THREE CURRENT ACCOUNT BALANCES: A "SEMI-STRUCTURALIST" INTERPRETATION

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Abstract

Three current account imbalances—one very large deficit (the United States) and two surpluses (Japan and the Euro area)—are subjected to a minimalist structural interpretation. Though simple, this interpretation enables us to assess how much of each of the imbalances require a real exchange rate adjustment. According to the estimates, a large part of the U.S. current account deficit (nearly 2 percentage points of the 2006 deficit of 5½ percent of GDP) will undergo an adjustment process that involves real depreciation in its exchange rate. For Japan, a little more than 1 percentage point (of GDP) of the current account surplus is found to require an exchange rate movement (real appreciation) as the surpluses adjust down. For the Euro area, less than half a percentage point of its current account surplus is found to require an adjustment via real appreciation.

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1. INTRODUCTION

There has been a vigorous debate regarding the origin and implications of the ever more prominent global current account imbalances in the major economies of the United States, the Euro Area and Japan. With the debate showing no sign of abatement, now seems a good time to impose a little "structure" upon the discussion. We say "a little" because in this paper, we follow a middle road, aiming to provide a differing perspective from those gleaned from the new generation of dynamic stochastic general equilibrium (DSGE) models and from event studies.

Analyses conducted in the framework of the new generation of macroeconomic models, while providing a high degree of theoretical rigor to the debate, has often led to dissatisfyingly divergent results, as manifested by the Fed's Sigma model and the IMF's Global Economic Model.[1] Both of these models typify an approach that incorporates highly articulated structure and internal consistency. Yet, despite the common theoretical ancestry of these models, they disagree substantially about the impact of fiscal policy on the accumulation of external debt, as well as the impact of fiscal policy on the current account. In part, these differences are driven by differences in the behavioral aspects of the models, and in part driven by the differing assumptions used in conducting the simulations.

Yet another perspective on the likely evolution of imbalances has been provided through correlations viewed through the prism of event studies. Careful studies of this

[1] Greenspan (2005) and Ferguson (2005) referred to simulations of this model in their assessment of the origins of the U.S. current account deficit. See Erceg et al. (2005a,b). For GEM, see Faruqee et al. (forthcoming).

nature have been conducted by Croke et al. (2006), Freund and Warnock (forthcoming), and Galati and Debelle (2005). They examine previous current account deficit adjustments in developed economies. While useful, the event study approach aggregates and averages the shocks both within and across episodes.[2]

For these reasons, we believe that it is a profitable enterprise to apply a method that, in principle, can say something about the evolution of key current account imbalances and real values of currencies, relying upon a "minimalist" set of identifying assumptions that are consistent with a wide range of models. Our approach can answer two central questions. First, we provide an estimate of the long-run value to which the U.S. current account deficit would likely to revert. Second, in the adjustment of the current account to its long run value, how much the dollar must adjust.

Without claiming full generality, we adopt a parsimonious method to decompose shocks in a manner relevant to the current debate. The role of the exchange rate being a point of contention, shocks are decomposed according to their long-run effect on the real exchange rate. In particular, Lee and Chinn (2006) found that the shocks with only temporary exchange rate effects brought about a negative correlation between the current account and the real exchange rate—current account improves as the exchange rate depreciates—while the shocks with permanent exchange rate effects did not necessarily bring about such a negative correlation. Then, to the extent that some of the current account deficit of the United States is driven by temporary shocks, its correction will be accompanied by a depreciation in the real exchange rate.

[2] There are also a set of time series models invoking threshold effects; see Clarida et al. (forthcoming).

Historical decompositions enable us to estimate the role of temporary shocks behind the observed level of current account balances.[3] Applying the framework to the current account imbalances of three largest economies—a deficit in the United States and surpluses in Japan and the Euro area— we find that a substantial part (nearly 2 percentage points of GDP) of the U.S. current account deficit since 2003 is attributable to shocks that have only temporary effects on the real exchange rate. That is, the correction of that portion of the U.S. current account deficit will go hand in hand with a depreciation of the U.S. real exchange rate. For Japan and the Euro area, a much smaller part of their current account surpluses over the same period are found to be driven by temporary shocks.

These results, however, are obtained by assuming implicitly that the resolution of the U.S. current account imbalances will be based on the same economic behavior that was exhibitedin the earlier period. As will be discussed later, we find that the U.S. external balances have been materially affected by the large increase in the official financial inflows that has been sustained since the early 2000s. If this elevated level of official inflows continues into the foreseeable future, little need exists for the exchange rate to depreciate beyond the already depreciated level of 2007.

It is important to note that the results of our approach can be interpreted in a number of ways. Movements in the real exchange rate can be interpreted as consistent with the traditional view of currency values inducing expenditure switching. For those

[3] Even under an identical impulse responses, historical decompositions can uncover different relative importance of temporary and permanent shocks. Hence, this paper's main question cannot have been answered by our earlier paper.

concerned with theoretical rigor, our approach is entirely consistent with the Obstfeld and Rogoff (2004) model, wherein exchange rate adjustment is jointly determined with a reduction in tradable goods consumption. Whereas they assume an exogenously imposed need for a reduction of the U.S. current account balance, we quantify how much of the U.S. imbalance will be eliminated, and simultaneously, how much the dollar will decline, given historically observed responses to shocks.

We do not consider our approach a substitute for either the DSGE simulation or the event study approaches. Rather, our study can be considered complementary to approaches that rely upon cross-country evidence, in contrast to our purely time series methodology.

Our paper complements other papers that adopted the long-run identification strategy to study the exchange rate or current account.[4] Clarida and Gali (1994) applied a long-run identification strategy to explore the role of monetary shocks in the exchange rate fluctuations, in a three-variable sytem comprising bilateral real exchange rate, inflation differential, and relative output. Nason and Rogers (2002) analyzed the relationship between investment and current account using Canadian data.

Our results also help to add structure to the amorphous argument over whether there is a global savings glut or revived Bretton Woods arrangement. Consider the

[4] Blanchard and Quah (1989) advocated that long-run restrictions were often consistent with a broader group of macroeconomic models. Faust and Leeper (1997) discussed the statistical downside of applying long-run restrictions, although Christiano et al. (2006) are more sanguine about such restrictions. We are of the view that this structural approach produces useful information, as in several other studies. Lee and Chinn (2006) contain a related discussion with emphasis on the theoretical interpretation of results for G7 countries.

savings glut/investment drought perspective most closely associated with Bernanke (2005).[5] In his view, the US current account deficit is the outcome of deficient savings in the U.S., excess savings relative to investment in East Asia and Europe, and the relatively higher rate of return on U.S. assets. Setting aside the dissonant fact that U.S. private sector savings in 2004 are much like they were in 2000, the argument achieves some amorphousness by virtue of the fact that "normal" – which is necessary to defining what is excess and what is deficient – is never defined, except by virtue of arbitrarily selected reference periods. Moreover, our findings about the role of official inflows into the U.S. corroborate the importance of the special role played by the saving-investment divergence and reserve accumulation in East Asia.

The rest of this paper is organized as follows. The next section discusses conceptual framework of this note, and section 3 reports the estimation results. Section 4 discusses the implication on the forthcoming adjustment on the basis of historical decomposition. Section 5 concludes.

2. ECONOMETRIC FRAMEWORK

To explore the role of the exchange rate in the recent developments in the current account, we employ a statistical methodology to decompose the source of current account developments according to their long-term effect on the real exchange rate. Macroeconomic shocks that sway current account balances will also affect the real

[5] Related papers include Clarida (2004, 2005) and Hubbard (2005). On a somewhat different but related note, Gourinchas and Rey (forthcoming) and Blanchard et al. (2005) both emphasized the role that the relatively low interest rate on U.S. assets obtained by foreigners played in the current developments and prospects of the U.S. current account deficit.

exchange rate. Some will have long-run effects while others have only temporary effects. As will be shown in this section, the shocks that have only temporary effects on the real exchange rate are exactly what motivate the widely held perception that exchange rate depreciates over the medium term when the current account deteriorates (a perception that is accurate).

We decompose shocks into two types by adopting the econometric identification scheme of Blanchard and Quah (1989). One of the two fundamental shocks is postulated to have no long-term effect on the real exchange rate. The methodology can be summarized by the following bi-variate VAR, estimated for the current account (ca_t) and the first-differenced real exchange rate (Δq_t).

$$\begin{bmatrix} ca_t \\ \Delta q_t \end{bmatrix} = B(L)\begin{bmatrix} ca_t \\ \Delta q_t \end{bmatrix} + \begin{bmatrix} \eta_t^{ca} \\ \eta_t^{q} \end{bmatrix} = B(L)\begin{bmatrix} ca_t \\ \Delta q_t \end{bmatrix} + B(0)\begin{bmatrix} \varepsilon_t^{T} \\ \varepsilon_t^{P} \end{bmatrix}, \qquad (1)$$

where country-specific temporary shocks are denoted as ε_t^T, and permanent shocks as ε_t^P. When ε_t denotes the vector of temporary and permanent shocks, the following standard assumptions are made: $E(\varepsilon_t) = 0$, $E(\varepsilon_t \varepsilon_t') = I$, and $E(\varepsilon_t \varepsilon_s') = 0$ when $t \neq s$.

In a conventional VAR analysis, system (1) will be identified by assuming that $B(0)$ is a lower triangular matrix. This amounts to assuming that the real exchange rate innovation has no contemporaneous effect on the current account, an assumption that is at odds with many theoretical models.

In contrast, the Blanchard and Quah approach enables one to identify the system on the basis of a criterion that is consistent with a wide spectrum of intertemporal open

macro models. It is assumed that temporary shocks have no long-run effect on the exchange rate, regardless of other characteristics of underlying shocks. Unlike the identification obtained by Choleski factorization that assumes a lower triangular $B(0)$, the temporary and permanent shocks identified here should not necessarily be interpreted as shocks to the exchange rate and current account, respectively. Estimated innovations to the exchange rate and current account (η_t) are both linear combinations of temporary and permanent shocks, because the off-diagonal elements of matrix $B(0)$ are non-zero.

In an earlier paper examining the G7 countries, we found that the temporary and permanent shocks carry different relative importance for current account balances and exchange rates, and moreover that they induce different correlations between current account balances and exchange rates. In response to a temporary shock, the current account balance improves when the real exchange rate depreciates. In response to a permanent shock, however, the current account balance improves at the same time as the real exchange rate appreciates. This has clear implications for the current debate over the role of the exchange rate. To the extent that today's current account imbalances are caused by temporary shocks, a real dollar depreciation is imminent.

3. DATA AND ESTIMATION RESULTS

3.1 Data

The current account and real exchange rate data are largely drawn from the *International Financial Statistics* database, at the quarterly frequency, except for the seasonally adjusted U.S. current account that was obtained from the BEA. For all three

economies, the real effective exchange rates are available since the first quarter of 1980. The current account data are available until the first quarter of 2007 for the United States, the Euro area, and Japan. The U.S. current account balances were adjusted for the Gulf War transfers of the early 1990s. In the econometric estimation, the current account balance is measured as the ratio of its dollar value to the dollar-denominated nominal GDP. The real exchange rate is the first-differenced log of the real effective exchange rate index based on the consumer price index (CPI).[6]

3.2 Estimating the VAR and Impulse Responses

The VAR system was estimated with two lags for all three economies, based on standard criteria (Akaike information criterion and Schwartz criterion). However, a shorter sample ending in 2001Q4 was used for the United States, to avoid the post-2001 period which suggests a substantial change in econometric relationship (to be discussed further in the next paragraph).

Estimation results are reported in Table 1. In general they accord with one's priors. It is more difficult to explain movements in real exchange rates than in current account balances. The R^2's for the exchange rate change equations range from 0.10 to 0.13, while those for the current account balance take on values from 0.72 to 0.94. First differences of the real exchange rate exhibit some serial correlation, with the coefficient on the lagged difference ranging from 0.22 to 0.31. In contrast, the current account

[6] Greater detail is contained in the Data Appendix, including the evidence on (non)stationarity of data. For an extensive discussion of the stationarity of the current account for a sample of nearly 100 countries, see Faruqee and Lee (2005).

balance exhibits substantial persistence, with the coefficient on the first lag taking on values as high as 0.87 (for the United States).

Applying structural decomposition to examine the effects of two different types of shocks, temporary versus permanent shocks are found to bring about opposite correlations between the real exchange rate and the current account. The impulse-responses in Figures 1, 3 and 4 show that for all three economies, a real depreciation accompanies an improvement in the current account under the temporary shocks. In the case of the United States (Figure 1), a two-percent real depreciation improves the current account balance by about 0.2 percentage points of GDP. This corresponds to the oft-mentioned expenditure-switching effect on the current account of exchange rate changes. In contrast, for permanent shocks, a real appreciation goes hand in hand with an improvement in the current account, contradicting conventional wisdom regarding the current account balance - exchange rate relationship. It should be emphasized that the identification criterion for temporary and permanent shocks imposes no *a priori* restrictions on the signs of these correlations.

We now discuss why we chose the pre-2001 sample for the U.S. There is evidence suggesting a temporary break in the relationship between the current account and the exchange rate in periods following 2002. Most starkly, if we estimate the VAR system using the data till 2004, impulse response functions were opposite to those obtained for the U.S. using any sample period that excludes 2004, and opposite to those obtained for other economies with any sample period (typical impulse responses are

discussed in the next paragraph).[7] This anomaly begins to disappear when the system is estimated over the whole sample, until 2006 and 2007Q1, but with very weak response of current account to temporary shocks. It can be seen in the first panel of Figure 1A, where the response of current account to temporary shocks is about half that of the traditional dynamics reported in the first panel of Figure 1. (Figure 1A was based on the estimates in the left side of Table 2, obtained from using the current account data to 2007Q1). Consequently, we conclude that the post-2002 period is anomalous, a conclusion buttressed by the simultaneous dollar depreciation and current account deterioration.

More importantly, Figure 2 and 2A highlight the fact that official sector financial inflows into the U.S. appear to be behind this anomaly. Figure 2 compares the original current account series and the current account series net of the official financial inflows. While, historically, official inflows are highly variable around zero mean, they have moved to a large positive number in recent years. Netting out the part of current account deficit financed by official inflows, the current account deficit of the U.S. is smaller by 2-3 percentage points of GDP over the 2002-04 period. Figure 2A reports the impulse-responses based on this current account series that are counterpart to non-official capital flows, and produces qualitatively identical results to those of Figures 1, 3, and 4. Unless large official inflows are expected to be a permanent feature of the new international economic scene, it would be preferable to base the analysis on the sample period which is not heavily influenced by what is an apparently anomalous development. Thus we use data preceding this period for our baseline analysis.

[7] While the econometric results are sensitive to the inclusion of the 2004 data for the U.S., the results for Japan and the Euro area are little affected as the end point of the sample is varied from 2002 to 2004.

The case for a special role for official inflows is strengthened indirectly by the fact that accounting for other factors – namely oil and the growing role of China – has not materially affected our conclusions. Regarding the first point, we incorporated the standard practice of treating oil and non-oil trade separately. However, using the current account balance net of oil in stead of the current account balance did not resolve the anomalous joint dynamics (impulse responses) of the current account and the exchange rate for the post-2002 period.

The second point on China, made by Thomas et al. (2007), is that the conventional real exchange rate indices might not properly take into account the increasing importance of low cost trading partners, such as China. The conventional dollar index is calculated by taking growth rates of real bilateral exchange rates, weighting them by trade flows, and then cumulating these weighted growth rates to recover levels of the dollar's value. This measure will fail to capture the fully the effect of an exchange rate that is constant, but has associated with it an increasing trade share. Clearly, this characterization is apt for the relative price of Chinese imports into the United States, over the past decade. Nevertheless, we find that, after substituting the dollar measure calculated by Thomas et al. for the IMF measure, the counter-intuitive impulse-response functions still obtain.

Hence, while both of these effects must have brought about some structural changes, their quantitative importance appears to be dwarfed by the recent rise in the

official inflows—which must reflect the increase in surplus of oil exporters, as well as high reserve accumulations in Asia.[8]

The economic interpretation of the permanent and temporary shocks, discussed further in our previous paper (Lee and Chinn, 2006), can be summarized as follows. Temporary shocks find an easy candidate in monetary shocks. These are often viewed as having only temporary effects on the real exchange rate, excepting long run net-wealth effects which are quantitatively tiny.[9] Indeed, many aggregate demand shocks would have only a temporary effect on the real exchange rate. Permanent shocks are more difficult to pin down. Typically, permanent shocks are associated with productivity innovations; however, this is often thought of as inducing a negative correlation between the current account and the exchange rate. We prefer the interpretation of the permanent shock as a preference shock in favor of home exports, which would have a long-run effect on the real exchange rate, while inducing a positive comovement between the current account and the real exchange rate. It might be more useful to think of a negative value of this shock – a shock *against* home exports. Abstracting away from temporary shocks, Blanchard et al. (2005) provides an analysis of preference shocks that have permanent effects on the real exchange rate. Consistent with our interpretation, a preference shock in favor of foreign exports generates a real depreciation and current account deficit along the adjustment path.

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[8] See Chinn and Frenkel (2007) for the resilience of U.S. dollar assets in the composition of international reserves.

[9] See Blanchard and Quah (1989) on the point that the long-run restrictions are approximately accurate when the long-run economic effects are very small, and see Lee and Chinn (2006) for the discussion of a very small magnitude of the long-run exchange rate effect of monetary shocks.

Regardless of their economic interpretation, what matters foremost for our current purpose is the existence of these two types of shocks and the different correlations between the current account and the exchange rate induced by these two shocks. It is the temporary shocks that induce the usual negative correlation between the current account and the real exchange rate.

How do these estimated impulse response functions compare to our previous estimates? Since for the sample has changed somewhat – it is expanded by up to four years – one might expect some changes. For the U.S. and Japan, the changes are relatively minor. For the euro area that was not analyzed in our previous study, we compare it with the previous results for several member countries. We find the temporary component has an initial impact on the current account about three times as large as it did for Germany, but only about twice as large as for Italy. The impact of the permanent component is about the same as in Germany or France.

4. HISTORY AND PROSPECTS

Given the estimates of the structural matrix— $B(0)$ matrix in equation (1)—the estimated shocks to the current account and the real exchange rates can be decomposed into temporary and permanent shocks. By tracking their effects using the estimated coefficients, we can uncover the contribution of temporary and permanent shocks to the past movements in the current account and the real exchange rate. Subject to the initial conditions, which are the prevailing values of the current account and the real exchange rate at the beginning of the sample (in 1980), this historical decomposition brings to light

how much of the current account imbalances are attributable to temporary and permanent shocks.

One thing we know about the current account imbalance arising from temporary shocks is that its adjustment (e.g. improvement in the case of the United States) will entail a movement in the real exchange rate in the opposite direction (thus a real U.S. dollar depreciation). The same temporary shocks will reverse its own effect on the exchange rate, for they have no permanent effects on the real exchange rate. That is, the portion of the current account due to temporary shocks is the amount of current account imbalance that will be corrected through a real exchange rate adjustment in the direction consistent with the conventional wisdom.

Permanent shocks, on the other hand, do not lead to a usual comovement in the current account and the exchange rate. Given the stationary nature of the current account, the effect of permanent shocks to the current account will decay over time. But this process will not be accompanied by a movement in the exchange rate in any particular direction, because the permanent shocks will have a lasting effect on the exchange rate and no further adjustment in a particular direction is necessary.

The historical decomposition of the U.S. current account and the real exchange rate is presented in Figure 5. The upper panel shows the current account in percent of GDP since 1983, the portion attributable to the initial values and deterministic factors (constant terms in the estimated VAR), and the portion attributable to these and permanent shocks (named “non-transitory component”). The lower panel shows the real

exchange rate index and the portion attributable to comparable sources of shocks—permanent shocks, deterministic factors, and initial values.

The role of temporary shocks in the current account deficit and the exchange rate is strikingly large in the United States. Almost a half of the current account deficit since 2000 is attributed to temporary shocks, suggesting that its correction will entail a depreciation in the real exchange rate. After the correction of the deficit associated with temporary shocks, a small deficit due to permanent shocks will remain. This deficit will also decline, to bring the current account close to the deterministic component, but without necessarily involving exchange rate adjustment.

Turning to the exchange rate, during the last several years, a large gap has opened between the actual exchange rate and its long-term component. The gap peaked in 2002 and has since narrowed slightly. Nevertheless, in 2006 and the beginning of 2007, a gap of around 20 percent existed between the actual real exchange rate and the long-term component driven by non-transitory shocks. While the sharp real depreciation over the two years following 2001 brought the value of the U.S. dollar down close to its 1997-98 value -- when the actual rate matched the long-term component of the exchange rate -- the long-term component itself has declined further since then, so that the gap between the actual and long run equilibrium has remained largely unchanged.

How do these results relate to the ongoing debate? First, the exchange rate result has something of the flavor of the Permanent Equilibrium Exchange Rate concept, in which the permanent component is extracted by virtue of a transitory-permanent

decomposition; however, in this case, the decomposition is bivariate in nature.[10] Thus, in the sense of deviating from an "equilibrium value", the dollar remains overvalued.

The non-transitory component of the current account also seems quite large in absolute value, at -3¼ percent of GDP compared to a recorded value for end-2006 of -5¾ percent of GDP. What this indicates is that exchange rate depreciation associated with the conventional adjustment process will not return the current account deficit to something less than 3¼ percent of GDP by itself. A further reduction of the current account deficit will follow as the effect of permanent shocks on the current account wanes. That part of adjustment, however, does not necessarily involve a further exchange rate realignment, according to the impulse-response analysis discussed earlier.

The question of how far the current account deficit will decline can be answered by referring to our estimate of the deterministic component of the current account – essentially that part of the historical decomposition arising from initial values and estimated constants in the VARs. The estimate suggests that current account deficit will decline to about 2¾ percent of GDP when various shocks work their way out.

This conclusion may be surprising to those who believe that a zero current account deficit must necessarily be achieved eventually. However, it is important to note that, with the economy growing secularly, a negative current account balance and stable debt to GDP ratio are compatible.[11] Furthermore, given the fact that the United States has

[10] A closely related approach is in MacDonald and Swagel (2000). See the discussion in Driver and Westaway (2004).

[11] This is a point made by Engel and Rogers (2006).

earned more on its assets abroad than foreigners have earned on the assets they own in the U.S., there is extra "wiggle room" for running a deficit. Kouparitsas (2005) has calculated this number at 1.4 percent of GDP, and different assumptions lead to slightly higher numbers.[12]

Figure 5A adds two alternative historical decompositions. The upper panel was obtained from the estimation behind Figure 2A, obtained by using the current account data net of official inflows (thus with a much smaller deficit over the 2002-04 period). This estimation would correspond to the scenario in which official inflows would continue to finance the current account deficit of about 2-3 percent of GDP—namely, a scenario under which the U.S. current account deficit that needs financing and that entails exchange rate adjustment has been smaller by 2-3 percentage points of GPD over the 2002-04 period. In this case, the deterministic part of the current account deficit is smaller, and the permanent part of the exchange rate is higher, than they are estimated using the actual current account deficit. That is, the current account (that is not funded by the continuing large official inflows) will revert to a smaller deficit, with little need for further exchange rate movement.

The lower panel of Figure 5A was obtained by using the statistically less significant coefficient estimates that result from the VAR estimation over the sample that ends in 2007Q1 (Table 2 and Figure 1A). This decomposition estimates that the deterministic part of the current account keeps declining, getting close to -5 percent of GDP in 2007. This result appears to also support our reading that a structural break of the

[12] IMF (2006) forecasts 6.5%, while the *Economist* (July 6, 2006) survey of economists indicates 6.8%.

recent years is being undone, but not quite to a conclusion yet. Subject to that qualification, this historical decomposition still indicates that the exchange rate is to depreciate by a little less than 10 percent.

For Japan and the Euro area, a large part of the short-run movement in the current account is attributed to temporary shocks while the big medium-term swings in the current account appear to be driven by permanent shocks. In both economies, temporary components account for a small part of current account surpluses in 2004. The correction of these temporary-shock-driven surpluses will entail some appreciation in their real exchange rates. Interestingly, however, the magnitude of the implied appreciations is quite small.

This reading is confirmed by the lower-panel graphs in Figures 6 and 7. While the bulk of the exchange rate movement in both Japan and the Euro area is attributed to permanent shocks, temporary shocks are found to have played a bigger role in the movement of Japan's real exchange rate over the past two years. Without the contribution of temporary shocks, the real value of the yen would have been higher than its observed value, while the real value of the euro would have been more or less identical to its observed value.

Our results regarding the yen are qualitatively consistent with an oft-voiced view that the yen should appreciate over time as the economy strengthens further, shedding the hangover of the decade-long economic slump. However, despite the large current account surplus of Japan, the real exchange rate is expected to appreciate by no more than 10 percent, and the current account balance itself is estimated to revert to a surplus of more

than 2 percent. The fact that the deterministic portion of the current account is substantial surplusis partly the counterpartto the large negative deterministic component of the U.S. current account balance.

5. CONCLUSION

The future paths of the U.S. dollar and current account balance have been a focus of considerable speculation. In the discussion of "global rebalancing", the potential counterparts to the adjustment of the U.S. current account deficit, the surpluses of two largest economies (Japan and the Euro area) have also attracted much attention. In this paper, we have attempted to impose some structure upon the discussion of what is a normal current account and exchange rate level, for the three key economies.

By applying a simple identification criterion that decomposes the shocks to those that do not have a long-run effect on the real exchange rate (termed temporary shocks) and those that do (termed permanent shocks), the portion of the current account that will adjust via the conventional real exchange rate channel was estimated. The U.S. current account imbalances recorded for 2006/7 predict a further dollar decline of nearly 20 percent, conditional upon the shocks already observed. Hence, despite the dollar's decline since 2002, the U.S. currency appears destined for a further real depreciation, although interestingly, the total decline is less than estimates obtained in other studies (e.g., Obstfeld and Rogoff, 2004). In a striking contrast, an appreciation of a much smaller magnitude is anticipated for Japan and the Euro area. This might reflect the fact that a large part of the U.S. current account deficit is incurred vis-à-vis the other countries *not* included in our analysis.

Obviously, what we have recounted above should not be construed as forecasts of the current account or the exchange rate of these three economies. This is because the projections into the future are conditional upon the shocks already observed (and recall, by definition the shocks are unpredictable). In addition, it is important to recall that our estimates of the non-transitory components of the current account and the exchange rate are merely estimates–and that considerable uncertainty circumscribes each of these estimates.

Interestingly, those who argue that the past three years of U.S. economic behavior has been aberrant would find some confirmation in our results, as we found that the increased level of official inflows since 2002 altered the traditional dynamic relationship between the current account and the real exchange rate. This outocome strongly suggests the special role played by reserve accumulation of surplus countries, some of which are the source countries of the so-called "global saving glut". However, to the extent that we are able to model the U.S. current account balance and dollar behavior over the period up to end-2001, we do not view this phenomenon as one that has explained the current account deficit over the entire post-East Asian crisis period. Rather it appears to be of fairly recent origin, and hence may prove less durable than some commentators have conjectured, and we accordingly based our analysis on the view that the traditional dynamics would govern the resolution of global current account imblances.

Finally, we note two limitations of the analysis we have undertaken. The first limitation is that we do not allow for interactions between the economies, at least directly. The statistical analysis of the U.S. economy was conducted implicitly viewing the world through a two-country model; then the process was repeated for Japan and the Euro area.

A second, and more important, limitation is that the analysis is predicated upon the future looking like the past. Yet, if the high level of official inflows into the U.S. were to continue well into the foreseeable future, our own alternative analysis suggests that the high level of present-day imbalances may not undergo a large adjustment. And if we were to view that the estimated dynamics over the sample till 2007Q1 represents a new regime rather than being a tentative pattern on a return to the traditional dynamics, the required adjustment in the current account exchange rate is still smaller than that estimated under the traditional dynamics. These two possibilities, however, cannot yet be determined by econometric analysis, given the unprecedented nature of these massive imbalances and large foreign sector flows. Of course, that is a limitation shared by *all* the modes of analysis currently being used.

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Data Appendix

Real Exchange Rates: CPI deflated trade weighed indices (series *rec*), drawn from IMF, *International Financial Statistics*. See Bayoumi, Lee and Jayanthi (2006) for description of index characteristics.

Current account balances: Dollar amounts, drawn from IMF, *International Financial Statistics*, for Japan. The U.S. current account balance is obtained from the Bureau of Economic Analysis (BEA) and adjusted to omit the effect of Gulf War transfers, using figures reported in various issues of BEA's *Survey of Current Business*. The euro area current account balance in euros is drawn from the Area Wide Model (AWM) database described in Fagan et al. (2001), located on the Euro Area Business Cycle Network website (http://www.eabcn.org/data/awm/index.htm). In all cases, current account balances are normalized by GDP.

Table 1. Vector Autoregression Estimates

	United States		Japan		Euro area	
	CAY	DRE	CAY	DRE	CAY	DRE
CAY(-1)	0.97	0.41	0.51	1.02	0.71	0.10
	(0.11)	(1.01)	(0.09)	(0.72)	(0.10)	(0.15)
	[9.19]	[0.39]	[5.70]	[1.43]	[7.19]	[0.68]
CAY(-2)	-0.01	0.07	0.33	-0.50	0.20	-0.07
	(0.11)	(1.07)	(0.08)	(0.67)	(0.10)	(0.15)
	[-0.07]	[0.07]	[3.92]	[-0.74]	[2.05]	[-0.48]
DRE(-1)	-0.01	0.22	-0.01	0.28	-0.11	0.31
	(0.01)	(0.11)	(0.01)	(0.09)	(0.07)	(0.10)
	[-0.61]	[2.02]	[-0.92]	[2.87]	[-1.607]	[3.09]
DRE(-2)	-0.01	-0.03	0.04	-0.14	0.14	0.04
	(0.01)	(0.11)	(0.01)	(0.10)	(0.07)	(0.10)
	[-0.85]	[-0.26]	[3.65]	[-1.44]	[2.17]	[0.37]
C	-0.001	0.01	0.005	-0.012	0.005	0.000
	(0.001)	(0.01)	(0.001)	(0.01)	(0.002)	(0.003)
	[-1.86]	[1.98]	[3.43]	[-1.11]	[0.26]	[-0.00]
R-squared	0.94	0.10	0.76	0.13	0.82	0.12
Log likelihood	563.37		589.39		497.83	
Akaike info criterion	-13.02		-11.04		-9.29	
Schwarz criterion	-12.73		-10.78		-9.04	
Sample	1980Q4 2001Q4		1980Q4 2007Q1		1980Q4 2007Q1	

Standard errors in ( ) & t-statistics in [ ]

Table 2. USA: Alternative Vector Autoregression Estimates

	Usual Current Account		Current Account net of official financial inflows	
	CAY	DRE	CAY	DRE
CAY(-1)	0.84	0.01	0.47	0.00
	(0.10)	(0.01)	(0.10)	(0.00)
	[8.78]	[0.86]	[4.69]	[0.57]
CAY(-2)	0.15	0.00	0.32	0.004
	(0.10)	(0.01)	(0.10)	(0.003)
	[1.53]	[-0.37]	[3.14]	[1.48]
DRE(-1)	-0.58	0.19	1.90	0.19
	(1.26)	(0.10)	(3.78)	(0.10)
	[-0.46]	[1.97]	[0.50]	[1.87]
DRE(-2)	-1.50	-0.09	2.20	-0.05
	(1.26)	(0.10)	(3.63)	(0.10)
	[-1.19]	[-0.87]	[0.60]	[-0.47]
C	-0.10	0.01	-0.37	0.009
	(0.06)	(0.00)	(0.14)	(0.004)
	[-1.69]	[2.19]	[-2.72]	[2.44]
R-squared	0.95	0.10	0.59	0.14
Log likelihood	201.39		99.09	
Akaike info criterion	-3.61		-1.68	
Schwarz criterion	-3.36		-1.43	
Sample	1980Q4 2007Q1		1980Q4 2007Q1	

Standard errors in ( ) & t-statistics in [ ]

Figure 1. USA: Impulse Responses

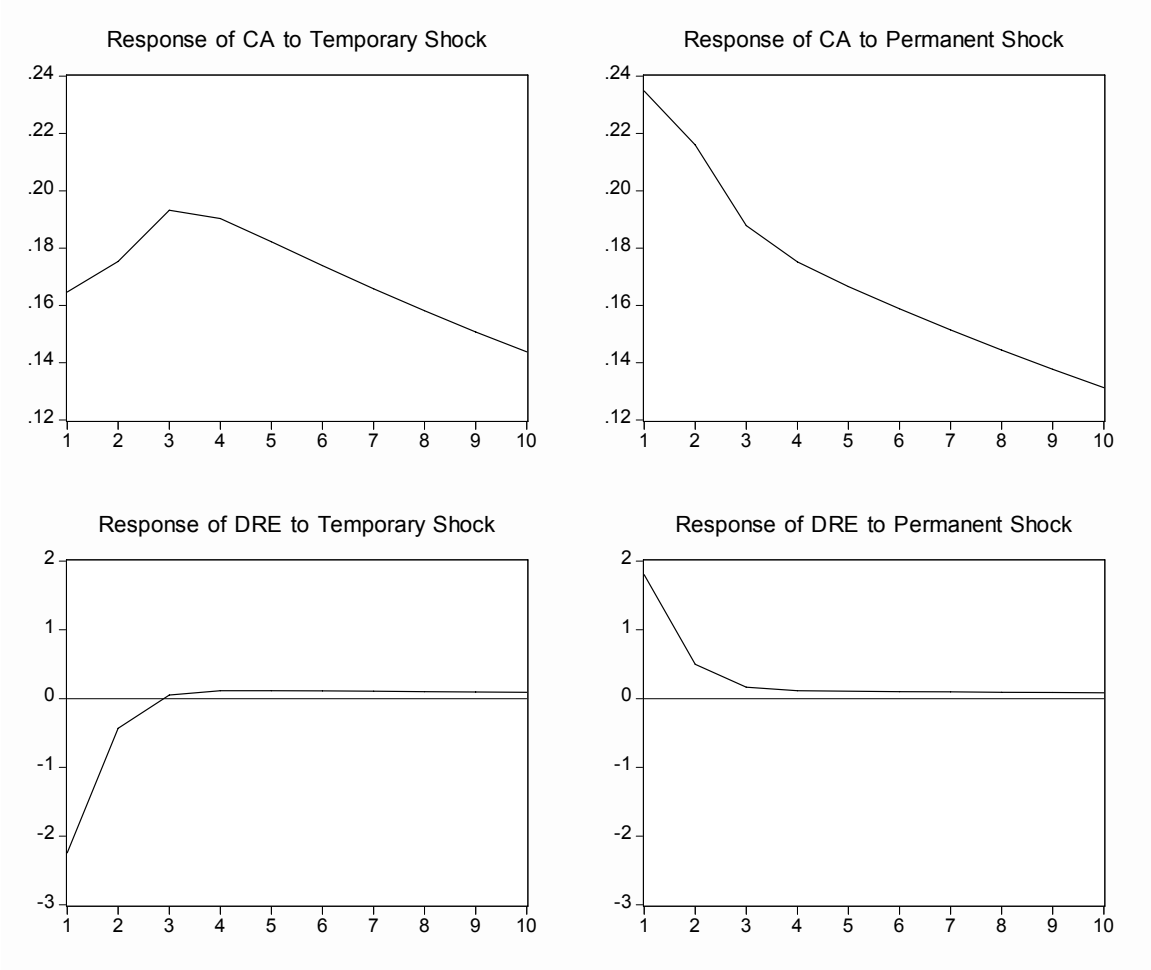

Figure 1A. USA: Impulse Response, estimated over the whole sample period

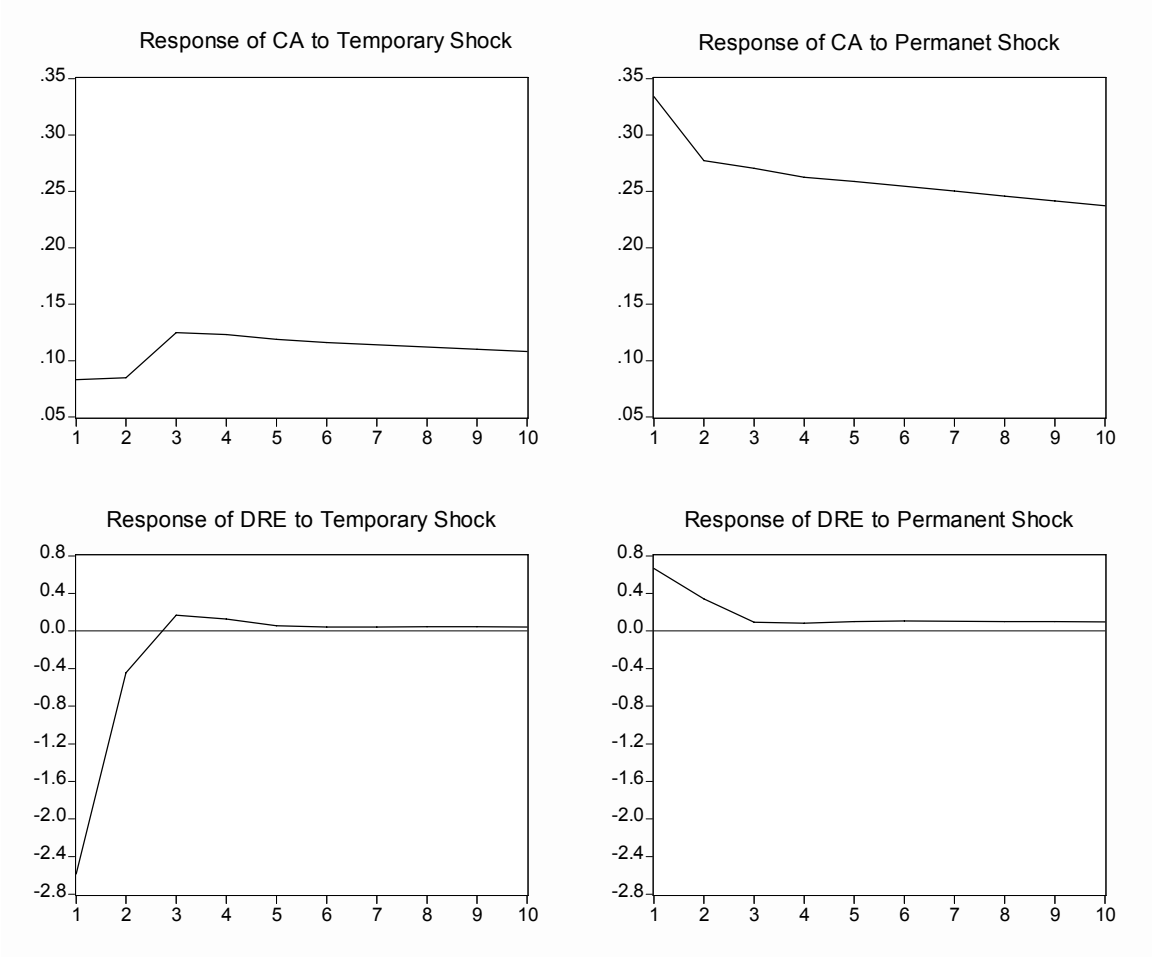

Figure 2. USA: Current Account net of Official Financing

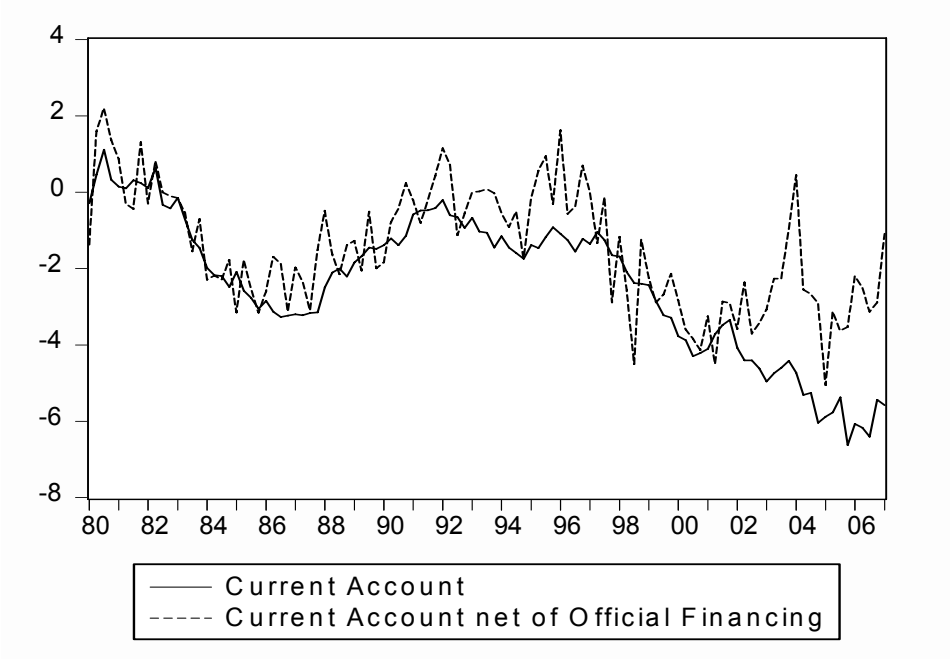

Figure 2A. USA: Impuse Responses based on the Current Account net of Official Financing

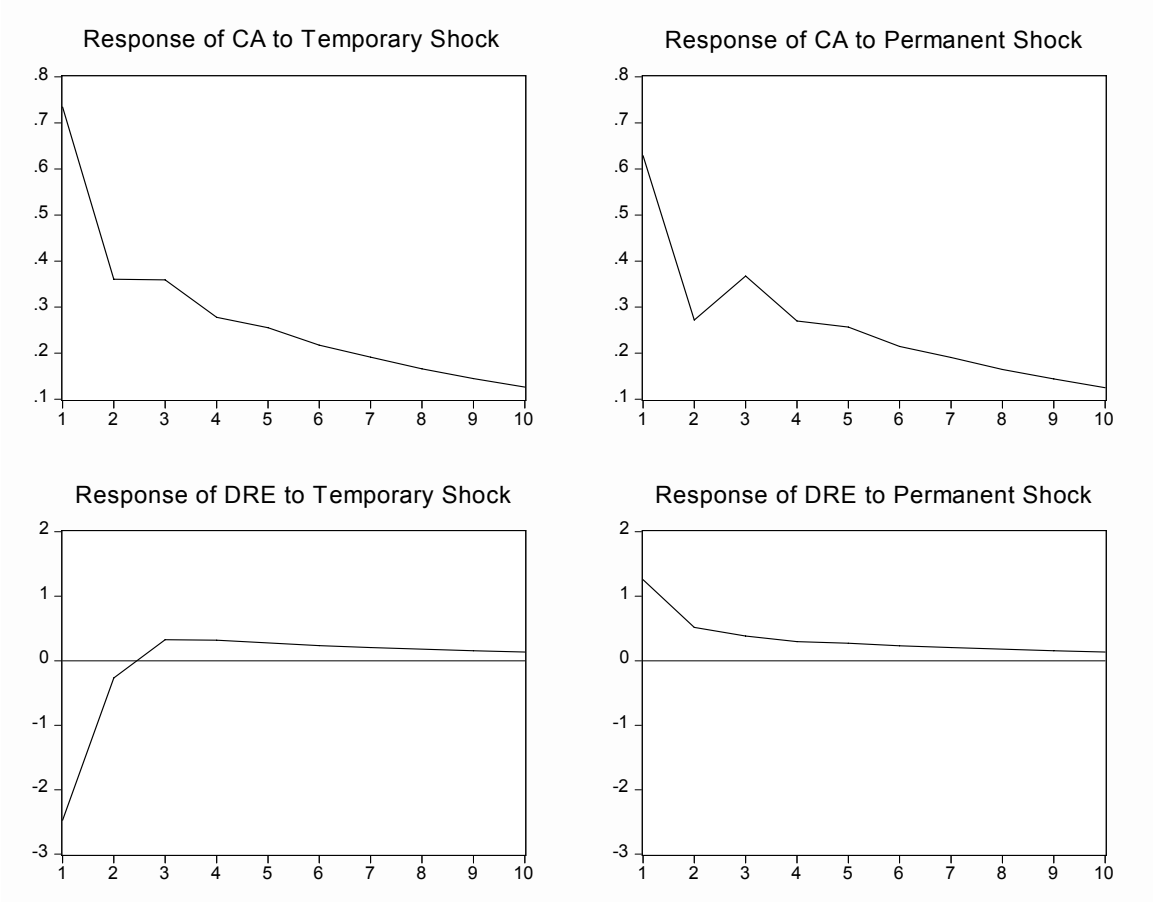

Figure 3. Japan: Impulse Responses

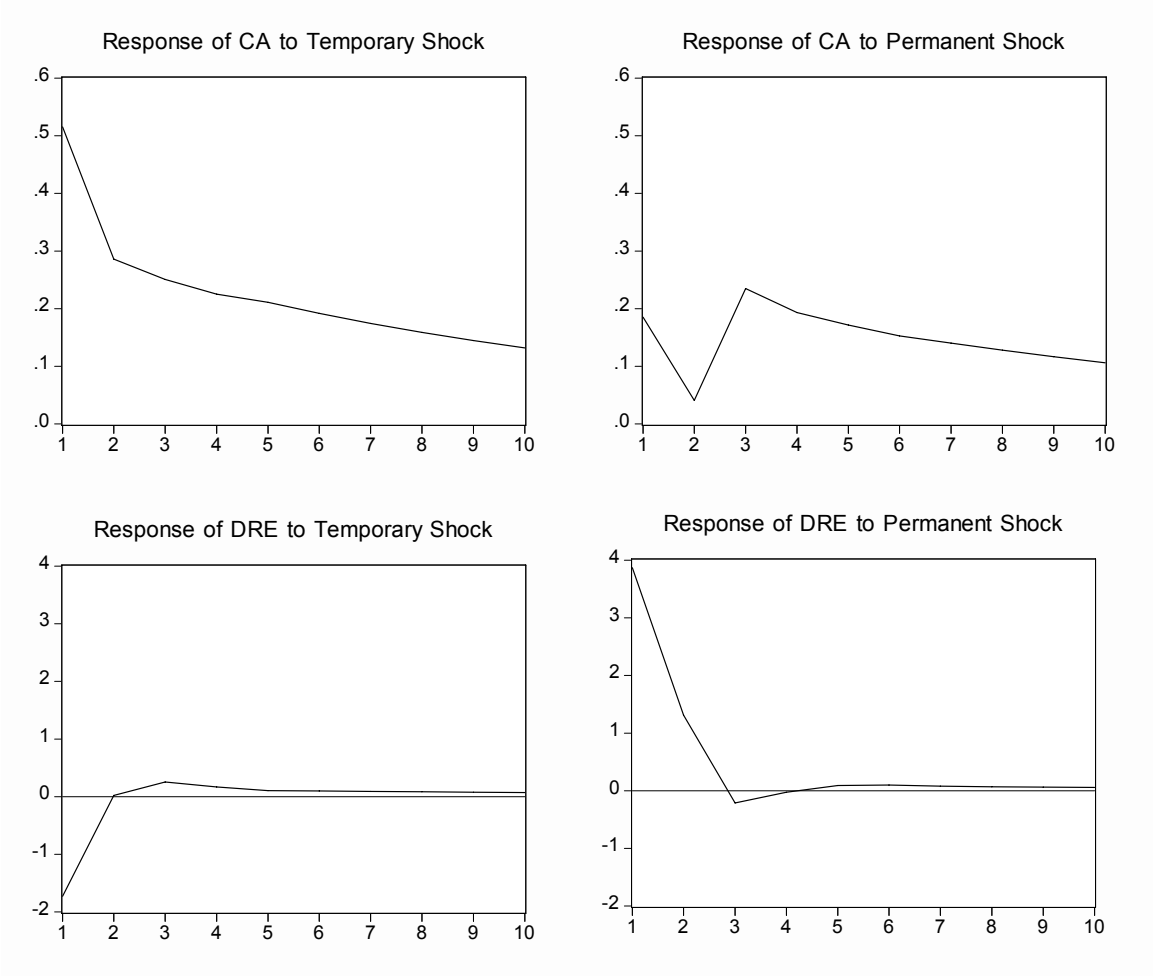

Figure 4. Euro Area: Impulse Responses

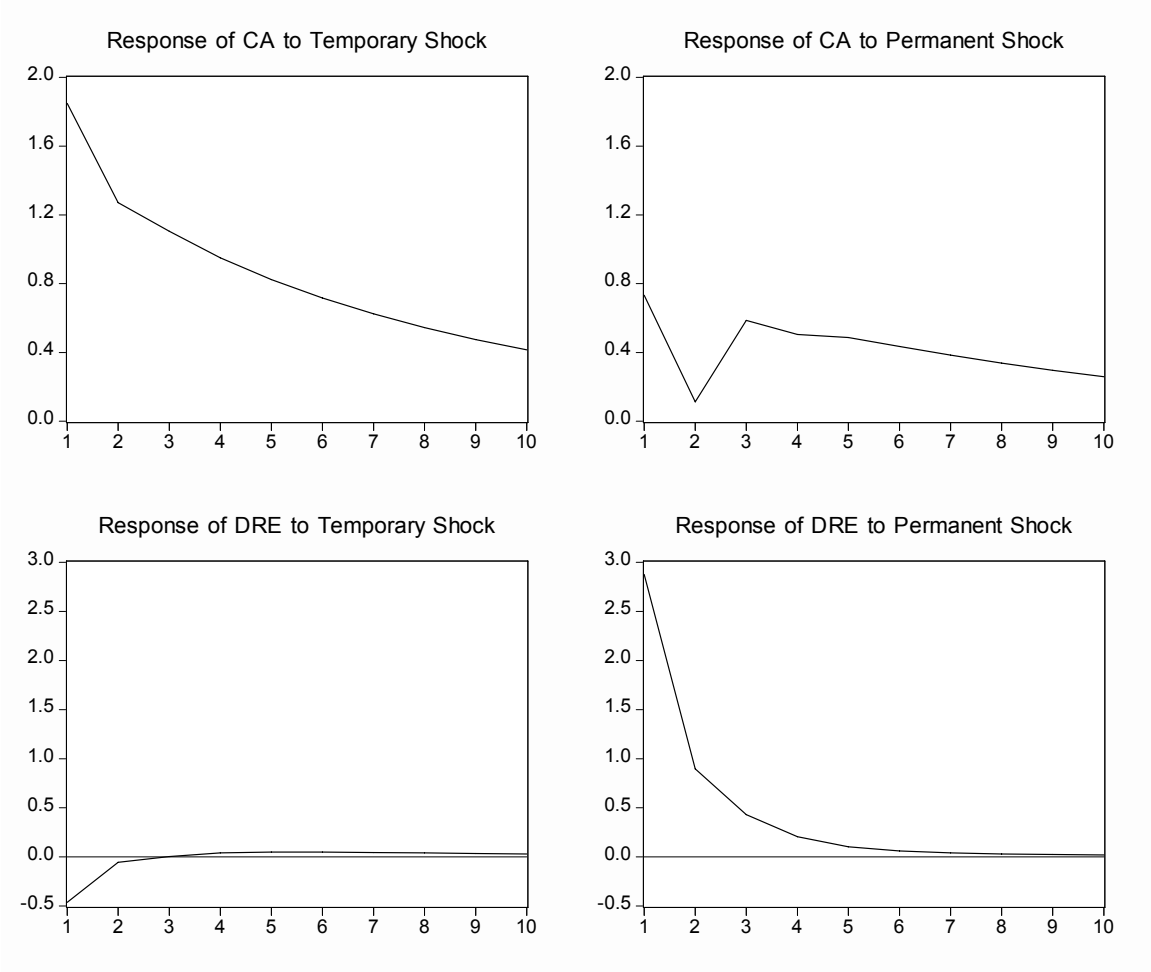

Figure 5. United States: Historical Decomposition

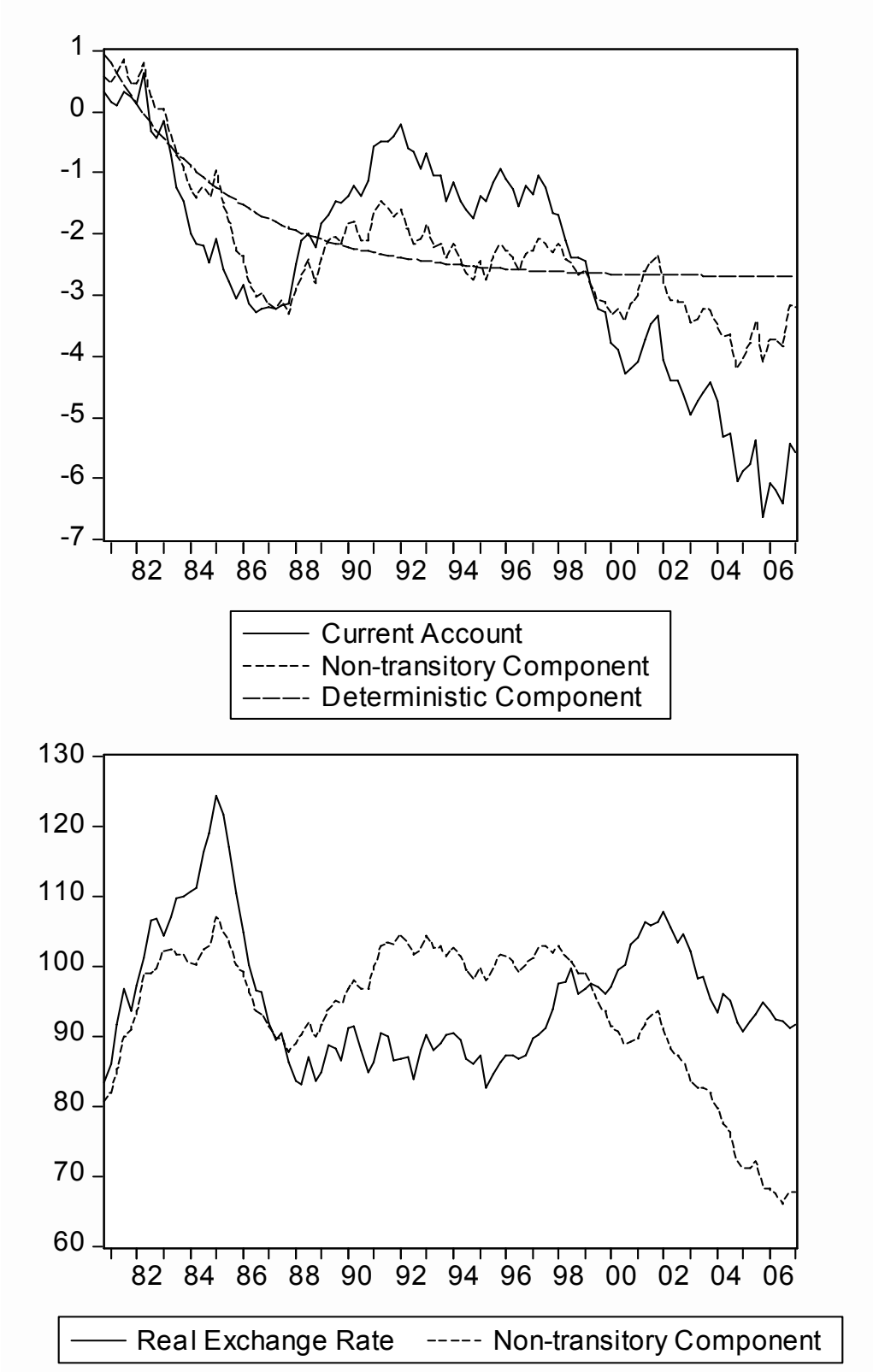

Figure 5A. United States: Historical Decomposition II

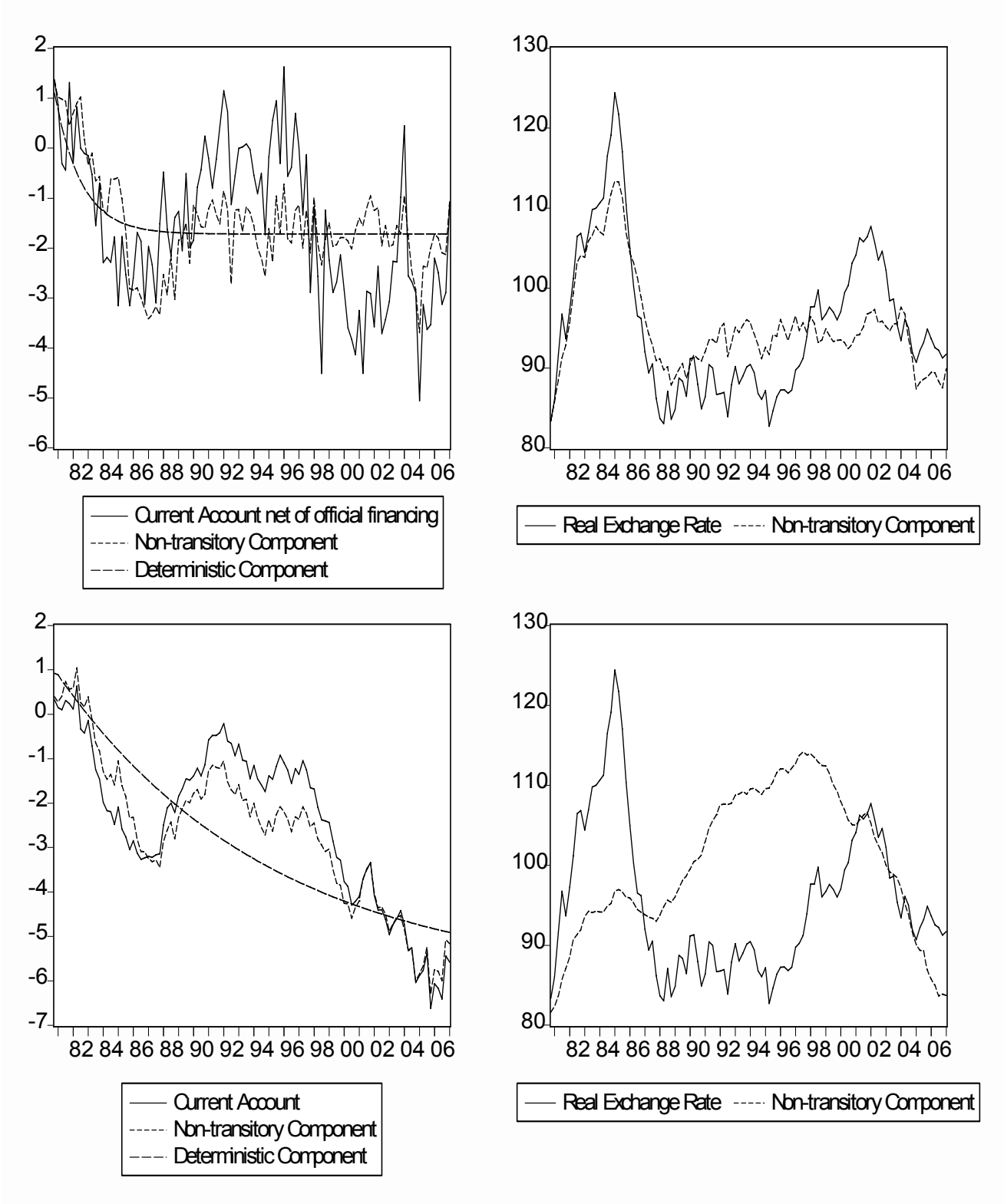

Figure 6. Japan: Historical Decomposition

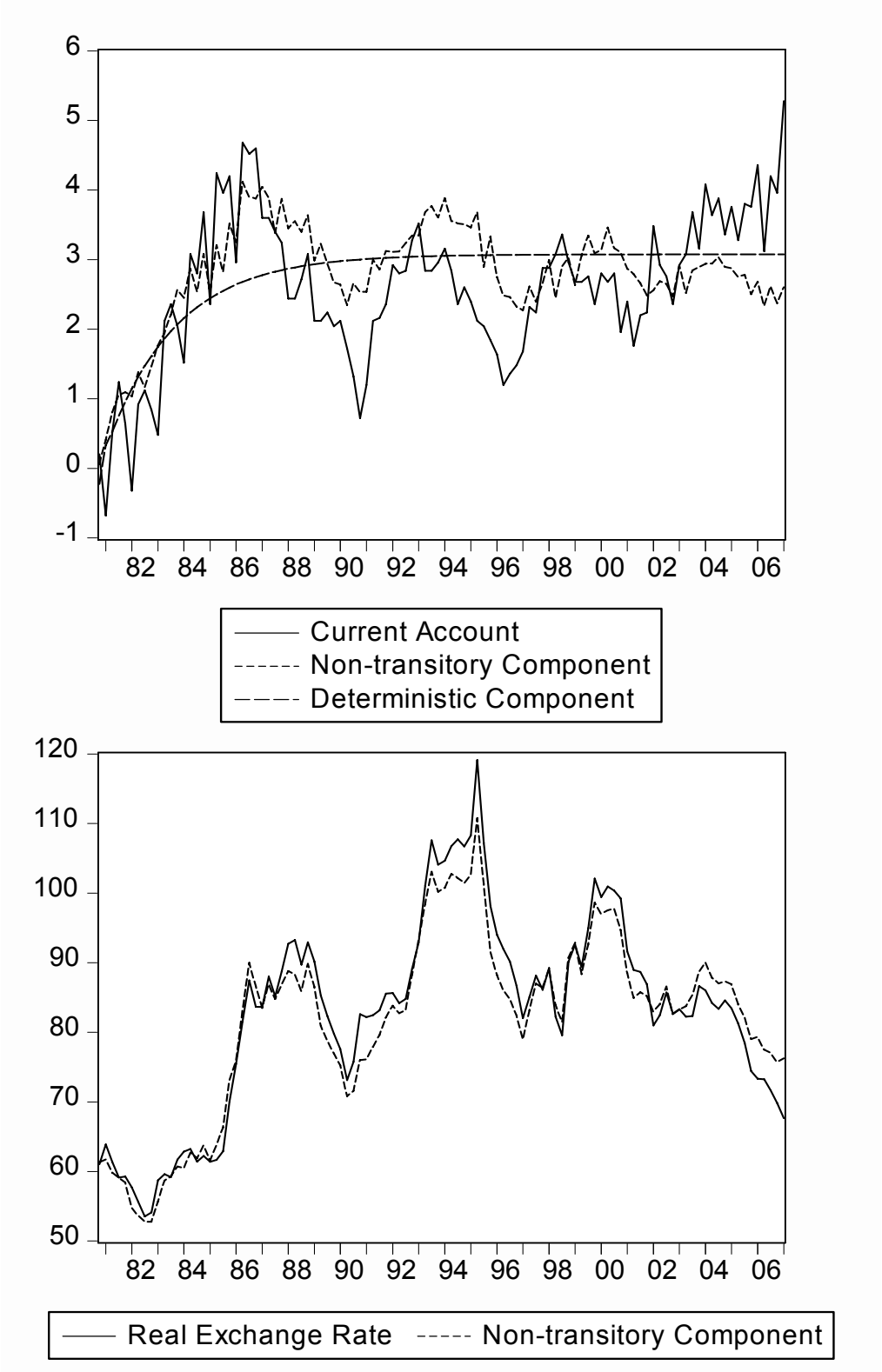

Figure 7. Euro Area: Historical Decomposition