841	1.169	0.00155	65	
93:05-93:07	0.996 **	0.000	0.013	0.000	0.9937	2.181	0.00040	65		93:05-93:07	0.904 **	0.071 +	0.052	0.000	0.9565	1.512	0.00154	65	
93:06-93:08	0.997 **	0.000	0.000	0.000	0.9966	1.861	0.00044	66		93:06-93:08	0.901 **	0.093 +	0.042	0.000	0.9540	1.626	0.00157	66	
93:07-93:09	0.998 **	-0.003	0.005	0.000	0.9966	1.861	0.00044	66		93:07-93:09	0.976 **	-0.002	0.019	0.000	0.9792	1.682	0.00108	66	
93:08-93:10	0.998 **	-0.002	0.006	0.000	0.9984	1.343	0.00032	65		93:08-93:10	0.978 **	-0.014	0.016	0.000	0.9866	1.589	0.00093	65	
93:09-93:11	0.999 **	0.000	0.000	0.000	0.9986	1.923	0.00030	65		93:09-93:11	0.991 **	0.020	0.062	0.000	0.9775	1.636	0.00095	65	
93:10-93:12	0.982 **	0.011 +	0.021 +	0.000	0.9987	1.384	0.00023	66		93:10-93:12	0.984 **	-0.046	0.191	0.000	0.9714	1.131	0.00379	66	
93:11-94:01	0.995 **	0.000	0.000	0.000	0.9991	1.500	0.00019	66		93:11-94:01	0.469 +	-0.023	0.242	0.001 +	0.3298	1.235	0.00544	66	
93:12-94:02	0.981 **	0.004	0.028 +	0.000	0.9958	1.456	0.00045	64		93:12-94:02	0.592 **	-0.049	0.013	0.001 +	0.2894	1.197	0.00584	64	
94:01-94:03	0.988 **	0.000	0.000	0.000	0.9988	1.940	0.00046	66		94:01-94:03	0.592 **	-0.049	0.013	0.001 +	0.2894	1.197	0.00584	64	
94:02-94:04	0.988 **	0.000	0.000	0.000	0.9988	1.940	0.00046	66		94:02-94:04	0.402 **	-0.023	0.049	0.000	0.7914	1.599	0.00285	64	
94:03-94:05	0.996 **	0.000	0.003	0.000	0.9994	1.386	0.00014	66		94:03-94:05	0.881 **	-0.063	0.202 +	-0.001	0.8161	1.353	0.00267	66	
94:04-94:06	0.992 **	0.000	0.000	0.000	0.9994	1.940	0.00046	66		94:04-94:06	0.881 **	-0.063	0.202 +	-0.001	0.8161	1.353	0.00267	66	
94:05-94:07	0.996 **	-0.002	0.001	0.000	0.9990	1.888	0.00022	65		94:05-94:07	0.951 **	0.127 **	0.081	0.000	0.9843	1.511	0.00241	65	
94:06-94:08	0.997 **	0.000	0.000	0.000	0.9991	1.862	0.00022	66		94:06-94:08	0.968 **	-0.004	-0.031	0.000	0.9382	1.450	0.00184	66	
94:07-94:09	1.000 **	0.000	0.000	0.000	0.9998	1.912	0.00027	66		94:07-94:09	0.950 **	0.060 +	-0.072	0.000	0.8430	1.514	0.00200	66	
94:08-94:10	1.002 **	-0.001	-0.003	0.000	0.9998	1.862	0.00028	66		94:08-94:10	0.852 **	0.123 +	-0.045	0.000	0.9137	1.326	0.00172	66	
94:09-94:11	0.999 **	0.000	0.000	0.000	0.9997	1.951	0.00012	65		94:09-94:11	0.780 **	0.130 +	0.125 **	0.000	0.9535	1.847	0.00126	65	
94:10-94:12	0.994 **	0.000	0.004	0.000	0.9994	1.727	0.00014	65		94:10-94:12	0.833 **	0.088	0.123 **	0.000	0.9520	1.861	0.00130	65	
94:11-95:01	0.986 **	0.001	0.000	0.000	0.9981	2.421	0.00040	66		94:11-95:01	0.833 **	0.088	0.123 **	0.000	0.9520	1.861	0.00130	65	
94:12-95:02	0.986 **	0.001	0.000	0.000	0.9982	1.188	0.00040	64		94:12-95:02	1.014 **	-0.018	0.008	0.000	0.9861	1.703	0.00109	64	
95:01-95:03	0.997 **	0.004	0.002	0.000															

Table 7: Rolling Regression Results of Exchange Rate Movements (continue)

Chinese Renminbi										Vietnam Dong									
Period	USD	JPY	EURO	Cons.	R2-adj	D.W	Std-err	No obs.		Period	USD	JPY	EURO	Cons.	R2-adj	D.W	Std-err	No obs.	
90:01-90:03	0.997 **	0.005 *	0.000	0.000	0.9999	1.096	0.00009	64		90:01-90:03	0.316 *	-0.066	0.857 **	0.000	0.6645	1.136	0.00571	64	
90:03-90:04	0.996 **	0.003	0.000	0.000	0.9996	1.025	0.00014	63		90:03-90:05	0.029 *	0.051	0.863 **	0.001	0.3498	1.298	0.0064	66	
90:04-90:06	0.998 **	0.004	-0.002	0.000	0.9995	1.047	0.00014	66		90:03-90:06	0.424 **	0.070	0.867 **	0.000	0.4798	1.202	0.00675	66	
90:05-90:07	1.000 **	0.001	-0.002	0.000	0.9997	1.025	0.00012	66		90:04-90:05	0.688 **	0.114	0.277 *	0.000	0.5542	1.242	0.00536	66	
90:06-90:08	1.000 **	0.000	0.000	0.000	1.0000	1.020	0.00004	66		90:05-90:07	0.524 **	0.134	0.404 *	0.000	0.4764	1.104	0.0064	66	
90:07-90:09	0.999 **	-0.001	0.001	0.000	0.9999	0.914	0.00008	66		90:06-90:08	0.291 *	0.061	0.477 **	0.001	0.4298	1.107	0.00717	66	
90:08-90:10	0.998 **	-0.001	0.002	0.000	0.9990	0.925	0.00006	66		90:07-90:09	0.031 -	-0.038	0.841 **	0.001	0.3223	1.212	0.00875	66	
90:09-90:11	0.999 **	-0.001	0.001	0.000	0.9998	0.919	0.00006	66		90:08-90:10	1.844 *	-0.547	-0.911 *	0.004	0.0421	1.046	0.02672	66	
90:10-90:12	0.999 **	-0.164	0.129	0.002	0.9998	1.019	0.00128	66		90:09-90:11	1.539 *	0.403	0.111 +	0.000	0.1919	0.2688	0.019	66	
90:11-91:01	1.007 **	-0.174	0.058	0.002	0.9994	1.024	0.00127	66		90:10-90:12	1.892 **	-0.163	-1.917 **	0.005	0.2029	0.985	0.02506	66	
91:01-91:02	1.014 **	-0.007	0.000	0.000	0.9994	1.047	0.00018	64		90:11-91:01	0.529 **	-0.012	-0.040	0.001	0.0947	1.117	0.00980	66	
91:01-91:03	1.036 **	-0.057	0.014	0.000	0.9943	1.000	0.00120	63		91:01-91:02	2.437	-0.197	-0.884	0.001	0.1159	0.202	0.01140	66	
91:02-91:04	1.041 **	-0.004	0.000	0.000	0.9842	1.026	0.00128	66		91:01-91:03	0.174	0.172	0.174	0.001	0.0369	1.144	0.00963	66	
91:04-91:06	1.031 **	-0.057	0.014	0.000	0.9743	1.006	0.00158	65		91:02-91:04	0.599 **	-0.535 *	0.828 **	0.000	0.3463	1.140	0.00956	63	
91:05-91:07	0.942 **	0.088 **	0.088 *	0.000 +	0.9871	1.196	0.00104	66		91:03-91:05	0.248 *	-0.158	0.248 *	0.000	0.3662	1.047	0.01918	65	
91:06-91:08	0.855 **	0.011	0.003 **	0.000	0.9887	1.077	0.00095	66		91:04-91:06	0.256	0.252	-0.158	0.002	0.0416	1.239	0.01208	65	
91:07-91:09	0.802 **	0.011	0.003 **	0.000	0.9937	1.059	0.00069	66		91:05-91:07	0.485	-0.402	0.485	0.001	0.0712	1.081	0.01074	66	
91:08-91:10	0.903 **	0.016	0.000	0.000	0.9930	1.155	0.00062	66		91:06-91:10	1.925 **	-0.259	-0.443	0.003	0.0626	1.044	0.01709	66	
91:09-91:11	0.998 **	0.015	0.002	0.000	0.9899	1.375	0.00071	65		91:09-91:11	1.995 **	0.018	-1.888 **	0.004	0.1794	1.085	0.02458	65	
91:10-91:12	0.971 **	0.029	0.000	0.000	0.9672	1.928	0.00128	66		91:10-91:12	1.303 *	-0.097	-1.066 *	0.003	0.0777	1.007	0.02235	66	
91:11-92:01	1.047 **	-0.028	-0.030	0.000	0.9544	1.862	0.00204	66		91:11-92:01	0.778	-0.200	-0.356	0.001	-0.0036	1.009	0.02729	66	
91:12-92:02	1.076 **	-0.061	-0.051	0.000	0.9584	1.869	0.00202	66		91:12-92:02	0.708	-0.831	0.865 +	-0.002	0.0911	1.079	0.01956	65	
92:01-92:03	1.076 **	-0.061	-0.051	0.000	0.9996	1.865	0.00165	65		92:01-92:03	0.463	-0.716	1.149 +	-0.003	0.1023	1.047	0.01918	65	
92:02-92:04	0.919 **	-0.010	-0.065	0.000	0.9687	1.908	0.00131	64		92:02-92:04	0.824 +	-0.787	1.122 +	0.000	0.1563	1.184	0.01388	64	
92:03-92:05	0.991 **	-0.020	-0.047	0.000	0.9690	1.868	0.00133	65		92:03-92:05	1.196	-1.102	0.835 **	0.000	0.2200	1.102	0.00780	65	
92:04-92:06	0.983 **	-0.029	0.034	0.000	0.9629	1.734	0.00139	65		92:04-92:06	0.458 +	0.197	0.267	0.001	0.3244	1.281	0.00769	65	
92:05-92:07	0.977 **	-0.039	0.050 **	0.000	0.9607	1.600	0.00091	66		92:05-92:07	0.468	0.009	0.168	0.000	0.3962	1.191	0.00749	65	
92:06-92:08	0.988 **	-0.039	0.054	0.000	0.9628	1.600	0.00106	66		92:06-92:08	0.027	0.289	0.289	0.001	0.2639	1.197	0.00623	66	
92:07-92:09	1.073 **	-0.081	-0.114 **	0.000	0.9434	1.201	0.00264	66		92:07-92:09	0.108	0.486	0.697 **	0.001	0.3407	1.290	0.01288	66	
92:08-92:10	1.052 **	-0.067	-0.107 **	0.000	0.9673	1.211	0.00271	66		92:08-92:10	1.174	0.486	0.071	0.000	0.2247	1.234	0.01437	66	
92:09-92:11	1.061 **	-0.058	-0.102 **	0.000	0.9434	1.201	0.00264	66		92:09-92:11	0.091	0.122	0.122	-0.001	0.3409	1.219	0.01433	65	
92:10-92:12	1.163 **	-0.121	-0.150	0.001	0.8841	1.044	0.00698	66		92:10-92:12	0.916 **	-0.481	0.356 +	0.001	0.4095	1.392	0.00963	66	
92:11-93:01	1.212 **	-0.181	-0.201	0.001	0.8182	0.951	0.01021	66		92:11-93:01	0.54	0.54	0.54	0.001	0.174	0.174	0.01265	65	
92:12-93:02	1.167 **	-0.108	-0.192	0.001	0.8156	1.045	0.00705	64		92:12-93:02	0.919 **	-0.590	1.076 **	-0.001	0.3717	1.141	0.01427	65	
93:01-93:03	1.043 **	-0.093	-0.045	0.000	0.8554	1.047	0.00261	64		93:01-93:03	0.301 -	-0.306	1.152 **	0.001	0.2584	1.006	0.01466	64	
93:02-93:04	1.052 **	-0.085	-0.065	0.000	0.8903	1.059	0.00260	65		93:02-93:04	0.842 **	-0.198	0.538	-0.001	0.2557	0.909	0.01217	65	
93:03-93:05	1.048 **	0.000	0.000	0.000	0.8903	1.059	0.00260	65		93:03-93:05	0.895 **	0.000	0.000	0.000	0.1901	0.969	0.00889	65	
93:04-93:06	1.000 **	0.000	0.000	0.000	1.0000	2.177	0.00000	65		93:04-93:06	0.586 **	-0.019	-0.240	0.000	0.1388	1.086	0.00891	65	
93:05-93:07	1.000 **	0.000	0.000	0.000	1.0000	2.226	0.00000	65		93:05-93:07	0.451 *	-0.095	0.119	0.000	0.1255	1.003	0.00829	65	
93:06-93:08	1.000 **	0.000	0.000	0.000	1.0000	2.320	0.00000	66		93:06-93:08	0.232	-0.001	0.148	0.000	0.0877	0.933	0.00733	66	
93:07-93:09	1.000 **	0.000	0.000	0.000	1.0000	2.870	0.00000	66		93:07-93:09	-0.086	-0.156	0.222	0.001	0.0151	0.919	0.00896	66	
93:08-93:10	0.969 **	0.001	0.006	0.000	0.9784	1.061	0.00118	66		93:08-93:10	-0.008	-0.139	0.372	0.000	0.0148	0.967	0.00919	65	
93:09-93:11	0.939 **	0.002	0.006	0.000	0.9697	1.267	0.00122	65		93:09-93:11	0.316	0.309	0.316	0.000	0.1650	0.999	0.00919	65	
93:10-93:12	0.945 **	0.020	0.007	0.000	0.9622	1.051	0.00124	66		93:10-93:12	0.234	0.054	0.781 **	-0.001	0.4460	1.324	0.00566	66	
93:11-94:01	0.820 **	0.733	0.448	0.008	0.9822	2.037	0.00491	66		93:11-94:01	0.021	0.592 **	0.592 **	0.000	0.5728	1.522	0.00439	66	
93:12-94:02	0.800 **	0.513	0.368	0.006	0.9913	2.041	0.00494	64		93:12-94:02	0.463	0.016	0.472 +	0.000	0.4817	1.313	0.00565	64	
94:01-94:03	0.894 **	0.246	0.184	0.000	0.9401	0.927	0.00389	64		94:01-94:03	0.007	0.509	0.509	0.000	0.2983	1.247	0.00474	64	
94:02-94:04	1.002 **	-0.003	-0.003	0.000	0.9987	1.429	0.00021	66		94:02-94:04	0.043	0.544 **	0.544 **	0.000	0.4686	1.275	0.00571	64	
94:03-94:05	1.005 **	0.000	-0.005	0.000	0.9987	1.429	0.00021	66		94:03-94:05	0.475 **	-0.064	0.693 **	0.000	0.5820	1.436	0.00421	66	
94:04-94:06	0.981 **	0.001	0.002 **	0.000	0.9911	1.241	0.00028	66		94:04-94:06	0.016	-0.016	0.516 **	0.000	0.4244	1.433	0.00462	66	
94:05-94:07	0.980 **	0.015 *	0.027 **	0.000	0.9987	1.439	0.00021	66		94:05-94:07	0.405 -	-0.032	0.594 **	0.000	0.6609	1.465	0.00491	66	
94:06-94:08	0.982 **	0.010	0.021 **	0.000	0.9986	1.299	0.00028	66		94:06-94:08	0.609 **	-0.068	0.587 **	0.000	0.7090	1.402	0.00465	66	
94:07-94:09	1.000 **	0.000	0.000	0.000	1.0000	1.970	0.00000	66		94:07-94:09	0.031	0.464 **	0.464 **	0.000	0.6145	1.179	0.00455	66	
94:08-94:10	1.000 **	0.000	0.000	0.000	1.0000	2.179	0.00000	66		94:08-94:10	0.080	0.182	0.182	0.000	0.1163	1.101	0.00717	66	
94:09-94:11	1.131 **	-0.004	-0.111	0.000	0.8854	1.057	0.00239	65		94:09-94:11	0.177	0.215	0.463 +	0.000	0.1564	1.170	0.00795	65	
94:10-94:12	1.151 **	0.009	-0.153 +	0.000	0.8806	1.057	0.00238	65		94:10-94:12	-0.086	0.328	0.652 **	0.000	0.2521	1.197	0.00753	65	
94:11-95:01	0.991 **	-0.002	-0.002	0.000	0.9717	1.899	0.00183	66		94:11-95:01	0.169	0.183	0.183	0.000	0.6693	1.240	0.00582	66	
94:12-95:02	0.996 **	-0.002	-0.006	0.000 **	0.9982	0.866	0.00024	64		94:12-95:02	0.334 +	0.093	0.592 **	0.001	0.5365	1.136	0.00498	64	
95:01-95:03	1.000 **	-0.002	-0.002	0.000 **	1.0000	1.383	0.00006	65		95:01-95:03	0.872 **	-0.181 +	0.182 **	0.000	0.7448	1.434	0.00575	65	
95:02-95:04	1.000 **	-0.004	-0.005 +	0.000	0.9993	0.969	0.00013	63		95:02-95:04	0.3								

Table 7: Rolling Regression Results of Exchange Rate Movements (Continued)

Period	USD	JPY	EURO	Cons.	R2-adj	DW	Std-errs	Noobs.	Period	USD	JPY	EURO	Cons.	R2-adj	DW	Std-errs	Noobs.	
90.01-90.03	0.880	-0.426	0.279	0.007	-0.030	0.988	0.040	63	90.01-90.03	0.677	0.168	0.764	0.003	0.028	1.076	0.027	64	
90.03-90.04	0.853	0.199	0.189	0.007	-0.039	0.996	0.047	63	90.02-90.05	0.383 *	0.127	0.851 **	0.000	0.047	1.061	0.008	65	
90.03-90.05	0.488 *	0.000	0.644 **	0.000	0.5053	1.275	0.0611	66	90.03-90.05	0.412 *	0.116	0.659 **	0.000	0.4855	1.261	0.0666	66	
90.04-90.06	0.636 **	0.120	0.284 *	0.000	0.5975	1.368	0.0493	65	90.04-90.06	0.629 **	0.132	0.276 *	0.000	0.3560	1.257	0.0333	65	
90.05-90.07	0.108 **	-2.111	0.396 **	0.000	0.5192	1.353	0.0616	66	90.05-90.07	0.114	0.029	0.114	0.000	0.8783	1.026	0.0981	66	
90.06-90.08	-0.287	-2.711	1.651	0.015	-0.0079	1.009	0.0928	66	90.06-90.08	0.405	0.112	0.454 **	0.001	0.4699	1.070	0.0695	66	
90.07-90.09	-0.061	0.717	0.103	0.000	-0.0079	1.006	0.0943	65	90.07-90.09	0.208	0.001	0.834 **	0.001	0.3435	1.203	0.0085	65	
90.08-90.10	0.157	1.233	0.278	0.000	0.3992	1.094	0.0631	66	90.08-90.10	0.074	0.000	0.074	0.000	1.343	0.871	0.116	66	
90.09-90.11	0.419	0.058	0.356	0.000	0.2727	1.158	0.0895	65	90.09-90.11	0.375 **	-0.008	0.428 *	0.000	0.2828	1.128	0.0853	65	
90.10-90.12	0.742 **	0.286 *	0.266	0.000	0.3929	0.890	0.00736	66	90.10-90.12	0.735 **	0.190 *	-0.076 *	-0.001	0.4693	0.911	0.0643	66	
91.01-91.01	-0.094 **	0.126	0.068	0.000	0.132	0.011	0.000	64	91.01-91.01	0.061	0.000	0.061	0.000	0.361	0.575	0.015	64	
91.02-91.02	0.594 **	-0.050	0.000	0.000	0.3451	1.292	0.0603	64	91.02-91.02	0.529 **	-0.092	0.116	0.000	0.3535	1.188	0.0598	64	
91.01-91.03	0.631 **	-0.186	0.101	-0.001	0.3823	1.346	0.0629	64	91.01-91.03	0.606 **	-0.159	0.199	-0.001	0.3333	1.286	0.0675	64	
91.02-91.04	-0.250 **	0.224 *	-0.000	0.000	0.5192	1.353	0.0616	66	91.02-91.04	-0.265 *	-0.114	0.206	0.000	0.2717	1.036	0.0780	66	
91.03-91.05	0.368 *	-0.278	0.403 *	-0.001	0.1562	1.171	0.00396	66	91.03-91.05	0.368 *	-0.277	0.403 *	-0.001	0.1572	1.172	0.0035	66	
91.04-91.06	0.646	-0.100	0.268	0.003	-0.0133	0.976	0.03491	65	91.04-91.06	0.646	-0.311	0.506 *	-0.001	0.1136	1.110	0.0929	65	
91.05-91.07	1.098	1.404	-2.207	0.008	0.0387	1.093	0.04821	66	91.05-91.07	1.098	0.085	0.069	0.729 *	0.000	0.0581	1.128	0.0790	66
91.06-91.08	0.478	1.759	0.171	0.000	0.1039	0.747	0.0498	66	91.06-91.08	0.478	0.170	0.180	0.000	0.0229	0.939	0.0039	66	
91.07-91.09	-0.370	2.456 *	-0.871	0.004	0.0737	1.114	0.03558	66	91.07-91.09	0.158	0.010	0.158	0.000	0.0861	1.125	0.0826	66	
91.08-91.10	0.572 **	-0.131	0.145	0.000	0.1644	1.181	0.00799	66	91.08-91.10	0.572 **	-0.131	0.145	0.000	0.1644	1.185	0.00799	66	
91.09-91.11	0.025	0.025	0.010	0.000	0.1052	0.925	0.0285	64	91.09-91.11	0.025	0.012	0.012	0.000	0.454	0.553	0.015	64	
91.10-91.12	0.527 **	0.273	0.000	-0.001	0.00213	1.011	0.04288	66	91.10-91.12	0.545 **	-0.114	0.348 *	0.001	0.2161	1.075	0.0373	66	
91.11-92.01	0.165	0.452	0.524	0.000	-0.0243	1.008	0.04328	66	91.11-92.01	0.285	-0.204	0.552 **	0.001	0.2166	1.075	0.0373	66	
91.12-92.02	0.208	0.527	0.984	0.000	-0.03251	1.008	0.04328	65	91.12-92.02	0.208	-0.292	0.552 **	0.001	0.1450	0.908	0.0086	65	
92.01-92.03	-0.023	-0.112	0.933 **	-0.002	0.0858	1.024	0.01290	65	92.01-92.03	0.065	-0.232	0.838 **	-0.001	0.1675	0.926	0.017	65	
92.02-92.04	-0.080	-0.044	0.954 *	-0.001	0.0243	1.005	0.01234	64	92.02-92.04	0.115	-0.232	0.764 *	0.000	0.0788	0.883	0.00814	64	
92.03-92.05	0.119	-0.002	1.120 **	-0.001	0.1780	1.005	0.01065	65	92.03-92.05	0.119	-0.126	0.993 **	0.000	0.4628	1.312	0.0030	65	
92.04-92.06	0.729	-1.119	1.537 *	0.004	0.0565	1.022	0.02822	65	92.04-92.06	0.447 **	0.242	0.401 *	0.000	0.7453	0.983	0.00950	65	
92.05-92.07	0.697	-1.340	1.562 *	0.005	0.0515	1.049	0.02816	66	92.05-92.07	0.257	0.273	0.384 *	0.001	0.3551	1.242	0.0638	66	
92.06-92.08	0.912	-1.630	1.510 *	0.005	0.0478	1.026	0.02580	66	92.06-92.08	0.257	0.273	0.384 *	0.001	0.3110	1.171	0.0638	66	
92.07-92.09	0.920	-1.630	1.510 *	0.005	0.0478	1.026	0.02580	66	92.07-92.09	0.257	0.273	0.384 *	0.001	0.3110	1.171	0.0638	66	
92.08-92.10	0.381	0.479	0.290	0.013	-0.0353	1.046	0.05845	65	92.08-92.10	0.592 *	0.032	0.720 **	-0.001	0.3476	1.213	0.01444	65	
92.09-92.11	0.529	0.378	0.287	0.013	-0.0299	1.055	0.05852	65	92.09-92.11	0.463 *	0.139	0.711 **	-0.001	0.3357	1.223	0.01431	65	
92.10-93.01	1.437	0.027	0.984	0.000	0.132	1.043	0.0043	65	92.10-93.01	1.437	0.027	0.984	0.000	0.132	1.043	0.0043	65	
92.11-93.01	0.076	0.201	0.820 **	0.000	0.4025	1.460	0.00838	65	92.11-93.01	0.092	0.245	0.780 **	0.000	0.3943	1.457	0.00838	65	
92.12-93.02	0.324	0.108	0.830 **	0.000	0.3818	1.523	0.01025	64	92.12-93.02	0.324	-0.109	0.804 **	0.000	0.3480	1.377	0.01112	64	
93.01-93.01	-0.177	2.194	2.184	0.000	0.190	0.981	0.028	64	93.01-93.01	0.593	0.106	0.981	0.000	0.29	1.045	0.01145	64	
93.02-93.04	-1.119	2.413	2.850	0.011	0.0136	1.053	0.08132	65	93.02-93.04	0.818 **	-0.183	0.499 *	-0.001	0.2489	0.912	0.01189	65	
93.03-93.05	-1.096	2.530	2.850	0.010	0.0091	1.061	0.08057	66	93.03-93.05	0.554 **	-0.005	0.335	0.000	0.1860	0.911	0.00990	66	
93.04-93.06	0.262	0.190	0.400	-0.002	0.075	1.027	0.03651	65	93.04-93.06	0.262	-0.510	0.499 *	-0.001	0.1328	0.969	0.009	65	
93.05-93.07	0.450 **	-0.054	0.096	-0.001	0.1344	1.089	0.00790	65	93.05-93.07	0.450 **	-0.054	0.096	-0.001	0.1343	1.089	0.00790	65	
93.06-93.08	0.086	-0.153	0.265	0.000	0.0116	1.012	0.00957	66	93.06-93.08	0.049	-0.125	0.270	-0.001	0.0119	0.951	0.00894	66	
93.07-93.09	-0.663	-0.150	0.384 *	0.001	0.0635	0.968	0.00855	66	93.07-93.09	-0.663	-0.150	0.384 *	0.001	0.0260	0.968	0.00855	66	
93.08-93.10	0.7019	0.101	0.101	0.000	0.0383	0.983	0.0131	65	93.08-93.10	0.7019	0.101	0.101	0.000	0.0260	0.968	0.00855	66	
93.09-93.11	0.206	-0.077	0.740 **	-0.001	0.2460	1.064	0.00059	65	93.09-93.11	0.206	-0.089	0.453 *	0.000	0.1670	1.224	0.0748	65	
93.10-93.12	0.383	0.013	0.733 *	-0.001	0.3720	1.211	0.00672	66	93.10-93.12	0.384	0.013	0.730 *	-0.001	0.3719	1.211	0.00672	66	
93.11-94.01	0.410 **	0.022	0.810 **	0.000	0.501	1.042	0.0062	66	93.11-94.01	0.410 **	0.022	0.810 **	0.000	0.501	1.042	0.0062	66	
93.12-94.02	0.458 *	0.013	0.491 *	0.000	0.4849	1.311	0.00587	64	93.12-94.02	0.458 *	0.013	0.491 *	0.000	0.4849	1.311	0.00587	64	
94.01-94.03	0.450 **	-0.004	0.492 **	0.000	0.5217	1.252	0.00514	64	94.01-94.03	0.450 **	-0.004	0.492 **	0.000	0.5216	1.252	0.00514	64	
94.02-94.04	0.404	-0.004	0.404	0.000	0.4462	1.294	0.00482	64	94.02-94.04	0.404	-0.004	0.404	0.000	0.4462	1.294	0.00482	64	
94.03-94.05	0.405 **	-0.067	0.527 **	0.000	0.5447	1.475	0.00439	66	94.03-94.05	0.405 **	-0.067	0.527 **	0.000	0.5452	1.476	0.00439	66	
94.04-94.06	0.577 **	-0.016	0.689 **	0.000	0.6357	1.442	0.00459	65	94.04-94.06	0.577 **	-0.016	0.689 **	0.000	0.6362	1.443	0.00459	65	
94.05-94.07	0.501	-0.023	0.501	0.000	0.4623	1.407	0.00464	65	94.05-94.07	0.501	-0.023	0.501	0.000	0.4623	1.407	0.00464	65	
94.06-94.08	0.614 **	-0.068	0.582 **	0.000	0.7110	1.414	0.00460	65	94.06-94.08	0.614 **	-0.068	0.582 **	0.000	0.7110	1.414	0.00460	65	
94.07-94.09	1.435	-0.073	0.398	-0.004	0.0080	1.003	0.03774	66	94.07-94.09	1.435	-0.073	0.398	-0.004	0.8886	1.283	0.00423	66	
94.08-94.10	1.451	-0.145	0.280	-0.005	0.0080	1.003	0.03774	66	94.08-94.10	1.451	-0.145	0.280	-0.005	0.8886	1.283	0.00423	66	