5

Sustainable Adjustment of Global Imbalances

RAY BARRELL, DAWN HOLLAND, and IAN HURST

The United States reached a current account deficit of 6 percent of GDP in 2006 and can be expected to do so for some time unless the US economy slows rapidly. Although this sustained deficit may in part be due to "misaligned" real exchange rates, some may also be due to "inappropriate" domestic absorption. The greater the "appropriate" level of domestic absorption, the higher the "correctly aligned" real exchange rate. It is possible to look at changes in domestic absorption and the real exchange rate using our model, NiGEM, which is outlined on the website of the National Institute of Economic and Social Research (NIESR; www.niesr.ac.uk), and we use these results to suggest one possible path to a new equilibrium based on the targets set out in Williamson (2007).

Without an analysis of equilibrium capital flows and the national savings underlying them, it is difficult to judge what is meant by "inappropriate" or "misaligned." Such an analysis might suggest that the existing global current account deficits and surpluses may be sustainable and may

Ray Barrell is senior research fellow at the National Institute of Economic and Social Research, London. Dawn Holland is senior research fellow at the National Institute of Economic and Social Research, London. Ian Hurst is research fellow at the National Institute of Economic and Social Research, London. *This chapter is derived from a paper presented at the Peterson Institute on February 9, 2007. The authors thank Martin Weale, Rebecca Riley, David Vines, and other participants at that seminar for useful discussions of the topic as well as comments on this chapter. The work on the NiGEM model described in the paper has been supported by the model user group, which consists of central banks, finance ministry research institutes, and financial institutions in Europe and elsewhere. None are directly responsible for the views presented here.*

be the result of private sector investment choices reflecting risk-adjusted real rates of return. The current pattern does involve a deterioration of the US foreign asset position, as we can see from figure 5.1. The United States was a net creditor until 1990, but cumulating deficits since then have led to a negative asset position of 20 percent of GDP. If the deficit were to stay at around 6 percent of GDP and the United States were to experience nominal growth of 6 percent per annum, then the net asset ratio would settle at around 100 percent of GDP, which may of course be sustainable. Depending on the rates of return on assets and liabilities, the trade balance would have to improve from its current level, and if the net return on the stock of liabilities were 4 percent, then the trade balance would have to improve by more than 3 percent of GDP to accommodate the new equilibrium.

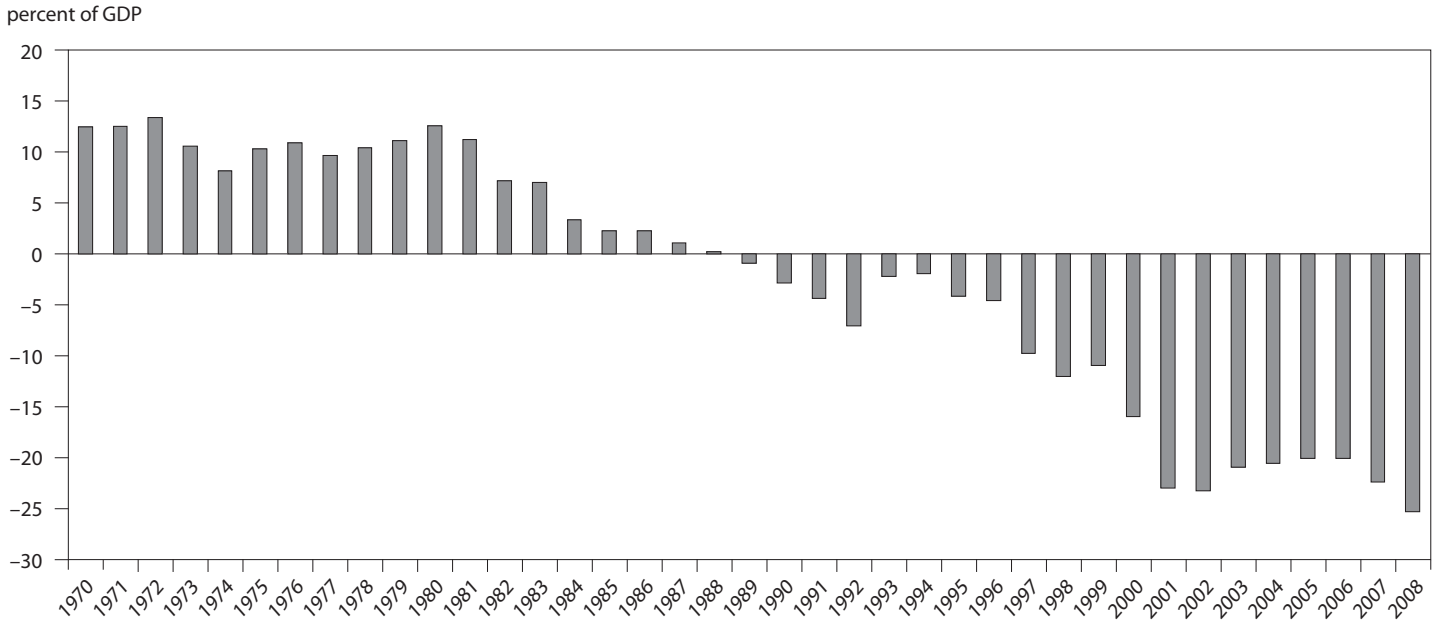
Using NiGEM to analyze different scenarios requires the use of a baseline that describes a possible future, and that baseline must itself represent a path to an equilibrium (Barrell 2001). The equilibrium describes assets and liabilities willingly held by agents and hence sustainable current account flows. If the baseline does not describe a sustainable equilibrium, then it will not be possible to undertake forward-looking solutions that require changes in asset holdings as a percent of GDP, as Mitchell, Sault, and Wallis (2000) show when discussing fiscal solvency simulations of the IMF model Multimod. Solvency requires that baseline asset stocks stabilize as a percent of income and that the real rate of return on assets exceed the growth rate. There are many possible sustainable and solvent equilibria, and scenario analysis involves shifting the model from one such path to another. If preferences for assets (or plans and preferences elsewhere) change, then the equilibrium will change.

Changes in nominal exchange rates that do not have real causes have no real effects in the long run in our model and can be seen as monetary experiments that cause the price level to change (Barrell, Holland, and Hurst 2007a).[1] This can be illustrated with shifts in monetary policy in Japan and the euro area and a realignment of the renminbi: They are shown to have only a transitory effect on the Japanese, euro area, and Chinese (and hence US) current accounts because they do not address the structural factors behind the US deficit and the Chinese surplus. A simple devaluation of the US dollar in NiGEM has no long-term effect on the current account (Barrell and Hurst 2007b).

The January 2007 baseline determined by the UK-based National Institute of Economic and Social Research (NIESR) has the US current account stabilizing at a level that would produce a negative net asset ratio of just over 100 percent of GDP in the long run. It is possible that this might be perceived as unsustainable, and therefore something real would have to change to reduce domestic absorption and switch expenditure. We look at an exchange rate–driven orderly adjustment, where US imbalances are

1. That paper also outlines the relevant aspects of NiGEM.

Figure 5.1 US net foreign asset ratio, 1970–2008



Source: NiGEM model and database, available at www.niesr.ac.uk.

gradually corrected by a sequence of exchange rate movements driven by changes in risk premia, much as discussed in Blanchard, Giavazzi, and Sa (2005) and Obstfeld and Rogoff (2005). If neither US consumers nor the US fiscal authorities change their behavior and spend less of their incomes, this scenario is extremely likely. However, it is likely that there will be a concerted attempt by other countries, as well as the United States, to address imbalances and change structural capital flows. Hence we combine a rising risk premium on US assets with changes in domestic demand to produce a pattern of exchange rates and current accounts that are considered sustainable.[2]

The Exchange Rate and Monetary Policy in a Forward-Looking Model

It is usual to presume that agents in the foreign exchange markets form expectations about interest rates and other events that may affect the evolution of the currency. The arbitrage equation for the bilateral exchange rate (e_t) may be written as

$$e_t = e_{t+1}\,((1 + rf_t)/(1 + rh_t))(1 + rp_t) \tag{5.1}$$

where rh_t is the interest rate at home, rf_t is the interest rate in the partner country, and rp_t is a risk premium. Exchange rates change because one of these factors changes. For example, a rise in domestic interest rates (now or in the future) will cause the exchange rate to strengthen, while the same change abroad will cause it to weaken. Interest rates may be expected to change because of fiscal and monetary policy developments or because of changes in the private sector. A change in the risk premium either now or in the future will also cause the exchange rate to change. Lane and Milesi-Ferretti (2004) argue that the net asset position should affect the real exchange rate, and Al-Eyd, Barrell, and Holland (2006) present evidence of an asset-related risk premium on the US exchange rate. Thus it is also possible that changes in the perception of future net assets could cause the real exchange rate to change.

Between 1997 and 2005 the US current account deteriorated by $650 billion, or about 4½ percent of GDP. Although the largest factor was the deterioration of the bilateral balance with China, the impacts of the North American Free Trade Agreement (NAFTA), the European Union, and the Organization of Petroleum Exporting Countries (OPEC) are all substantial. Domestic imbalances have been partly responsible for the deterioration in the current account, with low levels of domestic saving and in-

2. The sustainable balances are as suggested by Williamson (2007), and the exchange rates are the result of changes we put in place, as described below, to achieve them.

creased government deficits contributing to excess domestic absorption and hence current account deficits. In addition, since 2002 the price of oil has risen by 200 percent, and as the United States is a large net oil importer, this has led to a significant deterioration in the current account, of perhaps 1 percent of GDP (Barrell, Holland, and Hurst 2007a).

The US effective exchange rate fell by around 15 percent between the first quarter of 2003 and the first quarter of 2005, and each time it fell there should have been a worsening of the current account for a year as prices changed in advance of quantities (the J curve effect of the first-year textbook). Thus it would have been reasonable to expect no sustained improvement until at least a year after the last downward step (toward the end of 2004).[3] We have provided a model of this history (Barrell, Holland, and Hurst 2007b) by eliminating each major step down in the currency (starting with the last) and evaluating what would have happened if the fall had not taken place. The new "history" with a higher exchange rate then serves as the baseline against which we remove another drop in the exchange rate. The exchange rate changes are assumed to be driven by small changes in the risk premium, and as we discuss below, this has real effects in the longer term, as it causes a wedge to develop between US and other countries' real interest rates and hence changes relative domestic absorption. These experiments suggest that if the exchange rate had not fallen by 15 percent, the US current account would have been approximately 2 percent of GDP worse than it now is; instead, domestic absorption rose autonomously enough to offset the impact of the fall in the exchange rate.

The role of monetary policy in inducing a change in the current account can be addressed through its effects on domestic demand and on the exchange rate. A US current account deficit can be the result of too much absorption in the United States or too little elsewhere. Monetary expansion outside the United States—for instance, in the euro area, Japan, or China—might be expected to shift the US current account balance. To evaluate this possibility we look at the impacts of a monetary policy expansion and Chinese exchange rate realignment using NiGEM; we set out our monetary policy framework and explain how it affects current accounts, among other things. The effects vary depending on the assumptions. NiGEM can be operated in various ways, from an old-fashioned "backward-looking" model in which devaluations are possible, to one where all agents are forward looking and equilibrium is achieved quickly.

Monetary policy is set by using rules that describe monetary authorities' responses to events. The rules we use are not derived from estimated equations but rather from standard presentations in the literature or from the

3. The appreciation of the dollar was a relatively recent phenomenon in 2002, and the 15 percent increase over the previous four years may not have had much impact on the US current account.

publications of central banks. The default rules on the model involve nominal GDP and inflation targeting described in equation 5.2 (the two-pillar strategy), while alternative rules use versions of the Taylor rule (equation 5.3) with industry standard parameters as in Taylor (1993). The parameters of the two-pillar strategy are calibrated to be "optimal" in response to shocks on the model (see Barrell and Dury 2000; Barrell, Dury, and Hurst 2001; and references therein). These rules feed back on a nominal aggregate (NOM) as compared with a nominal target (NOMT), on the output gap (OG), and on the deviation of inflation (INF) from target (INFT) (Barrell, Hall, and Hurst 2006). We include a rule of the form used by a monetary authority that pegs to the dollar; it involves shadowing the US interest rate r_{us} with a capital controls or risk-related premium *rp(cap)*, so monetary policy has to be used to sustain the exchange rate through intervention.

$$r_t = \phi(NOM \,/\, NOMT) + \varphi(INF - INFT) \tag{5.2}$$

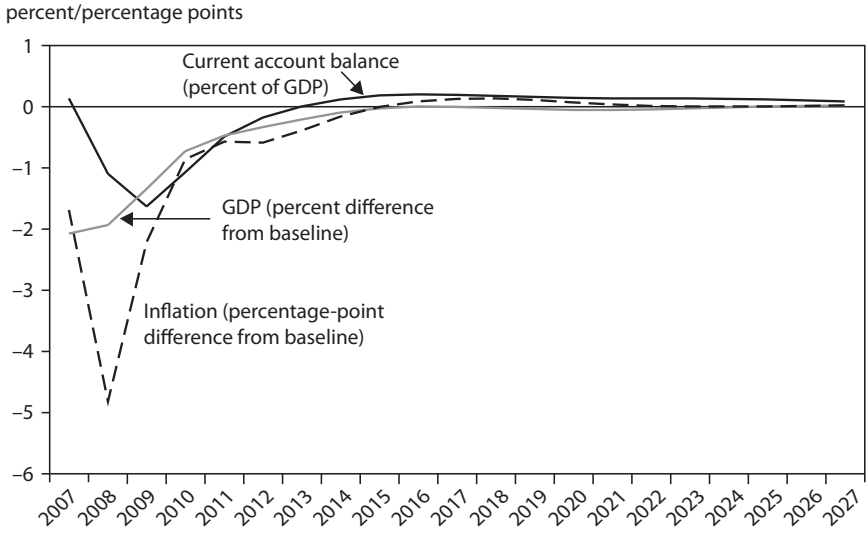
$$r_t = r_s + 0.5(OG) + 1.5(INF - INFT) \tag{5.3}$$

$$r_t = r_{us} + rp(cap) \tag{5.4}$$

In the nominal targeting regime (equation 5.2), which we may call a European Central Bank (ECB) two-pillar strategy, we do not need to specify the equilibrium or steady state real interest rate r_s in the economy, but this is essential in the Taylor-style rule (equation 5.3). We can describe a change in policy as a change in a target variable in rules 2 and 3 (equations 5.2 and 5.3), whereas it is a change of peg in rule 4 (equation 5.4). If interest rates are changed for a period independent of the target then we have to specify what happens afterward: If a nominal target is left in place, then the rule will drive nominal GDP back to where it would otherwise have been, whereas with a Taylor rule the long-run impact of a target change will depend on its duration, the parameters of the rule, and the parameters and structure of the model. Forward-looking foreign exchange markets make monetary policy more powerful in the short run, but a change in the monetary stance or the exchange rate peg is unlikely to lead to any changes in current account or the real equilibrium of the economy in the long run.

As the Chinese renminbi has been following the US dollar closely, it is possible to conceive of a change in the peg; figure 5.2 indicates the projected effects of a 10 percent appreciation (with the rest of the world following their existing policies). As the rest of the world has forward-looking financial markets, their exchange rates adjust in a minor way and their inflation stays around target but with higher nominal Chinese export prices in the short run. The loss of competitiveness reduces overall demand and increases spare capacity, putting a downward pressure on prices, which will continue until the increase in spare capacity is removed.

Figure 5.2 Projected effects of a 10 percent appreciation of the renminbi, 2007–27



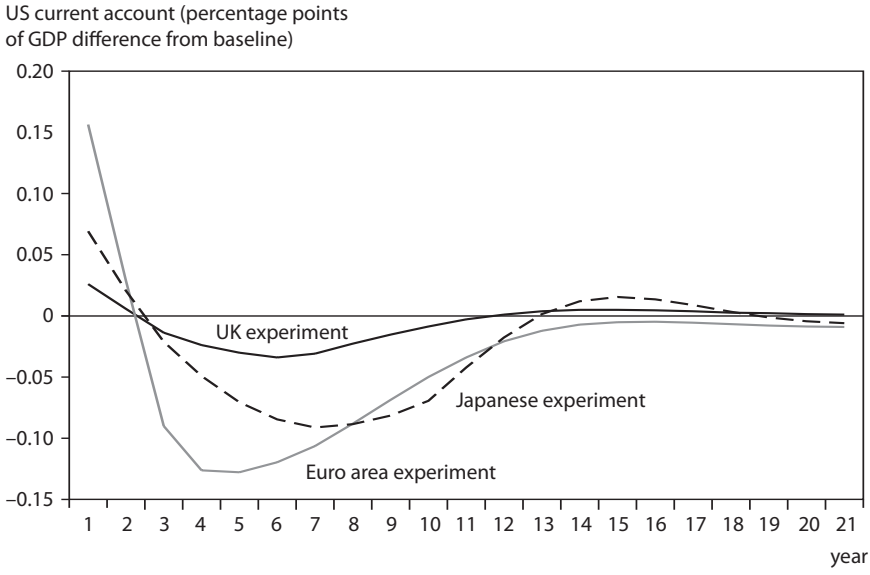
Source: NiGEM model, available at www.niesr.ac.uk.

We use a small estimated model of China in our world model, and the estimated parameters for price setting reflect behavior in the estimation period, which includes the period of deflation after the appreciation of the currency during the Asian crisis in 1997–98. It is therefore not surprising that our simulation produces a sharp fall in Chinese inflation, a decline in growth, and a decline of the current account surplus that is even more transitory than it would be among the slower-reacting European economies, for instance. We suggest that the policy-driven structural factors that have given China a current account surplus are largely independent of the exchange rate regime.

Other monetary experiments are possible in a world where financial markets are rational with forward-looking expectations and where labor markets and firms' investment decisions are affected by the same expectations of the future. A shift in the inflation target by 1 percentage point for six years in Japan or the United Kingdom, assuming that policy rule 3 is in place, would expand demand. This rule is appropriate because there are clear elements of inflation targeting in what a central bank does. Demand would also expand in response to a shift in the euro area's nominal target in rule 2 by an amount sufficient to raise the price level by an amount similar to the changes in Japan. This rule represents what the bank says it does.

It can be seen from figure 5.3 that a monetary expansion in either the euro area or Japan or the United Kingdom would cause the US current ac-

Figure 5.3 Impact on US current account of monetary expansions in Europe and Japan

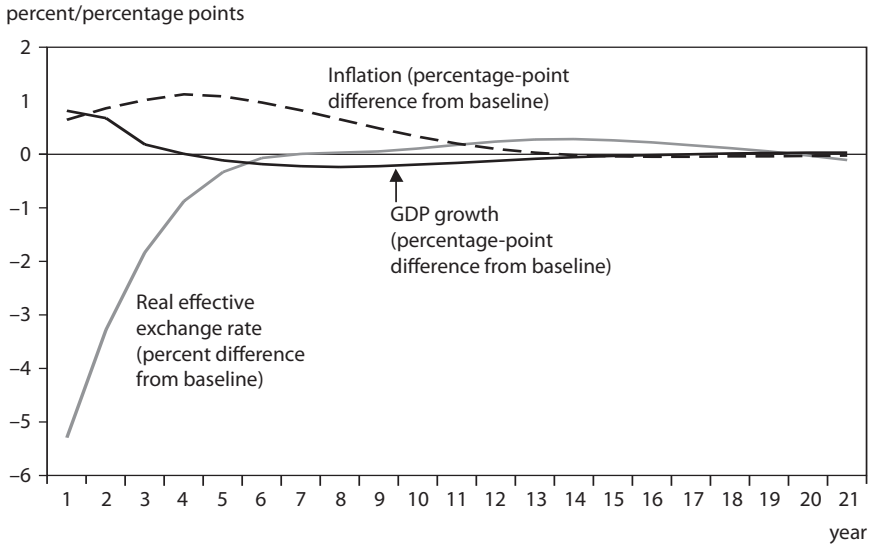


Source: NiGEM model, available at www.niesr.ac.uk.

count to improve for around two years and then worsen before eventually returning to baseline. Hence there are no long-run impacts of these monetary expansions. The price level will rise in each of the countries involved by approximately 6 to 8 percent, depending on the parameters of the rules and the speed of response in the economies. In each experiment the exchange rate will "jump" down as equation 5.1 requires, and demand will expand because the real exchanges rates and real interest rates are initially lower in the expanding economies. However, the lower real exchange rate will quickly offset the demand effects, and inflation will remove the competitiveness advantage gained after a few years.

The effects on the economies undertaking monetary expansions are similar, as shown for the euro area in figure 5.4. The monetary expansion induces a real depreciation of over 5 percent as interest rates in the euro area fall relative to those elsewhere. GDP growth is boosted by almost 1 percent in the first two years as real interest rates are lower than base by around 1 percent for three years. However, inflation increases by around a percentage point a year for six to eight years, after which the competitiveness advantage has disappeared. Output, inflation, and the real exchange rate all end up back where they would otherwise have been. The United States gains temporary respite on its current account for two years, and the euro area has higher growth and higher inflation for a period. Although some

Figure 5.4 Impact of monetary expansion on the euro area



Source: NiGEM model, available at www.niesr.ac.uk.

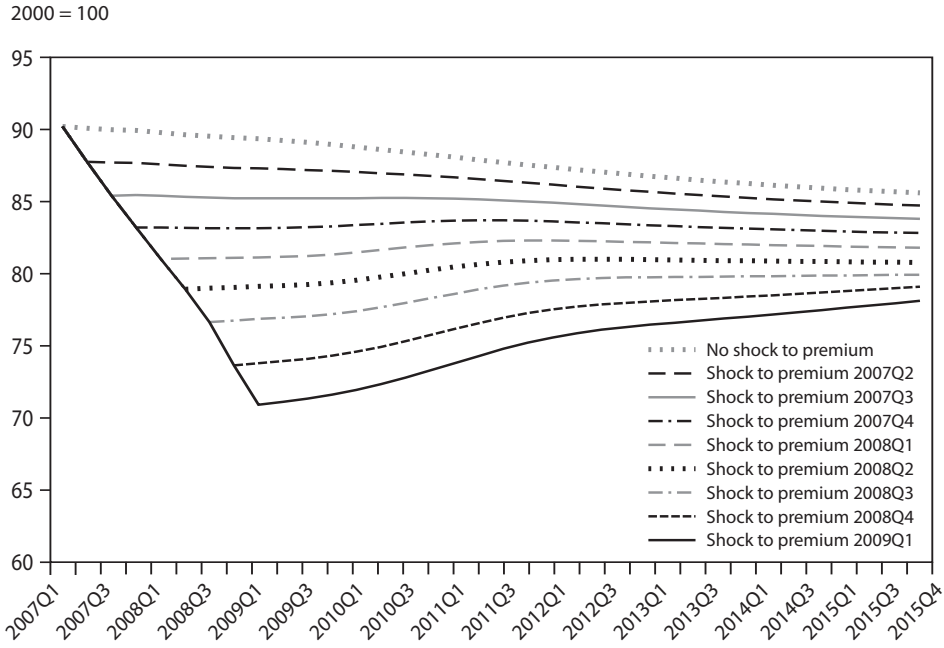
people in Europe may want to see such an outcome, it is very unlikely to materialize as the ECB sets its own inflation target, and it would exceed that target by 1 percent a year for (a further) six years. The ECB would be prepared to do this only if the monetary authorities thought a temporary respite for the United States was essential for the health of the global financial system and if they could see no other way of achieving it.

Realignments and exchange rate changes driven by monetary factors can give no more than transitory relief to the United States. If there is to be a sustained change in current account patterns, something real has to change. This may be either a reduction in the level of US domestic absorption or an increase in domestic absorption in the rest of the world, or a change in the risk premium on US assets with the associated change in the real exchange rate. It is more probable that a combination of both will be involved in a shift in the path of the US current account.

Orderly Adjustment Through Risk Premia

The decline in the US current account from 1997 until 2006 seems to have been associated with a decline in private-sector, and especially household, saving. This conclusion is independent of the impacts of government spending on consumption and may reflect the willingness of the rest of

Figure 5.5 Sequence of risk premium–induced movements in the US exchange rate, 2007–15



Note: Dates are the start of each unanticipated shift, using the last run as a baseline.

Source: NiGEM model and database, available at www.niesr.ac.uk.

the world to lend to US consumers, albeit through banking sector intermediaries. The situation may be sustainable, but it could also give rise to a rising risk premium and a fall in the US real exchange rate to correct the imbalance. If the United States does not adjust, risk premia will rise, although it is unlikely that this will take place suddenly and all at once. The risk premia would reflect the increasing exposure of lenders to US borrowers and the fact that as their portfolios became overburdened with US debt, they would be reluctant to take on more without a greater markup over standard market rates. As debts rose, the premium would rise, and we can assume that every time it did so markets would expect the United States to adjust its overall savings. If this did not happen in a reasonable amount of time, the premium would rise again.

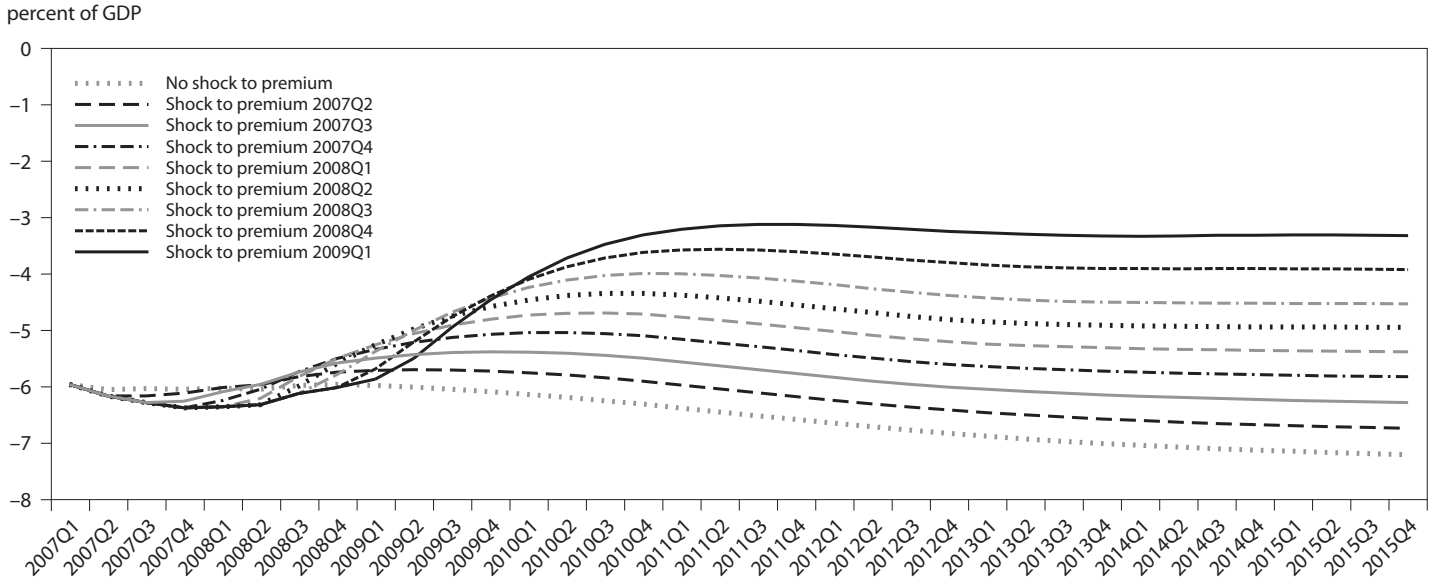
An orderly adjustment could emerge with a sequence of shifts in the risk premium every three months for four years, producing a cumulative downward movement in the nominal exchange rate of around 15 percent. The sequence we discuss below is consistent with the results in Barrell and Holland (2006). Each time the risk premia rose, the exchange rate would jump down, as we can see in figure 5.5, and real interest rates would rise

in the United States and fall elsewhere. This would reduce absorption in the United States, raise it elsewhere, and also cause expenditure switching for a sustained period as real exchanges rates would have changed. All these forces would help move the US current balance in the right direction. (The pattern of deficits and surpluses elsewhere in the world would change, but unless there are specific reasons to shift risk premia elsewhere, that pattern is not of great interest.) If the deficit is a US problem, then the obvious solution is for the market to change things in the United States without concerning itself excessively about developments elsewhere. Policymakers may adopt a different, more partial view.

The rise in the risk premium would increase US real interest rates by over 1 percentage point by 2010, as compared to baseline, and if no other changes took place, they would be more than 2½ percentage points higher by 2015 than they were in 2006. The fall in the real exchange rate of around 20 percent by 2010 would not boost US output, as its effects would be offset by the rise in real interest rates, and US growth would slow by more than half a point to around 2 percent a year for some years before reverting to its technology- and labor supply–driven trend. US inflation would rise to around 4 percent or so for a sustained period. The real exchange rate decline would be enough, with the change in growth rate, to induce a change in the current account, as we can see from figure 5.6, which plots an orderly sequence of current account balance improvements. In the early quarters of each sequential shift in the premium there is a small deterioration in the current account as compared to the last element in the stack. Within a short period there is a sustained improvement, and within three years a sustained improvement in the current account is under way. As a consequence of these changes the current account deficit would approach 3½ percent of GDP by 2015, compared with 7½ percent in our January 2007 baseline, and this may be regarded as acceptable.

A risk premium adjustment of this sort is both orderly and conceivable. Unless domestic demand changes elsewhere, raising absorption or reducing it in the United States, this is a highly likely outcome. It involves neither a collapse of the US economy nor a currency crisis and it quickly boosts output in the rest of the world as other countries benefit from the fall of 1 to 1½ percentage points in their real interest rates between 2010 and 2015 (Barrell and Holland 2006). Each shift in the US effective exchange rate is associated with a change in all relevant dollar exchange rates. The real interest differential between the United States and the euro area would then be as large in 2012 as in 1981, and the four-year average around 2012 could be larger than it was between 1981 and 1984. There are floating rates in all countries, but the Swedish krona follows the euro. The improvement in the US current account is matched by widespread and relatively evenly distributed changes elsewhere. If the adjustment focuses on Japan and China, then there has to be an autonomous change in absorption there in addition to the induced change that comes from higher real interest rates.

Figure 5.6 Impacts of risk premium–induced realignments on the US current account, 2007–15



Note: Dates are the start of each unanticipated shift, using the last run as a baseline.

Source: NiGEM model and database, available at www.niesr.ac.uk.

A Mixed Scenario of US Devaluation and Demand Change Elsewhere

Williamson (2007) suggests three patterns for global current account adjustment: an even adjustment, a cap on surpluses, and adjustments that take account of some oil producers' needs to accumulate reserves to spread their consumption optimally. The possible scenarios all require adjustment in surplus countries, with China, East Asia, Japan, Sweden, Switzerland, Norway, and Russia all having to reduce their current account surpluses. Apart from the scale of the change for China, the major difference between scenarios is that OPEC has to take up some slack in the even share. It would be possible to achieve the Williamson targets by inducing positive and negative risk premia on the targeted countries, but we do not do this because it is harder to justify a specific additional negative risk premium elsewhere than it is to justify a positive one on the United States. In addition, there are clearer reasons for the scale of the US premium, given the results in Al-Eyd, Barrell, and Holland (2006).

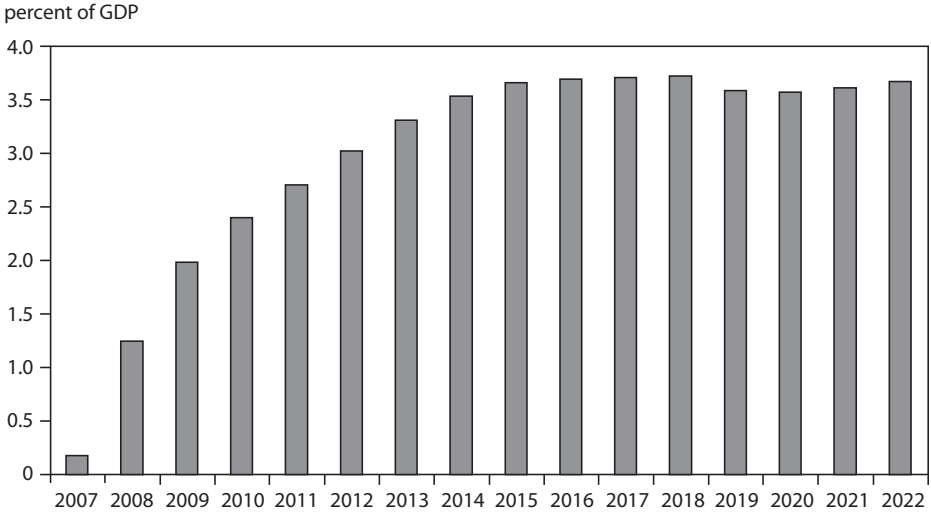
Worries about the change in real interest rates that a market-based adjustment would require might induce changes in governments' behavior. Hence adjustment might come through both shifts in risk premia and changes in absorption in major surplus and deficit countries. We combine approximately half of the risk premium shock discussed above with changes in domestic demand in the major surplus countries and in the United States, and we assume that exchange rates are allowed to float in response to events. We raise domestic demand growth by 3 percent a year for a sustained period of three to four years in China, Hong Kong, Norway, Russia, Switzerland, and Taiwan, and by 1 percent a year for three years in Sweden.[4] In Japan, the smaller East Asian economies, and Canada we raise the level of demand by approximately 2 percent progressively over two years. It is easy to induce changes of this magnitude on a model and to reduce US domestic demand with a 2 percent GDP fiscal contraction over two years. In contrast, it is very difficult to envision global adjustment without a direct change in absorption in the United States.[5] Overall, the US current account balance progressively improves as a result of the changes in absorption and risk premia, as shown in figure 5.7.

Because we have combined a US risk premium with changes in absorption in the United States and elsewhere, the pattern of current account outcomes is of interest; figure 5.8 plots the changes in current accounts as a

4. In the first group there is 2 percent extra growth in demand on average for three years or more, in Sweden 1 percent a year on average for three years, and elsewhere 1 percent a year for two years.

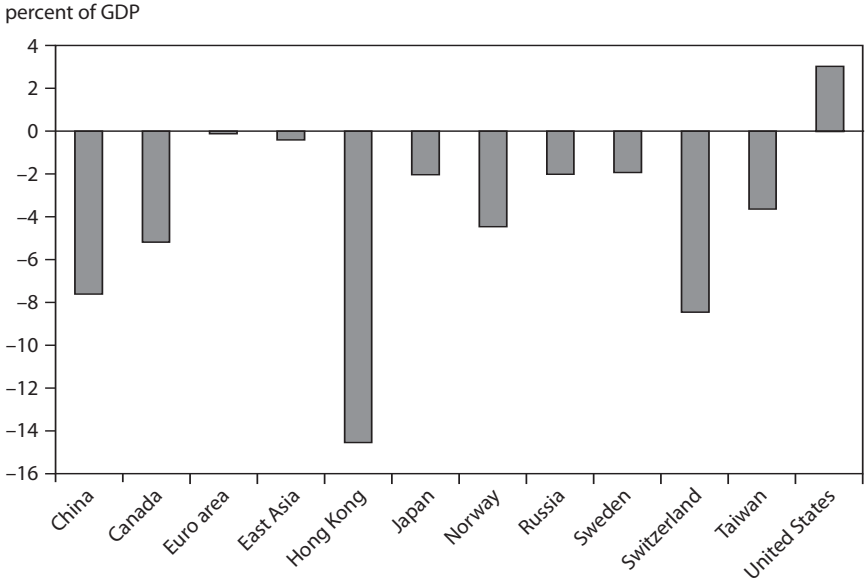
5. We reduce government spending progressively by 2 percent of GDP, but the medium-term results (six years on) would be the same if we raised taxes. The choice of instrument changes only the path to equilibrium.

Figure 5.7 Projected impact of adjustment on US current account balance, 2007–22



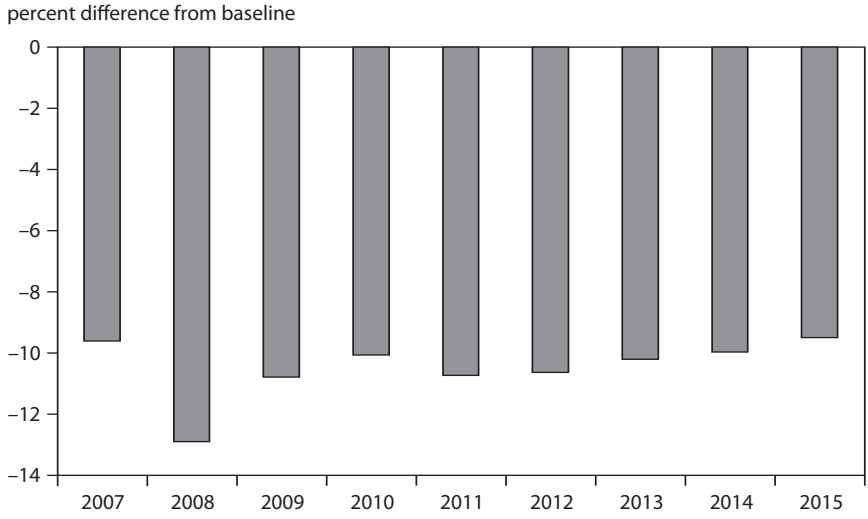
Source: NiGEM model, available at www.niesr.ac.uk.

Figure 5.8 Projected impact of adjustment scenario on current account balances, 2012



Source: NiGEM model, available at www.niesr.ac.uk.

Figure 5.9 Projected path of US real effective exchange rate, 2007–15



Source: NiGEM model, available at www.niesr.ac.uk.

percent of GDP in 2012. The absolute size of the adjustment is largest in Canada, China, East Asia, and Japan in absolute terms, but as a percent of GDP it is largest in Hong Kong at over 14 percent of GDP in 2012, and in Switzerland it is over 8 percent. The Chinese balance of payments worsens by 7½ percent of GDP by 2012, which would be around $300 billion a year. The Japanese current account balance would worsen by 2 percent of GDP, or around $50 billion a year, an amount similar to that of Hong Kong. Canada shows a marked worsening of more than 5 percent of GDP, or around $90 billion, reflecting its heavy dependence on the slower-growing United States as an export market. Adjustment in the smaller East Asian economies would be of a similar size. The US current account would improve by around $530 billion a year.

The exchange rate consequences are broadly clear; figure 5.9 plots the projected path of the US real effective exchange rate. The real depreciation of 10 percent or so is not the only factor behind the improvement in the current account, although there is a good deal of expenditure switching as a result. This fall in the real rate is half that required to produce the same current account adjustment if no changes in absorption take place. The rise in real interest rates in the United States and their fall elsewhere also induce some changes in relative absorption. US fiscal tightening induces lower interest rates than otherwise expected, and the dollar weakens as compared to where it would have been. Fiscal loosening in other countries raises their interest rates and induces an exchange rate increase. Both

of these factors cause a change in relative absorption that produces about half of the improvement. The risk premium increase raises the exchange rate outside the United States and reduces the US real exchange rate. The scale of the nominal appreciation depends on the reactions of the authorities to the change in demand and whether they will allow currencies that have fixed exchange rates to float. If monetary policy were to react less in the short run, more action would be needed later, and the appreciation would remain largely the same unless inflation targets were changed significantly, which is not likely.

The impacts on the US economy would be quite marked, but less noticeable than those that would result from risk premium adjustment alone. The rise in the risk premium changes US equilibrium output permanently, and growth slows by almost 1 percent a year for two to three years before resuming its technology- and labor supply–determined trend in the model. The long-term real interest rate rises by 1 percent, reducing the equilibrium capital stock. The overall change in the long-term rate is the result of a positive impact from the risk premium and fiscal expansions elsewhere and of a negative impact from the US fiscal tightening. The combined effects of revaluations and the improved current account balance would mean that by 2015 the US net asset position would be 24 percent of GDP better and would improve relative to base by 2 percent a year thereafter. Almost half the change in the first eight years would come from revaluation effects, but they would largely have worked out by 2015.[6]

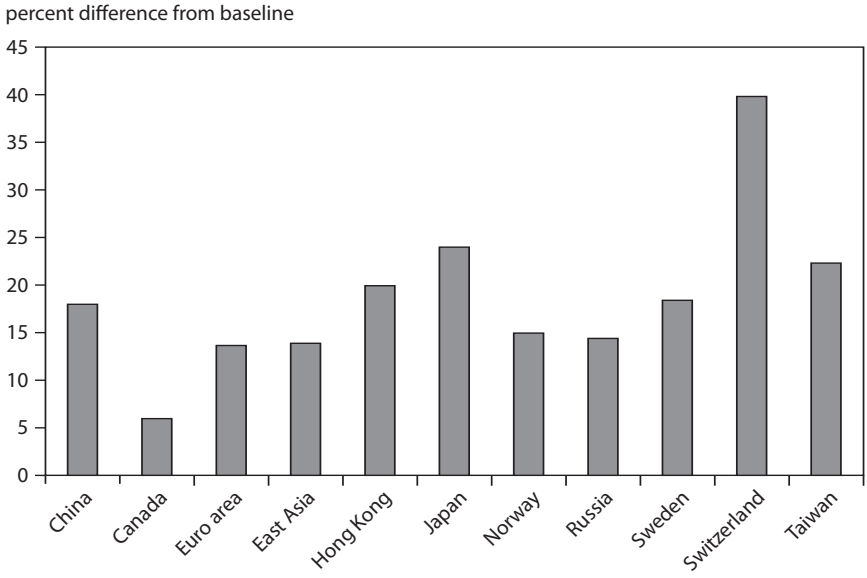
The exchange rate changes that a risk premium– and domestic absorption–driven adjustment (shown in figure 5.10) would induce are different from those we would see if adjustment came through risk premium–induced real realignments of the exchange rate alone. This difference is in part because specific current account balance targets have been set for countries that need to adjust, and increases in their domestic absorption are met by tighter monetary policy and a real appreciation to support the worsened current accounts. It also reflects the speed with which a real exchange rate change can be achieved by internal adjustment. If domestic prices respond more quickly, then real exchange rate adjustment will take place through that route rather than as a result of a nominal realignment.

Conclusion

Current account imbalances are difficult to change and do not need to do so if they are sustainable. The United States has a large deficit and, unless

6. The perpetual inventories that we use for government debt stocks have an average life of 6 to 8 years depending on the actual maturity structure of government debt, so revaluations will continue for at least this long.

Figure 5.10 Real US dollar exchange rate in 2012



Source: NiGEM model, available at www.niesr.ac.uk.

something structural changes, it is difficult to see how it might be adjusted. Our analysis suggests that the deficit has been affected by rising oil prices, which may have increased it by 1 percent of GDP, while the fall of the dollar since 2003 has prevented a further worsening of 2 percent of GDP. Although China has seen the largest increase over the past ten years in its overall surplus and in its bilateral surplus with the United States, it is not clear that a nominal realignment would be anything other than a short-term palliative. A 10 percent appreciation of the Chinese currency would reduce the surplus by more than 1 percent of Chinese GDP after a year, and the change would be sustained for a couple of years, with a cumulated impact on the current account in excess of –$100 billion, but only one-fifth of that would accrue to the US position, and the relief would be temporary. If China is to be part of a solution, it must come through another channel.

It is necessary to explain why exchange rates change before assessing whether such changes will affect imbalances other than in a transitory way, as the reasons for the change affect the outcomes. A devaluation of the dollar induced by monetary expansions elsewhere would have a much more transitory impact on the US current account than the same fall induced by a rise in the risk premium on US assets or by a US domestic contraction that resulted from a decline in domestic demand and output. If we take account of descriptions of the exchange rate that involve financial

markets, it is difficult to see how exchange rates change for no reason, and we prefer to explain changes with shifts in policies or parameters.

If the US current account is not sustainable, then an orderly market-driven adjustment is possible, and we look at such a scenario. The forward-looking arbitrage condition that we use involves a risk premium, reflecting portfolio decision on assets. A gradual rise in the risk premium on US assets as debts to foreigners increased would induce both a permanent change in the real exchange rate and a reduction in domestic absorption. We analyze a sequence of risk premium–induced declines in the dollar that would involve a gradual 20 percent real depreciation that would leave the current account 3½ percent of GDP higher than in our baseline. As the problem involves excessive US deficits, we do not allocate the solution to specific surplus countries but leave that allocation to the market, at least as described by the model.

Market-based adjustment may be difficult to contemplate, and governments may adjust domestic absorption to avoid the pain and consequences of high real interest rates in the United States and a permanent, large-scale loss of competitiveness elsewhere. The most important adjustment would have to be that of the United States, where domestic demand would have to change in order to reduce the need for structural capital inflows. If structural capital flows from China, Japan, and the other countries discussed in Williamson (2007) are to change, then domestic demand must rise in those countries. We suggest that such changes, along with some market-based adjustment of risk premia against the United States, could produce a pattern of real exchange rates and current accounts that could be seen as sustainable. That pattern would involve a 10 percent real decline in the US dollar by around 2010 and would have much more moderate implications for US output than a market-based adjustment. Policy coordination might achieve this goal more quickly.

References

Al-Eyd, Ali, Ray Barrell, and Dawn Holland. 2006. A Portfolio Balance Explanation of the Euro Dollar Rate. In *The Travails of the Eurozone*, ed. David Cobham. New York: Palgrave Macmillan.

Barrell, Ray. 2001. Forecasting the World Economy. In *Understanding Economic Forecasts*, eds. David F. Hendry and Neil Ericsson. Cambridge, MA: MIT Press.

Barrell, Ray, and Karen Dury. 2000. An Evaluation of Monetary Targeting Regimes. *National Institute Economic Review,* no. 174.

Barrell, Ray, and Dawn Holland. 2006. Correcting Global Imbalances. *National Institute Economic Review* (July): 32–37.

Barrell, Ray, Karen Dury, and Ian Hurst. 2001. *Decision Making within the ECB: Simple Monetary Policy Rules Evaluated in an Encompassing Framework.* RWI Project Link Conference Volume 1. Germany.

Barrell, Ray, Stephen Hall, and Ian Hurst. 2006. Evaluating Policy Feedback Rules Using the Joint Density Function of a Stochastic Model. *Economics Letters* 93, no. 1: 1–5.

Barrell, Ray, Dawn Holland, and Ian Hurst. 2007a. *Correcting US Imbalances*. National Institute Discussion Paper 290. London: National Institute for Economic and Social Research.
Barrell, Ray, Dawn Holland, and Ian Hurst. 2007b. Monetary Policy and Global Imbalances. *National Institute Economic Review*, no. 199.
Blanchard, Olivier, Francesco Giavazzi, and Filipa Sa. 2005. International Investors, the US Current Account and the Dollar. *Brookings Papers on Economic Activity*, no. 1: 1–50. Washington: Brookings Institution.
Lane, Philip R., and Gian Maria Milesi-Ferretti. 2004. The Transfer Problem Revisited: Net Foreign Assets and Real Exchange Rates. *Review of Economics and Statistics* 86: 841–57.
Mitchell, Peter R, Joanne E. Sault, and Kenneth F. Wallis. 2000. Fiscal Policy Rules in Macroeconomic Models: Principles and Practice. *Economic Modelling* 17, no. 2: 171–93.
Obstfeld, Maurice, and Kenneth Rogoff. 2005. Global Current Account Imbalances and Exchange Rate Adjustments. *Brookings Papers on Economic Activity*, no. 1: 67–124. Washington: Brookings Institution.
Taylor, John. 1993. Discretion Versus Policy Rules in Practice. *Carnegie Rochester Conference Series on Public Policy* 39: 195–214.
Williamson, John. 2007. The Future of the International Monetary System. In *Global Imbalances and Developing Countries: Remedies for a Failing International Financial System*, eds. Jan Joost Teunissen and Age Akkerman. Amsterdam: Forum on Debt and Development.