

The Sustainability of Global Financial Imbalances

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Abstract

In this paper, I provide evidence on the development of gross and net asset positions for a group of 23 developed countries over the period 1960-2008. The data show that both gross asset and liability positions and net foreign asset positions have increased tremendously for most developed countries, especially since the early 1990s. Apparently, the global financial system increasingly accommodates the build-up of large imbalances. In turn, these imbalances are a threat to the stability of the system itself. Especially in a situation where real exchange rate adjustment cannot be relied upon to timely correct the imbalances and where national macro policies are predominantly aimed at domestic goals, unchecked growth of global imbalances and subsequent currency or balance of payments crises is all too likely. I recommend more attention for global imbalances both in terms of gross and net foreign asset positions. Also the composition of foreign assets and liabilities and the currency denomination should be focus of attention. The suggestion is made to give the IMF a role in monitoring and perhaps taxing gross foreign asset positions.

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1. Introduction

Two years after the start of the most serious global financial and economic crisis since the Great Depression in the 1930s, analyses of its causes and consequences abound. Most of these primarily attribute the crisis to microeconomic factors. The BIS 79th Annual Report 2009 (p.7-8) for example states that “...*the financial stress that began in the summer of 2007 has revealed a myriad of limitations in microeconomic financial arrangements. These include problems with incentives; flaws in techniques used to measure, price and manage risk and in the corporate governance structures used to monitor it; and failings of the regulatory system....The crisis has revealed distorted incentives for consumers, for financial sector employees and for rating agencies.*” Similarly, the most recent IMF World Economic Outlook (April 2009), on page 34 notes that “...*the crisis was largely caused by weak risk management in large institutions at the core of the global financial system combined with failures in financial regulation and supervision.*” The last quote draws attention to the crucial role that the “*global financial system*” – though not itself the origin of the current financial crisis – has played in its propagation.

Over the past decades, especially developed countries have become increasingly financially integrated, as witnessed for instance by the exploding amount of cross-country capital flows. This trend has continued and even accelerated in recent years. According to the BIS (2007)¹, daily turnover in traditional foreign exchange markets amounted to \$3.2 trillion in April 2007, reflecting 71 percent growth since the previous survey in April 2004. In the over-the-counter market for interest and foreign exchange derivative contracts growth equal to 74 percent was recorded since April 2004. The daily turnover in these markets was \$4.2 trillion in April 2007.² Gross stocks of foreign assets and liabilities show impressive growth over the past decades as well. At the end of 2006, on the eve of the crisis, the ratio of average foreign assets and liabilities to GDP equaled 2.62 for a group of 24 high-income countries. For some small open economies, like Ireland (11.35), Switzerland (5.74) and the Netherlands (4.27) this ratio even was substantially higher. The same holds for the UK (4.08) with its large financial center. On the other hand, the same ratio in the US and the EU only equals 1.18 and 1.54 respectively.³ It demonstrates the relatively closed character of these two large economic blocks. It also points to the fact that many of the foreign assets EU member states hold are liabilities of other EU member states.

Clearly, the sophisticated and integrated system of global financial markets and institutions has facilitated the global transfer of risky assets and complicated derivatives. Without it, most likely less financial institutions worldwide would have had bad assets coming from the US real estate crisis on their balance sheets. In turn, probably more – local – financial markets would have remained open and functioning and in many countries macroeconomic costs of the ensuing recession would have been lower. Similarly, without the global financial system Icelandic banks like Landsbanki, Kaupthing and Glitnir would have found it substantially more difficult to attract foreign currency funding on the scale they actually did and to channel both the funds and the corresponding currency exposure through to

¹ Triennial Central Bank Survey of Foreign Exchange and Derivatives Markets Activity.

² Clearly, this dwarfs cross country flows related to trade (exports) in goods and services, which on an annual basis only amounted to \$14.5 trillion in 2007.

³ We refer to Cooper (2008) and Obstfeld (2004) for similar evidence in 2005 and 2003 respectively.

Icelandic consumers and firms. Consequently, the virtual default of the Icelandic economy might have been prevented.

This is not to say that we should – if possible at all – go back to the state of affairs of the 1960s, when capital flows only were allowed to pay for imports of goods and services. That would throw out the baby with the bath water. There were and still are very convincing arguments for a well-developed, open and stable global financial system. In particular, the desired optimal allocation of capital and the optimal diversification of risk necessitate such a system. Nevertheless, a closer look at the risks and returns of the international financial system and the way it needs to be regulated and monitored is warranted, therefore.

Apart from the direct role of transmission and propagation mechanism in the current crisis, the international financial system has also been linked to the existence and persistence of so-called global imbalances. In turn, these imbalances are seen as a potential contributing factor to the current crisis. According to the BIS (2009, p.4) “...*the macroeconomic causes [of the crisis] fall into two groups: problems associated with the build-up of imbalances in international claims and difficulties created by the long period of low real interest rates.*” The IMF (2009, p. 34) has the view that “*although global imbalances may have been a factor behind the buildup of macroeconomic and financial excesses that led to the crisis.....a disorderly exit from the dollar has not yet been part of the crisis narrative.*”

These quotes refer to an ongoing debate on two issues. On the one hand, there is the issue of the causes and consequences of the low level of world wide real interest rates in the past decade. These low rates are seen as one of the triggers of the excessive lending and asset price bubbles that led to the 2007 crisis.⁴ On the other hand, there is the fear of a sudden decline in the value of the US dollar and its financial and macroeconomic consequences. Over the past decades, the US has run large and persistent current account deficits requiring other countries to run current account surpluses.⁵ How long these imbalances can persist is unclear. If in the near future the rest of the world would stop financing these deficits a dollar plunge could occur and add to the already dismal state of many economies. So far, that scenario has failed to materialize.

Obviously, the attention for global financial imbalances in general and their consequences for the dollar in particular predates the current crisis. A thorough literature review would require a paper in itself and falls outside of the scope of this paper.⁶ The issue also figures prominently in almost every IMF World Economic Outlook since 2005. Despite the long debate no consensus exists about the ultimate solution of the US deficits and the required decline of the dollar. According to Feldstein (2008) and Krugman (2007) it is not if but when the dollar will fall. Krugman adds that the major questions are whether the plunge will be gradual or sudden – depending on the degree of market myopia – and whether the macroeconomic costs of the plunge will be high or low. Faruqee and Lee (2008) argue that the build up of global imbalances has been excessive and warrants strong adjustment. On the other had, Cooper (2008) and Higgins and Klitgaard (2007) deem the current US deficits sustainable as they mainly are the

⁴ See for instance Bernanke (2005).

⁵ Note though that one could easily argue that the surplus countries have forced the US to run these deficits.

⁶ We refer to Clarida (2007) and Obstfeld and Taylor (2004) as prime examples of this literature.

reflection of relatively high innovativeness and productivity of the US economy. Gruber and Kamin (2007) conclude that a gradual transition is possible. In their view, capital flows from – among others – the US to the developing world will resume after the reserves build-up in Asia has been completed. In its World Economic Outlook of April 2009 the IMF is ambiguous but ultimately concludes that *“concerns about global imbalances have not gone away”* (p. 38).

Mainly due to the path-breaking work of Lane and Milesi-Ferretti (2001, 2007) there is growing recognition of the importance of gross and net stock of foreign assets and liabilities when thinking about sustainability. Despite this recognition, most of the debate is still in terms of funding annual flows with generally only implicit reference to the underlying stocks. As I will illustrate in this paper, more attention should be paid to the impact of countries’ gross and net foreign asset positions. I will focus especially on the link between increased financial integration on the one hand and the increase in global imbalances on the other. Doing so, I will mostly abstract from short-run effects of the current crisis, but concentrate on long-term trends. Global imbalances defined in terms of both flows and stocks still persist and probably will grow further in the future. In turn this raises questions about future macro-driven instability that goes beyond the narrow US dollar perspective.

In the next section, I briefly elaborate on the link between different dimensions of international economic and financial integration and their interrelation. Subsequently, section 3 summarizes evidence on the development of gross and net asset positions for a group of 23 developed countries over the period 1960-2008. The data show that both gross asset and liability positions and net foreign asset positions have increased tremendously for most developed countries, especially since the early 1990s. Apparently, the global financial system increasingly accommodates the build-up of large imbalances. In turn, these imbalances are a threat to the stability of the system itself. Especially in a situation where real exchange rate adjustment cannot be relied upon to timely correct the imbalances and where national macro policies are predominantly aimed at domestic goals, unchecked growth of global imbalances is all too likely. In section 4 I discuss sustainability issues and potential adjustment. I point out the particular characteristic of the euro area that allows participating countries to accumulate foreign debt without apparent consequences. Finally section 5 concludes. I recommend more attention for global imbalances both in terms of gross and net foreign asset positions. Also the composition of foreign assets and liabilities and the currency denomination should be focus of attention. The suggestion is made to give the IMF a role in monitoring and perhaps taxing gross foreign asset positions.

2. Economic and Financial Integration

As recent as 2001, Obstfeld and Rogoff list six major puzzles in international macroeconomics and finance.⁷ Each puzzle demonstrates in its own way that international economic and financial integration is far from complete at the time despite the perceived progress in terms of increased capital mobility. Although these puzzles had been studied in isolation before, Obstfeld and Rogoff (2001) – henceforth OR01 – are the first to actually link them together and to provide a uniform explanation of the failure of

⁷ We also refer to Lewis (1996, 1999, 2000).

international integration to have its theoretically expected effect. They hypothesize that imperfections in the goods markets due to the existence of trade costs may be the major explanatory factor behind the home bias in trade puzzle, the Feldstein-Horioka (FH)-puzzle, the home bias in equity puzzle, the consumption correlation puzzle, the purchasing power puzzle and the exchange rate disconnect puzzle.⁸ The first four of these are so-called quantity puzzles, while the latter two are price puzzles requiring a more sophisticated model including imperfect competition and sticky prices and wages.

In the subsequent discussion in this paper, I focus on the four quantity puzzles, which can be briefly summarized as follows. First, in an open economy without any barriers, consumption would theoretically not be biased towards home goods. In practice, consumers seem to have a strong preference for home goods. This is called the 'home bias in trade puzzle'. The second puzzle concerns the lack of international diversification of asset portfolios. Theoretically, portfolio diversification theories and international versions of the CAPM model predict fully internationally diversified portfolios to be optimal. However, empirical evidence shows that the composition of asset portfolios is strongly biased towards domestically issued assets. This result is referred to as the 'home bias in asset portfolios puzzle'. Third, when risk sharing is perfect and the Arrow-Debreu conditions are satisfied, consumption growth will be equal in all countries and only depend on world output (income) growth. Country-specific output shocks would have no impact on domestic consumption as the risks of these idiosyncratic shocks would have been totally diversified across the world. Only global shocks would lead to consumption fluctuations. The obvious results would be relatively low correlation coefficients between domestic income and consumption growth rates and (almost) perfect correlations in consumption growth rates across countries. In reality, domestic consumption growth is generally highly correlated with domestic income growth and cross-country consumption growth rates differ significantly over long periods of time. This is called the 'risk sharing' or 'consumption smoothing' puzzle. Finally, perfect financial integration should lead to a loosening up of the relation between domestic savings and investment as countries would be able to use the improvement of the international capital market to finance savings-investment imbalances to an ever-increasing degree.⁹

Less than a decade later, there is growing evidence of at least a partial fading out of some of these puzzles. In my view, it is unlikely that the structure and level of transactions costs in goods markets has changed sufficiently to be the major cause behind the virtual disappearance of some puzzles, as would be implied by the OR01 hypothesis. Improvements in international financial markets seem a more plausible explanation. Since the beginning of the nineties the opening up of capital markets begins to show in rapidly increasing cross country capital flows and asset and liability positions. Simultaneously with the increase of international capital flows, asset home bias seems to decrease (Obstfeld, 2004)

⁸ OR01 stress the dominance of goods market imperfections as the common factor underlying the above puzzles, but explicitly allow for alternative influences, including capital market imperfections. With respect to the equity home bias puzzle, they expressly point at the likely influence of information asymmetries and legal restrictions as potentially relevant determinants, which in their view fall under a broader definition of transaction costs.

⁹ Feldstein and Horioka (1980) were the first to document a strong and stable relationship between domestic savings and investment in a cross-country estimation for 16 OECD-countries for the period 1960-1974, suggesting low rather than high international capital mobility and integration. We refer to Coakley *et al.* (1998) and Lapp (1996) for a concise overview of recent research on the issue.

while risk sharing increases (Brandt *et al.*, 2006) and the link between domestic savings and investments deteriorates. Consequently, the idea of the interdependence of the puzzles is further enhanced. Below, some additional evidence is provided to support the case for financial integration being the prime driver of the reduced relevance of the various puzzles.

First, figure 1 displays the development of economic and financial integration. The dashed line represents the average trade flows from 1960 to 2007 for a sample of 23 developed countries.¹⁰ For each country, I compute the average of exports plus imports per unit of GDP for each year in the sample. The average trade flow in a given year then equals the cross-country average in that year. Similarly, the drawn line represents average assets stocks. For each country and each year, I take the average of its foreign assets and liabilities as a percentage of GDP. The average asset stock in a given year then is the cross country average in that year.¹¹

Focusing on the relevant period and starting in the mid 1980s, the average trade flow variable rises from 30 percent of GDP to 40 percent. I assume the average trade flow variable is a proxy – be it an imperfect one – of trade integration. A higher value then represents a cross country reduction in the home bias in trade, one of the OR01 puzzles. Over the same period, average foreign assets and liabilities increase from around 80 to 260 percent of GDP. Most of this explosive trend takes place after the mid 1990s. Since the denominator in this variable is GDP and not a measure of a country's total financial asset value, the rise does suggest a reduction in home asset bias.

The pattern of both lines is roughly the same. However, note the difference in scale. The figure strongly suggests that it is especially financial integration that developed strongly since the 1990s. Any reduction in size and significance in related major puzzles in international macroeconomics and finance, therefore, is more likely to be the result of financial integration developments than of real economic developments.

¹⁰ The countries are Australia (AU), Austria (OO), Belgium (BE), Canada (CA), Denmark (DK), Finland (FI), France (FR), Germany (GE), Greece (GR), Iceland (IC), Ireland (IR), Italy (IT), Japan (JP), Mexico (MX), the Netherlands (NL), New Zealand (NZ), Norway (NW), Portugal (PT), Spain (SP), Sweden (SE), Switzerland (CH), the United Kingdom (UK), and the United States (US).

¹¹ Trade data come from the IMF's International Financial Statistics database. The asset and liability data come from the IMF's International Investment Position (IIP) database. Especially in the early years data are missing for many countries. Starting from the early 1980s, most countries are covered.

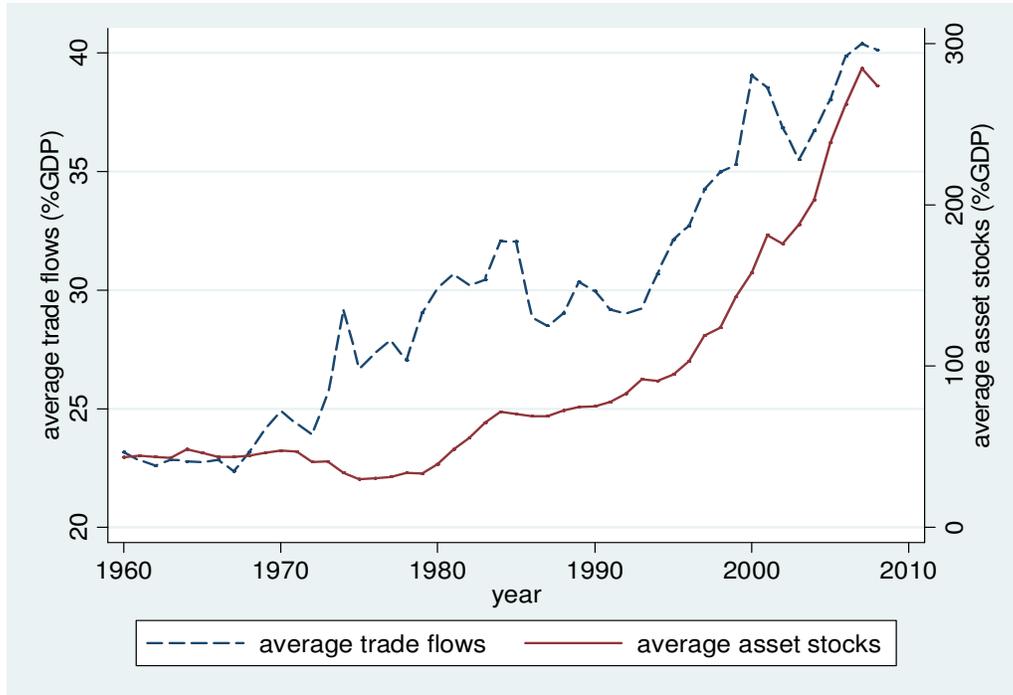


Figure 1 Growth in economic and financial integration

In table 1 I use data from Holinski et al. (2008) to provide more detailed evidence on reductions in home equity bias. The table presents portfolio equity wealth and equity home bias for a selection of developed countries in 1990 and 2005 respectively. Portfolio equity wealth (PEW) is measured as a country's stock market capitalization (at market value) plus its net foreign position in equity as a percentage of GDP, while equity home bias (EHB) measures how far away the country is from holding the world equity portfolio. A value of zero implies the absence of equity home bias.

The table convincingly shows that between 1990 and 2005 portfolio equity wealth strongly increased in most countries – Japan being the exception – while equity home bias strongly decreased. Obviously, considerable heterogeneity exists across countries. Anglo-saxon countries and countries with large financial centres typically have relatively high equity wealth. Equity home bias is low for the most financially developed countries. Within this group, especially some of the smaller economies like the Netherlands, but also Belgium, Austria, and Finland (unreported) have almost completely diversified their equity portfolios in 2005.¹²

¹² I refer to Sørensen et al. (2007) for similar evidence on Debt Home Bias.

Country	PEW		EHB	
	1990	2005	1990	2005
Australia	0.18	0.96	0.82	0.78
France	0.15	0.77	0.79	0.57
Germany	0.16	0.64	0.83	0.41
The Netherlands	0.27	1.13	0.64	0.14
Japan	0.93	0.79	0.96	0.83
United Kingdom	0.52	1.57	0.66	0.57
United States	0.29	1.28	0.86	0.59
Average (23 countries)	0.20	0.92	0.80	0.56

Table 1 Portfolio Equity Wealth and Equity Home Bias

Sørensen et al. (2007) show strongly declining equity and debt home bias from the 1990s onward and demonstrate that consumption risk sharing increases simultaneously. Holinski et al. (2008) provide supporting evidence of the joint development in equity home bias and consumption risk sharing, using both absolute and relative equity home bias measures in their analysis. Using data from 1980 to 2007 for a group of 23 OECD countries, they apply a non-linear panel method to estimate the time-varying response of country-specific consumption growth rates to country specific GDP developments. On average 25 percent of idiosyncratic income shocks is diversified away for this group of countries, so that a country facing a one percent negative income shock only experiences a 0.75 percent drop in consumption. Heterogeneity across countries is substantial though. Using 2005 data, it can be shown that the overall consumption risk sharing coefficient for the US equals 0.68, which exceeds the average 0.75. The US profits from its high portfolio wealth (-0.09) but loses a bit from somewhat higher than average equity home bias (+0.02). For the Netherlands, benefiting from both above average equity wealth (-0.05) and in particular from below average equity home bias (-0.23), the risk sharing coefficient even equals 0.47. Overall, the conclusion is that ongoing financial (equity) development in general and ongoing international financial integration and cross-country diversification in particular have significant beneficial effects on consumption risk sharing among developed economies. Consequently, restrictions on international capital flows that inhibit this type of risk sharing may come at a significant welfare cost.

Similarly, Kool and Keijzer (2009) demonstrate a considerable deterioration in the S-I relation since the mid-1990s. Cross-sectional evidence shows that the coefficient linking domestic savings to domestic investment starts a downward trend in the mid 1990s. By 2000, the coefficient is virtually zero and insignificant and savings has no explanatory power for investment anymore. Put differently, the FH-puzzle has disappeared and domestic savings and investments move independently from one another.

Moreover, Kool and Keijzer (2009) use a non-linear panel regression technique to demonstrate that higher overall cross-country openness – trade integration measured as the average of exports and imports as a ratio of GDP – and lower equity home bias both significantly reduce the strength of the link between domestic savings and investments over time. In addition, above average country-specific equity diversification and lower equity home bias also have a significant effect on the I-S link. Quantitatively, the effect of the financial variables – measuring equity home bias – strongly dominates the trade variables. Their conclusion is that it is especially financial integration that has helped to reduce the FH-puzzle and to accommodate domestic investment through foreign savings. Faruqee and Lee (2008) provide evidence in the same direction. They find the current account universe to expand even faster than implied by increasing financial globalization.

In summary, both real and financial integration have strongly increased over the past decades. Evidence suggests particularly financial integration has contributed to the disappearance of a number of longstanding puzzles in international macroeconomics and finance: both the FH puzzle, the trade and equity home bias puzzle and the consumption correlation puzzle have been substantially reduced since the mid 1990s.

3. Global Imbalances

We now turn to the issue of global imbalances. In the previous section I have presented evidence of the increase in consumption risk sharing through portfolio diversification and the decrease in the link between domestic savings and investments as a consequence of strong increases in international financial integration since the mid 1990s. The latter phenomenon can be roughly translated as an increase in countries' possibilities to run current account deficits and surpluses. In turn, as stressed in the FH literature, it allows for an increase in a country's intertemporal optimization of consumption, part of which is a risk sharing mechanism similar to global portfolio diversification. For a better insight, it is instructive to compare the risk sharing characteristics of portfolio diversification with those of current account imbalances using two stylized cases.

In principle, risk sharing through portfolio diversification does not require any intertemporal exchange or current account imbalances. Suppose two equally sized countries decide to sell one half of their claims on home output to the other country and receive one half of the other country's claims on its output in return. No current account effects would arise from the deal. Moreover, the consumption effects of any future output shocks would be shared equally among the two countries. The country hit by a positive output shock would pay out half of the revenues (dividends) to the other country which in turn could use these dividends to buy half of the extra output from the first country. The income account and trade account effects of the shock would cancel out, leaving the current account balanced. Risk sharing in this case has an intratemporal character.

Intertemporal risk sharing works differently. Now a (temporary) positive output shock in country 1 would make it sell part of its excess output to the second country, running a current account surplus. In

the absence of further shocks and assuming no growth, the current account will be zero again afterwards. However, the surplus country has a net claim on the deficit country's output in all future periods. The original surplus country then can run a small trade deficit, consuming more than it produces, financed by the income from its net foreign asset position.

Obstfeld (2004) argues that under certain strict conditions – amongst others a perfect world with complete contingent claims (stock) markets – one would expect intratemporal risk sharing through portfolio diversification to dominate intertemporal risk sharing through current account imbalances. It also directly shows the limitations of the Feldstein-Horioka analysis. The latter assumes a linear or at least monotonous relation between the degree of capital mobility and the strength of the S-I relation. Higher capital mobility then reduces the S-I link and raises the size of current account imbalances. The above arguments show that may be valid only while moving from a world with very low capital mobility to one with high capital mobility but still strongly incomplete contingent claims markets. At the moment contingent claims markets become more developed it is quite possible that higher capital mobility will lead to stronger intratemporal risk sharing and smaller rather than larger current account imbalances.

Of course there is a second argument for current account imbalances separate from risk sharing considerations. In case one country experiences a shock in productivity that requires an expansion of its capital stock, new capital will flow in and temporarily cause a current account deficit.

In both of the above cases, current account imbalances are temporary and on average offsetting. As a result, no long-run trends in the cumulative current account ratio – or net foreign asset ratio would result. Reality is different. Current account imbalances are highly persistent, as documented for instance by Faruqee and Lee (2008). Countries with a string of current account surpluses in the past which consequently have built up a net foreign asset position are likely to continue running surpluses. On the other hand, countries with a string of current account deficits from the past which consequently have built up a net foreign debt (liability) asset position are likely to continue running deficits.

The consequences of more scope for current account imbalances and more persistence in these imbalances are displayed in figures 2 and 3. Both figures use data for the same group of 23 OECD countries defined previously for figure 1. Figure 2 shows the minimum and maximum (dotted line) current account ratios across countries per year plus the cross country annual standard deviation (bold drawn line). Over the last years of the sample, Iceland has an extreme impact on the minimum value of the current account ratio. Therefore, the cross-country minimum is given both including (dotted line) and excluding (thin drawn line) Iceland. Up till 2003 the lines overlap.

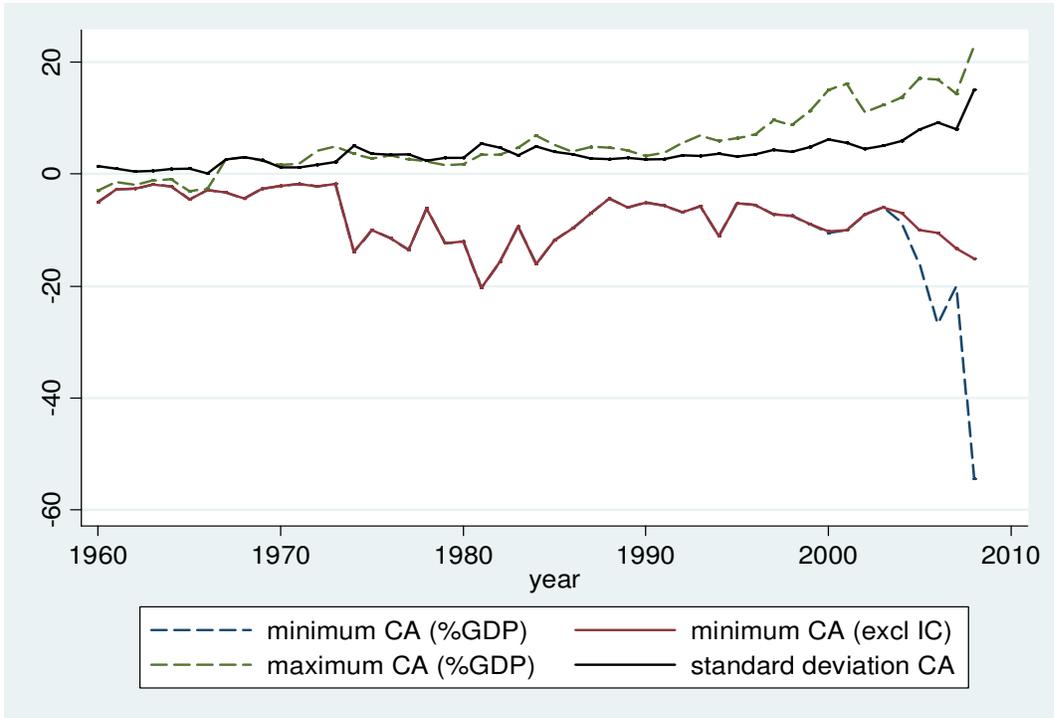


Figure 2 Current account imbalances

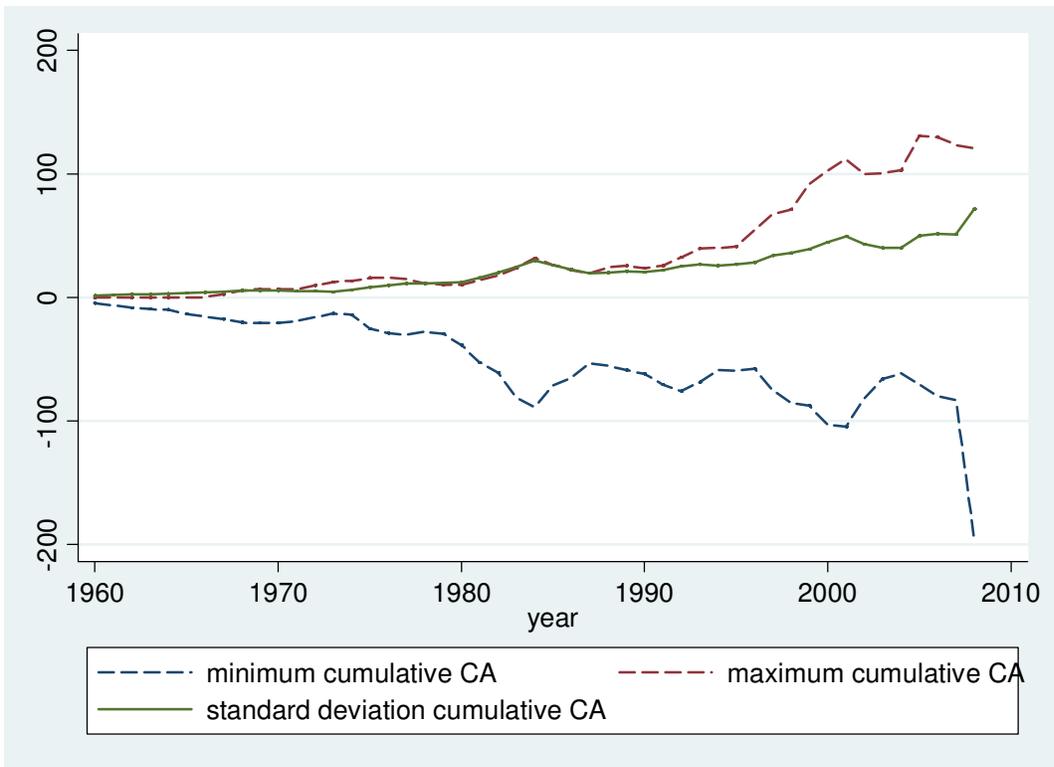


Figure 3 Cumulative current account imbalances

A few points stand out in figure 2. The period around 1980 is also characterized by sizable deficits. Note that macroeconomic volatility in the late 1970s and early 1980s was extremely large with inflationary and subsequent disinflationary episodes, volatile monetary and fiscal policies and extreme oil price movements. Since the start of the great moderation, current account imbalances have been more limited to rise again from the late 1990s onward. This phenomenon is reflected in the rise of the spread between maximum and minimum current account ratios and in the rise of the cross-sectional standard deviation. Note that emerging Asian economies with massive current account surpluses like China and Korea are not included here because of lack of historic data.

In figure 3, the stylized facts of cumulative current account imbalances are presented graphically for the same group of 23 countries. Again minimum and maximum ratios are presented together with the cross-sectional standard deviation. Countries with persistent deficits move to net foreign liability positions close to 100 percent of GDP since the late 1990s. In 2008, Iceland’s cumulative current account ratio dropped to almost 200 percent of GDP, illustrating its virtual default. On the other hand, the maximum net foreign asset position (occupied by Switzerland) already is above 100 percent of GDP since the year 2000.

The combined message from figures 2 and 3 is not only that current account volatility has considerably increased over time – especially in the last decade – but also that absolute levels and volatility of the net stocks of foreign assets and liabilities have considerably increased.

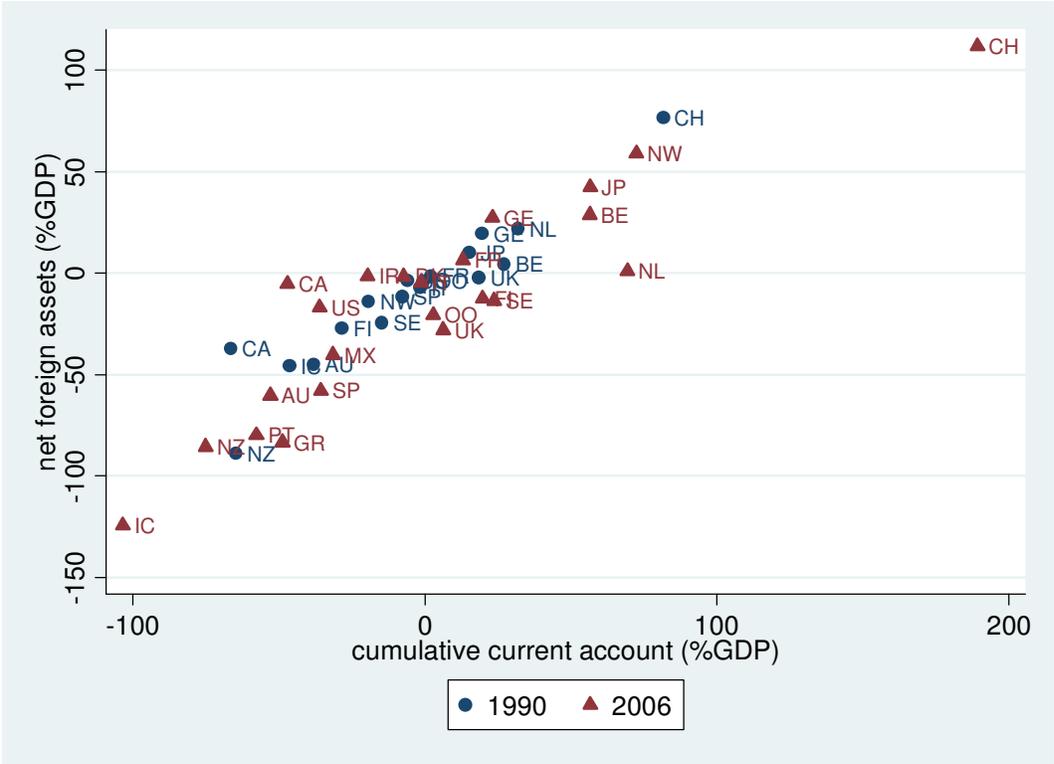


Figure 4 Net foreign asset development per country 1990-2006

In figure 4, the country specific development of net foreign assets is shown. The figure serves two purposes. First, it allows a comparison of cumulative current account positions per country on the horizontal axis and net foreign asset positions per country on the vertical axis. These two measures of a country's net external position are strongly related but can differ because of measurement errors. These may arise as the two variables are measured independently through different methodologies. Cumulative current account figures are computed from national income and balance of payments statistics which start from income flow data. On the other hand, net foreign asset positions are computed by the IMF on the basis of surveys of gross stocks of assets and liabilities. Both methods suffer from measurement problems.¹³ Differential returns on assets and liabilities, composition effects in the gross stocks of assets and liabilities and (unexpected) valuation gains and losses are a second well-known determinant of the wedge between the sum of past current account imbalances and the resulting net foreign asset positions.¹⁴

Second, the figure allows a comparison of country specific developments between 1990 and 2006. I select these specific years as 1990 predates the explosive increase in global financial integration, while 2006 is the last year in the sample not influenced too much by the current financial crisis.

A few points stand out. First, as was already suggested by figure 3, we see that net asset positions grow in both directions between 1990 and 2006. Put differently, the circles representing the 1990 situation are clustered around zero much more than the triangles that represent the 2006 situation. For most countries a movement to either the north-east or south-west corner of the figure is clearly visible. Persistent surplus countries like Switzerland, Japan, Norway and Belgium see their net positions increase considerably. China is not included in the figure but would also belong to this group. Persistent deficit countries like Iceland, Ireland, Spain, Portugal, Greece, Australia and New Zealand experience the opposite movement and have increasing net liability positions. Note that the US does not belong to the group of countries with extreme imbalances, despite its dominant position in the debate on the sustainability of global imbalances.

Second, a strong positive correlation is visible between cumulative current account position and net foreign asset position. They are not one-to-one linked, supporting the relevance of valuation effects, composition effect and return differentials as hypothesized by Lane and Milesi-Ferretti (2001, 2007). The Netherlands and Switzerland, for instance, have a much lower net foreign asset position than would be expected on the basis of their current account surpluses, while the US has a lower net liability position than would be expected on the basis of its persistent deficits. On the other hand, the figure convincingly shows that the two measures are comparable for most countries. That is, despite the fact that cumulative current account positions ignore valuation effects, they are still quite informative of most countries' net foreign asset position.

Figure 5 complements the evidence in figure 4. On the horizontal axis we display each country's gross foreign position – measured as the average of foreign assets and liabilities as a percentage of GDP –

¹³ See Lane and Milesi-Ferretti (2009) for a thorough analysis of the US case in this respect.

¹⁴ See Lane and Milesi-Ferretti (2001, 2007).

while the net foreign asset position is on the vertical axis.¹⁵ The figure clearly shows that both gross and net positions fan out between 1990 and 2006. In 1990, most countries (circles) are located in the centre left. The 2006 data (triangles) typically have moved both to the right, indicating increased gross positions, and up or down, indicating increased imbalances.

To sum up, in this section I have shown that both gross and net positions have strongly increased since the early 1990s. Not only the cross-country minimum and maximum current account balance in a given year have become more pronounced. Due to high current account persistence, net foreign positions typically have grown and become more dispersed too. Simultaneously, gross asset and liability positions have increased. In the next section, I turn to the issue of sustainability and adjustment.

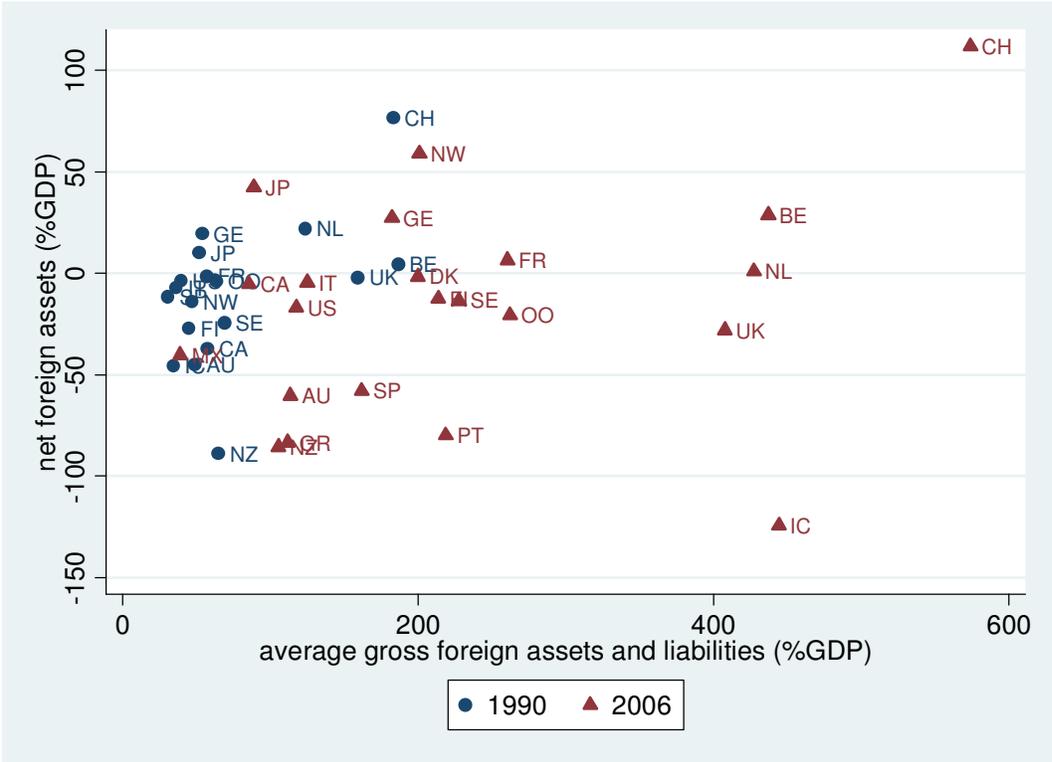


Figure 5 Gross and net foreign asset development per country 1990-2006

4. Sustainability and Adjustment

Figures 4 and 5 give the situation with respect to gross and net foreign asset positions at the end of 2006, just before the financial crisis started. I deliberately exclude 2007 and 2008 to avoid mixing the information in the trend movements with temporary phenomena. Clearly, the current crisis will have large and differential impacts on gross and net positions of these countries. Milesi-Ferretti (2009), for

¹⁵ Ireland is an outlier in this graph with a gross position close to 1,000 percent of GDP. It has been excluded from the graph to enhance expositional clarity.

instance uses preliminary data to determine the effects for the US in 2008. He estimates the deterioration of the net foreign asset position to be over \$2 trillion. This would almost double the negative net position of the US in terms of its GDP from close to 17 to over 30 percent. Main causes are the appreciation of the dollar – leading to capital losses on foreign assets and the leveraged position of the US with mostly debt-like foreign liabilities and mostly equity like foreign assets. Available IMF data for the Netherlands suggest this country actually improved its net foreign asset position in 2008.

Here, my focus is not on changes in individual position during this period of turmoil and transition. Instead, I would like to focus on the trend and the longer-run concerns of sustainability and adjustment. It is clear though that the current crisis can severely affect – the sustainability of – a country's individual position. Factors that will play a role in the near future are the – temporary – decline in world trade hitting countries asymmetrically as well as the effects of the extreme expansionary fiscal programs most governments have engaged in. The national savings identity equates the current account balance to the sum of net government savings and net private savings. With fiscal accounts in deficit everywhere and private savings rates probably rising but not necessarily to the same degree across countries, new patterns of current account imbalances may well emerge. In addition, the doubling of central bank balance sheets in the US, the UK and the euro area potentially flood the system with excess liquidity that at some point may turn into inflationary pressures and increased exchange rate volatility.

Fortunately, in some sense that has little impact on the issue whether current account imbalances in the long run will be sustainable and how necessary adjustment will take place. A useful starting point is the recognition that the net foreign asset over GDP ratio cannot decline without boundaries. At some point, a country's indebtedness simply becomes too large relative to its earning capacity. Then, default will occur and the exchange rate will collapse. Of course, one would hope markets would see the need for adjustment far ahead of this point and arrange for a softer landing.¹⁶ Past currency crises are no great cause for optimism in this respect. Neither is the Icelandic experience in the period 2003-2008. Table 2 shows that from 2003 onward, Iceland's current account saw a trend-like deterioration with parallel adverse developments in the country's net and gross foreign asset position. Only in May 2008 international rating agencies downgraded Iceland from AAA to AA. The actual collapse of Iceland's banks and currency took place early October 2008.

¹⁶ I refer to Krugman (2007) for a thorough discussion on the forward-looking character of market expectations and their role in the dynamics of global imbalances.

Year	Current account	Net foreign assets	Gross foreign liabilities	Gross foreign debt
2003	-4.5	-62.6	146.8	134.3
2004	-8.6	-67.5	191.8	173.0
2005	-16.2	-83.6	325.4	274.2
2006	-26.7	-124.4	506.4	429.0
2007	-20.2	-110.6	626.4	536.6
2008	-54.5	-320.8	932.8	892.7

Table 2 The Case of Iceland (all variables in %GDP)

For surplus countries, it would technically be feasible to have an ever-growing ratio of net foreign assets over GDP. It is hard to see, though, why a country would want to stay in such a position as at some point it would like to convert foreign wealth into domestic consumption. In summary, continuously increasing indebtedness is unsustainable. Continuously increasing wealth accumulation is undesirable – and requires other countries to increase their indebtedness continuously. Overall, the conclusion is that net foreign asset positions need to stabilize as a percentage of GDP at some point, see also Krugman (2007) and Cooper (2008). While the sustainable level of the NFA/GDP ratio is undetermined, it is clear that higher steady state indebtedness raises the interest payments to the rest of the world and puts stronger pressure on the trade balance.

It is not just the net foreign asset position of a country that determines the degree of sustainability and fragility. Other factors play a role of their own and may interact with the level of (negative) net foreign assets. First, a given negative net foreign asset ratio can be the result of infinitely many gross foreign asset and liability levels. Generally speaking, higher gross asset and liability positions increase the susceptibility of the net position to valuation gains and losses and, thus, potentially endanger sustainability. In addition, the composition of assets and liabilities and the currency denomination play a crucial role. The higher the level of gross non-contingent claim liabilities (debt), the more fragile a country's external position is. When simultaneously such country has foreign assets with predominantly a contingent (stock) character, leverage is high as is fragility. This fragility is further increased if the debt is denominated in foreign currency, because the standard adjustment through real exchange rate depreciation now has adverse effects and actually increases the net debt in domestic currency.

Figure 6 provides additional information on the composition of each country's foreign liabilities in relation to its net foreign asset position. Here some assumptions had to be made. Total liabilities have been split up in equity and FDI liabilities on the one hand and all other liabilities on the other. Apart from foreign debt, this last category contains banks' liabilities, derivatives and monetary authorities' foreign liabilities. Especially the derivatives measures in the IIP database are incomplete and unreliable.

No information is available on the currency denomination of the different liability categories or for instance the composition of banks' liabilities. Nevertheless, the picture gives valuable insights.¹⁷

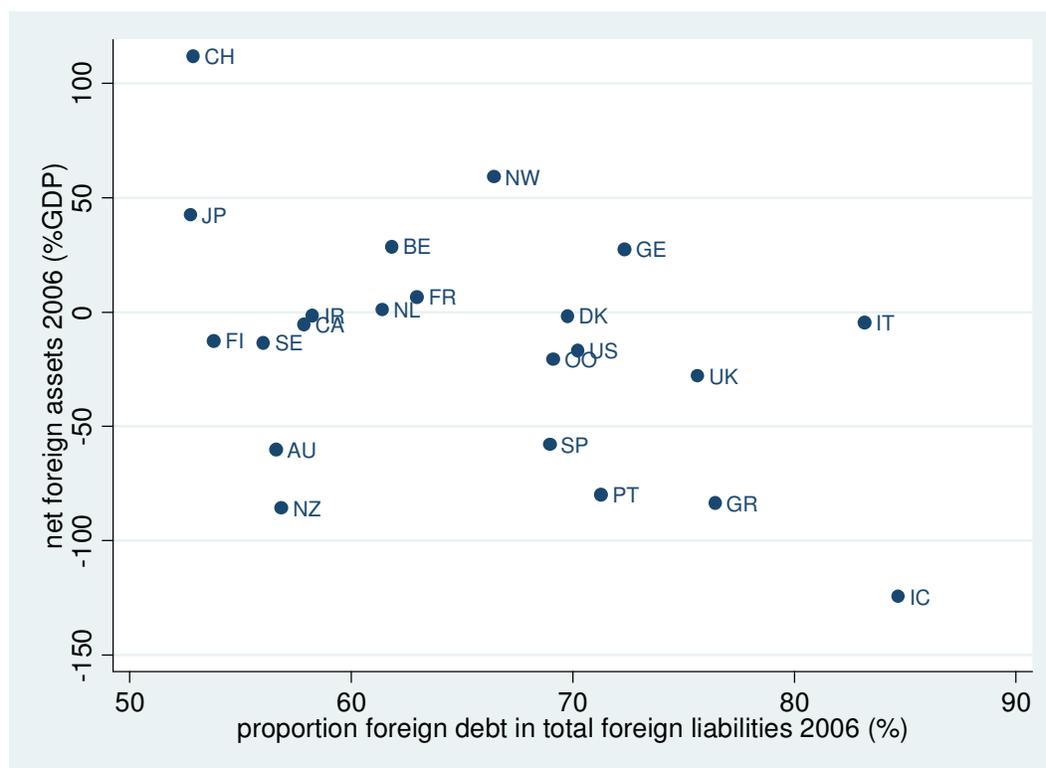


Figure 6 Composition of foreign liabilities

On the horizontal axis, the proportion of foreign debt-like liabilities is given as a percentage of total liabilities. A negative pattern is visible in the data. It suggests that surplus countries tend to have relatively little gross foreign debt (as opposed to FDI and equity liabilities), while deficit countries have relatively high debt liabilities. Consequently, the most risky countries are in the lower-right corner: Iceland, the United Kingdom and most of the South-European euro area countries. These countries combine high foreign debt finance with sizeable negative net wealth positions in 2006. For Iceland the curtain has already fallen. Especially Greece, Spain and Portugal appear to be in the danger zone.

In the literature on global imbalances, it is mostly the US that is blamed for being in an unsustainable position. In the analysis above, however, the US never surfaces as a potential problem. Its gross asset and liability level is relatively low and its external debt position is not extreme. Even when cumulative current account imbalances (around 40 percent) are taken as the relevant measure rather than the net foreign asset ratio (about 17 percent), no urgent problem seems to exist. The reason for this is that our analysis so far is in terms of the country's own GDP. In absolute terms, however, the US deficit is overwhelming and requires about 70-80 percent of the excess savings of the joint surplus countries,

¹⁷ For Mexico, data have only become available recently and for many categories are still missing. In 2006, its net foreign assets position was slightly negative and its proportion of foreign debt below 40 percent. For clarity of exposition, Mexico has been excluded from figure 6.

including the major Asian economies. Here, I will not focus too much on the US position as it is so singular. Not only because of the economy's absolute size but also because of the special role of reserve currency the dollar still has. Suffice it so say that I agree with Krugman (2007) that a significant dollar depreciation at some point will be required. For the moment, there is a catch22 situation with those countries holding dollar reserves unwilling to accumulate more on the one hand but unwilling to let the dollar depreciate and realize a massive capital loss. Clearly, this is unsustainable. While both the timing and the size of the depreciation are uncertain, it will happen. Krugman (2007) also argues that the macroeconomic costs probably will be limited. This may be true for the US. Its relatively closed economy character, the positive effect of a depreciation on its exports as well as the positive wealth effect on its net foreign assets may make a dollar depreciation more of a problem for the rest of the world than for the US. The rest of the world will face both a decline in export demand from the US and a negative wealth effect on its foreign (dollar) assets. As long as this scenario has not realized, it would be wise not to further increase dollar exposure and reduce the addiction we have to the dollar. An attractive and appropriate substitute for the dollar as reserve currency unfortunately is unlikely to be available soon.

Let us turn now to the issue of adjustment and assume we rely on market forces. Then, real interest rates and real exchange rates primarily need to do the job. Typically, theory predicts surplus countries with high and rising net foreign asset positions to have a high and appreciating real exchange rate – and a low interest rate. Capital losses on foreign assets and a higher burden of foreign liabilities will have a negative wealth impact. Simultaneously, the real appreciation will increase imports and reduce exports, thereby causing a decline in the trade balance of the current account. For deficit countries with negative and declining foreign wealth positions the reverse holds. A broad IMF (2007) study shows that current account reversals are normally accompanied with the appropriate real exchange rate changes. However, the same study also concludes that the real exchange rate is insufficient to do the job alone. Moreover, the study is silent as to how long it will take before real exchange rate adjustment starts when persistent imbalances have emerged and, subsequently, how long it then takes for the current account to react.

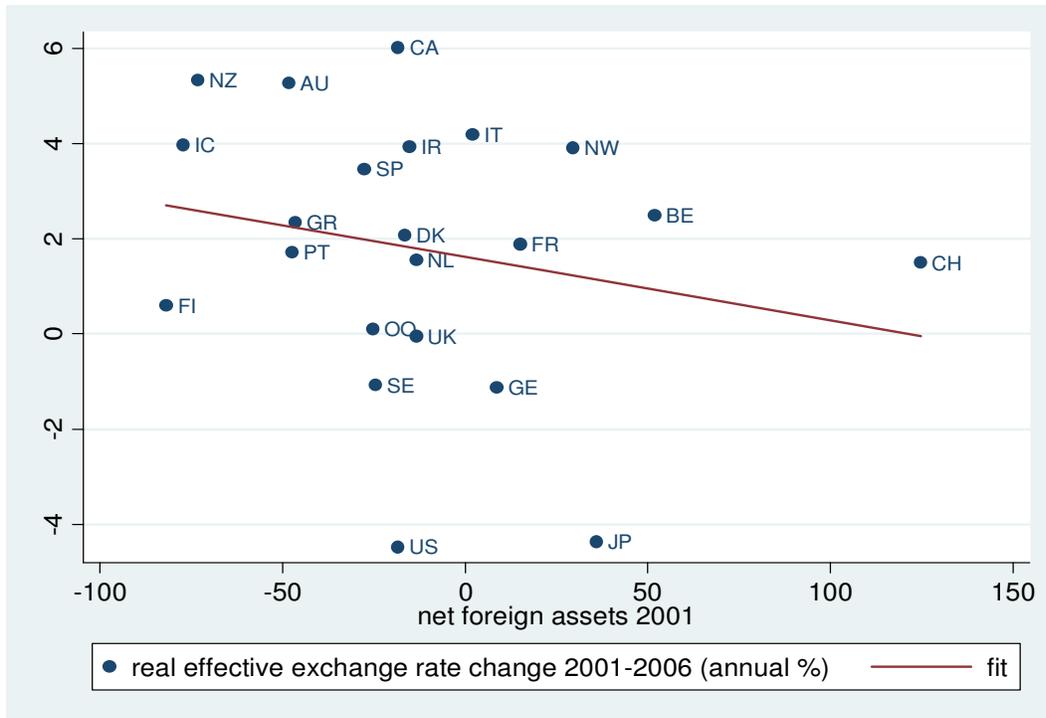


Figure 7 Real exchange rate adjustment

The evidence in figure 7 about the strength and reliability of the real exchange rate mechanism is weak and inconclusive to say the least. On the horizontal axis each country's net foreign asset position in 2001 is presented, while the vertical axis measures the average annual percentage change in the country's effective real exchange rate over the period 2001-2006. In theory, a positive relation would be expected. The graph shows a negative one! The US experience is corresponding to theory, however. A small negative net foreign asset position in 2001 leads to a real depreciation in subsequent years. Not shown here is the fact that due to other factors the real depreciation only had a marginal effect on the US current account over the period. Other indebted countries like Australia and New Zealand, Iceland, Finland, Greece, Spain and Portugal actually saw a real appreciation over the period 2001-2006. Note that Iceland experienced massive depreciation in 2008. In short, while the real exchange rate in the end may step in, there is considerable concern about the horizon at which this will occur, about the level to which the net foreign asset position needs to fall before this happens and about the sharpness of the exchange rate change at that time. Figure 7 throws considerable doubt on this standard adjustment mechanism.

Alternatively, domestic macro policies could be used to help current account reversals to be realized. Empirical evidence suggests that deficit countries often need fiscal consolidation to do this. Obviously, this is not a good time to think about fiscal consolidation. It is concerning though that persistent current account imbalances appear to be met with benign neglect in both deficit and surplus countries. Apparently, it is taken for granted that the imbalance will be compensated without problems on the global capital market. In the short run such assumption may be correct, in the long run it most surely is not as the stock consequences will weigh increasingly on the country. A reconsideration of the

underlying reasons of persistent current account imbalances appears in order. This holds equally for a surplus country like the Netherlands that has failed to build a noticeable net foreign wealth position despite almost three decades of current account surpluses and deficit countries like New Zealand, Portugal and Greece. The latter three countries now have a negative foreign wealth position close to 100 percent of GDP. They should ask themselves whether they believe the continuous inflow of capital that corresponds with their current account deficits is really caused by expectations of relatively high profitability of capital investments in their economies. If not, severe problems are likely to emerge in the future.

For small deficit countries in the euro area like Greece, Spain, Portugal, Italy and Ireland a specific issue arises. Since the start of the euro area in which they participate, their current account imbalances have grown steadily. They run persistent deficits without any apparent consequences as if it were a free lunch. As the euro's behaviour is not primarily determined by their performance, their euro participation appears to provide a perverse incentive and allows consumption in excess of long-run income. But for a given nominal euro exchange rate and common nominal interest rate, the ultimately required real depreciation can only be achieved by domestic contraction that causes a negative inflation differential with the other euro countries. Similarly, the real interest rate can only rise with below average inflation or even deflation. Dramatic domestic macro policies would be required for this to happen. In the current setting, an appropriate real exchange rate or real interest rate adjustment mechanism appears to be missing. In the absence of macro adjustment, it may imply that North-European households and firms "own" most of these Southern European countries' assets. Economically, this may not be a problem, socially and politically it definitely is. More research is needed to analyse causes and consequences of this unique situation.

5. Summary and Conclusions

In this paper, I have analyzed developments in gross and net foreign asset positions for a group of 23 developed countries between 1960 and 2008. Over this period both international trade integration and international financial integration have increased considerably. Higher capital flows and a build-up of stocks of foreign assets and liabilities especially emerge from the early 1990s onward. A brief literature review shows accumulating evidence of the disappearance of once dominant puzzles in international macroeconomics and finance. Home bias in trade and assets has decreased, consumption risk sharing has increased and the link between domestic savings and investments has been broken.

Overall, increased financial integration and international capital mobility is perceived as a good thing. It brings better allocation of resources and new opportunities for international risk sharing. However, the evidence in this paper also shows that financial integration accommodates the emergence of global imbalances. I take 1990 and 2006 as benchmark years to show that for many countries the net foreign asset position has grown. Current account imbalances appear to be highly persistent, leading some countries to have steadily growing net foreign assets and other countries to have steadily growing net foreign liabilities. As of 2006, Iceland's net foreign liabilities significantly exceeded its GDP while also

countries like Portugal, Greece, New Zealand and Australia had net foreign liabilities close to their respective GDP levels.

It is unclear at which level of net foreign liabilities a country's situation becomes unsustainable. Partly this depends on other factors such as the level of gross foreign assets and liabilities, the foreign "leverage" – measured as the proportion of debt in total foreign liabilities – and the currency denomination of foreign assets and liabilities. Information on these other factors is limited. However, gross asset and liability positions keep growing for all developed countries. In addition, it is again Iceland, Portugal, Spain and Greece that have high leverage, making their negative net foreign asset positions more precarious than that of countries like Australia and New Zealand. Finally, easy solutions for adjustment are absent. Preliminary evidence shows that real exchange rate adjustment is an unreliable and unpredictable mechanism at best. Domestic macro policies could substitute for autonomous real exchange rate changes in theory. In practice, current account imbalances suffer from benign neglect in most countries.

In my view it is clear that the issue of global imbalances is underrated in research and policy discussions. To the extent it receives attention, it mostly focuses on the US dollar and the US current account deficit. In an absolute sense, this US bias is understandable as the size of the US negative net foreign asset position implies a heavy claim on the rest of the world's savings. In a relative sense, the US is in a much better position with respect to net foreign liabilities than many other countries, even when leaving aside its exit option through depreciation of the dollar as the world's reserve currency.

Therefore, I conclude that the likelihood for currency and balance of payments will increase in the years to come if timely adjustment is not given higher priority. How to manage this is not straightforward for the reasons mentioned. Potentially, the IMF could play a useful role. After all, the IMF was founded to monitor, supervise and help solve balance of payments problems. It acts as a supra-national supervisor of countries' macroeconomic and financial stability through article IV consultations, press releases and country studies. In my view, it often fails to convincingly take this role. The case of Iceland is a prime example. Despite excessive current account deficits in the period 2003-2006 no early warning came forward from the IMF. Undoubtedly this omission to a large part arose because of the eternal dilemma of the supervisor: publicly warning for unsustainable imbalances may trigger the crisis, while keeping silent provokes criticism ex post. Nevertheless, an institution with the ambition to be the supranational macroeconomic and financial supervisor needs to find ways to warn far enough in advance to avoid the unsustainability to grow out of control.

A simple way to increase both individual countries' awareness of potential current account related unsustainable imbalances would be to require the IMF to make available a set of relevant and uniform risk indicators with respect to the size and sustainability of countries' external positions periodically and to provide a relative ranking of all countries. Obviously more transparency and less ambiguity should be applied than is the case now with the country-specific concluding Article IV statements.

A more ambitious plan that would formalize a stronger role for the IMF, would be to set up a system where each country is to put up an interest free margin requirement – in SDR or gold – on all its gross

foreign liabilities with a debt character. Such a requirement would be similar to margin requirements on futures exchanges and consistent with new regulation for non-financial companies to post margins against derivatives contracts. Implementation of such a system of course requires some additional thinking in design as well as in the consistent measurement of foreign (debt) liabilities. In terms of design, it should be noted that countries in this proposal are seen as the accountable counterparty of the IMF and as such need to come up with the margin requirement (collateral). However, the gross foreign positions are created not only by the government but also and sometimes even predominantly by private financial and non-financial firms. Governments then could be expected to levy a capital tax on these individual businesses and institutions to provide the funds for the margin requirement.

In the end, it would give countries – especially those with large international banking sectors – and financial and non-financial businesses additional incentives to monitor the build up of gross liability positions. It also provides incentives to attract foreign equity of FDI rather than foreign debt and to rely more on intratemporal than intertemporal risk sharing. As such, it might put a brake on an excessive build up of gross foreign liabilities. Simultaneously, it would provide the IMF with a larger pool of funds to use in case of balance of payments crises and to prevent straightforward collapse in emergency circumstances.

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