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Sustainable Adjustment of Global Imbalances

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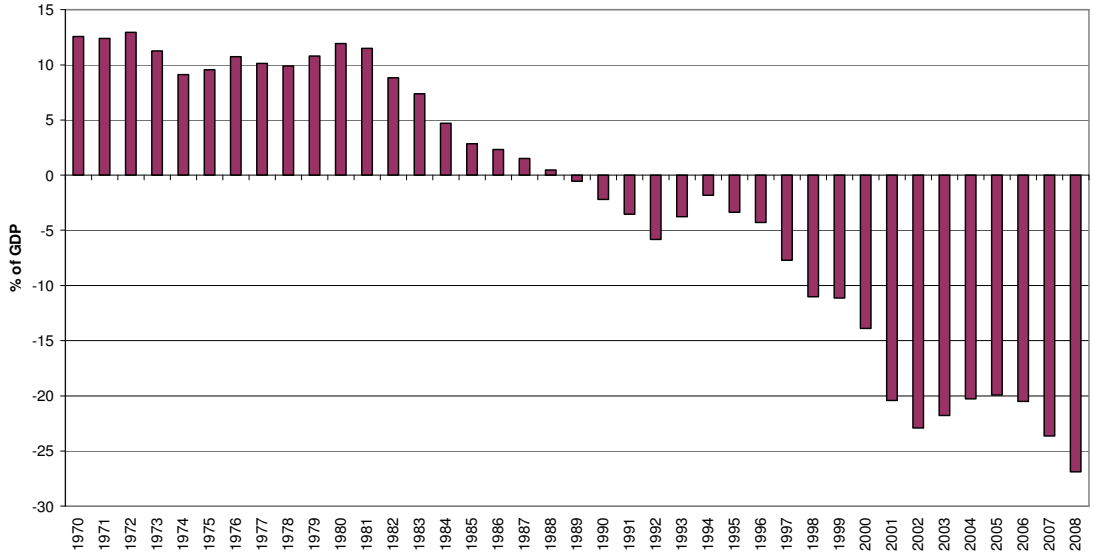
Abstract

This paper uses NIESR's global econometric model, NiGEM, to analyse possible adjustment paths for the US current account, if its current level of 6 per cent of GDP proves unsustainable. Nominal exchange rate shifts have only a transitory impact on current account balances, so any long-term improvement of the US current account balance would require a real and sustained reduction in domestic absorption, or a rise in foreign absorption. This could be effected through a sequence of exchange rate movements driven by a gradual rise in the risk premium on US assets. This would induce a permanent change in the real exchange rate, and would also reduce domestic absorption in the US due to a rise in real interest rates. Global policy coordination, which involved raising domestic demand in countries such as China and Japan, could speed the process of adjustment and ease the negative impact on the US economy.

Introduction

The US is now running a current account deficit of 6 per cent of GDP, and can be expected to do so for some time unless the US economy slows rapidly. Although some of this may 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 is 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 in an annex, and we use these results to suggest one possible path to a new equilibrium based on the targets set out in Williamson (2007).

Figure 1. US Net Asset Ratio



Without an analysis of equilibrium capital flows and national savings underlying them it is difficult to judge what we might mean by inappropriate or misaligned. Such an analysis might suggest that the set of global current account deficit and surpluses we currently see may be sustainable, and may 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 1. The US was a net creditor until 1990, but cumulating deficits since then have led to a negative asset position of 20 per cent of GDP. If the deficit were to stay at around 6 per cent of GDP and the US were to experience nominal growth of 6 per cent per annum then the net asset ratio would settle at around 100 per cent of GDP, and this 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 four percent then the trade balance would have to improve by more than 3 per cent of GDP to accommodate the new equilibrium.

Using NiGEM to analyse 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) discusses. That equilibrium describes a set of stocks of assets and liabilities that are willingly held by agents, given their preferences, and hence a set of current account flows that are on a sustainable path. If the baseline we use 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 on GDP, as Mitchell, Sault and Wallis (2000) show when discussing fiscal solvency simulations on 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 exceeds 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, as we show in Barrell, Holland and Hurst (2007)[1]. This can be illustrated with shifts in monetary policy in Japan and the Euro Area and a realignment of the remnimbi. 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, as Barrell and Hurst (2007) explain, and we do not repeat that experiment.

The January 2007 NIESR baseline has the US current account stabilizing at a level that would produce a negative net asset ratio of just over 100 per cent of GDP in the long run. It is possible that this might be perceived as not sustainable, and hence something real would have

[1] That paper also outlines the relevant aspects of NiGEM

to change to reduce domestic absorption and switch expenditure We look at an exchange rate driven orderly adjustment, where US imbalances are 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 behaviour and spend less of their incomes this as an extremely likely scenario. However it is likely that there will be a concerted attempt by other countries, and the US, to address imbalances and change structural capital flows. Hence we combine a rising risk premium on US assets along with changes in domestic demand to produce a pattern of exchanges rates and current accounts that are considered sustainable[2].

1. The exchange rate and monetary policy in a forward looking model

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

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

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. A rise in domestic interest rates (now or expected in the future) will cause the exchange rate to strengthen, whilst 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 at the current time or anticipated for 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. Hence it is also possible that changes in the perception of future net assets could cause the real exchange rate to change.

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

Between 1997 and 2005 the US current account deteriorated by $650 billion or about 4½ per cent of GDP. Although the largest component has been the deterioration of the bilateral balance with China, the contributions from NAFTA, the EU and OPEC are all large. Domestic imbalances have been partly responsible for the deterioration in the current account, with low levels of domestic saving and increased government deficits contributing to excess domestic absorption and hence current account deficits. In addition, since 2002 the oil price has risen by 200 per cent, and as the US is a large net oil importer this has led to a significant deterioration in the current account, perhaps of around one per cent of GDP, as we show in Barrell, Holland and Hurst (2007).

The US effective exchange rate fell by around 15 per cent between the first quarter of 2003 and the first quarter of 2005, and the fall has come in a number of steps, and each time it fell we might expect there to have been an initial worsening of the current account for a year as prices change in advance of quantities (the J curve effect of the fist year textbook). Hence we might have expected no sustained improvement until at least a year after the last downward step toward the end of 2004[3]. Barrell Holland and Hurst (2007) model this history by taking off each of the major steps 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 is then used as the baseline against which we remove another fall in the exchange rate. Their 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 real interest rates in the US and those elsewhere, and hence changes relative domestic absorption. These experiments suggest that if the exchange rate had not fallen by 15 per cent the US current account would have been approximately 2 per cent of GDP worse than it now is. Over that period domestic absorption was autonomously rising by enough to off set 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 US or too little absorption elsewhere. Monetary expansion outside the US, for instance in the Euro Area, Japan or China might be expected to shift the US current account. In order to evaluate this possibility we can look at the impacts of a monetary policy expansion and Chinese exchange rate realignment

[3] The appreciation of the dollar was a relative recent phenomenon in 2002, and the 15 per cent increase over the previous 4 years may not have had much impact on the US current account.

using on our model NiGEM. We set out our monetary policy framework and explain how it affects current accounts amongst other things. These effects vary depending upon the assumptions made about the world we live in. 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 on the model that describe the responses of the monetary authorities to events. The rules we use are not derived from estimated equations, but rather may come from standard presentations in the literature or from the publications of Centrals Banks The default rules on the model involve nominal GDP and inflation targeting described in equation 2 (the two pillar strategy), whilst alternative rules use versions of the Taylor rule in equation 3 using 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 and Barrell Dury and Hurst 2001 and references therein).These rules feed back on a nominal aggregate (NOM) as compared to target (NOMT), on the output gap (OG) and on the deviation of inflation (INF) from target (INFT) (see Barrell, Hall and Hurst 2006). We include a rule of the form that is 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) and hence monetary policy has to be used to sustain the exchange rate through intervention

$$r_t = \phi(NOM / NOMT) + \varphi(INF - INFT) \tag{2}$$

$$r_t = r_s + 0.5(OG) + 1.5(INF - INFT) \tag{3}$$

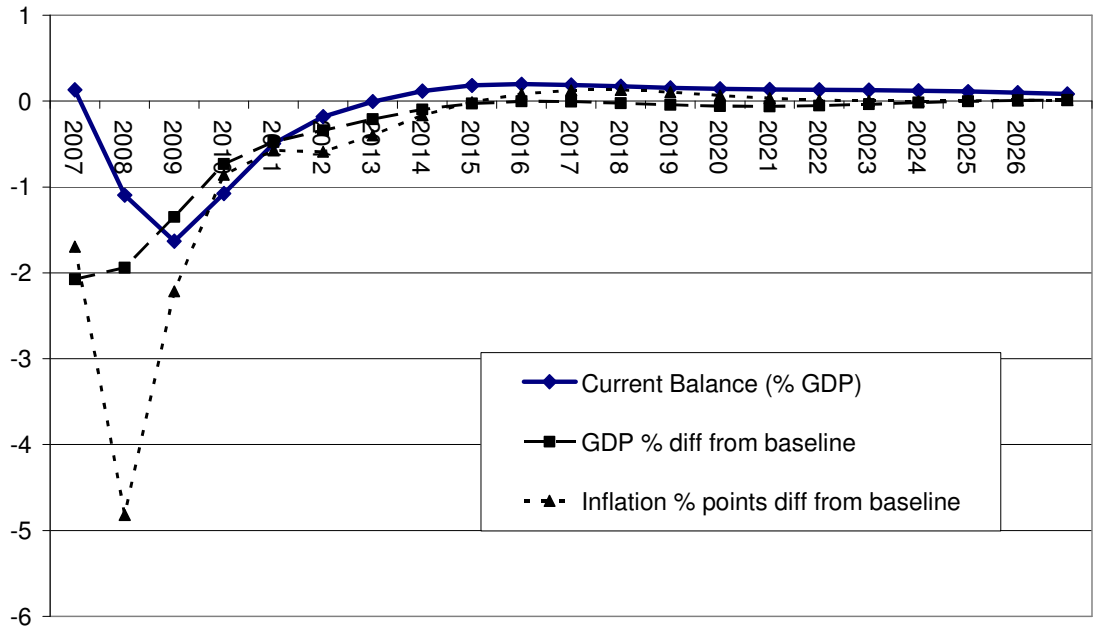
$$r_t = r_{us} + rp(cap) \tag{4}$$

In the nominal targeting regime (2), which we may call an 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 (3). We can describe a change in policy as a change in a target variable in rules 2 and 3 whilst it is a change of peg in rule 4. If interest rates are changed for a period independently 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, whilst 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. Foreign exchange

markets that are forward looking make monetary policy more powerful in the short run. However, 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.

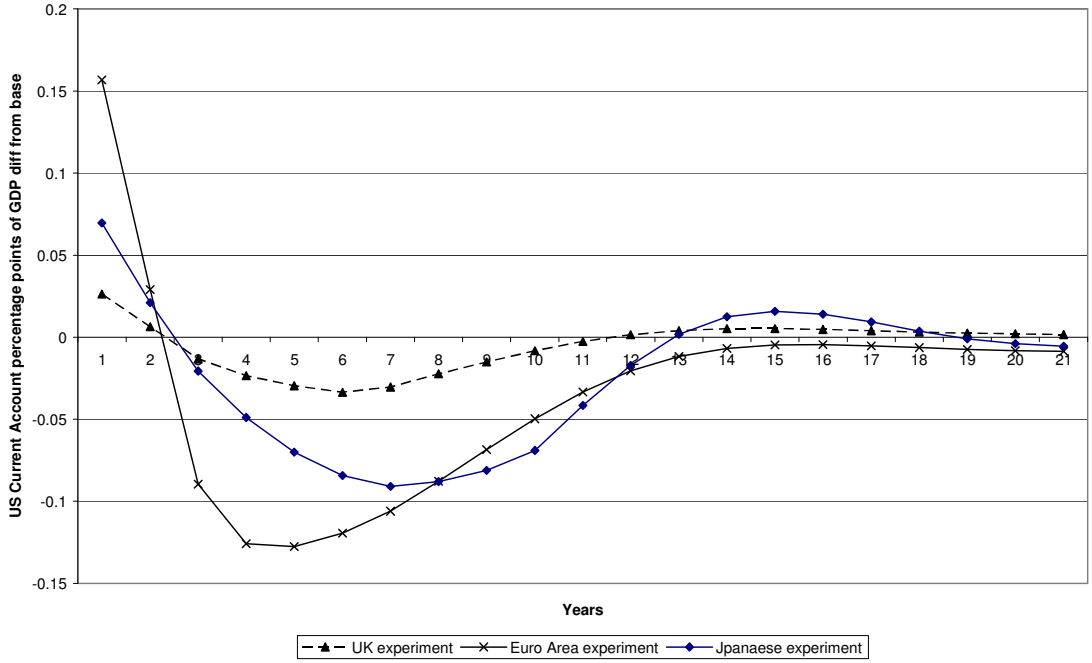
As China has been following the dollar closely, it is possible to conceive of a change in the peg, and Figure 2 indicates the effects of a 10 percent appreciation, with the rest of the world following their existing policies. As the rest of the world has forward looking financial markets, exchange rates elsewhere adjust in a minor way, and inflation stays around target in other countries, but with higher nominal Chinese export prices in the short run. The loss of competitiveness reduces overall demand and increases spare capacity, and this puts downward pressure on prices, which will continue until the increase in spare capacity is removed. We use a small estimated model of China within our world model and the estimated parameters for price setting must reflect behaviour in the estimation period. This includes the period of deflation after the appreciation of the currency during the Asian crisis in 1997 and 1998. 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 amongst the slower reacting European economies, for instance. We would suggest that the policy driven structural factors that have given China a current account surplus are largely independent of the exchange rate regime.

Figure 2. The impacts of a Chinese realignment



There are other monetary experiments that can be undertaken in a world where financial markets are rational with forward looking expectations and labour markets and the investment decisions of firms are affected by the same expectations of the future. A shift the inflation target by 1.0 percentage points for six years in Japan or the UK 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 the Bank does. Demand would also expand in response to a shift the nominal target in rule (2) in the Euro Area 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.

Figure 3. Impacts of monetary expansions in Europe and Japan on the US current account

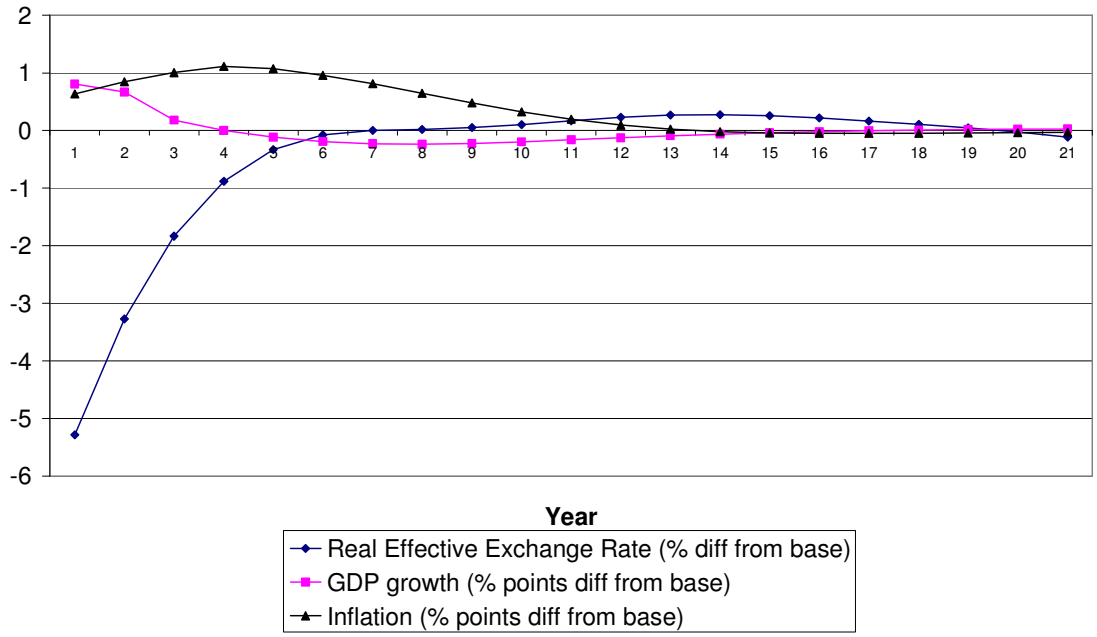


It can be seen from Figure 3 that a monetary expansion in each of these countries will cause the US current account to improve for around two years and it will then worsen before eventually it will return to baseline. Hence there are no long run impacts of these monetary expansions. The price level will rise in each of the countries involved by approximately 6 to 8 per cent, 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 1 requires that it should do, 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, and we plot only that for the Euro Area in Figure 4. The monetary expansion induces a real depreciation of over five percent as interest rates in the Euro Area fall relative to those elsewhere. GDP growth is boosted by almost one per cent in the first two years as real interest rates are lower than base by around 1 per cent for three years. However, inflation increases by around a percentage point a year for six to eight years, and after that period the competitiveness advantage has disappeared. Output, inflation and the real exchange rate all end up back where they would

otherwise have been. The US has gained temporary respite on its current account for two years, and the Euro Area has higher growth and higher inflation for a period. Although some people in Europe may want to see such an outcome, it is very unlikely to materialise, as the ECB sets its own inflation target and it would be exceeding that target by one per cent a years for (a further) six years. It would only be prepared to do this if the monetary authorities thought a temporary respite for the US was essential for the health of the global financial system and if they could se no other way of achieving it.

Figure 4. Impacts of Monetary Expansion on the Euro Area



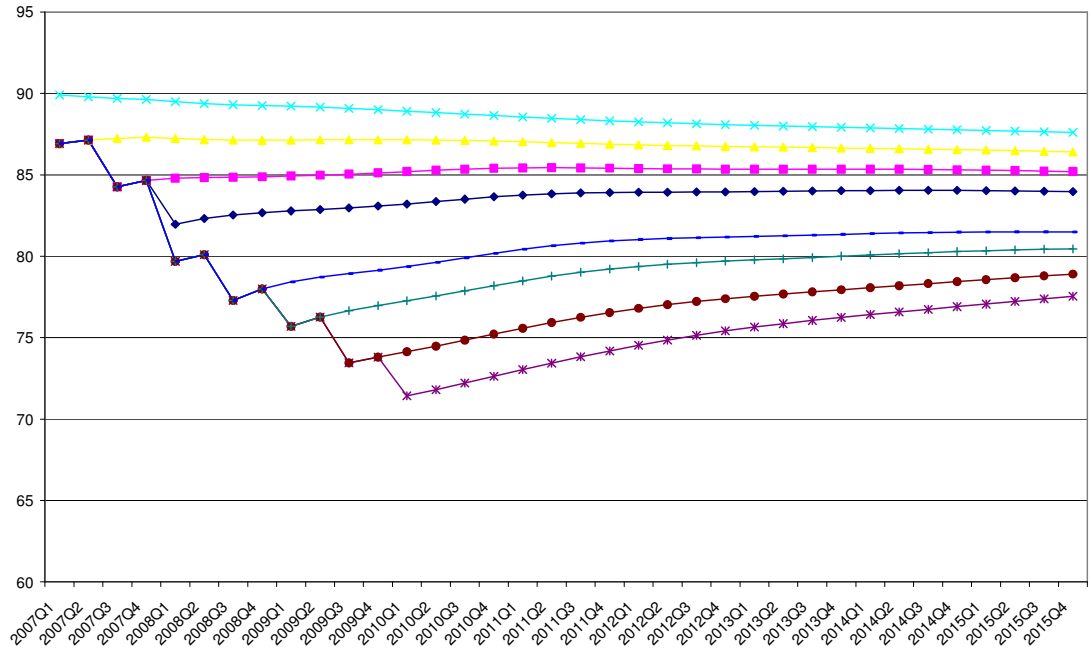
Realignments and exchange rate changes that are driven by monetary factors can give no more than transitory relief to the US, and if we are to see a sustained change in current account patterns, something real has to change. This may be either a reduction in the level of domestic absorption in the US 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.

2. Orderly adjustment through Risk Premia

The decline in the US current account since 1997 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 it may reflect the willingness of the rest of the world to lend to US consumers, albeit through banking sector intermediaries. This situation may also 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 US does not adjust then risk premia will rise. 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 there portfolios became overburdened with US debt they would become reluctant to take on more without a greater mark up over standard market rates. As debts rise then the premium would rise, and we can assume that every time it did so markets would then expect the US to adjust its overall savings. If this did not happen in a reasonable amount of time then the premium would rise again.

An orderly adjustment could emerge with a sequence of shifts in the risk premium every 6 months for 4 years, producing a cumulative downward movement in the nominal exchange rate of around 15 per cent. The sequence we discuss below is consistent with the results in Barrell and Holland (2006). Each time the risk premia rise then the exchange rate would jump down, as we can see in Figure 5 and real interest rates would rise in the US and fall elsewhere. This would reduce absorption in the US, 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 we have 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 US without concerning itself excessively about developments elsewhere. Policy makers may adopt a different more partial view.

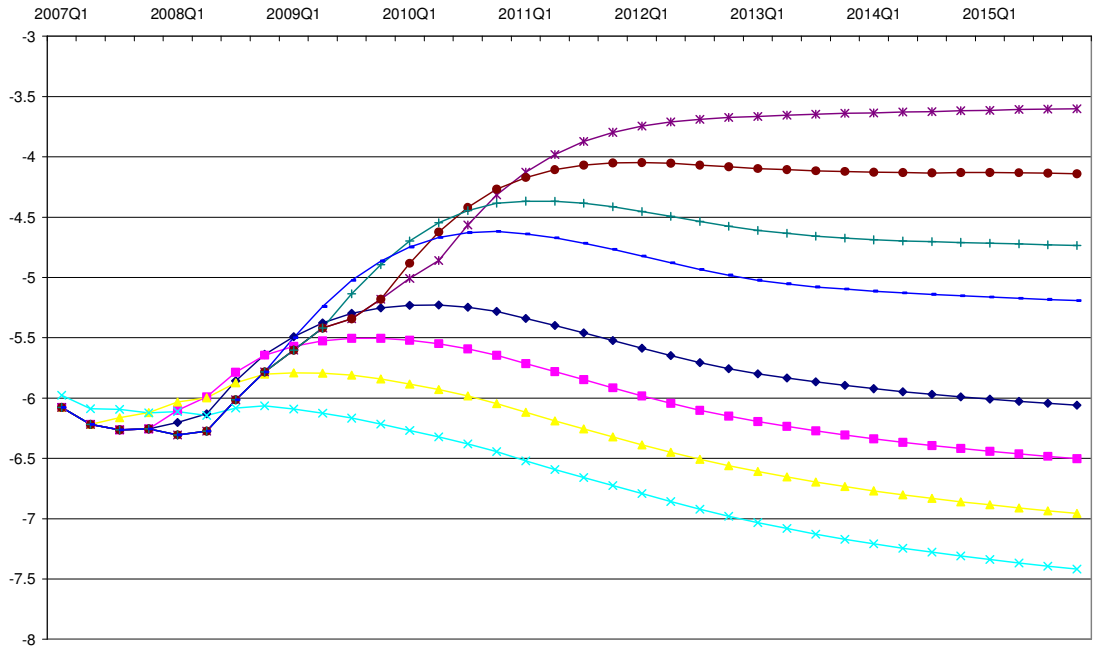
Figure 5. A sequence of risk premium induced movements in the US exchange rate
Dates are the start of each unanticipated shift, using the last run as a baseline



The rise in the risk premium would increase US real interest rates by over one percentage point by 2010, as compared to baseline, and if no other changes took place, they would be more than two and a half percentage points higher by 2015 than they were in 2006. The fall in the real exchange rate of around 20 per cent by 2010 would not boost output in the US 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 per cent a year for some years before reverting to its technology and labour supply driven trend. US inflation would rise to around four per cent 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 6, which plots an orderly sequence of current 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 3 years a sustained improvement in the current account is under way. As a consequence of these changes the current account deficit would approach 3.5 per cent of GDP by 2015, as compared to 7.5 per cent of GDP in our January 2007 baseline, and this may be regarded as acceptable.

Figure 6. Impacts of risk premium induced realignments on the US current account

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

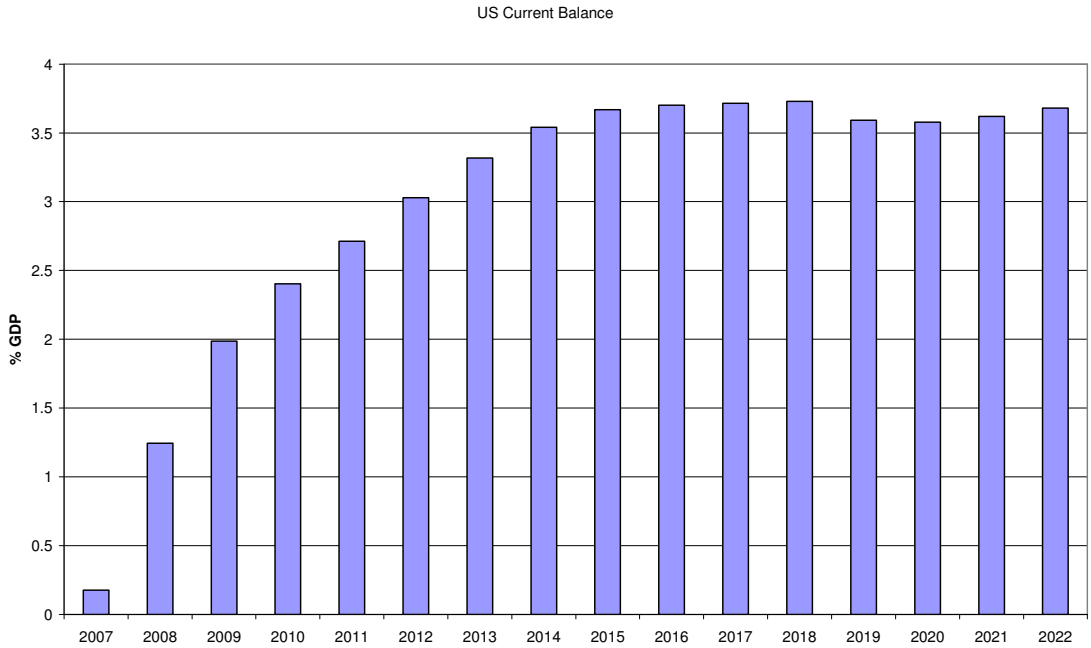


A risk premium adjustment of this sort is both orderly and conceivable. Unless domestic demand changes elsewhere, raising absorption, or in the US reducing it, this must be seen as a highly likely outcome. It involves neither a collapse of the US, nor a currency crisis and, as Barrell and Holland (2006) show, it quite quickly boosts output in the rest of the world as they benefit from the fall of one to one and a half percentage points in their real interest rates between 20101 and 2015. Each of these shifts in the US effective exchange rate is associated with a change in all relevant dollar exchange rates. The real interest differential between the US and the Euro Area would then be as large in 2012 as we saw in 1981, and the four year average around 2012 could be larger that the differential we saw between 1981 and 1984. We have floating rates in all countries, but Sweden follows the euro The improvement in the US current account is matched by widespread and relatively evenly distributed changes elsewhere. If the adjustment is to be focused 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 rates.

3. A mixed scenario of US devaluation and demand change elsewhere

Williamson (2007) suggests three different patterns for global current account adjustment, with an even adjustment, a cap to surpluses and a set of adjustments that are designed to take account of some oil producers needs to accumulate reserves to spread their consumption optimally. The possible scenarios all require adjustment is to take place in all surplus countries, with China, Japan, east Asia, Sweden, Switzerland Norway and Russia all bearing a share of the change. Apart from the scale of the change to 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 US. In addition, for the US we have clearer reasons for the scale of the premium given the results in Al Eyd, Barrell and Holland (2006).

Figure 7. Impacts of adjustment on the US Current Balance (% GDP)



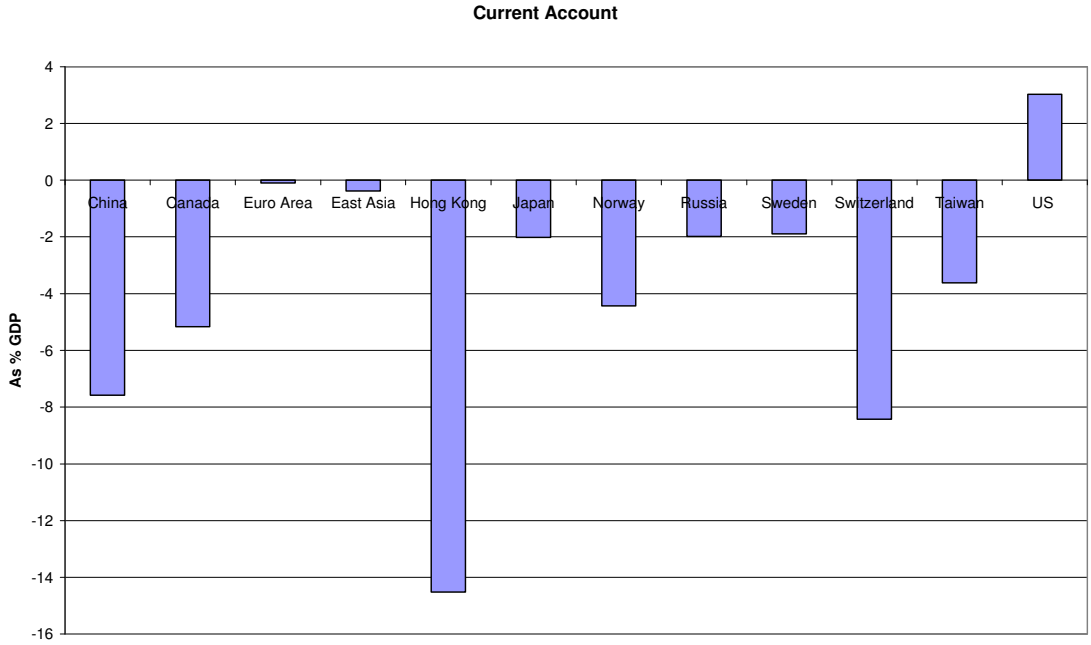
Worries about the change in real interest rates that a market based adjustment would require might induce changes in behaviour on the part of governments. Hence adjustment might come through both shifts in risk premia and changes in absorption in major surplus and deficit

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 US, and we assume that exchange rates are allowed to float in response to events. We raise domestic demand growth by three per cent a year for a sustained period of three to four years in China, Hong Kong, Taiwan, Russia, Norway and Switzerland, and by one per cent a year for 3 years in Sweden[4]. In Japan, the smaller east Asian economies and Canada we raise the level of demand by approximately two per cent progressively over two years. It is easy to induce changes of this magnitude on a model. It is very difficult to envisage and global adjustment with some direct change in absorption in the US, where it is also easy, on the model, to reduce domestic demand with a two per cent of GDP fiscal contraction over two years[5]. Overall, the US current balance progressively improves as a result of the changes in absorption and risk premia, as we can see from Figure 7.

Given we have combined a US risk premium with changes in absorption in the US and elsewhere the pattern of current account outturns is of interest and Figure 8 plots the changes in current accounts as a percent of GDP in 2014. The absolute size of the adjustment is largest in China, Canada, Japan and East Asia in absolute terms, but as a per cent of GDP it is largest in Hong Kong at over 14 per cent of GDP in 2012, and in Switzerland it is over 8 percent. The Chinese balance of payments worsens by 7.5 percent of GDP by 2012, which would be around $300 billion dollars a year. The Japanese current account 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 per cent of GDP, or around $90 billion, reflecting its heavy dependence on the slower growing US 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 $530billion a year.

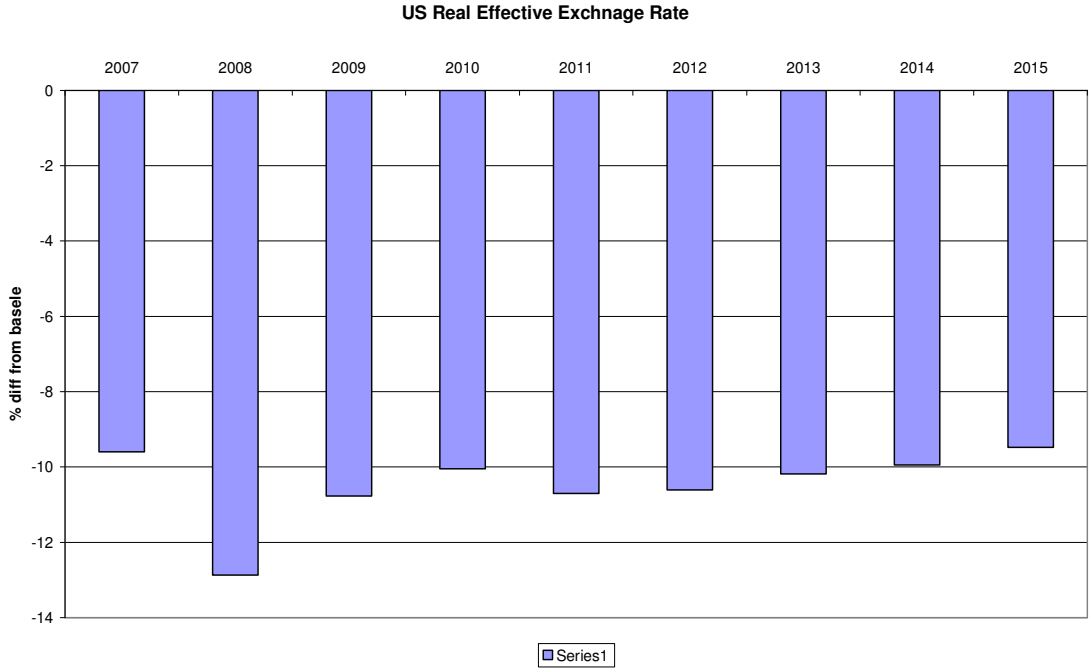
[4] In the first group there is 2 per cent extra growth in demand on average for three years or more, in Sweden one percent a year on average for 3 years, and elsewhere one per cent a year for two years.
[5] We reduce government spending progressively by 2 per cent of GDP, but the medium term (6 years onward) results would be the same if we raised taxes. It is only the path to equilibrium that is changed by the choice of instrument.

Figure 8. The impact of the Adjustment Scenario on Current Balances (% GDP difference from baseline)



The exchange rate consequences are broadly clear, and Figure 9 plots the path of the US real exchange rate. The real depreciation of 10 per cent 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 US and the fall elsewhere also induces some changes in relative absorption. Fiscal tightening in the US induces lower interest rates than we would otherwise have seen, and the dollar weakens as compared to where it would have been. Fiscal loosening elsewhere raises interest rates there 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 US 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 we have floated currencies that are currently fixed. If monetary policy were to react less in the short run, more action would be needed later, and the appreciation would be largely unchanged, unless inflation targets were changed in a significant way which is not likely.

Figure 9. The US Real Effective Exchange Rate



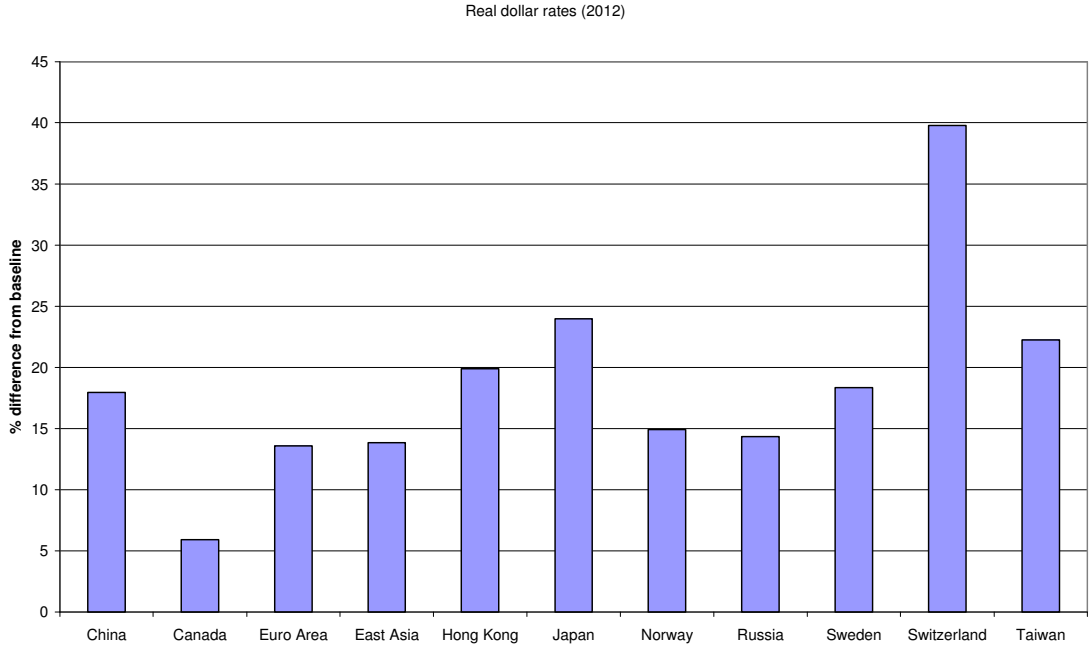
The impacts on the US economy would be quite marked, but less noticeable than those that would result from risk premium adjustment alone. The rise in the risk premium changes US equilibrium output permanently, and growth slows by almost one per cent a year for two to three years before resuming its technology and labour supply determined trend in the model. The long term real interest rate rise by 1 per cent, and this reduces the equilibrium capital stock. The overall change in the long rate is the result of a positive impact from the risk premium and fiscal expansions elsewhere with a negative one from the US fiscal tightening. The combined effects of revaluations and the improved current account would mean that by 2015 the US net asset position would be 24 per cent of GDP better by 2015, and would be improving relative to base by 2 per cent 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 pattern of exchange rate changes that a risk premium and domestic absorption driven adjustment would induce are different from those we would see if adjustment came through risk premium induced real realignments of the exchange rate alone. This is in part because specific current balance targets have been set for countries that need to adjust, and

[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.

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.

Figure 10. The Real dollar Rates



4. Conclusion

Current account imbalances are difficult to change and if they are sustainable they do not need to do so. The US has a large deficit, and unless something structural changes, it is difficult to see how we might see adjustment. Our analysis suggest that the deficit has been affected by rising oil prices, which may have increased it by one per cent of GDP, whilst the fall in the dollar since 2003 has prevented a further worsening of 2 per cent of GDP. Although China has seen the largest increase over the last 10 years in its overall surplus and in its bilateral surplus with the US, 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 one per cent of Chinese GDP after a year, and the change would be sustained of a couple of years, with a cumulated impact on the current account in excess of minus 100 billion dollars, but only one fifth of that would accrete 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 we can asses 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 one driven 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 it is possible that there could be an orderly market driven adjustment, and we look at such a scenario. The forward looking arbitrage condition that we utilize 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 analyse a sequence of risk premium induced declines the dollar that would involve a gradual 20 per cent real depreciation that would leave the current account 3.5 per cent of GDP higher than on our baseline. As the problem involves excessive US deficits we do not allocate the solution to specific surplus countries, and leave that allocation to the market, at least as it is described by the model.

Market based adjustment may be difficult to contemplate, and governments may adjust domestic absorption to avoid the pain and the consequences or high real interest rates in the US and a permanent and large scale loss of competitiveness elsewhere. The most important adjustment would have to be that in the US, and 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 US could produce a pattern of real exchange rates and current accounts that could be seen as sustainable. That pattern would involve a 10 per cent 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.

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