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International Financial Integration and Japanese Economic Performance

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Abstract

Since 1980, Japan has experienced a boom-bust-recovery cycle in its level of international financial integration that resembles the shifts in its domestic economic activity. Accordingly, we investigate the links between international financial integration and Japanese macroeconomic performance. In addition to formal tests of the impact of international financial integration, we explore the inter-relation between international financial integration and the behaviour of the yen. We pay special attention to the unusual behaviour of Japanese official reserves. Finally, we seek to evaluate the broad impact of external liberalisation on the Japanese financial system.

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1 Introduction

The aim of this paper is to assess the impact of international financial integration on the Japanese economy since the major liberalisation of the capital account that occurred in 1980. In many respects, the evolution of Japan's role in the international financial system has mirrored developments in its domestic economy. During the 1980s, there was rapid growth in Japanese international asset trade at the same time as the domestic equity and real estate markets went into overdrive.[1] The subsequent bursting of the domestic bubble also saw a marked retreat from international financial markets. However, the improvement in domestic economic performance in recent years has also been matched by a resumption of a faster pace of international financial integration.

Accordingly, it is important to understand the linkages between the internal and external dimensions of Japanese economic performance. In which ways did international financial integration act as a stabilising force for the Japanese economy? Were there elements in the nature of the growth of Japan's external asset trade that contributed to the domestic boom-bust cycle during the late 1980s and early 1990s? Has the deepening of international financial integration in recent years contributed to the recovery of the Japanese economy? In this paper, we address these questions by conducting a range of empirical investigations that seek to identify the contribution of international financial engagement in driving Japanese economic performance. In addition, we examine the lessons from the research literature that has studied various dimensions of Japan's international financial integration in providing an overall evaluation of how financial globalisation has affected Japan.

Our analysis of quantitative measures of cross-border financial flows and investment positions is in line with a growing recent literature that has sought to explore the empirics of financial globalisation (see, amongst others, Lane and Milesi-Ferretti 2002, 2003, 2004, 2007). In addition, the paper builds on related research that focuses on the open-economy dimensions of recent Japanese economic performance (see, amongst others, McKinnon and Ohno 1997, Svensson 2004, Ito 2005a, McKinnon 2005) and other contributions on the Japanese current account surplus (Domeij and Floden 2006, Obstfeld 2006). It will also draw on the rapidly-growing literature that explores the impact of financal globalisation on

[1] See Ito (2003a) for an insightful account of the emergence of the asset price bubble and the roles played by the domestic financial sector and policymakers.

trend and cyclical macroeconomic outcomes (a review is provided by Kose, Prasad, Rogoff and Wei 2008).

The rest of the paper is structured as follows. Section 2 provides a brief account of the evolution of *de jure* and *de facto* elements of Japan's integration into the international financial system. We investigate some basic tests of the impact of international financial integration in Section 3. Section 4 turns to the influence of the net foreign asset position on the long-run trend value for the yen, plus the short-run interactions between changes in the net foreign asset position and yen fluctuations. We examine the behaviour of foreign-exchange reserves in Section 5. In Section 6, we turn to an assessment of how international financial integration has affected Japanese macroeconomic performance. Section 7 offers some final conclusions.

2 International Financial Integration

2.1 The Integration of Japan into the Global Financial System

Although Japan had gradually moved towards a more open capital account during the 1960s and 1970s, the New Foreign Exchange Control Law that was introduced in December 1980 marks the most important turning point in liberalising international capital flows between Japan and the rest of the world economy.[2] In particular, the exchange control system shifted from a situation in which all types of capital flows were prohibited unless explicitly allowed to a regime in which all types of flows were permitted unless explicitly forbidden. Accordingly, the 1980s can be taken as the key decade in transforming the relation between Japan and the global financial system.

However, it is also important to emphasise that the capital account liberalisation was by no means complete with the introduction of the New Foreign Exchange Control Law. In particular, important restrictions remained on direct investment in key sectors and foreign-exchange transactions were limited to trade-driven "real demand," while there continued to be restrictions on the ability of Japanese banks to undertake foreign-currency borrowing (the domestic and cross-border inter-bank markets were quite segmented). Many of the remaining restrictions were progressively abolished during the course of the 1980s, with

[2] See Fukao (1990), Takeda and Turner (1992), Bakker and Chappell (2002), Aramaki (2006) for accounts of Japan's approach to capital account liberalisation.

key steps including the abolition of the requirement to link foreign exchange transactions to trade in 1984, the establishment of the Japanese Offshore Market (JOM) in 1986 and the easing of restrictions between the JOM and domestic markets in 1989. However, cross-border financial transactions were not fully liberalised until April 1998.

Moreover, even with progress in *de jure* capital account liberalisation, the limited development of domestic financial markets and the tight regulation of the Japanese banking sector meant that the level and nature of Japan's international financial integration was quite constrained in the early 1980s. Full effective international financial integration required greater progress in domestic financial liberalisation, which occurred in a gradualist fashion during the 1980s and early 1990s. These culminated in the major financial reforms of 1998,with the introduction of the Foreign Exchange and Foreign Trade Control Law.

Accordingly, the Japanese experience fits the classic archetype of undertaking dual liberalisations of the capital account and the domestic financial system, with the complexity of such major shifts encouraging a gradualist approach to reform. Moreover, the international evidence is that the shift from a domestically-focused bank-dominated financial system to a more open and broader financial system carries major transition risks (Mishkin 2006). Some of these adjustment issues were highly relevant in the Japanese case (see, amongst others, Bakker and Chapple 2002).

2.2 An Empirical Profile of the Japanese External Position

In terms of *de jure* financial openness, Figure 1 shows the Chinn-Ito index of capital account openness for Japan over 1970-2005. As described by Chinn and Ito (2007), this index aggregates across a number of dimensions of the capital account regime and shows a progressive liberalisation path during the 1970s, with complete liberalisation mainly in place from the mid-1980s onwards. While quite informative about the regulatory regime, a *de jure* measure does not indicate the quantitative extent to which a a country engages in cross-border financial trade and accordingly the scale of its international financial linkages.

As developed by Lane and Milesi-Ferretti (2001a, 2003), a *de facto* volume-based measure of international financial integration is provided by the sum of foreign assets and foreign liabilities, expressed as a ratio to GDP

$$IFI_{it} = \left(\frac{FA_{it} + FL_{it}}{GDP_{it}} \right) \tag{1}$$

Figure **??** shows the growth in the IFI ratio for Japan over 1970-2006, with the aggregate IFI ratio for the other members of the G7 also included for comparison purposes. The pattern in the data is quite striking, with a catching-up phase during the 1980s in the wake of *de jure* liberalisation, which was followed by a long pause until 2001 and only since then has the pace of international financial integration tracked the trend for the major advanced economies. However, as a result of the long pause, the gross level of foreign assets and liabilities for Japan remains far behind the levels for the other major economies. This is further illustrated in Table 1, which shows the 2006 IFI ratios for a selection of major economies – the Japanese ratio lags the values for the other major economies and the gap is very large vis-a-vis the major international financial centres.

We dig behind the aggregate IFI ratio in Figures 3-6 which track the evolution since 1980 of foreign assets and liabilities for each subcomponent of the international balance sheet: foreign direct investment (FDI), portfolio equity, debt and official reserves. Figure 3 shows the Japan has persistently maintained a net positive FDI position, with a very low level of FDI liabilities until the late 1990s, while the trend for FDI assets has been sharply positive. Figure 3 also indicates a major fluctuation in the level of FDI assets between the mid-1980s and the mid-1990s, with a sharp increase in the late 1980s that was nearly fully unwound during the early 1990s.

The stocks of foreign portfolio equity assets and liabilities are displayed in Figure 4. Japan has had a persistently negative net foreign asset position in portfolio equity, with the gap widening since 2002 due to a near-tripling in the ratio of foreign portfolio equity liabilities to GDP. On the other side of the balance sheet, foreign portfolio equity assets have grown steadily from a near-zero position at the beginning of the 1980s.

We turn to foreign debt assets and liabilities in Figure 5. The dynamics in this category are quite remarkable, with the 1980s characterised by a very rapid accumulation of foreign debt assets and liabilities. This debt boom was followed by a major retrenchment with both debt assets and liabilities falling during 1990-1995. Since then, the level of foreign debt assets has grown by 50 percent relative to GDP but there has been no trend increase in the level of foreign debt liabilities.

Finally, Figure 6 charts the level of official reserves, which remained flat during the 1980s but which subsequently grew rapidly, with an especially large jump between 2002 and 2004. The unusually high ratio of foreign reserves to GDP at the end of the sample period is further highlighted in Table 2, which shows that this ratio is several times higher

for Japan than for other advanced economies.

Taken together, Figures 3-6 show that foreign reserves and private debt assets account for the major proportion of total foreign assets, which stands in contrast to the typical pattern whereby advanced economies are typically longer in equity assets than in debt assets (Lane and Milesi-Ferretti 2007a). In addition, the patterns in the data show that the evolution of international financial integration for Japan has been far from smooth. In particular, the initial burst of cross-border investment in the 1980s was not maintained during the early 1990s and it is only over the last several years that a pace of cross-border financial integration has strongly picked up. In terms of the composition of the international balance sheet, the time series behaviour of the various components has varied tremendously. Accordingly, it is important in empirical analysis to adopt a nuanced approach that allows for differential behaviour across the different categories of cross-border investment.

3 Tests of International Financial Integration

We next turn to a series of basic tests of the impact of international financial integration on various dimensions of macroeconomic behaviour. We begin with a set of indirect tests that explore the implications of financial integration for macroeconomic variables. Next, we examine the properties of net investment income, net capital gains and the rates of return on foreign assets and liabilities. Finally, we turn to the cyclical behaviour of capital flows.

3.1 Indirect Tests

There is an extensive literature that relies on indirect tests of international financial integration. Rather than directly examining cross-border financial flows, this line of work focuses on inspecting macroeconomic outcomes and asks whether the observed macroeconomic behaviour is consistent with international financial integration. Although the test developed by Feldstein and Horioka (1980) is subject to well-known limitations, it remains a natural starting point for this approach, since a basic function of an open capital account is to allow the delinking of saving and investment decisions. The Feldstein-Horioka specification is

$$\Delta \left(\frac{I}{Y} \right)_t = \alpha + \beta \Delta \left(\frac{S}{Y} \right)_t + \varepsilon_t \tag{2}$$

where Feldstein and Horioka interpreted $\beta = 1$ as evidence of a closed capital account. As emphasised by Obstfeld (1986) and a large subsequent literature, this is not necessarily true (for example, global shocks generate positive co-movement between savings and investment rates). Still, since a non-unitary estimate for β shows evidence of some level of international financial flows, it is useful to be aware of whether there is evidence that investment is not fully explained by domestic savings.

In relation to the risk-sharing function of international financial integration, a benchmark prediction is that, subject to some conditions, complete financial integration should deliver perfect comovement in consumption growth rates across countries (see Obstfeld and Rogoff 1996 for a presentation of the benchmark model). Under this condition, Japanese households would only be exposed to global risk factors and would be insulated from purely country-specific risks. In recognition that the hypothesis of complete risk sharing is unlikely to hold, a more general consumption-based test is provided by Obstfeld (1994), who developed the empirical specification

$$\hat{C}_t = \alpha + \beta \hat{C}_t^W + \gamma \hat{NO}_t + \varepsilon_t \tag{3}$$

where hatted variables are expressed as growth rates, C_t and C_t^W refer to domestic and global consumption respectively and $NO_t = Y_t - I_t - G_t$ denotes domestic net output, which is GDP minus investment and government consumption. In benchmark models of perfect financial integration, we would expect $\beta = 1$ and $\gamma = 0$ since all wealth risks are globally shared, leading to perfectly-correlated consumption growth rates. In contrast, financial autarky is associated with $\beta = 0$ and $\gamma = 1$ since consumption is constrained by the domestic resource constraint. Accordingly, estimating this equation provides some useful insights into the nature of international financial integration.

Table 3 shows the results. Column (1) shows the estimates for the Feldstein-Horioka test. The point estimate $\beta = 0.85$ is not significantly different from unity and indeed it is very similar to the cross-sectional estimates obtained in the original Feldstein-Horioka study. However, the R^2 is only 0.62, suggesting that investment is not solely driven by domestic savings behaviour and providing some role for international capital flows. Still, the regression indicates a substantial degree of co-movement between domestic savings and domestic investment. This is confirmed by Figure 9 which shows that both series have moved closely together over the period. While this is not necessarily indicative of segmentation in capital markets, it does suggest that capital account openness has not led

to a complete de-linking of savings and investment for the Japanese economy.

Columns (2)-(4) of Table 3 report estimate for variants of equation (3). We begin in column (2) by setting $\gamma = 0$, such that the null hypothesis is perfect international risk sharing. The results show $\beta = 0.68$, while the null $\beta = 1$ cannot be rejected at the 1 percent level. At face value, this is consistent with a high degree of international financial integration. However, close co-movement between domestic and global consumption growth may also be simply driven by a common factor driving domestic and foreign net output growth. Indeed, we turn to the alternative hypothesis in column (3) by setting $\beta = 1$. The overall explanatory power for this regression is superior to that in column (2), while the estimate $\gamma = 0.64$ is not significantly different from unity. Accordingly, the data are also consistent with a domestic resource constraint being a significant factor in explaining domestic consumption growth, even if the R^2 is far from unity, such that it is clear that the domestic resource constraint is not absolutely binding. However, for the same reason as outlined above, this is not conclusive about the lack of perfect international risk sharing, since the correlation may be driven by a common global factor.

Finally, we run the full specification in column (4). Here, global consumption growth is not significant while domestic net output is highly significant. This regression indicates that Japanese consumption growth is not divorced from the domestic resource constraint; at the same time, the low R^2 also shows that international factors have also been influential in determining consumption behaviour over the period. Figure 10 plots consumption and net output for Japan — it shows that there is a strong common trend that links the two series but also that Japan has run a persistent trade surplus, with net exports peaking (relative to GDP) in the mid-1980s.

3.2 The Cyclicality of Returns on the External Position

Until now we have focused on tests that do not directly examine the properties of cross-border investment positions or international capital flows. We now turn to more direct approaches to evaluating the contribution of the international investment position. As a first step, we examine the properties of the returns on external assets and liabilities. In particular, we ask whether the properties of returns have been stabilising or destabilising for Japan.

As a first step, we examine the cyclicality of net international investment income flows.[3] International investment income relates to interest payments on debt positions, dividends on shares and the profits accruing on foreign direct investment positions. Net international investment income constitutes the primary difference between gross domestic product and gross national income (GNI or, in older terminology, GNP).[4] National income is stabilised if fluctuations in GDP are offets by counter-cyclical movements in net international investment income, which can occur through a decline in the investment income outflows accruing to the foreign holders of domestic liabilities and/or an increase in the investment income inflows earned on domestic holdings of foreign assets.

We run the specification

$$\Delta \left(\frac{NETINVINC}{GDP} \right)_t = \alpha + \beta GROW_t + \varepsilon_t \tag{4}$$

where $GROW$ is the GDP growth rate and we expect $\beta < 0$ in the case of counter-cyclical net international investment income flows.

However, this approach faces several limitations. A basic criticism is that the international investment position can contribute to wealth stabilisation, even if net investment income flows are procyclical. This is possible since the primary payoffs on assets and liabilities may take the form of capital gains and losses. This is especially true for mark-to-market securities with volatile asset prices. However, for an open economy, even assets with stable nominal values can generate capital gains and losses through the impact of currency movements. For instance, unexpected yen appreciation generates a capital loss on dollar-denominated assets for Japanese investors.

To address this possibility, we examine the cyclicality of net capital gains on the external investment position by running the specification

$$\Delta \left(\frac{VAL}{GDP} \right)_t = \alpha + \beta GROW_t + \varepsilon_t \tag{5}$$

where $VAL_t = (NFA_t - NFA_{t-1}) - CA_t$ captures the net capital gain on the international investment position — it is the change in the value of the net external position over and

[3] See also Lane (2001) and Sorensen et al (2007).

[4] The other component of net international factor income is net international labour income, which relates to the earnings of non-resident workers. However, this term is very small for most countries. Over 1997-2007, this term peaked in absolute size in 1993 at a net debit of $800 million.

above the contribution of the current account.[5]

Next, we put the two components together to examine the behavior of aggregate net returns on the external position

$$\Delta\left(\frac{NETRET}{GDP}\right)_t = \alpha + \beta GROW_t + \varepsilon_t \tag{6}$$

where $NETRET_t = NETINVINC_t + VAL_t$.

Equations (4)-(6) are subject to the criticism that the gross levels of foreign assets and liabilities have trended upwards relative to GDP over the sample period. All else equal, this should be associated with a positive trend in the average levels of gross investment income flows and gross capital gains and losses on foreign assets and foreign liabilities. Moreover, the behaviour of net investment income and net capital gains will shift in line with trend shifts in the net foreign asset position.

Accordingly, it is also helpful to directly examine the behavior of gross rates of return on external positions

$$\Delta YLD_t^i = \alpha + \beta GROW_t + \varepsilon_t \tag{7}$$

$$\Delta KGR_t^i = \alpha + \beta GROW_t + \varepsilon_t \tag{8}$$

$$\Delta ROR_t^i = \alpha + \beta GROW_t + \varepsilon_t \tag{9}$$

where $i = A,\ L$, $YLD_t^i = INVINC_t^i / X_{t=1}^i$, $KGR_t^i = (X_t^i - X_{t-1}^i - FLOW_t)/X_{t-1}$ and $ROR_t^i = YLD_t^i + KGR_t^i$ where X_{t-1} denotes the stock of the asset (liability) at the end of period $t-1$ and $FLOW_t^i$ is the gross capital flow in that category during period t.

Table 4 reports the results. In relation to net investment income and the valuation term in rows (1) and (2), there is no evidence of a cyclical pattern in the annual data. This can be explained by examining in detail the underlying returns on foreign assets and foreign liabilities. In particular, there is evidence in row (6) that the return on foreign liabilities is procyclical: Japan makes a higher payout on its foreign liabilities during good times and a lower payout during downturns. In itself, this is a stabilising pattern that contributes to international risk-sharing. The source of this pattern lies in the cyclical behaviour of

[5] See the appendix for more details on the contribution of valuation effects to the overall evolution of the net foreign asset position. Curcuru et al (2008) and Lane and Milesi-Ferretti (2009) have highlighted that data revisions can drive a gap between the measured VAL_t and the true net capital gain. It would be instructive to conduct a similar detailed study of the scale of measurement errors in the Japanese data.

capital gains on foreign liabilities in row (8), while the yield on foreign liabilities is acyclical on average.

However, as is shown in row (3), the return on foreign assets has also been pro-cyclical during the sample period. As is the case for foreign liabilities, the cyclical component is driven by the behaviour of capital gains in row (5). Although the return on foreign assets is less procyclical than the return on foreign liabilities, Japan's net creditor status means that the return on foreign assets has a higher weight than the return on foreign liabilities in driving net investment income and the aggregate net valuation term.

As a cross-check, we also examine lower-frequency patterns in the data. Figure 11 shows the co-movements between the output growth rate and the return differential between foreign assets and foreign liabilities over various sub-periods. The pattern of returns is clearly stabilising, with a correlation between growth and the return differential of -0.88. In particular, we observe a very negative return differential during the 1986-1989 boom years, whereas the return differential was positive during the adverse growth period of 1990-2001. Indeed, the return differential turned negative again during 2002-2005 in tandem with the economic recovery. However, as noted earlier, this stabilising pattern in relative returns did not translate into an aggregate contribution to wealth diversification, since the net creditor status of Japan meant that the return on foreign liabilities mattered less than the return on foreign assets for the overall dynamics of the net external wealth of Japan.

3.3 The Cyclicality of International Capital Flows

In a given period, the gross stocks of foreign assets and liabilities are essentially predetermined, since the positions reflect the past history of accumulation of assets and liabilities. It follows that the outstanding international investment position influences the economy through that rates of returns on these stocks. A second channel by which the international financial system influences macroeconomic variables is through the response of capital flows to domestic shocks.

Accordingly, we examine the cyclical behavior of aggregate net capital inflows

$$\Delta NETK_t^{AGG} = \alpha + \beta GROW_t + \varepsilon_t \tag{10}$$

where $\beta > 0$ indicates a pro-cyclical pattern in net capital inflows. If net capital inflows are pro-cyclical, this may amplify swings in the level of economic activity and/or contribute

to pro-cyclical behaviour in asset prices. In addition to examining aggregate net capital inflows, we run the same specification for each subcomponent of the financial account: net debt inflows (and the sub-elements portfolio debt and non-portfolio debt), net portfolio equity inflows, net FDI inflows and reserve inflows.

Table 5 shows the results. Row (1) shows that aggregate net capital flows have been on average acyclical over the sample period, with the acyclicality also characterising aggregate net private capital inflows in row (2) and portfolio equity inflows in row (6). However, there are cyclical patterns in other components, with portfolio debt inflows and reserve inflows increasing during high growth phases while non-portfolio debt and FDI inflows decrease during booms. Accordingly, there is a clear shift in the composition of capital flows over the cycle, with faster growth associated with a decline in external reserves, an increase in net FDI outflows and non-portfolio debt outflows, which are in part financed by an increase in portfolio debt inflows.

Next, we expand the analysis to ask whether net capital flows co-moved in a systematic fashion with relative asset returns (relative stockmarket returns and the interest rate differential)

$$\Delta NETK_t^{AGG} = \alpha + \beta GROW_t + \gamma STKRET_t + \sigma INTDIFF_t + \varepsilon_t \tag{11}$$

If net capital inflows systematically increase when stockmarket returns are high, this is suggestive that the pattern of capital flows may have contributed to the amplitude in equity returns. In relation to the interest rate differential, a positive response of net capital inflows to a positive interest rate differential may be expected but this represents a mechanism by which the interest rate channel in an open economy is moderated by the capital flow response.

The results are shown in Table 6. In terms of the sensitivity of capital flows to the output growth rate, the pattern in Table 6 is broadly similar to that in Table 5, although significance levels generally increase and aggregate net private capital inflows now significantly decrease during upturns. In relation to asset returns, there is evidence in row (6) that high stockmarket returns are associated with an increase in portfolio equity inflows, while high stock returns are also associated with an increase in portfolio debt outflows in row (4). A more positive interest rate differential is associated with an increase in the accumulation of foreign reserves in row (3) and in the accumulation of portfolio debt net assets in row (4), while it is associated with a decline in FDI outflows in row (7).

Overall, the patterns in Table 6 is that shifts in asset prices are associated with changes in the composition of capital flows. High domestic stockmarket returns are associated with portfolio equity inflows but portfolio debt outflows, while high domestic interest rates are associated with a reduction in FDI outflows but an increase in the accumulation of foreign reserves and foreign portfolio debt assets.

It is also helpful to examine the lower-frequency patterns in the data, even if regressions are not practical in view of the limited data span for multi-year averaged data. Figure 12 plots the behaviour of capital flows over 1980-2006. There are clear fluctuations in the scale and composition of capital flows over the various sub-periods. In particular, the 1986-1989 phase was clearly exceptional. It is the only sub-period in which there are net non-portfolio debt inflows. In addition, it is the only sub-period during which there is a net portfolio equity outflow, while it is also the period in which the largest net outflows in portfolio debt and FDI take place. In contrast, the early 1990s was a period of retrenchment, with 1990-1992 the only period in which the net reserve inflow and the net portfolio debt inflow were positive, while the net FDI outflow also sharply contracted during this period.[6] In addition, non-portfolio debt was paid down during 1990-1997 through net outflows.

This general pattern can be linked to the process of progessive liberalisation of the external capital account and the domestic financial sector. As is detailed in the narrative accounts of Fukao (1990), Osugi (1990), Takeda and Turner (1992) and Bakker and Chapple (2002), the external liberalisation in the 1980s had an asymmetric effects since the restrictions on the domestic financial sector meant that foreign investors had limited effective access to domestic assets. For instance, domestic institutional investors moved to increase the weighting of foreign assets in their portfolios, whereas there was not much capacity for foreign investors to acquire domestic securities during this period.

Moreover, the net non-portfolio debt inflows observed during the late 1980s reflects regulatory arbitrage between a more liberal external regime and a still-restricted domestic financial system. While the segmentation between domestic banks and domestic securities firms and between different lines of banking business remained in place, these constraints were not effective in the overseas operations of financial entities. Similarly, regulatory guidance on the volume of lending primarily applied to domestically-sourced funds. Accordingly, Japanese firms responded by opening overseas affiliates — according to Osugi (1990), the level of FDI outflows in the financial sector surged by 244 percent between April

[6] yen, fdi and banking.

1986 and March 1989 and exceeded the level of FDI outflows in the manufacturing sector during this period. This outward expansion included entry into new business lines with Japanese banks establishing securities firms overseas and Japanese securities firms opening foreign banking operations.

As is documented by Takeda and Turner (1992), much of the cross-border financial trade consisted of inter-office transactions within banks and significant offshore inter-banking lending between the foreign banking affiliates of Japanese entities. In this way, the large net inflow of non-portfolio debt during this period was primarily sourced from domestically-owned overseas banking affiliates, as a device to get around restrictions on the volume of domestically-sourced loans. In turn, much of funding for the overseas affiliates consisted of overseas bond issues that were purchased by domestic institutional investors. Takeda and Turner (2002) also emphasise that the the late 1980s did not see a major increase in foreign activity in the Tokyo financial markets — the strong preference was to engage with Japanese entities in international markets. Tokyo faced significant obstacles in developing an international role, including relatively high taxes on financial transactions.

Accordingly, through such mechanisms, the surge in gross capital flows during the 1980s was substantially connected to the gradualist and incomplete nature of domestic financial reform, whereby domestic financial firms took advantage of external liberalisation to mitigate the impact of domestic regulatory restrictions. In turn, the retrenchment in capital flows during the early 1990s can be linked to the emerging troubles in the domestic banking sector, which led to a withdrawal from external expansion. Moreover, the progressive liberalisation of the domestic financial sector eliminated the rationale for much of the round-tripping activity, such that flows naturally diminished through regulatory convergence between the treatment of domestic and external financial transactions.

4 International Financial Integration and the Exchange Rate

A central link between international financial integration and the real economy is provided by the exchange rate. In one direction, cross-border investment may influence both the trend and cyclical behaviour of the exchange rate. In the other direction, exchange rate shocks are an important source of return fluctuations on foreign assets and liabilities. We

begin by analysing the impact of the net foreign asset position on the long-run trend behaviour of the yen and the implications of the long-run trend for the short-run dynamics of the exchange rate. In turn, this begs the question of why Japan has been a persistent creditor nation, with a sharp upward movement in the ratio of net foreign asset position over time. Finally, we ask whether exchange rate shocks have been an important source of capital gains and losses on the Japanese external position.

4.1 The Net Foreign Asset Position and the Long-Run Real Exchange Rate

A central feature of Japan's engagement with the international financial system has been the systemic accumulation of a sizeable and positive net foreign asset position. We investigate the sources of this persistent creditor position later in this section but first explore the impact of the net foreign asset position on the long-run real value of the yen. This is important since the Japanese experience has also been characterised by trend real appreciation, albeit with considerable fluctuations around this trend.

Although the dominant explanation of trend real exchange rate behaviour relates to productivity differentials, there is increasing evidence that net foreign asset positions and other factors also matter. In particular, the "transfer problem" literature postulates that long-term creditors should experience trend real appreciation. The central mechanism is that a long-term creditor will ultimately run persistent trade deficits that are financed by positive net investment income inflows generated by its net creditor position. In turn, this positive contribution to long-term domestic absorption relative to domestic production places upward pressure on the real exchange rate. Over the last several years, there is an increasing body of cross-country evidence showing the empirical relevance of the transfer effect (see Lane and Milesi-Ferretti 2002, 2004, Galstyan 2007 and Ricci et al 2008). As is shown in Figure 15, Japan's net investment income balance has grown steadily, increasing from 1.2 percent of GDP in 1996 to 2.7 percent of GDP in 2006.

To investigate this channel, we estimate the specification

$$\begin{aligned} REER_t &= \alpha + \beta NFAY_t + \gamma RELPROD_t + \sigma \log(RPOIL_t) \\ &\quad + \lambda RELGCONSY_t + \varepsilon_t \end{aligned} \tag{12}$$

where $REER_t$ is the log of the real effective exchange rate, $NFAY_t$ is the ratio of net foreign assets to GDP, $RELPROD_t$ is the ratio of productivity in the traded sector to productivity in the nontraded sector (expressed relative to the ratio for a weighted average of trading partners), $RPOIL_t$ is the real price of oil and $RELGCONSY_t$ is the ratio of government consumption to GDP (expressed relative to the ratio for a weighted average of trading partners). The $RELPROD$ variable is included to control for the standard Balassa-Samuelson effect, the real price of oil is included to control for the exogenous component of the terms of trade, while government consumption has been found by the IMF to be an important correlate of long-run real exchange rate behaviour through its effect on the sectoral composition of demand. This specification is quite similar to the model adopted by the IMF in estimating equilibrium real exchange rates (Ricci et al. 2008). We consider two measures of the real exchange rate: the CPI-based real exchange rate and one based on relative GDP deflators. While the CPI-based real exchange rate is the most commonly examined measure, the GDP deflator measure provides an additional perspective, since it captures relative output prices across countries.

We estimate equation (12) by dynamic ordinary least squares (DOLS) over the 1980-2005 period.[7]Since these are long-run estimates, the parameters capture the impact of a shift in the long-run components of the regressors on the long-run value of the real exchange rate. The results are reported in Table 7, with the results for the CPI-based real exchange rate shown in column (1) and those for the GDP deflator measure in column (2). In fact, the general pattern of results is very similar across both measures. The estimates show a significant role for the net foreign asset position in explaining the long-run behaviour of the yen: a 40 percentage point increase in the ratio of net foreign assets to GDP (as occurred between 1980 and 2006) is associated with a 36 percent real appreciation of the CPI-based real exchange rate and a 32 percent appreciation of the GDP deflator measure.[8]In relation to the control variables, in line with expectations, an increase in relative sectoral productivity measure is associated with real appreciation, as is a decline in the real price of oil. While the relative government consumption variable is also significant, it enters with a negative sign, the opposite of the pattern that is typically found in cross-country panel

[7]In line with the international evidence, these variables are characterised by unit roots but are found to be cointegrated (the test results are not reported but are available upon request). Accordingly, the DOLS estimator is appropriate. The Johansen cointegration estimator gave similar results.

[8]ext margin. corsetti et al. gal and lane.

studies although the absolute value of the estimated coefficient is also much lower than is normally found.

We plot the fitted values of the CPI-based real exchange rate from the estimated equation (along with the actual value) in Figure 14.[9] The fitted values closely match the medium-term swings in the real exchange rate. Indeed, it is interesting that the fitted model captures the 1993-1995 appreciation of the yen that is typically attributed to non-fundamental factors (Backus 1998, Ito 2005a). However, there remain considerable short-term deviations from the fitted curve.

Next, we explore the short-run dynamics of the real exchange rate by modelling the error-correction representation

$$\Delta \log(REER_t) = \alpha - \delta GAP_{t-1} + \beta \Delta X_t + \varepsilon_t \tag{13}$$

where $GAP_{t-1} = REER_{t-1} - REERFIT_{t-1}$ and X_t is the vector of regressors from the long-run equation. We also explore an alternative specification

$$\Delta \log(REER_t) = \alpha - \delta GAP_{t-1} + \beta \Delta X_t + \gamma Z_t + \varepsilon_t \tag{14}$$

where Z_t is a vector of additional potential influences on the short-run behaviour of the real exchange rate. We include three variables: the interest-rate differential, the stockmarket return and the change in the reserves inflow in period t.

The results are reported in Table 8. In the baseline specification and focusing on the CPI-based real exchange rate, the GAP term in column (1) has a coefficient of -0.53, which indicates a quick reversion to the long-run trend with an estimated half-life of 1.3 years. In terms of the other regressors, the short-run impact effects of the relative productivity variable and the real price of oil are qualitatively similar to the long-run impact. As expected, this short-run relation between the change in the net foreign asset position and the change in the real exchange rate is negative (which is the opposite of the long-run effect), which is the standard type of co-movement in models in which real appreciation and current account deficits go hand in hand in the short run. Finally, the short-run coefficient for the government consumption variable is not significant.

The results for these variables are qualitatively similar in the expanded specification in column (3). With the additional controls, the estimated coefficient on the GAP term is smaller at -0.29 which implies a longer half-life of 2.4 years. In terms of the extra

[9] The figure for the measure based on GDP deflators is very similar.

regressors, the only significant variable is the stock market return — a faster pace of stockmarket appreciation is associated with short-term real appreciation.

In summary, the evidence in this section is that the net foreign asset position is a significant driver of the long-run real value of the yen. Accordingly, Japan's persistent creditor status has influenced the trend behavior of relative prices, with attendant implications for the sectoral composition of domestic output and international trade. Moreover, the long-term factors exert a significant influence on the short-run behaviour of the real exchange rate, via the power of the error correction term. In addition, there is also a short-run relation between the change in the net foreign asset position and the change in the real exchange rate, with the expected difference in sign.

4.2 Determinants of The Net Foreign Asset Position

The significance of the net foreign asset position for the trend behaviour of the Japanese economy, through its impact on net investment income and the real exchange, begs the question of why Japan has been such a persistent creditor. In this section, we seek to model the drivers of the net foreign asset position.

We focus on two main potential drivers of the net foreign asset position : (a) relative demographic structure; and (b) relative output per capita.[10] [11]Shifts in demography operate via their impact on both savings and investment trends. For instance, a projected decline in the working-age population will be associated with higher savings and lower

[10]In a cross-country empirical study, Lane and Milesi-Ferretti (2002) also examined the role of public debt in determining the level of net foreign assets, where the linkage is provided by factors that lead to deviations from Ricardian Equivalence. In their estimates, the connection between public debt and the external position is significant but small for advanced economies, while it is stronger for developing countries. We experimented with adding public debt as a driver of the Japanese external position but it was not significant. Indeed, the basic data suggest that it cannot have played an important role, in that public debt increased strongly in parallel with the accumulation of net foreign assets - the opposite of the pattern predicted by models that point to failure of Ricardian Equivalence.

[11]A recent wave of research has identified differences in the level of financial development and differences in macroeconomic risks as factors that may explain persistent creditor and debtor positions (see, amongst others, Willen 1997, Fogli and Perri, Mendoza et al 2006, Caballero et al 2008). In particular, countries that have less-developed domestic financial markets and/or face greater macroeconomic risk may have higher levels of precautionary savings and also desire to hold highly liquid portfolios. Such considerations may be relevant for Japan, with limited domestic financial development playing some role in the 1980s, and bursting of the bubble inducing greater precautionary behaviour in its aftermath.

investment, as agents respond to the implications of a relative contraction in total output.[12] A parsimonious means to capture this effect is to measure the difference between the current working-age population and the projected future working-age population (since demographic trends are highly predictable), where we take a thirty-year horizon. For the net foreign asset position, what matters are relative demographic trends. Accordingly, the demographic measure is $RELPOPSHIFT_t = (POP_t^J/POP_t^W) - (POP_{t+30}^J/POP_{t+30}^W)$, where a higher value of $RELPOPSHIFT$ corresponds to a large future downward shift in Japan's share of the global working-age population.

The long-run trend in relative output per capita may influence the long-run net foreign asset position for several reasons. According to the "stages of the balance of payments" hypothesis, expected investment returns may be lower in a relatively-rich economy, such that the highest-income countries are natural capital exporters. This is reinforced if savings rates are increasing in income levels, as would be the case under Geary-Stone preferences (Rebelo 2002). That said, much of the recent evidence has indicated an opposite pattern with very high savings rates observed in some developing countries, most notably China.

We run the specification

$$\left(\frac{NFA}{GDP}\right)_t = \alpha + \beta RELPOPSHIFT_t + \gamma RELYC_t + \varepsilon_t \tag{15}$$

and estimate this long-run cointegration equation by DOLS.[13] Table 9 shows the results. The estimates indicate that demography is the dominant factor explaining the long-run behaviour of the net foreign asset position, with the trend improvement in the net external position closely aligned with the trend decline in the projected future Japanese share in the global working-age population.

In addition, the relative level of output is also significant but with a negative sign. While this is contrary to some of the cross-country evidence on the long-run co-movement between relative output and the net foreign asset position, it can be rationalised to the extent that the current level of relative output is taken as a predictor of future relative output (Engel and Rogers 2006). Under such projections, an increase in relative output will be associated with a decline in savings and a reduction in the rate of net foreign asset accumulation. Although short-run factors were also important, this view is consistent with

[12] A prominent role for demographic factors in driving long-term capital flows has been identified in calibrated models, such as Feroli (2003), Domeij and Floden (2006) and Ferrero (2007).

[13] The tests showing cointegration are omitted to conserve space but are available upon request.

the steep decline in the Japanese current account surplus during 1986-1990 during the high-optimism high-growth phase and its subsequent climb during the period of economic stagnation.Figure 16 plots the actual and fitted values for the net foreign asset position. It shows that the net foreign asset position closely tracks the fitted value, although there was a substantial deviation during 1998-1999 at the peak of the global stockmarket boom.

We also examine the adjustment dynamics for the net foreign asset position by estimating the specification

$$\Delta \left(\frac{NFA}{GDP} \right)_t = \alpha - \delta GAP_{t-1} + \beta \Delta X_t + \varepsilon_t \tag{16}$$

where $GAP_{t-1} = (NFA/GDP)_{t-1} - (NFA/GDP)_{t-1}^{FIT}$ and X_t is the vector of driving forces for the net foreign asset position (demographic structure and relative output). The results are shown in Table 10, which indicates a rapid convergence rate to the long-run equilibrium: the half-life is 0.9 years. However, there is no significant short-run connection between the annual changes in the demographic variable or the relative output variable and the annual change in the net foreign asset position.

4.3 The Valuation Channel of Exchange Rate Movements

So far, we have focused on how the net external position influences the real exchange rate. If the currency composition of the asset and liability sides of the international balance sheet is asymmetric, unanticipated currency movements may generate net capital gains that influence the dynamics of the net foreign asset position. Recently, Lane and Shambaugh (2007) have calculated international currency exposures for a large number of countries and developed a framework to analyze the valuation impact of currency movements. In this part, we examine the international currency exposures embedded in the Japanese external position.

For analytical purposes, it is useful to work with the concept of aggregate foreign currency exposure, which Lane and Shambaugh (2007) define by

$$FX_{it}^{AGG} = \omega_{it-1}^{A} s_{it-1}^{A} - \omega_{it-1}^{L} s_{it-1}^{L} \tag{17}$$

where ω_{it-1}^{A} is the share of foreign assets denominated in foreign currencies, s_{it-1}^{A} is the share of foreign assets in the sum of foreign assets and foreign liabilities at the end of period $t-1$ and $\omega_{it-1}^{L}, s_{it-1}^{L}$ are defined analogously. By this definition, aggregate foreign

currency exposure captures the sensitivity of a country to a uniform currency movement by which the home currency moves proportionally against all foreign currencies. In turn, the net impact on the external balance sheet is given by

$$NETFX_{it} = FX_{it}^{AGG} * IFI_{it-1} \tag{18}$$

Figure 13 plots these variables over 1991-2004. The figure shows that the aggregate foreign currency exposure of Japan has trended upwards over the last decade: Japan is "long" in foreign currencies, such that yen appreciation has the potential to exert a significant capital loss on foreign-currency holdings. Figure 17 plots the overall valuation effect ($VAL = D(NFA) - CA$) and the VAL^{XR} variable. For Japan, the correlation is quite high (0.87) such that currency fluctuations have been an important driver of net capital gains for Japan over 1991-2004. Although the Lane-Shambaugh dataset does not extend backwards to the 1980s, we can make an informal calculation of the valuation impact of currency movements during the earlier period by applying the 1990 foreign-currency weights to the 1980s data. The biggest currency-induced valuation effects were during the period of strong yen appreciation during 1985-1986, leading to losses of 2.7 percent of GDP in 1985 and 1.2 percent of GDP in 1986. Wealth shocks of such a magnitude are unlikely to have played much of a role in driving Japanese macroeconomic behaviour during that period.[14]

5 Foreign-Currency Reserves

As was shown in Figure 6, a striking feature of Japan's international financial integration has been the striking increase in the scale of its foreign-exchange reserves. In this section, we seek to understand the factors driving the behaviour of Japanese external reserves.

In a recent comprehensive empirical study, Obstfeld et al (2008) propose that the level of reserves is driven by the overall level of development in the financial sector.[15] In particular, these authors show in a cross-country panel study that the M2/GDP ratio is a robust correlate of the level of reserves. The logic is that a high level of reserves is an important

[14] McKinnon (2005) argues that the wealth effects from yen movements means that the exchange rate is not a useful stabilisation tool. While this argument may greater force today, its quantitative importance was lower during earlier decades.

[15] Lane and Burke (2001) also show evidence of a cross-sectional correlation between financial depth and the level of reserves.

component in assuring financial stability, since depositors in the domestic banking system value the option to convert local currency into foreign currency. Accordingly, an inadequate level of reserves can contribute to a run on the domestic banking system, if depositors fear that savings cannot be converted into foreign currency at the prevailing exchange rate.

However, this hypothesis is at best an incomplete explanation of the behaviour of Japanese reserves, since Figure 18 shows that the pace of reserve accumulation has far outstripped the growth of M2. Indeed, Obstfeld et al (2008) identify Japan as an outlier that cannot be explained by their empirical model. Figure 18 also shows a large increase n the ratio of foreign reserves to total foreign liabilities, such that even broad forms of the Greenspan-Guidotti rule (whereby reserves are required to cover short-term external debt liabilities) are not helpful.

Most of the literature on Japanese reserves has focused on the role of official intervention in influencing the value of the yen (Ito 2007 provides a comprehensive review). This line of work seeks to uncover the (time-varying) strategy that has guided interventions and also to establish whether intervention has been effective in moving the yen in the desired direction and/or in reducing currency volatility. In terms of the effectiveness of intervention in influencing currency values, the evidence from both cross-country data and Japan-specific studies is that any impact on the exchange rate is short-lived (Sarno and Taylor 2001, Fatum and Hutchison 2003, Ito 2003, Ito 2004, Ito 2005a, Ito 2005b, Ito 2007, Fatum and Hutchison 2005, Chaboud and Humpage 2005). Moreover, as is summarisd by Ito (2007), interventions are more effective, the larger is the scale of the intervention and coordinated interventions have more impact than unilateral interventions.

A key finding by Ito (2004) is that the effectiveness of intervention has declined over time: the elasticity of the exchange rate to a given level of intervention in 2003-2004 was only 20 percent of the impact during 1995-2001. While a weaker effect can in part be attributed to shifts in the frequency and predictability of intervention (intervention in 2003-2004 was much more frequent and transparent than during the 1990s), a declining level of effectiveness may also be explained by an increase in the gross magnitude of international capital flows such that a larger volume of intervention is required to have a market impact.

An important strand in the recent literature has analysed whether the 2003-2004 "great intervention" can be interpreted as part of the general quantitative-easing strategy that was initiated in March 2001. Unsterilised purchases of foreign currencies are one mechanism by which monetary aggregates can be expanded and there were several proposals to target

the exchange rate as a mechanism to escape from deflation through a commitment to a higher price level target (Svensson 2004, McCallum 2005). However, an exchange rate target strategy that involves a large initial nominal depreciation faces numerous difficulties, especially in terms of the negative attitude of trading partners to such a move (Mishkin and Ito 2004, Auerbach and Obstfeld 2005). Indeed, an exchange rate target was not pursued by the Japanese authorities.

Even if the exchange rate is not explicitly targeted as a guide to price level expectations, currency intervention still may have a role to play in terms of a general quantitative easing strategy.[16] Taylor (2006) postulates that the great intervention in 2003-2004 was a key element in the quantitative easing strategy that had been launched in March 2001. For the intervention to contribute to quantitative easing, it must be the case that the yen sales by the Ministry of Finance were not fully sterilised by the Bank of Japan.[17]

However, Fatum and Hutchison (2005) show that the growth in foreign exchange reserves during 2003-2004 did not contribute to the quantitative easing during this period. In particular, the expansion of the monetary base by the Bank of Japan began in 2001, whereas the growth in foreign exchange reserves did not begin until 2003. Moreover, Fatum and Hutchison (2005) show that there is no evidence that the Bank of Japan responded to the foreign exchange interventions in 2003-2004 by expanding the monetary base: the quantitative easing was achieved independently of the foreign exchange interventions.

At a broader level, however, Ito (2005b) suggests that the intervention strategy was a success. Ito (2005b) identifies several motivations for Japanese currency intervention, with intervention occurring to mitigate yen appreciation if the economy is faltering or the financial sector is in distress, with an additional tactic of punishing speculators in order to curb yen volatility. From a precarious position at the beginning of 2003, the Japanese economy grew strongly during the latter half of 2003 and 2004, with an attendant recovery in the stock market and the health of the banking system. The foreign exchange intervention contributed to the recovery by limiting the scale of yen appreciation and smoothing out high-frequency surges: Ito (2005b) calculates that the 35 trillion yen intervention during

[16] Spiegel (2001, 2006) provides succinct summaries of the quantitative easing strategy.

[17] Foreign exchange interventions are the responsibility of the Ministry of Finance. These are automatically sterilised in that interventions are funded by the issuing of yen-denominated financial bills. The Bank of Japan would have to engage in open-market operations in parallel with an intervention for it to be associated with an increase in the monetary base.

2003-2004 led to a 13 percent smaller appreciation than would otherwise have been the case. Moreover, intervention was cheap during this period, since the funding cost was low with yen interests rate close to zero and dollar-denominated assets yielding much higher interest payments.

We draw on the factors identified in this discussion to model the annual fluctuations in reserve flows in Table 11. We begin in column (1) by estimating a version of the "leaning against the wind" hypothesis where the target in this case is to moderate the impact of shifts in private capital inflows. The results are quite strong: there is evidence of significant negative co-movement between private capital flows and reserves, with this simple specification having high explanatory power. By this estimate, an increase of one percentage point in the ratio of private capital inflows to GDP is associated with a 0.62 percentage point increase in the ratio of reserve accumulation to GDP. Figure 19 further illustrates the negative co-movement between private capital flows and official reserves.

Much of the literature on foreign exchange intervention has focused on whether intervention is more likely during periods of yen appreciation. Accordingly, we add the rate of real exchange rate appreciation to the specification in column (2).[18] At the same time, we add the change in the M2/GDP ratio in order to formally check the performance of the Obstfeld-Shambaugh-Taylor (OST) hypothesis in the Japanese data. The estimates in column (2) indeed support a "leaning against the wind" pattern in the co-movement between the exchange rate and reserves – periods of yen appreciation are associated with an increase in reserve accumulation. In addition, the growth in domestic financial development is positive and significant, in line with the OST hypothesis.

We extend the specification in column (3). In Table 6 that explored the general cyclical characteristics of all types of capital flows, it turned out that reserves growth systematically covaried with the output growth rate and the interest rate differential. Accordingly, we include these variables in the extended specification. In addition, we wish to examine whether the 2003-2004 great intervention represented a systematic deviation from the general behaviour of reserves – we test this by including a dummy variable $QEDUM$ that takes the value 1 in 2003-2004 and 0 otherwise. It turns out that the inclusion of these

[18] One could argue that nominal exchange rate is the appropriate variable. However, the annual changes in nominal and real exchange rates for Japan are highly correlated. In addition, there is a high correlation between trade-weighted indices (which we use) and the bilateral exchange rate against the US dollar, so the choice of exchange rate measure does not make a substantial difference.

extra variables does not affect the set of results for the baseline set of variables. Among the additional variables, the output growth rate is significantly positive - faster growth is associated with a reserve inflow (a reduction in the level of external reserves). The quantitative-easing dummy is not significant, nor is the interest rate differential.

Columns (4) and (5) repeat the specifications in columns (2) and (3), with the exception that the change in the real exchange rate is separated into two components $DREERFIT$ and $DREEROS$. The former is the "warranted" change in the real exchange in period t, as given by the fitted value from the estimated error correction equation (14). The latter is the "overshooting" component that represents the change in the real exchange rate in excess of the equilibrium shift $DREEROS = DREER - DREERFIT$. The results are quite striking: there is "leaning against the wind" only in relation to the overshooting component of real exchange rate movements. In relation to the other regressors, the only change is that the financial development variable loses significance.

The overall direction of the results in Table 11 is to suggest that foreign-exchange reserves have been deployed to stabilise the economy in the face of swings in private capital flows and overshooting exchange rate behaviour. To the extent that insurance is more valuable during bad times, the negative correlation between reserve accumulation and growth can also be interpreted as an additional form of stabilisation. In our empirical work, we have focused on explaining the annual reserve flow. We did investigate whether reserve flows were also influenced by the outstanding level of reserves — if the authorities have a long-run target for the reserves-GDP ratio then we should expect some degree of mean reversion. However, the lagged level of reserves was never significant. This may be explained by the fact that the sharp accumulation of reserves has been concentrated towards the end of the sample period – in the coming years, it is possible that the level of reserves will be run down towards some long-run equilibrium level.[19]

5.1 The Macroeconomic Impact of Financial Globalisation

In this section, we seek to provide an overall assessment of the impact of financial globalisation on the Japanese economy. In the previous sections, we have already established a

[19] The strong growth in reserves in recent years means that it is also not feasible to fit a long-run model for reserves to the Japanese data. To the extent that Japan is a major outlier in the OST regressions suggests that the long-run level of reserves is substantially below the current value.

set of important stylised facts. In particular, we have explored the cyclical behaviour of rates of returns on foreign assets and capital flows, identified the net foreign asset position as an important influence on the trend for the real exchange rate and established that foreign-exchange reserves have generally been deployed in a stabilising manner. However, our data analysis has also revealed a considerable boom-bust cycle in cross-border asset trade, that broadly mirrors the boom-bust cycle in the domestic economy. We have also noted that the pace of international financial integration has resumed rapid growth over the last decade. Accordingly, our goal is to evaluate the interplay between the external and internal boom-bust cycles, while also assessing the potential impact of the most recent wave of financial globalisation may have on medium-term economic performance.

In the Japanese context, the intertwined and staggered liberalisations of the external capital account and the domestic financial sector make it especially difficult to provide an overall evaluation of the role of international financial integration in the evolution of the Japanese financial sector. During the 1980s, external liberalisation allowed Japanese financial firms to expand overseas, thereby evading the domestic constraints on expansion that were imposed by the segmentation of the domestic financial sector. Outward FDI allowed these firms to learn about the operation of securities markets in major financial centres such as London and New York at a time when the Tokyo financial markets were under-developed. Indeed, it is difficult to envisage that the development of the domestic securities markets could have occurred without a phase of outward FDI by domestic financial institutions. The outward expansion by Japanese banks also facilitated outward FDI by Japanese non-financial corporations. This is a common pattern by which banks follow their customers in new international markets and either directly fund affiliates through inter-office lending or act as an agent for the corporation in raising funds in the host country's financial system. In this way, external account liberalisation was important in facilitating the general outward flow of FDI, even in cases where the direct financial flow associated with the FDI may be limited.

In relation to the international activities of banks, the late 1980s also saw a significant outward expansion by Japanese banks, both in terms of cross-border lending and outward direct investment (Osugi 1990, Takeda and Turner 1992). However, with the benefit of hindsight, it is clear that the quality of much of this outward investment was questionable, with much of the expansion taking the form of low-margin lines of business that could only be profitable if funding costs were low. Once bank capital became more expensive in the

1990s, the Japanese banks reduced the relative scale of their international activities (Takeda and Turner 1992). Moreover, the remaining low-margin international activities proved to be a source of losses during the mid-1990s, especially once a Japan premium emerged in the international inter-bank market during the 1995-1998 period (Peek and Rosengren 2001). Accordingly, losses on these external investments contributed to the declining health of the Japanese banking system, especially with the emergence in 1995 of a significant premium on inter-bank loans to Japanese banks (Peek and Rosengren 2001). A similar dynamic also applies to the behaviour of Japanese real estate companies that leveraged the high value of their domestic land assets in the late 1980s in order to acquire overseas properties (Komiya and Wakasugi 1991). In this way, the ultimate financial losses from the bursting of the domestic property bubble were amplified by hubristic overseas property acquisitions. However, in terms of its quantitative impact, the direct impact of losses on international financial positions cannot have played a fundamental role in the domestic financial crisis, in view of the relatively small scale of external exposures relative to the overall scale of financial balance sheets.

That said, it is possible that the interactions between capital account liberalisation and domestic financial deregulation may have indirectly contributed to the growth of the bubble. For instance, capital account liberalisation allowed large domestic corporates to raise funds on international markets, such that dedicated line-of-business banks serving the corporate sector re-directed credit growth towards the domestic real estate sector, helping to fuel the run up in property values (Pempel 1999). In addition, the limited development of the domestic corporate market limited the range of investment opportunities that were available to absorb domestic savings, such that an excessive proportion of domestic savings were funnelled towards the property sector. By this account, the origin of the Japanese asset bubble is in part attributable that a mis-matched and non-coordinated approach to external and internal financial liberalisation, with the law of unintended consequences meaning that deregulation along one dimension increased the costs of remaining distortions in other parts of the financial system.

Indeed, it is possible to argue that a more complete embrace of financial globalisation may have been helpful during the late 1980s. In particular, a more open domestic financial system may have have encouraged more inward portfolio and direct investment into Japan. By expanding the size of domestic securities markets, this may have relieved pressure on the real estate sector as a funnel for domestic savings. Through greater entry by foreign

banks, this may have improved the quality of lending decisions and raised productivity, possibly avoiding some of the over-lending that occurred in the late 1980s. More generally, Lopez and Spiegel (2006) find that foreign banks have acted as a stabilising force, with total bank lending less volatile than domestic bank lending and foreign banks prepared to underwrite yen-denominated bond issues during periods when the domestic banks lacked the capital to undertake this role. Finally, the evidence in Section 3 was that the rate of return on foreign liabilities is pro-cyclical: a greater proportion of the costs of the slowdown would have fallen on foreign investors under a more open approach to inward financial investment. Even in relation to the surge in outward investment in the late 1980s, much of this failed to provide diversification. In particular, it is clear that a considerable proportion of the cross-border flows during that period can be attributed to round-tripping to escape domestic regulatons, such that the level of substantive foreign investment was much lower than the recorded level.

The idea that external financial integration works best when the domestic financial sector is adequately developed has received considerable empirical support, whether from case studies or cross-country econometric studies (see, amongst others, Mishkin 2006, Obstfeld 2007 and Kose et al 2008). Accordingly, we may expect the more recent wave of financial globalisation that has occurred in recent years to offer more beneficial effects for the Japanese economy. In particular, the large-scale reform of the Japanese financial system that was underwritten by the 1998 "big bang" set of reforms means that the nature of international financial integration now involves a much higher level of inward investment, especially in the financial sector (see Table 12).[20] Since much of the gains to international financial integration accrue through the pro-competitive impact of allowing foreign entry into the domestic financial system, the potential gains may be more solid than in the earlier phases of financial integration.

This view is supported by the international evidence, which has robustly established that financial development is a causal factor in raising long-term productivity (see Levine 2005 for a recent survey). Accordingly, if financial integration has promoted financial development, it may be expected to boost the long-term level of productivity and income. Indeed, Bonfiglioli (2008) and Kose, Prasad and Terrones (2008) report cross-country evidence that financial integration boosts long-term productivity. Moreover, even if the long-term boost to productivity is temporarily masked by the occurrence of a financial crisis in the transi-

[20] See Dekle (1998) and Kawai (2005) on the 1998 reforms.

tion from a closed to an open financial system: the evidence of Ranciere et al (2008) is the long-term gain tends to exceed the costs of short-term crises.

However, there is little direct empirical evidence available for the Japanese case. The results of Lopez and Spiegel (2006) suggest that foreign banks have played a largely positive role in the Japanese financial system. In relation to inward foreign portfolio investment, Ahmadjian and Robbins (2005) document a substantial increase in foreign ownership of Japanese shares, with an increase from 5 percent in 1990 to 20 percent in 2001. These authors conduct a firm-level study that shows that Japanese firms with a significant base of foreign shareholders are more likely to undergo restructuring. However, these authors emphasize that this result only applies to firms that are not too embedded in stakeholder culture and place a high weight on the rights of outside shareholders.[21] It is probably too early to fully assess the productivity impact from the surge in inward FDI in financial and non-financial sectors. Accordingly, the international evidence may be the best current guide to the potential impact of recent financial globalisation on the medium-term prospects for the Japanese economy.

6 Conclusions

Financial globalisation is a multi-dimensional phenomenon that can be analysed from a wide variety of angles. Accordingly, our approach in this paper has been to cast a wide net and examine some of the main issues that arise in evaluating the impact of international financial globalisation on macroeconomic performance. A key further consideration is that the period since 1980 cannot be considered a "steady state," with the gradual twin liberalisations of the external account and the domestic financial sectors generating considerable transition issues as Japan moved away from its traditional tightly-regulated financial system towards the more liberal and open regime that characterises the current financial system.

At one level, the main long-term effect of financial globalisation has been that Japan

[21] Indeed, the potential for outside portfolio investors to play a major role in improving domestic corporate governance may be limited b the nature of firms that attract the interest of foreign investors. Kang and Stulz (1997) find that foreign investors target large, manufacturing firms with good accounting performance. Moreover, exporting firms and those that are cross-listed in the United States are more likely to be owned by foreign investors. Since, by self-selection, these firms are likely to be already well run, the scope for a positive contribution from the addition of foreign portfolio investors is necessarily limited.

has steadily accumulated a large net creditor position. This may confer a potentially large welfare gain, to the extent that Japanese national income is raised into the future by an increasingly positive net investment income position and demographic factors make it appropriate for Japan to have been a long-term net lender to the rest of the world. We have highlighted that a byproduct of the net foreign asset accumulation is long-term pressure for yen appreciation, with the long-term trend also providing an important influence on short-term yen behaviour. We have also shown that financial integration has the potential to offer some level of risk sharing, since the rate of return earned by foreign investors in Japan has been pro-cyclical. However, the quantitative impact of this factor was not large during the 1980s and 1990s, due to the relatively low level of foreign liabilities until recent years.

A striking feature of the Japanese external balance sheet has been the growth in its level of external reserves since the early 1990s, with a strong surge during 2003-2004. This characteristic is atypical in comparison to other advanced economies and is more similar to the recent behaviour of other East Asian economies. We have shown that the dynamics of reserve accumulation has been largely targeted at offsetting swings in private capital flows and overshooting in the exchange rate. However, we may project that improved domestic economic performance will allow the Japanese authorities to decumulate reserves, especially if the health of the domestic banking sector continues to improve.

In view of the boom-bust cycle in international financial integration during the 1980s and 1990s, it is difficult to establish the overall impact of international financial integration on long-term Japanese economic performance. However, we have argued that the nature of financial globalisation in recent years should be more beneficial than in previous phases, especially with the greater openness and improved health of the domestic financial sector. Accordingly, we expect the question to be an important item on the research agenda in the years to come.

Appendix: Accounting Decomposition

It is important to understand current account behaviour in the context of the overall evolution of the net foreign asset position (NFA). As has been emphasised by Lane and Milesi-Ferretti (2001a, 2004a, 2005a), capital gains and losses (i.e. valuation changes) on accumulated holdings of foreign assets and liabilities can swamp current account flows.

Moreover, such valuation effects are growing in importance over time, in line with the spectacular increase in the gross scale of the international balance sheet (the ratios of foreign assets and liabilities to GDP have grown sharply in the last 15 years).

Following Lane and Milesi-Ferretti (2005a), the change in the net foreign asset position can be written as

$$B_t - B_{t-1} = CA_t + KG_t + E_t \tag{19}$$

where B_t is the net foreign asset position, CA_t is the current account balance, KG_t is the capital gain or loss on net foreign assets (equal to the change in stocks minus the underlying flows) and the term E_t includes factors such as capital account transfers (the so-called capital account balance) and errors and omissions that drive a wedge between a country's current account and net inflows of capital. In turn, the current account CA_t equals the sum of the balance on goods, services, and current transfers $BGST_t$ and the investment income balance $YLD_t = i_t^A A_{t-1} - i_t^L L_{t-1}$, where A and L are external assets and liabilities, respectively, and i_t^A, i_t^L are the nominal yields on these assets and liabilities.

Indicating ratios to GDP with lower-case letters, we can express equation (19) as follows

$$b_t - b_{t-1} = bgst_t + \frac{i_t^A A_{t-1} - i_t^L L_{t-1}}{Y_t} + \frac{KG_t}{Y_t} - \frac{g_t + \pi_t}{(1+g_t)(1+\pi_t)} b_{t-1} + \varepsilon_t \tag{20}$$

where g_t is the growth rate of real GDP, π_t is the inflation rate, and the term ε_t includes the ratio of capital transfers and errors and omissions to GDP. The second and third term on the right-hand-side of equation (2) captures the effect of nominal returns on external assets and liabilities on the evolution of the external position. To see this more clearly, define kg_t^A (kg_t^L) as the ratio of the capital gain on external assets (liabilities), measured in domestic currency, to the outstanding stock of external assets (liabilities) at the beginning of the period, so that $KG_t = kg_t^A A_{t-1} - kg_t^L L_{t-1}$. Then the gross real rate of return on foreign assets, measured in domestic currency, will equal $1 + r_t^A = (1 + i_t + kg_t^A)/(1 + \pi_t)$, and an analogous definition will hold for the rate of return on foreign liabilities $1 + r_t^L$. Using these definitions, we can derive

$$b_t - b_{t-1} = bgst_t + \frac{r_t^L - g_t}{1+g_t} b_{t-1} + \frac{r_t^A - r_t^L}{1+g_t} a_{t-1} + \varepsilon_t \tag{21}$$

This framework delivers several important insights. First, all else equal, a trade surplus improves the net external position. Second, there is a standard term to capture the impact of the gap between the rate of return on liabilities and the output growth rate, as is familiar

from traditional analysis of debt dynamics. Third, when rates of return on external assets and liabilities differ, the gross scale of external assets and liabilities matters in addition to the net position, as is shown by the third term on the rightside of equation (21).

Equation (21) in the text can also be written as

$$b_t - b_{t-1} = bgst_t + \frac{r_t^W - g_t}{1+g_t} b_{t-1} + \frac{(r_t^A - r_t^W)}{1+g_t} a_{t-1} - \frac{(r_t^L - r_t^W)}{1+g_t} l_{t-1} + \varepsilon_t \qquad (22)$$

where r_t^W is the 'global' (or average) rate of return. Equation (22) highlights that global fluctuations in returns affect the net external position to the extent that a country is a creditor or debtor: an increase in the 'global' rate of return improves the net foreign asset position of a creditor but is adverse for a debtor.

In addition, 'asymmetric' return shocks - the deviations of returns on foreign assets and liabilities from the global return - is proportional to the gross scale of foreign assets and liabilities relative to GDP. The propensity for deviations from the global (average) rate of return depends on an array of factors. Among the most important are the external capital structure of a country - the split between equity and debt on each side of the international balance sheet - and the currency composition of external assets and liabilities.

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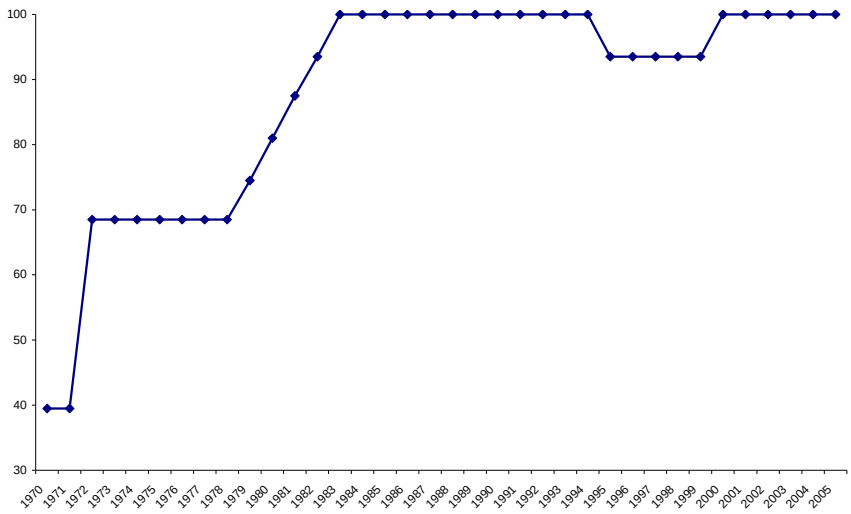

Figure 1: Chinn-Ito Index of Capital Account Openness.

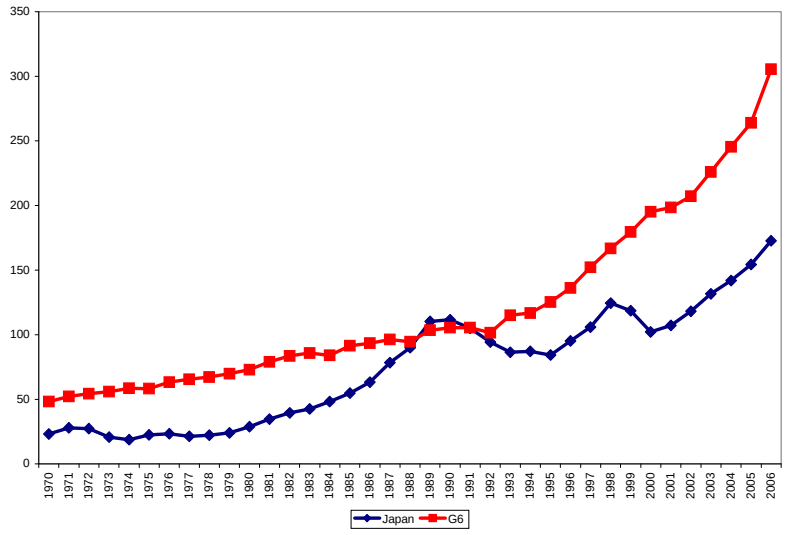

Figure 2: International Financial Integration Ratio: Japan versus the G6.

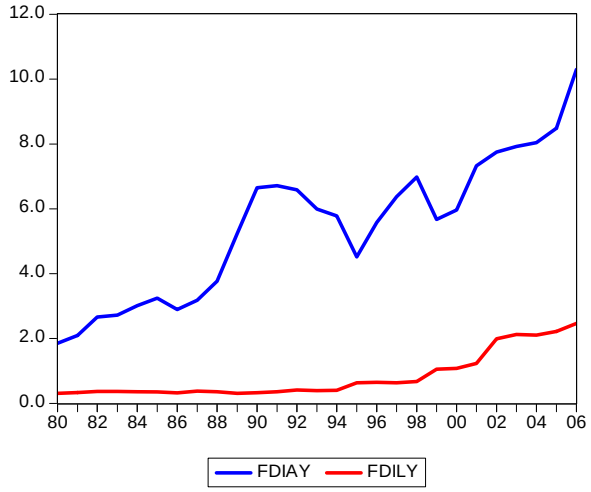

Figure 3: Direct Investment: Foreign Assets and Liabilities

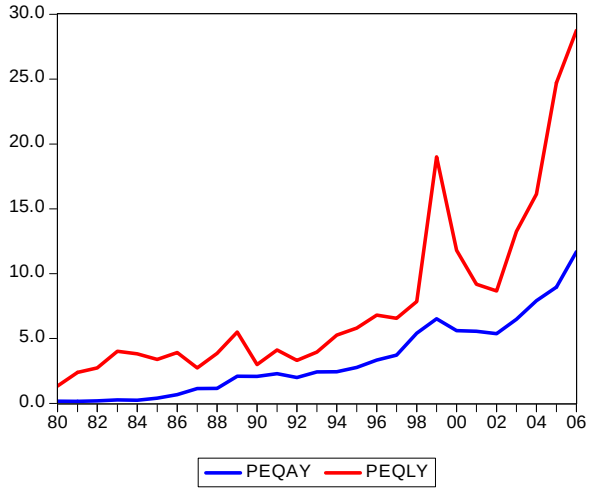

Figure 4: Portfolio Equity: Foreign Assets and Liabilities

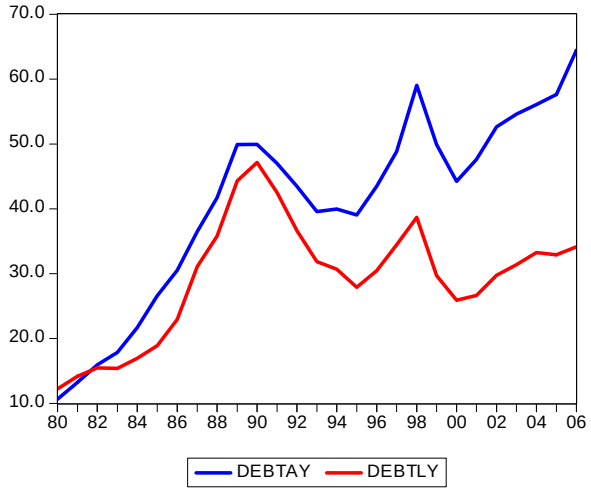

Figure 5: Debt: Foreign Assets and Liabilities

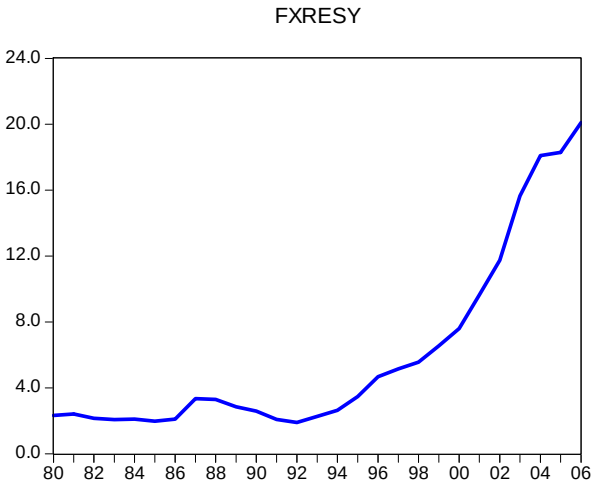

Figure 6: Foreign Reserve Assets

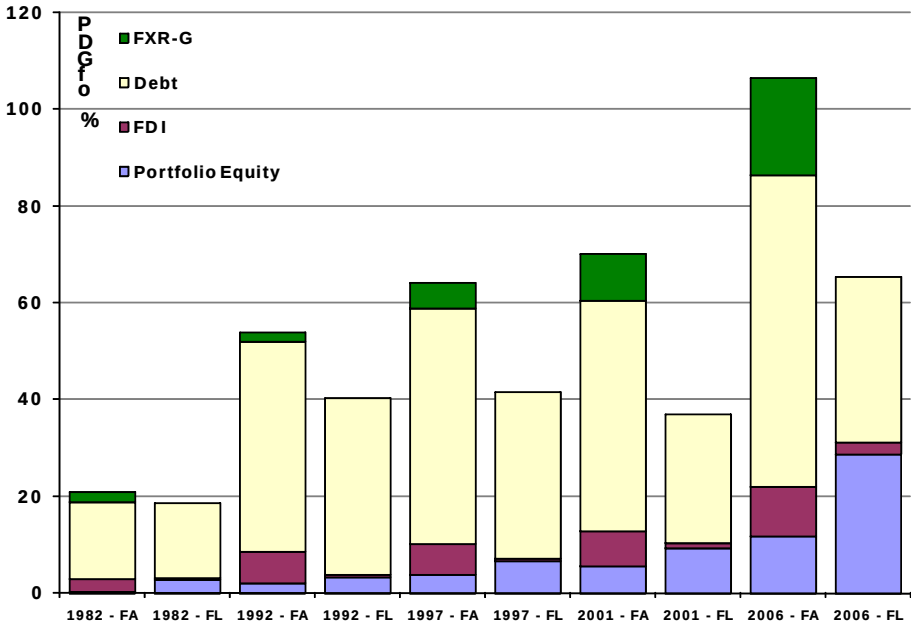

Figure 7: Composition of External Balance Sheet

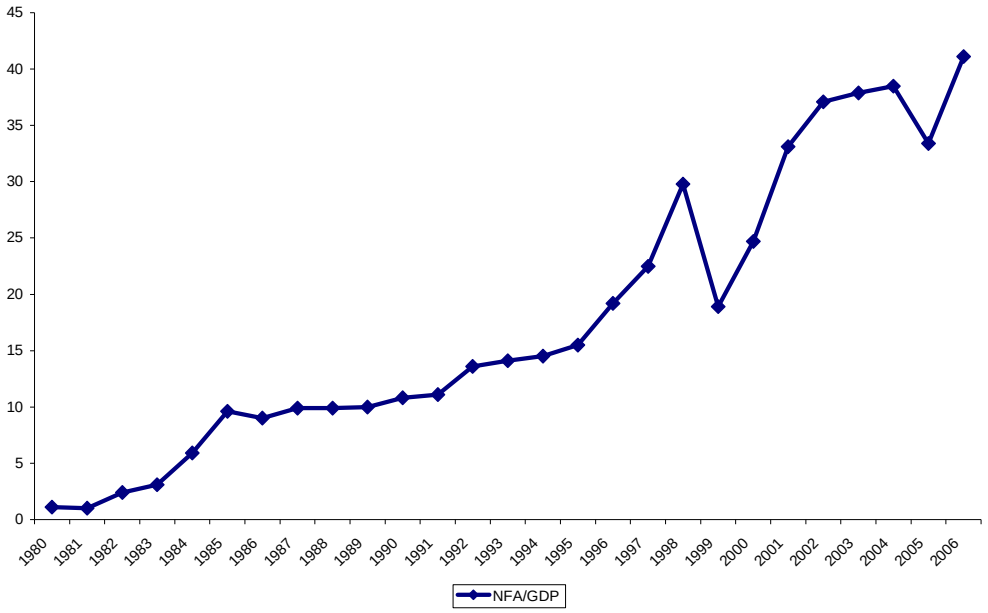

Figure 8: Net Foreign Asset Position.

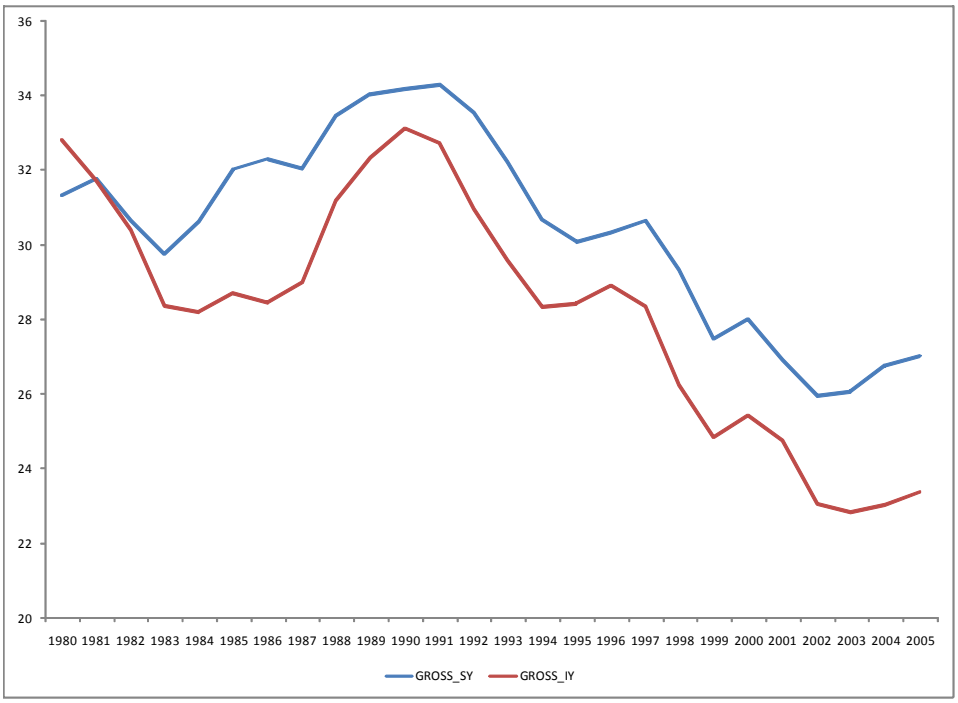

Figure 9: Feldstein-Horioka: Savings and Investment Rates

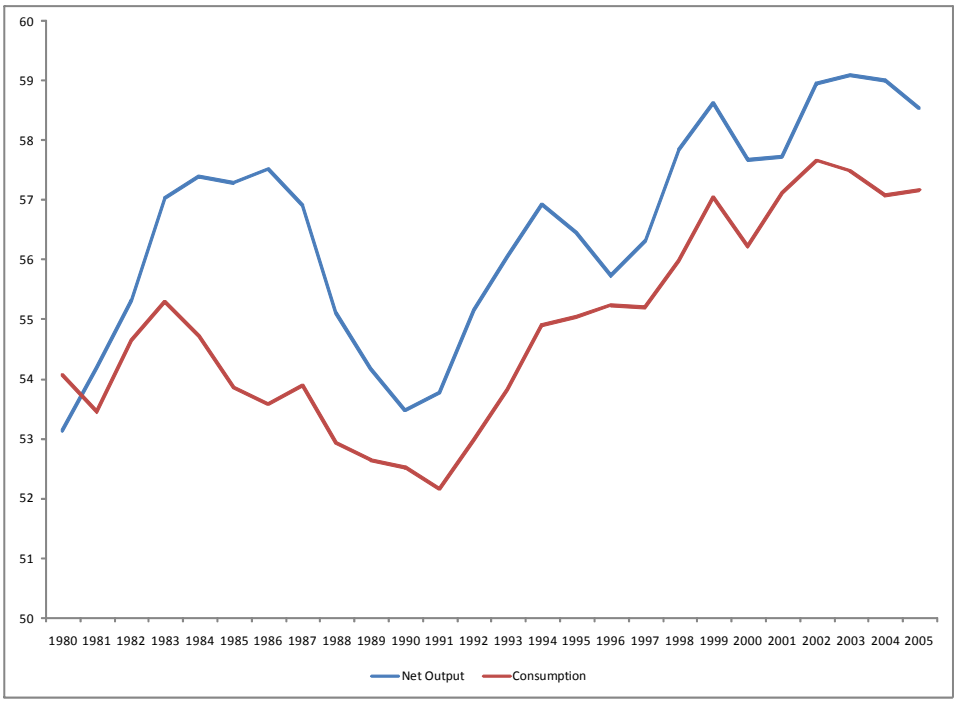

Figure 10: Net Output and Consumption

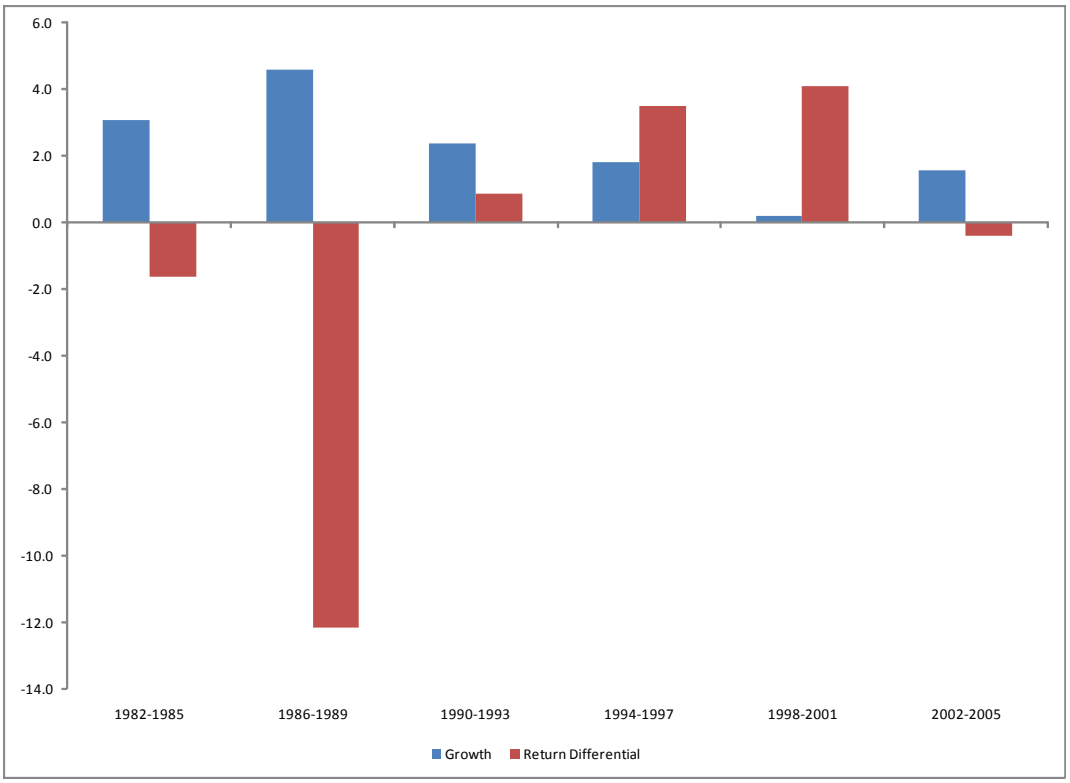

Figure 11: External Returns and Economic Growth

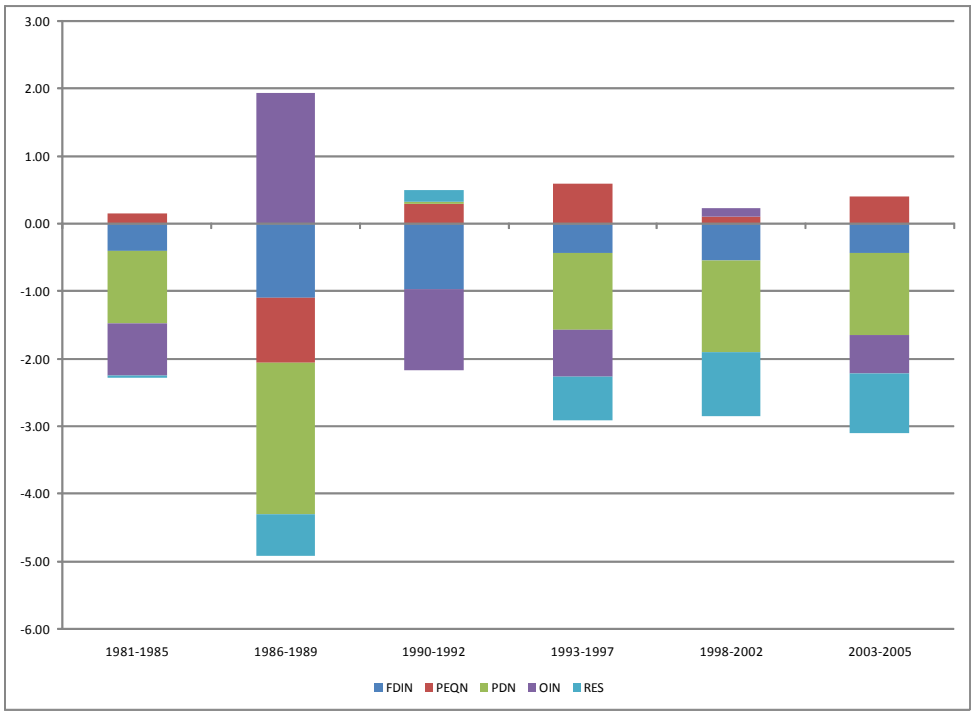

Figure 12: Composition of International Capital Flows

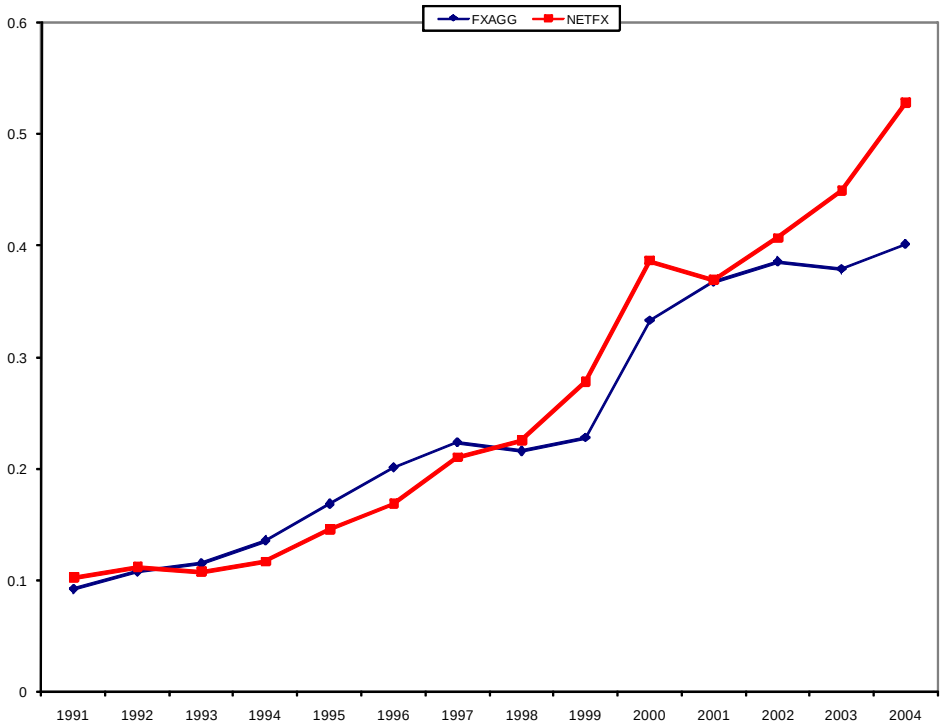

Figure 13: Foreign Currency Exposure

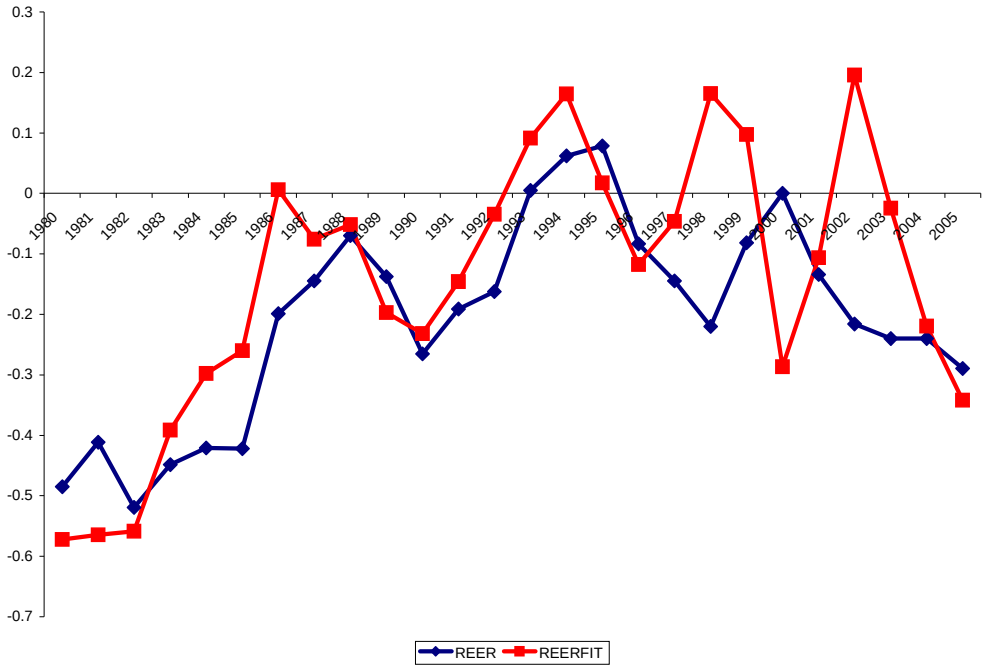

Figure 14: Actual and Fitted Values of Real Exchange Rate

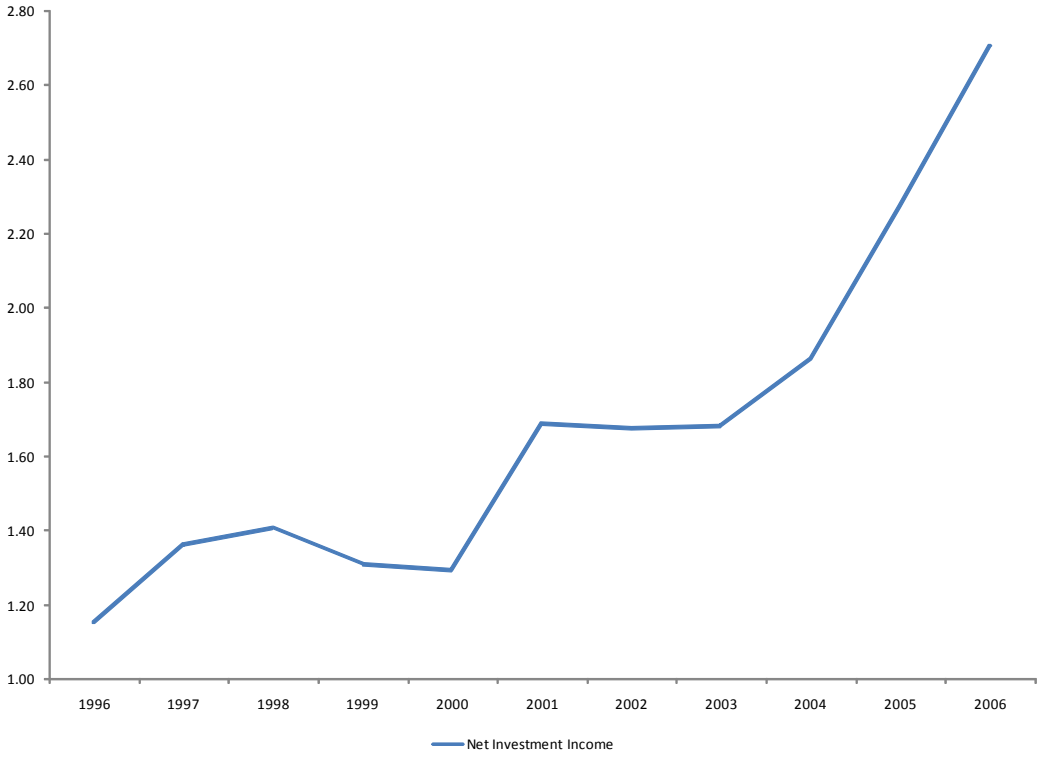

Figure 15: Net Investment Income

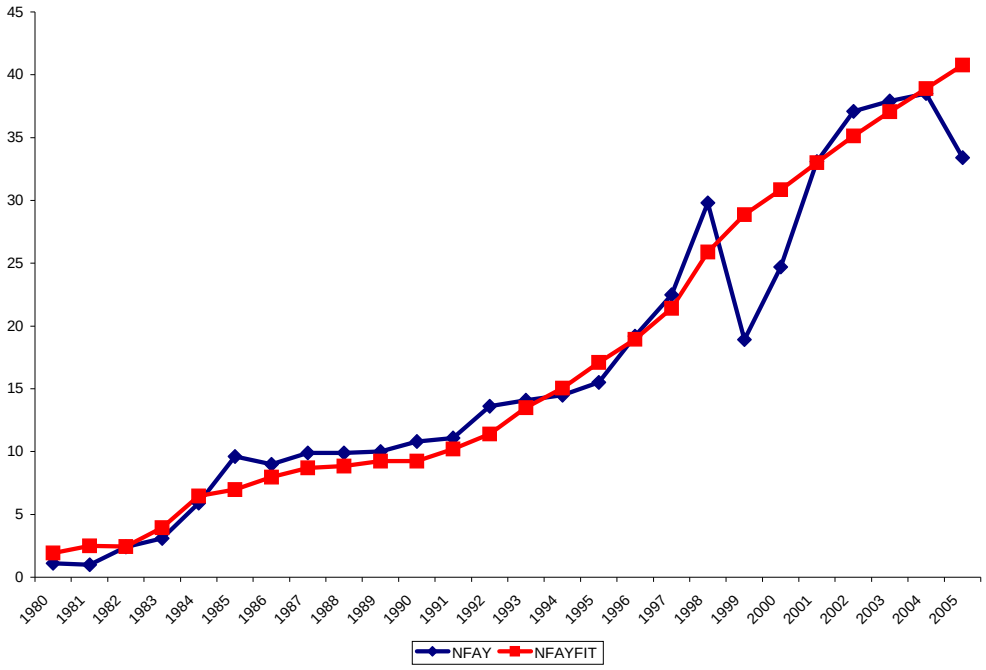

Figure 16: Actual and Fitted Values of Net Foreign Asset Position

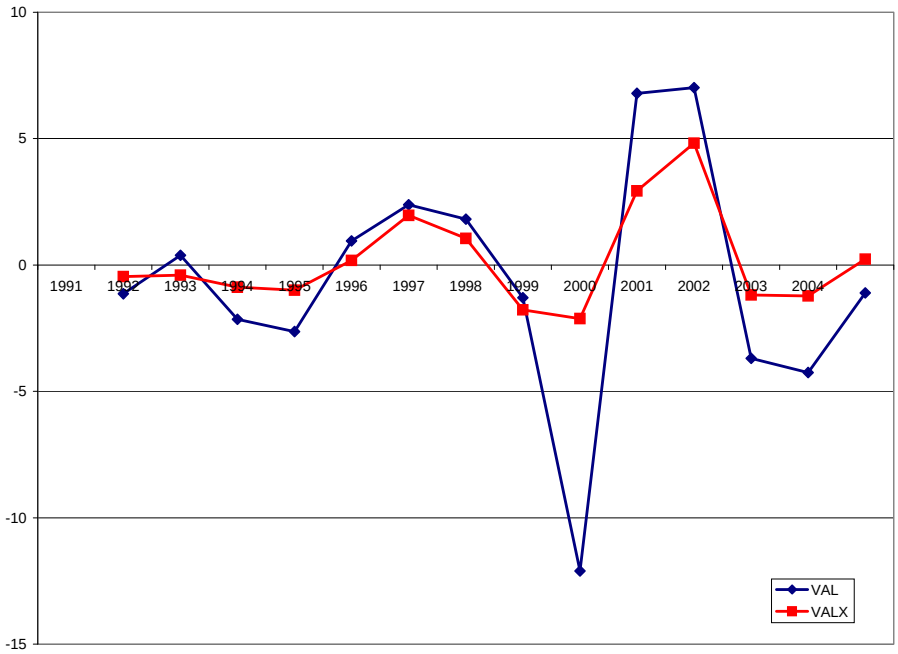

Figure 17: The Valuation Impact of Currency Movements.

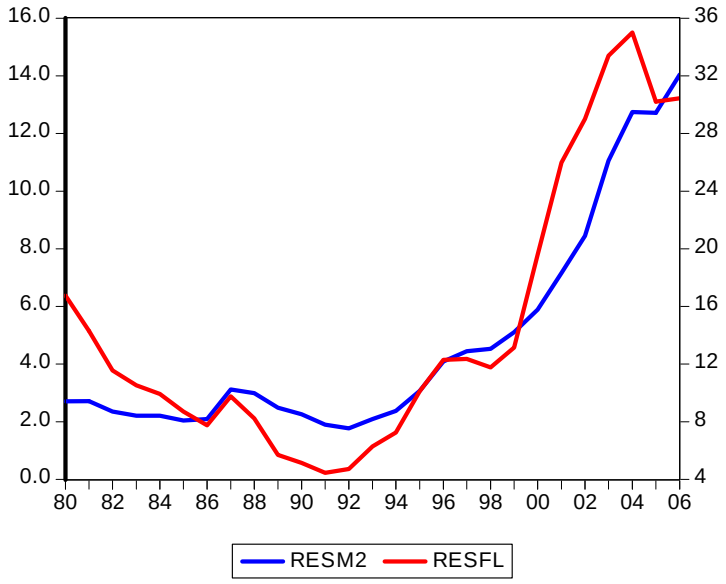

Figure 18: Official Reserves in Relation to Financial Development and Foreign Liabilities

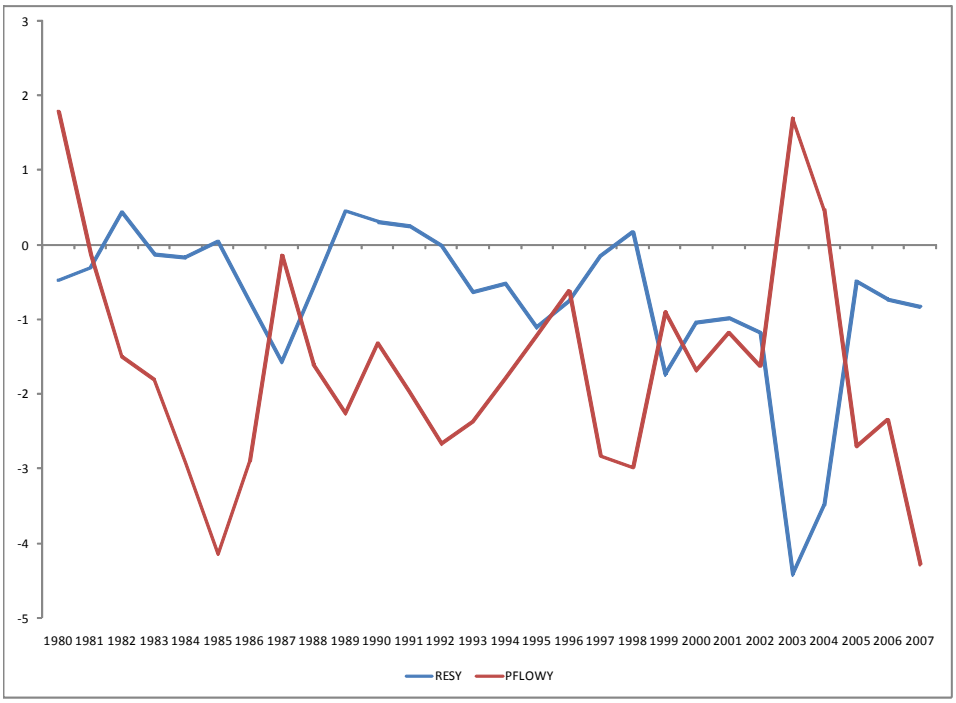

Figure 19: Official and Private Capital Flows

Table 1: International Financial Integration Ratios, 2006

	IFI
United States	245.6
United Kingdom	898.4
Switzerland	1136.7
Canada	218.0
Japan	**173.1**
Euro Area	318.3
China	103.9

$IFI = (FA+FL)/GDP$. Source: Author's calculations, based on Lane and Milesi-Ferretti (2007).

Table 2: Foreign-Exchange Reserves, 2006

Country	Reserves/GDP
United States	0.4
United Kingdom	1.7
Switzerland	10.1
Canada	2.8
Japan	20.1
Euro Area	1.9
China,P.R.: Mainland	40.6

Foreign-exchange reserves, expressed as ratios to GDP. Source: Author's calculations based on Lane and Milesi-Ferretti (2007).

Table 3: Tests of International Financial Integration

	(1)	(2)	(3)	(4)
	$\Delta\frac{I}{Y}$	$\hat{C}$	$\hat{C}$	$\hat{C}$
α	-0.25 (1.2)	0.002 (.23)	0.01 (1.8)*	0.01 (.41)
$\Delta\frac{S}{Y}$	0.85 (7.6)***			
$\hat{C^W}$		0.68 (3.85)***		0.14 (.38)
$\hat{NO}$			0.64 (3.7)***	0.62 (3.1)***
$p(coeff. = 1)$	0.19	0.03	0.04	0.07/0.03
$Adj.R^2$	0.62	0.26	0.39	0.36

***,**,* denotes significance at the 1, 5 and 10 percent levels respectively. t-statistics based on Newey-West standard errors.

Table 4: Cyclical Behaviour of External Returns

		α	GROW	$Adj.R^2$	DW
(1)	D(Net Investment Income)	0.13 (2.7)**	0.015 (1.1)	0.04	2.03
(2)	D(Valuation Term)	-0.81 (1.5)	0.24 (1.55)	0.25	2.15
(3)	D(Return on Foreign Assets)	0.3 (.2)	2.65 (2.16)**	0.19	2.28
(4)	D(Yield on Foreign Assets)	3.8 (12.4)***	-0.06 (.55)	0.35	1.7
(5)	D(Capital Gain on Foreign Assets)	-4.3 (2.1)**	2.13 (1.73)*	0.13	2.23
(6)	D(Return on Foreign Liabilities)	-0.64 (.24)	3.55 (2.27)**	0.21	2.27
(7)	D(Yield on Foreign Liabilities)	2.3 (7.5)***	-0.1 (0.9)	0.58	2.03
(8)	D(Capital Gain on Foreign Liabilities)	-4.4 (1.5)	2.9 (1.84)*	0.15	2.24

***,**,* denotes significance at the 1, 5 and 10 percent levels respectively. t-statistics based on Newey-West standard errors.

Table 5: Cyclical Behaviour of Capital Flows

		α	GROW	$Adj.R^2$	DW
(1)	D(Net Capital Inflows)	-0.27	0.014	-0.04	1.71
		(1.4)	(.21)		
(2)	D(Net Private Capital Inflows)	0.18	-0.14	-0.01	2.01
		(.57)	(1.6)		
(3)	D(Reserves Inflow)	-0.37	0.15	0.03	2.16
		(1.59)	(2.75)**		
(5)	D(Portfolio Debt Inflow)	-0.55	0.26	0.04	2.93
		(2.1)**	(2.33)**		
(6)	D(Non-Portfolio Debt Inflow)	0.53	-0.33	0.08	1.8
		(1.56)	(3.07)***		
(7)	D(Portfolio Equity Inflow)	-0.1	0.04	-0.04	3.1
		(.3)	(.33)		
(8)	D(FDI Inflow)	0.07	-0.045	0.06	1.5
		(1.2)	(2.62)**		

***,**,* denotes significance at the 1, 5 and 10 percent levels respectively. t-statistics based on Newey-West standard errors.

Table 6: Capital Flows, Growth and Financial Markets

		α	GROW	STKRET	INTDIFF	$Adj.R^2$	DW
(1)	D(Net Capital Inflows)	-0.16	0.005	0.17	0.03	-0.12	1.71
		(.57)	(.07)	(.33)	(.43)		
(2)	D(Net Private Capital Inflows)	0.65	-0.19	1.05	0.18	-0.02	2.05
		(1.4)	(1.95)*	(.87)	(1.57)		
(3)	D(Reserves Inflow)	-0.81	0.2	-0.88	-0.14	0.05	2.25
		(2.51)**	(3.29)***	(.86)	(1.93)*		
(4)	D(Portfolio Debt Inflow)	-1.3	0.36	-2.96	-0.26	0.2	2.97
		(3.2)***	(3.7)***	(4.83)***	(2.45)**		
(5)	D(Non-Portfolio Debt Inflow)	1.24	-0.4	1.84	0.23	0.12	1.9
		(2.51)**	(5.1)***	(1.5)	(1.6)		
(6)	D(Portfolio Equity Inflow)	0.18	-0.02	2.31	0.11	0.09	2.72
		(.3)	(.18)	(2.01)*	(.9)		
(8)	D(FDI Inflow)	0.29	-0.06	-0.09	0.06	0.28	2.02
		(2.41)**	(3.1)***	(.36)	(2.44)**		

***,**,* denotes significance at the 1, 5 and 10 percent levels respectively. t-statistics based on Newey-West standard errors.

Table 7: Net Foreign Assets and the Real Exchange Rate

	(1) $REER$ CPI	(2) $REER$ $PGDP$
α	1.8 (10.1)***	2.1 (12.2)***
NFA	0.91 (4.8)***	0.8 (4.4)***
Relative Productivity	2.03 (3.7)***	2.07 (4.01)***
Oil price	-0.44 (16.3)***	-0.48 (19.4)***
Relative Government Consumption	-1.05 (4.3)***	-1.15 (4.8)***
$Adj.R^2$	0.62	0.64

***,**,* denotes significance at the 1, 5 and 10 percent levels respectively. t-statistics based on Newey-West standard errors.

Table 8: Adjustment Dynamics: Real Exchange Rate

	(1) $REER$ CPI	(2) $REER$ $PGDP$
α	-0.01 (.9)	-0.01 (.9)
GAP(-1)	-0.53 (6.6)***	-0.52 (6.5)***
NFA	-1.3 (2.9)***	-1.4 (3.0)***
Relative Productivity	0.74 (2.7)**	0.79 (2.8)**
Oil price	-0.23 (2.2)**	-0.25 (2.3)**
Relative Government Consumption	-0.31 (.39)	-0.44 (.5)
$Adj.R^2$	0.5	0.5

***,**,* denotes significance at the 1, 5 and 10 percent levels respectively. t-statistics based on Newey-West standard errors.

Table 9: Determinants of Net Foreign Asset Position

	(1)
α	143.6 (25.2)***
DEMOG	-96.9 (17.2)***
Relative Output	-30.2 (3.3)***
$.AdjR^2$	0.94

***,**,* denotes significance at the 1, 5 and 10 percent levels respectively. t-statistics based on Newey-West standard errors.

Table 10: Adjustment Dynamics: Net Foreign Asset Position

	(1)
α	0.08 (.05)
GAP(-1)	-0.77 (5.5)***
DEMOG	-71.1 (.66)
Relative Output	-5.5 (.2)
$Adj.R^2$	0.26

***,**,* denotes significance at the 1, 5 and 10 percent levels respectively. t-statistics based on Newey-West standard errors.

Table 11: Correlates of Foreign Exchange Reserves

	(1)	(2)	(3)	(4)	(5)
α	-0.1	-0.23	-0.4	-0.18	-0.43
	(.86)	(1.99)*	(2.4)**	(.94)	(1.86)*
PFLOW	-0.62	-0.61	-0.58	-0.65	-0.6
	(4.5)***	(4.1)***	(3.69)***	(4.56)***	(3.83)***
DREER		-2.12	-2.1		
		(2.02)*	(2.55)**		
D(M2Y)		0.06	0.06	0.066	0.06
		(1.85)*	(2.51)**	(1.3)	(1.46)
INTDIFF			-0.01		-0.05
			(.01)		(.9)
GROW			0.08		0.08
			(2.3)**		(2.09)*
QEDUM			-0.4		-0.5
			(.9)		(.8)
DREEROS				-4.98	-5.05
				(2.15)**	(1.99)*
DREERFIT				2.02	1.81
				(1.54)	(1.39)
R2	0.68	0.71	0.7	0.75	0.73
DW	1.77	1.52	1.67	1.75	1.89

***,**,* denotes significance at the 1, 5 and 10 percent levels respectively. t-statistics based on Newey-West standard errors.

Table 12: FDI Transactions in the Financial Sector

	Inward Cases	Value	Outward Cases	Value
1989	40	235	316	20,424
1990	64	159	233	11,802
1991	27	1,203	167	6,813
1992	16	190	194	5,962
1993	19	40	190	7,265
1994	44	687	153	6,872
1995	63	1,001	123	5,272
1996	50	273	113	8,760
1997	86	1,616	171	14,688
1998	200	4,569	317	21,000
1999	208	5,115	432	11,029
2000	300	10,293	679	9,341
2001	359	6,608	791	13,455
2002	400	6,468	1,097	15,604
2003	473	10,179	1,329	8,634
2004	626	29,767	1,579	12,483

Note: Data are from Japanese Ministry of Finance. Value of deals in units of 100 million Yen.

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