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INVESTIGATION FROM THE INTERNATIONAL  
BALANCE SHEET PERSPECTIVE

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# The External Wealth of China: An Investigation from the International Balance Sheet Perspective

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## Abstract

International financial integration has accelerated at an unprecedented pace in recent years. External holdings of financial assets and liabilities for both industrial and emerging countries have grown rapidly since the mid-1990s, many times exceeding their respective national income, and traditional surveillance methods using flow data are increasingly incapable of satisfactorily explaining the recent major global economic developments. Using Lane and Milesi-Ferretti's (2006) rich data-set of external positions for 145 countries from 1970 to 2004, this paper selects several issues to highlight the usefulness of balance sheet analysis as a tool for historical understanding and to examine how it can help in an analysis of possible future vulnerabilities. Starting from a global overview, the study looks at China from a comparative angle vis-à-vis the world and the rest of Asia, and finally focuses on the evolution of the external position of China. Although the investigations are preliminary in nature, this paper demonstrates how China has emerged as an important net creditor in an increasingly integrated world and suggests that as China becomes more important globally as a net creditor, the balance sheet analysis of trends and a clearer focus on real total rates of return on external assets, and their risk management, have become increasingly more important over time. It is hoped that this paper will stimulate more academic and policy analysis in this growing area of policy importance.

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“Balance sheet analysis should be at the heart of the surveillance process”.

Mervyn King<sup>2</sup>

## 1. Introduction

International financial integration has been accelerating at an unprecedented pace in recent years. External holdings of financial assets and liabilities for both industrial and emerging countries have grown rapidly since the mid-1990s, many times exceeding their respective national income (Lane and Milesi-Ferretti, 2006). The recent availability of international balance sheet data has made possible better analysis of global imbalances and national balance sheet vulnerabilities (King, 2006).

Traditional surveillance methods using flow data are increasingly incapable of satisfactorily explaining the recent major global economic developments. The Asian crisis in the 1990s and rapidly widening global imbalances have prompted a growing academic literature emphasising the importance of balance sheet vulnerabilities and linkages (e.g. Allen et al., 2002; Gourinchas and Rey, 2005; and Lane and Milesi-Ferretti, 2005).

Essentially, the balance sheet perspective focuses on two particularly important areas. Firstly, it examines stock variables and their vulnerabilities, particularly the importance of shocks and adjustment dynamics on the overall economy. This essentially departs from traditional flow analysis, the commonly used International Monetary Fund (IMF) two-gap model that examines the fiscal and current account gaps in an economy. Flow analyses omit study of the balance sheet vulnerabilities that emerge over time, so that conventional solutions to emerging two-gaps, the use of devaluation and interest rate hikes, could lead to pro-cyclical outcomes that worsen a crisis.

Secondly, a balance sheet perspective stresses the importance of understanding linkages between different sectors and economies at both the micro- and macro-levels. Balance sheet data, which contains information on both stock and flow, provides a broader perspective on the inter-connectivity and linkages between economic entities, at sectoral, national and cross-country levels. At the country-level, balance sheet analysis provides understanding of the impact of capital flows on national balance sheets, shedding light on inter-linkages and channels of shock transmission. Better diagnosis of such changes gives rise to better policy choices and an appreciation of option impact of different policy tools.

Rapid financial globalisation and the consequent increasing integration mean that no economy can be viewed in absolute isolation. National policies of large economies can result in a sizable fluctuation in the value of cross-border holdings of other countries, while the herd impact of corporations, investors or consumers can also have large cumulative effects across borders.

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<sup>2</sup> Mervyn King, “Reform of the International Monetary Fund”, Indian Council for Research on International Economic Relations, 20 February 2006.

Recently, Lane and Milesi-Ferretti (2006) introduced estimation of external positions for 145 countries from 1970 to 2004, presenting a valuable set of data previously not available for consistent study. Using this rich data-set, this paper selected several issues to highlight the usefulness of the balance sheet analysis as a tool for historical understanding and to examine how it can help in analysis of possible future vulnerabilities.

Starting from a global overview, the study narrows to a look at China from a comparative angle vis-à-vis the world and the rest of Asia, and finally focuses on the evolution of the external position of China. These investigations are preliminary in nature, since much work needs to be done to draw further conclusions from this rich data-set.

## 2. Global Overview: Major Trends<sup>3</sup>

The external portfolios of 145 countries from 1970 to 2004 in the Lane and Milesi-Ferretti (2006) data-set provides an unprecedented global perspective on the cross-border distribution of external holdings and the evolution of the net external position between countries. The data-set divides gross external assets and liabilities into five broad categories that follow closely the classifications under the International Investment Position (IIP) described in the IMF Balance of Payment Manual, fifth edition, 1993. These categories are: portfolio equity investment, foreign direct investment (FDI), portfolio debt and other investment (which includes debt instruments such as loans, deposits and trade credits), financial derivatives and reserves assets.

From this data-set, three particularly notable global trends can be observed.

### 2.1 Growing International Financial Integration

*Financial globalisation, which has been noticeable since the 1970s, has grown rapidly in the past decade.* The scale of international assets trade has increased markedly for both developed and emerging economies, resulting in a sizable stock of external assets and liabilities. The sum of external assets and liabilities for all countries in the data-set, measured as a percentage of Gross Domestic Product (GDP), has grown from 45% in 1970 to 100% in 1987, and increased sharply to 200% in 1998 and finally breaching 300% in 2004.

In other words, relative to national output, national holdings of foreign assets essentially increased by a factor of seven over 25 years. This general trend holds for both developed and emerging economies.

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<sup>3</sup> This section is drawn mainly from Lane and Milesi-Ferretti (2005b) and Lane and Milesi-Ferretti (2006).

A closer look into this stylised observation reveals that while debt instruments make up the larger share of total external assets and liabilities for most countries, the international financial integration of equity instruments is growing at a noticeably faster pace since the mid-1990s. This is true for both developed and emerging economies but especially for the latter. The emerging markets experienced a marked increase in the share of equity liabilities relative to debt, reflecting both inward FDI (direct investment) and the sharp increase in the value of (inward) foreign portfolio investment (FPI), as emerging markets became more open.

These observations indicate that there were fundamental changes in the structure of external portfolios of most countries in the last quarter century. Greater reliance on equity-based financing for emerging economies suggests an improvement in international risk sharing, and a reduction in vulnerability associated with short-term debt financing.

## **2.2 Widening Global Imbalances**

The data-set also reveal that global imbalances have widened considerably with global integration. A clear pattern is that the United States has moved from a net creditor position to become the largest international debtor, with a net debtor position equivalent to 25% of its GDP. Europe, which was roughly in balance, has also become a net debtor equivalent to roughly 10% of its GDP. Japan has remained consistently the largest net creditor, with its structural balance of payments surplus, but emerging Asia and the oil exporting countries have now joined Japan as major global creditors.

This analytical observation runs contrary to the traditional perspective that developed markets are creditors and emerging markets tend to be debtors which rely on imported capital for development. As the terms of trade improve for commodity producers, it is likely that unless the United States increases its savings level and the emerging markets increase markedly their current levels of consumption, the current trend could persist for some time to come.

## **2.3 Rate of Returns Differential Matters**

One of the direct consequences of the heightened international financial integration is that financial positions of economies have become significantly interdependent. Behaviour patterns become symmetric. Your savings become my deficits and vice versa. Moreover, rates of return differentials between foreign assets and liabilities explain or can lead to a considerable shift in resources across countries.

Return differentials in external holdings can arise for a number of reasons, including from asymmetries in currency denomination, debt-equity composition, maturity structures and liquidity. Returns take the form of investment income earnings, and capital gains and losses from the valuation effect caused by movements in asset prices due to changes in interest rates, exchange rates and stock prices.

Differences in rates of return provided much insight into the dynamics of net external positions for major debtor and creditor economies in recent years. The United States, which consistently earned higher returns on foreign assets relative to foreign liabilities, has been experiencing stabilising valuation effects on its net external position. This is especially true for the period after 2002. The United States is distinct from other economies since most of its foreign liabilities are denominated in the US dollar, while it holds its foreign assets in foreign currency.

Hence, the significant weakening of the dollar and the stronger equity market performance in the rest of the world resulted in greater stability of the net external position of the United States despite its growing current account deficit. As Rey and Gourinchas (2005) show, the United States finances a large part of its current account deficit through higher returns on its overseas investments, helped also by a devaluation of the US dollar. However, it remains to be seen whether this position can be sustained, since persistent devaluation of the US dollar could lead to considerable portfolio shifts in the medium and long run.

In contrast, the valuation effect from exchange rates movement generally works in conflicting directions on trade balances and the net external position for the emerging markets. These markets typically hold assets in foreign currency (largely in US dollars) and their liabilities are also denominated in foreign currency. Thus, currency depreciation would be accompanied by a worsening of the net external position if the country is a net debtor with mainly foreign currency denominated liabilities. This explains the inherent difficulty for emerging economies in determining their appropriate exchange rate policies and outlines the importance of improving domestic financial intermediation infrastructures.

### 3. Comparative Perspective: China and the Rest of the World

In comparison with the OECD economies, China's international balance sheet position remains relatively modest in absolute terms. For example, as at end of 2004, the net external position of China was USD 131.6 billion or 8% of GDP, while that of the United States was almost 20 times larger (negative USD 2.6 trillion or 22.6% of GDP) and Japan's net creditor position was almost 14 times larger at USD 1.8 trillion or 30.0% of GDP.

Nevertheless, since the 1990s, China has clearly become more integrated with the international financial community, as its net financial assets showed clear acceleration since 1996. From a net debtor position of USD 122.9 billion (15.1% of GDP in 1996), it reached virtually balanced position in 2002 and became a net creditor at USD 131.6 billion (8.0% of GDP) in 2004. By comparison, the net external position of India remained relatively unchanged throughout the same period of time at negative USD 80 billion (2004: negative 10.9% of GDP).

Figure 4 shows that, relative to the other economies, even though it began at a modest level, China has grown in relevance as a net creditor nation.

### 3.1 China and the Asian Crisis

An examination of the international balance sheet positions of various countries affected by the crisis illustrates a clear stylised observation. As Figure 6 shows, countries worst affected by the crisis, the Crisis-Four (Thailand, Malaysia, Indonesia and the Philippines), saw a significant worsening of net foreign positions prior to the crisis, breaching negative 60% of respective GDPs.<sup>4</sup> In contrast, Hong Kong SAR, Taiwan and Singapore which had significant creditor positions, were affected by contagion, but were able to withstand the shocks because of their superior financial positions.

A simple conclusion that can be drawn from the analysis is that any country that has reached a net debtor position of more than 50% of GDP is clearly very vulnerable to financial crisis. The interesting question is whether it would be possible to ascertain the tipping point at which countries with a net debtor position become highly vulnerable to financial crisis and contagion.

After the Crisis, all countries saw an improvement in their net external positions. Amongst the worst affected by the crisis, Malaysia made the most progress, putting the country's external balance sheet virtually balanced by the end of 2004.

China was largely an outsider to the chain of events that occurred in the region from the 1980s up until the onset of the Asian Crisis, and remained relatively unaffected by the crisis. This was partly because it had a closed capital account and because it ran prudent financial policies, limiting foreign borrowing to its capacity to repay. As can be observed in Figure 6, the net external position of China was close to being balanced throughout the period, relative to the other economies. Although there were fears that China would devalue during the Crisis, its decision not to devalue and to structurally adjust to a hard peg, resulted in international confidence in the role of China as a stabilizing force in global finance and in strengthening its own international competitiveness.

China attracted considerable foreign direct investment, as manufacturers shifted their investments to large markets that gave them an extra degree of risk hedge in the event the developed markets begin to slow. China's own large domestic market, plus the availability of cheap labour and good infrastructure continued to attract FDI. China indeed enjoyed improving its net external position after the start of the crisis, and has been a net creditor since 2002.

Two observations on China are particularly noteworthy. Firstly, while most of the other countries affected by the crisis only recovered to their pre-crisis GDP levels in 2004 - 2005, China's GDP kept on expanding and was unaffected by both the crisis and the global slowdown in 2001.

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<sup>4</sup> Korea was a clear exception to this as its net position was only -9.0% of GDP in 1996. It is often argued that the Korean currency crisis was a liquidity crisis, not a debt crisis which stemmed from excessive debt burden and a bank run against its short-term bank debts.

Secondly, the stock of FDI liabilities in China has grown tremendously, ahead of the other main recipients from the region. A comparison with the Crisis-Four provides a clear illustration of this. In 1980, FDI liabilities stock in China was slightly over 10% of the FDI liabilities stock of the Crisis-Four countries, but China managed to match their size in 1993. By 2004, the FDI stock in China was over four times bigger than the entire FDI stock of the four countries put together. Notably, the increase in FDI for China in 2004 alone was bigger than the entire stock of FDI in Malaysia. In fact, as shown in Figure 7, stocks of FDI liabilities relative to GDP have declined for most of the crisis economies since 1998.

It is easy to conclude from these stylised trends that China's rapid expansion and emergence as a global magnet for FDI is a bane to other Asian economies, especially those that have previously benefited the most from FDI inflows in the 1980s and 1990s. Empirically, however, there is very little evidence to suggest that China's growth has been at the expense of other Asian economies. Indeed, many studies found mixed results and some actually discovered that China's rapid growth and attraction as a destination for FDI has actually encouraged FDI inflows and export growth in other Asian countries, as if producers in these economies belong to a common supply chain (Eichengreen et al., 2004 and Eichengreen and Tong, 2005 are good examples, and provide recent literature reviews on this issue). There is common agreement that with foreign investments from the Asian region and the US and Europe, China has emerged as the key hub of the global supply chain in a variety of manufactured goods.

## 4. The Chinese Scenario

The external balance sheet of China shows that its holdings of foreign assets have evolved considerably from 1980 to 2004, both in terms of size and composition of asset types.

From 1980 to 2004, the size of total holdings of foreign assets and liabilities in China increased by more than 65 times. Measured as a percentage of GDP, the sum of gross foreign assets and liabilities increased from 9.2% in 1981 to 102.3% in 2004. The size of net external assets for China had also gone through considerable changes. Prior to the 1980s, capital flows were miniscule (Prasad and Wei, 2005). From the middle of the 1980s onwards, however, capital inflows began to show a notable increase, particularly in the FDI and other investment categories, but it was in the middle of 1990s that both external assets and liabilities started to grow rapidly. Since 2002 China has been in a net creditor position, mainly due to the continued increased in international reserves and a reverse in the net position of debt instruments since 1999.

### 4.1 Evolution of China's External Position

A closer look into the composition of the net external position of China reveals more details on the evolution of China's external position, as shown in Figure 9.

The evolution of China's gross external assets was mainly characterised by the build-up of international reserves, as well as the growth in financial assets in debt instruments since the later part of 1990s. There is evidence suggesting that the latter development was partly due to unrecorded inflows of 'hot money' driven by the prospect of a renminbi speculation against the US dollar (Prasad and Wei, 2005).

On the other hand, the growth in financial assets was mirrored by the remarkable growth in FDI liabilities, especially since 1994. The foreign liabilities of China are clearly dominated by its stock of FDI. From 1980 to 2004, the stock of FDI in China grew by an astonishing 462 times, from 0.4% to 30.0% of GDP.

#### **4.2 FDI and the Financing of Investments**

China's use of FDI to promote integration into the global economy seems, in hindsight, an ideal strategy of capital account liberalisation from a risk management point of view. The dominance of FDI inflows translate to lower vulnerability to volatile capital flows as FDI is not commonly subjected to sharp reversals as compared to other capital flows, particularly bank borrowing and portfolio flows. Furthermore, FDI serves as an ideal conduit for transfer of technological and managerial know how, a preferred alternative to the allocation of credit given the underdeveloped banking system, access to foreign markets as well as providing a catalyst to China's manufacturing sector. The unambiguous policy of preferring FDI inflow to other forms of inflows was clearly very pragmatic and wise.

Using the balance sheet data on FDI and debt instrument liabilities, it is clear that they were closely and positively related to the financing of investment activities in China. As Figure 10 shows, investment growth moved in parallel with the growth in the stock of FDI and foreign debt liabilities, and with the stock of FDI alone.

Upon closer examination, however, the correlation between FDI and investment is much stronger as compared to foreign debt. The correlation coefficients averaged at 0.9 throughout the period under investigation, suggesting that 90% of the movement in investment could be explained by the movements in FDI. This clearly indicates that FDI was pivotal in the financing of economic activities in China. That said, foreign debt and investment showed a slightly stronger correlation in the later half the 1990s.

#### **4.3 Foreign Portfolio Liabilities and the Equity Market**

Movements in foreign portfolio liabilities showed a positive relationship with share market activities. Unlike the characteristics shown by other emerging Asian economies such as Malaysia,<sup>5</sup> however, the relationship was not particularly strong. This suggests that China's stock market is still not closely integrated with the global financial market, and hence not likely severely affected by volatile international portfolio flows.

#### **4.4 Valuation Effect and Exchange Rate Policy**

Given the considerable size of cross-border financial assets holdings in most countries, the effects from the movement of asset prices, exchange rates and interest rates could have potentially large effects on a country's net external position. As articulated in Gourinchas and Rey (2005), Lane and Milesi-Ferretti (2005a) and Lane and Milesi-Ferretti (2005b), the valuation effect has significant repercussions in the overall development of the international balance sheet, which underscores the importance of having an appropriate exchange rate policy.

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<sup>5</sup> For example, refer to Sheng and Ng (2006).

The valuation effect component of China's net external position can be estimated as the difference between the net external position and the cumulated current account balance. This estimate would capture the effects of the cumulated value of net capital gains or losses, and exchange rate adjustments (Gourinchas and Rey, 2005).

As shown in Figure 13, besides the brief period during 1989 to 1990, up to the year 2000, the cumulative current account balance of China was larger in magnitude than its net external position. This suggests that the net valuation component for China was largely negative throughout the period, with a larger negative effect during periods of high relative levels of foreign liabilities in debt instruments (first half of the 1990s). For emerging economies, including China, a large negative valuation component is often the result of the cumulative effects of exchange rate depreciation (since debt liabilities are disproportionately denominated in foreign currency) and fast-growing domestic asset valuations (with portfolio equity and FDI liabilities rising in value over time) (Lane and Milesi-Ferretti, 2006). As mentioned earlier, this negative impact on net external position via the valuation channel presents a difficult policy dilemma for emerging economies to decide on an appropriate exchange rate policy. Currency devaluation would improve the trade balance, but if the economy is a net debtor in terms of foreign currency denominated liabilities, the net external position could potentially worsen.

However, China's balance sheet composition throughout the period under investigation was favourably skewed towards the large dominance of foreign direct investment over a modest level of foreign liabilities in debt instruments, thus making it less susceptible to valuation effects as compared to other emerging economies with larger stock of foreign debts.<sup>6</sup>

In addition to this, an analysis of the relationship between China's net balance sheet position and its real effective exchange rate reveals a particularly interesting characteristic. The direction of correlation between these two variables reverses depending on whether China is a net debtor or a net creditor. A simple correlation analysis for the period between 1994 and 2004 showed that the correlation was positive when China's net external position was negative (1994-2001), but it turned negative when the net external position become positive from 2002 onwards, shown in Figure 14 below. This hints at the importance of an appropriate exchange rate policy in affecting the external wealth position of China. However, it should be noted that these results are very preliminary and more work needs to be done to acquire a better understanding of this issue.

#### 4.5 Policy Implications

The above preliminary analysis suggests an interesting story of recent economic history and also leads to several possible policy implications. Firstly, in terms of net external position, China has clearly emerged in much better financial shape since its economic reform in the 1990s, thanks to its pragmatic industrial and prudent financial policies. Given its favourable composition of foreign assets and liabilities, China's external position does not exhibit clear vulnerabilities to the vagaries of international financial flows that normally hound other emerging economies (as clearly shown in during the Latin American and the Asian Crises in the 1990s).

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<sup>6</sup> Sheng and Ng (2006) provide an example for the Malaysian scenario.

As China is running a current account surplus, the economy is not short of domestic savings. Nevertheless, China's capital markets are fairly underdeveloped relative to other Asian economies, and there remains considerable room to deepen domestic financial intermediation to the economy against external shocks. Areas warranting further study are the overall leverage of the corporate sector and its vulnerabilities to market shocks from trade and financial market volatilities.

Recently, as articulated by Setser (2006, pp. 364-365),: *“Like the Asian tigers, China is marked by a surge in private credit, a real estate boom, weak bank regulation and a large, bank-dominated financial sector. ... Yet, China lacks the external vulnerabilities that marked the Asian tigers. ... That is the Chinese conundrum: extraordinary domestic financial weaknesses combined with extraordinary external financial strength.”* China's financial system is dominated by a banking sector that is large and liquid, but structural reforms are still a work in progress.<sup>7</sup> Total assets of banking institutions stood at 170% of GDP at the end of 2006, while the total liabilities were at 161% of GDP during the same period. Due to the lending boom in the 1990s, non-performing loans (NPLs) remained considerably large as late as 2002, estimated at 40% of total lending. The concerted steps taken by the Chinese government to recapitalise the larger banks and resolve some of the distressed debts in recent years, however, have resulted in a marked improvement in solvency. By the end of 2006, total NPLs to total loans had declined to 7.1%.

Given the large capital inflows into China and also pressures on the exchange rate, it is clear that in addition to credit risks, market risk for the domestic financial system of China is also rising. Firstly, reminiscent of the situation in the crisis economies prior to 1997, high domestic liquidity first puts pressure on the asset markets, such as real estate and stocks. Secondly, the risk management capacity of the domestic banks must be strengthened considerably to prevent banks succumbing to pro-cyclical lending. The China Banking Regulatory Commission has taken considerable steps to strengthen supervision over the banks since its establishment in 2003. Nevertheless, given the size and scale of the banking system, there is considerable work ahead to prepare the banking system for higher efficiency, risk management and resilience to global shocks.

The situation of the external strength and domestic weaknesses of the financial system underscore a key consideration in sequencing the liberalisation of the capital account. The two factors are in fact mutually reinforcing. A stronger financial system enables a smoother transition to opening up the capital account, whereas a less robust system could be subject to greater shocks and lead to crisis, as was the experience of South Korea, which had already reached OECD status in 1996, before succumbing to the crisis in 1997. With sound macroeconomic fundamentals and external soundness, strengthening the domestic financial systems and supervisory infrastructure as well as improving corporate sector governance would be crucial policy imperatives. Many have argued that a more flexible exchange rate regime is an important precondition for containing the accumulation of balance sheet risks related to currency mismatches and for preventing exchange market tensions from turning into a full-scale financial crisis (Icard, 2002). However, changing the institutional capacity to manage foreign exchange risks will take time.

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<sup>7</sup> For a discussion of Chinese banking reforms, see Andrew Sheng, “China's Banking Reforms: Towards a Robust Financial Structure”, International Conference on China's Banking Reform and Governance, Johns Hopkins University School of Advanced International Studies (SAIS), Washington DC, 16 April 2007.

As an economy that is building up external assets quickly and growing rapidly to become a global player in trade and finance, there is a need to deepen domestic financial skills by letting excessive savings flow out, so that China's institutional and retail investors can diversify their risks in global portfolios and therefore equip themselves to compete on a global basis. A two-way flow of portfolio investment, especially when outward equity investments amount to not more than 0.34% of national income, while inward equity investments account for more than ten times that amount, clearly would be beneficial in terms of lowering overall risks.

The emergence of China as a net creditor is of historical importance, but it is only a beginning. The need for a coherent and consistent National Risk Management strategy and policy has now become more urgent. Very few policy-makers appreciate that in the same way that a corporation finances its investments, the way an economy finances development and growth exposes it to different risks. When the economy is a net debtor (negative NEP), the economy is clearly more vulnerable to real shocks on its liability side of the balance sheet, including the availability of liquid assets to meet these liabilities. The priority of asset management was to ensure liquidity to meet liability commitments. Short-term liquid assets are less subject to risk in terms of loss on capital.

When the economy becomes a net creditor, the need to earn positive returns on assets becomes more imperative, particularly since an aging population demands higher returns to finance their standard of living. The management of the long-term foreign assets, including access to markets, technology and management skills, plays an important role in ensuring sustainable growth. This requires a completely different set of skills and risk management.

In other words, policy management for a rich country (net creditor) is very different from that of a poor country (net borrower). If, for example, the economy's net assets are held in US dollars and all its liabilities are in yen, then a rising yen would place the economy in double jeopardy, with a declining asset and an appreciating liability.

From a regional perspective, since Asian markets are growing faster and becoming net creditors, this suggests that Asian currencies would tend to appreciate relative to the US dollar and the Euro over the long term. This makes the case for faster development of Asian financial markets, so that Asians can invest in other countries and currencies that appreciate together relative to the US dollar and the Euro, rather than being depreciated on their asset holdings.

## 5. Directions for Research and Surveillance

There is one area that deserves further analysis. The heightened international financial integration means that there is greater sophistication of cross-border inter-relationships. Countries are closely linked to each other in what can be considered a network of capital, expenditure and information flows, in which shocks occurring in one country can have tremendous spill-over effects on other countries. This means that countries and sectors can no longer be monitored in isolation, and understanding linkages and interdependencies between economies is crucial.

Given the size of international capital movements, a comprehensive appreciation of international balance sheet effects is a big step forward in understanding this global interdependency. The size and composition of balance sheets is crucial in determining how shocks are transmitted across countries; and policy decisions and information, through their impact on balance sheet positions, can have significant impact on international capital and expenditure flows (King, 2006).

Thus, a reemphasis on research initiatives and surveillance should be directed towards improving the understanding of economies through the balance sheet perspective.

In terms of research, two broad areas may be crucial. The first area is concerned with gaining an understanding of the determinants of balance sheet positions, that is, explaining the factors that contribute to the propensity of holding external assets and liabilities, both in size and type. International investment positions can be explained by economic fundamentals such as income and productivity growth, real rate of returns, and demographic change, but in an increasingly networked world, information flow often results in considerable changes. News and expectations on economic fundamentals and policy decisions could lead to significant movements of capital, as demonstrated in the financial crises of the 1990s.

The second area, as a corollary to the first, is related to understanding the balance sheet linkages, or transmission mechanism resulting from a change in desired international investment positions. Charting the claims between countries, the evolution on international balance sheet positions could reveal how capital movements are affected by changes in policy measures, economic fundamentals and news. Importantly, detailed balance sheet data contains information on the potential speed and extent of an adjustment, providing insights into vulnerabilities and costs related to any potential economic policy decisions, both internally or from abroad. The greater availability of information on derivative stocks and flows could be very illuminating.

It is clear that a thorough understanding is vital, and future research into these areas would provide invaluable knowledge for policy-makers in appreciating the overall impact of any potential policies.

Similarly, economic and financial surveillance should be reemphasised to include the balance sheet approach to complement the existing surveillance effort. Most existing surveillance frameworks emphasise flow-based analyses, which offer at best a partial perspective of the economy. A more complete surveillance framework would require a detailed understanding of balance sheet conditions of all the different sectors of the economy.

Detailed methodology and a framework for balance sheet surveillance have already been introduced by the International Monetary Fund in recent years (Allen et al., 2002). Mathisen and Pellechio (2006) provide a detailed explanation of the balance sheet approach (BSA) framework, focusing on methodology and data requirements. Using detailed balance sheet data across the main economic sectors (six sectors, including general government, central bank, household, financial and non-financial corporations) and the rest of the world, BSA can be used to analyse vulnerabilities of sectors and the economy in whole, as well as the transmission mechanisms involved. BSA captures maturity, currency and capital structure mismatch in the economy, and hence vulnerabilities in terms of net financial position (mainly as described in this paper), net foreign currency position and net short-term position.<sup>8</sup> BSA can also be used as a basis for a dynamic, forward-looking analysis of risks in sectoral balance sheets, such as in the contingent claims approach described in Gapen et al. (2005).

Moreover, balance sheet-based surveillance requires observation of all the different sectors in the economy, as well as understanding the interdependencies and transmission mechanisms involved between the sectors. No sector can be meaningfully observed in isolation. Given that the sectors range from financial institutions to households to the government, the traditional surveillance framework which often focuses on individual sectors would have to be reoriented to adopt a more holistic perspective in which every economic or financial unit has to be looked at as an inter-connected part of a bigger picture, and not as an atomistic entity. It is thus clear that surveillance from the balance sheet perspective can be considered to be the basis of a holistic and unifying surveillance framework, from both the micro-macro and inter-sectoral perspective.

## 6. Concluding Thoughts

Using a balance sheet approach, this paper has demonstrated how China has emerged as an important net creditor in an increasingly integrated world.

The findings suggest that as China has become more important globally as a net creditor, and the balance sheet analysis of trends and a clearer focus on real total rates of return on external assets, and their risk management, has become increasingly more important over time.

It is hoped that this paper will stimulate more academic and policy analysis in this growing area of policy importance.

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<sup>8</sup> The latter two are not captured in the Lane and Milesi-Ferretti (2006) data-set, and is said to be the vulnerabilities Korea experienced when it entered the Asian Crisis.

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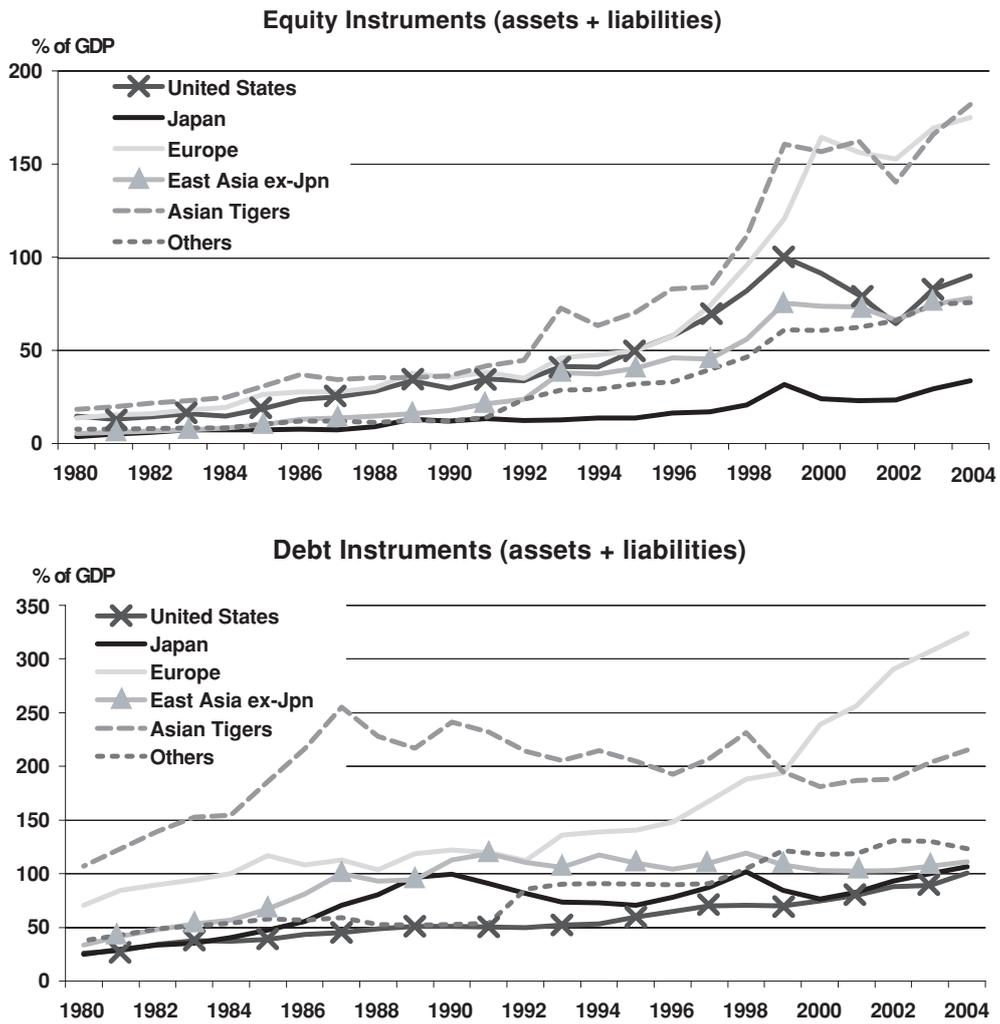
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Table 1. Real Domestic-Currency Returns

	Assets	Liabilities	Differential
<b>United States</b>			
1995-1999	11.8	10.5	1.3
2000-2001	-7.9	-4.9	-3.0
2002-2004	9.6	0.9	8.7
<b>Japan</b>			
1995-1999	6.2	10.1	-3.9
2000-2001	13.7	0.7	13.0
2002-2004	2.8	5.8	-3.0
<b>Euro area</b>			
2000-2001	0.7	0.6	-0.1
2002-2004	-4.2	-1.0	-3.2
<b>China</b>			
2000-2001	-7.6	-2.7	4.9
2002-2004	-17.5	-11.7	5.8

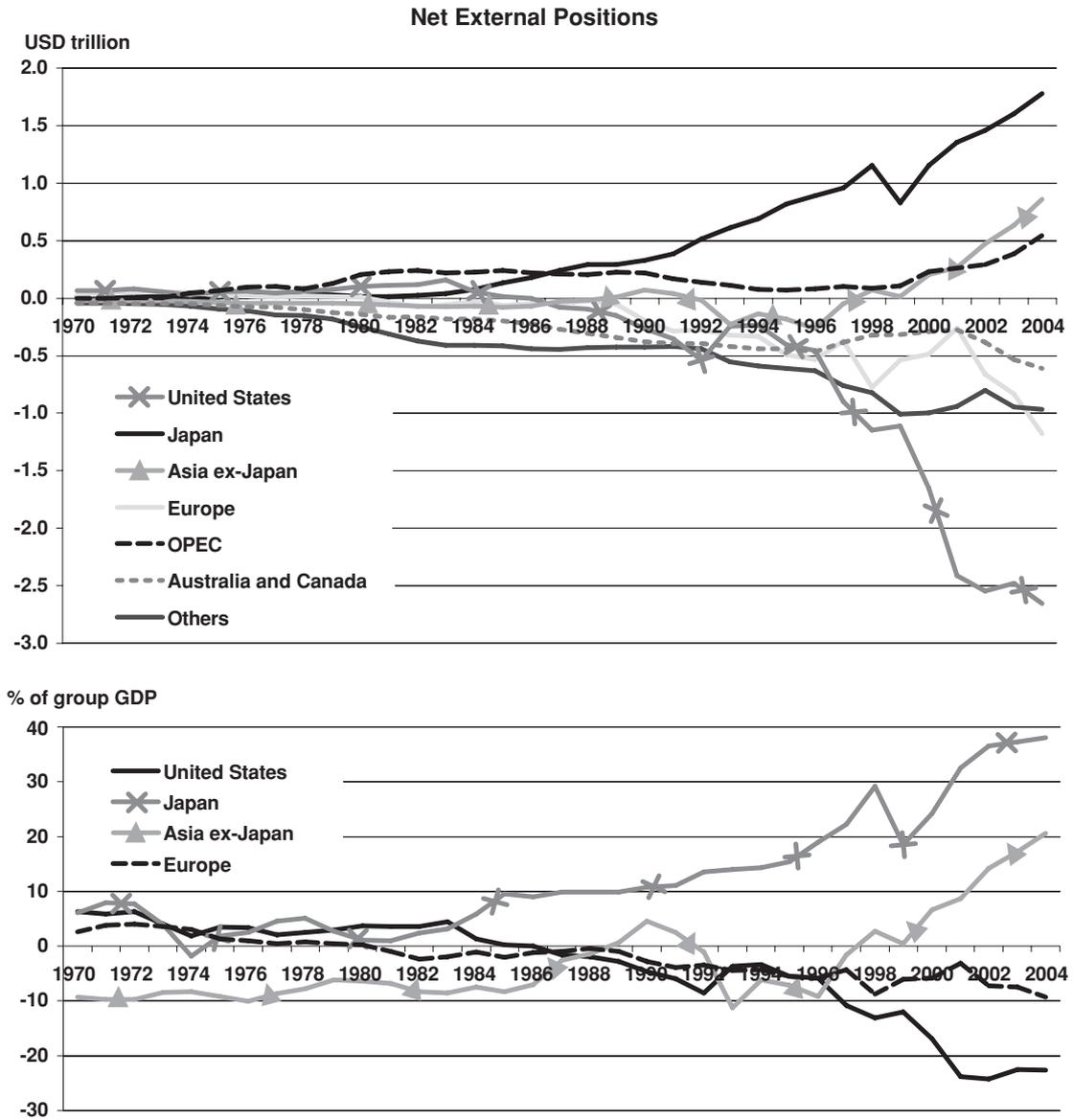
Sources: Lane and Milesi-Ferretti, 2005; Authors' calculations

Figure 1. Growing Financial Integration:



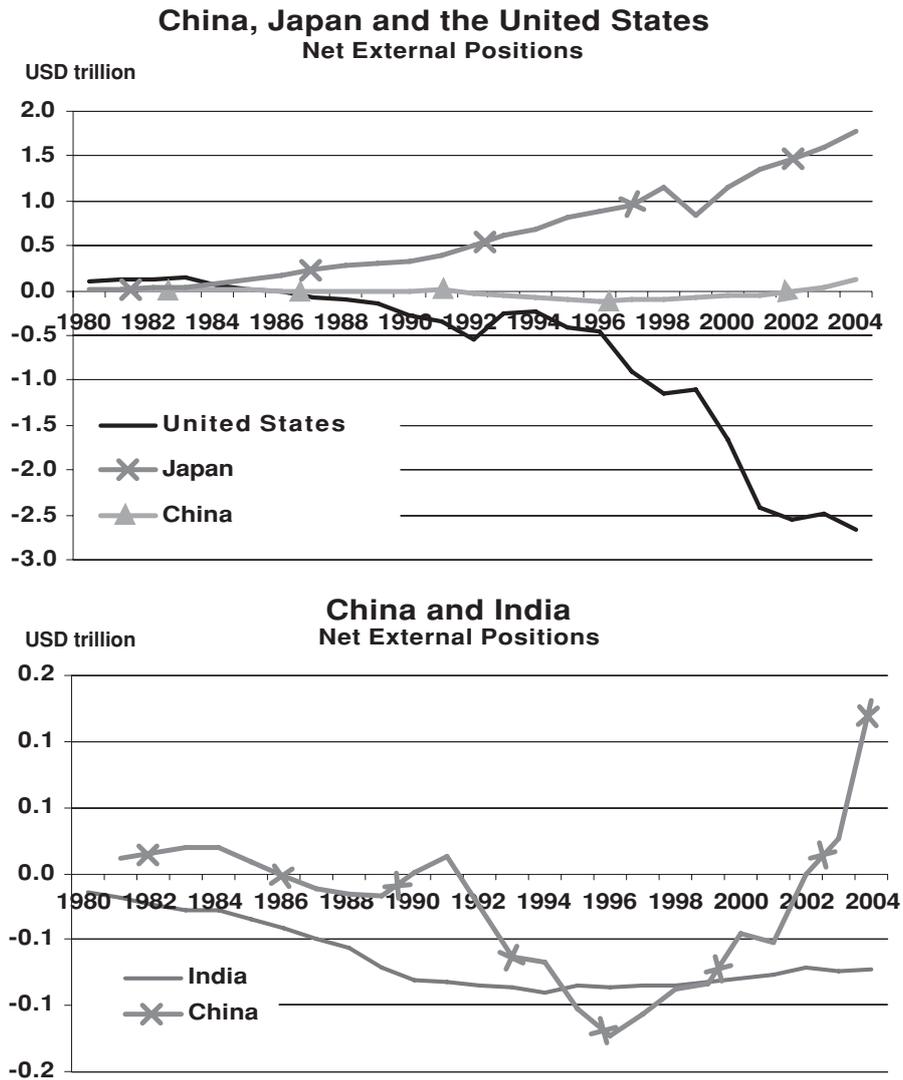
Source: Lane and Milesi-Ferretti, 2006

Figure 2. Global Imbalances



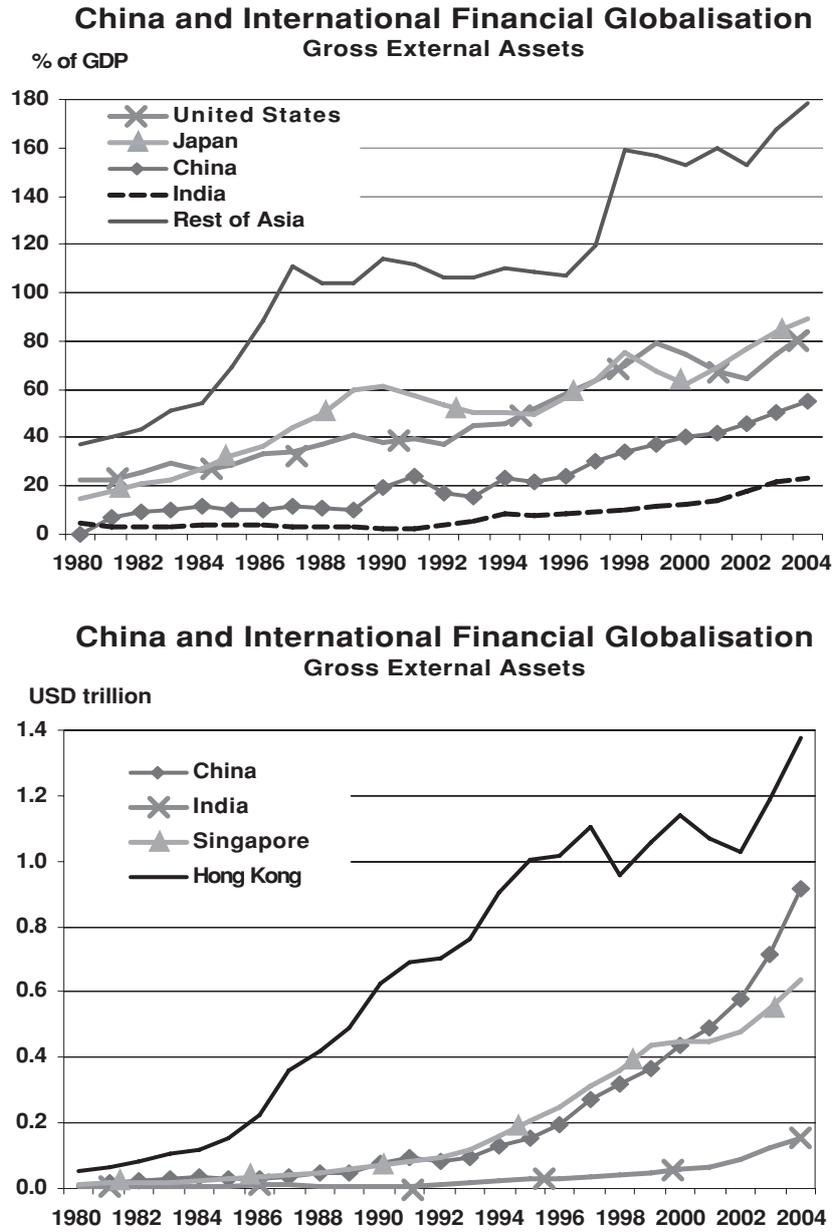
Source: Lane and Milesi-Ferretti, 2006

Figure 3.



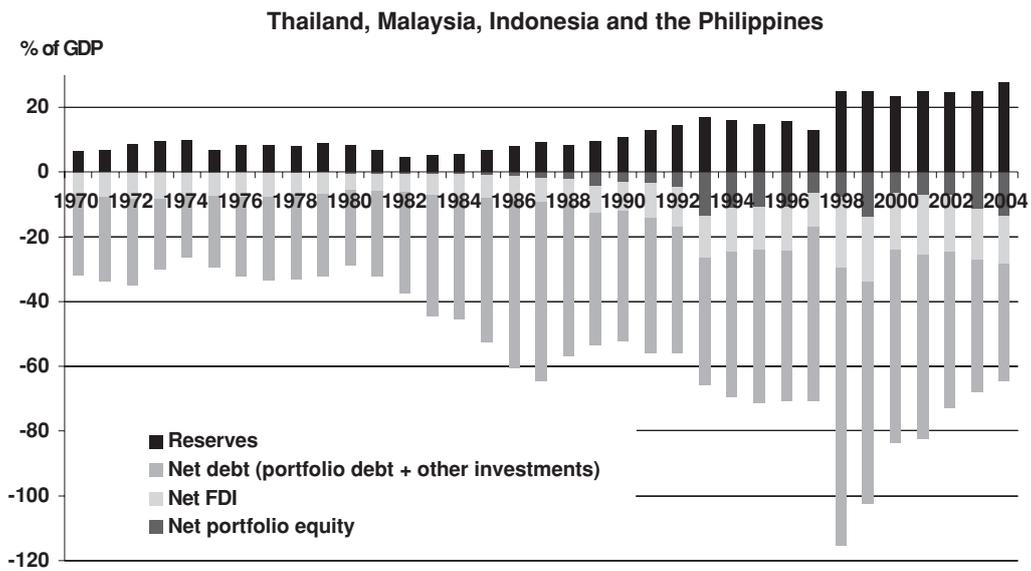
Source: Lane and Milesi-Ferretti, 2006

Figure 4.



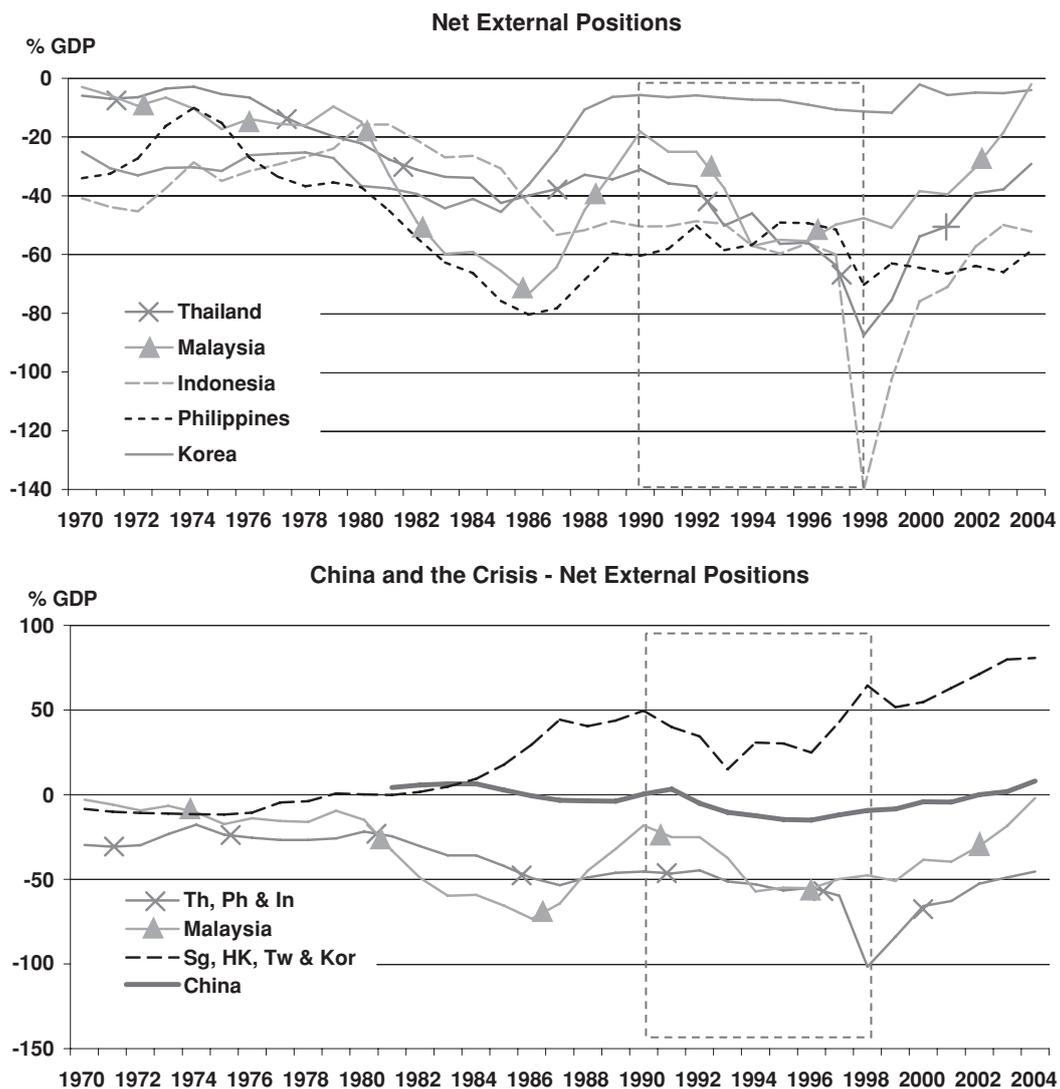
Source: Lane and Milesi-Ferretti, 2006

Figure 5. Composition of Net External Position



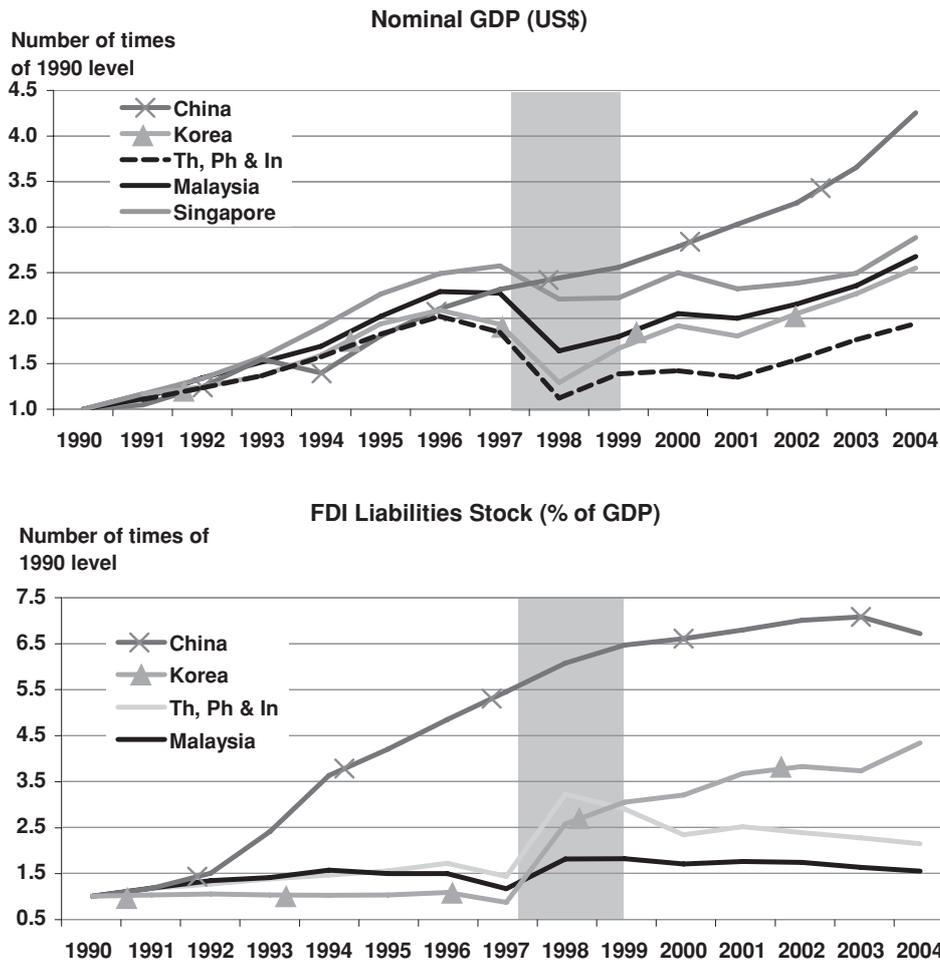
Source: Lane and Milesi-Ferretti, 2006

Figure 6. Asian Crisis



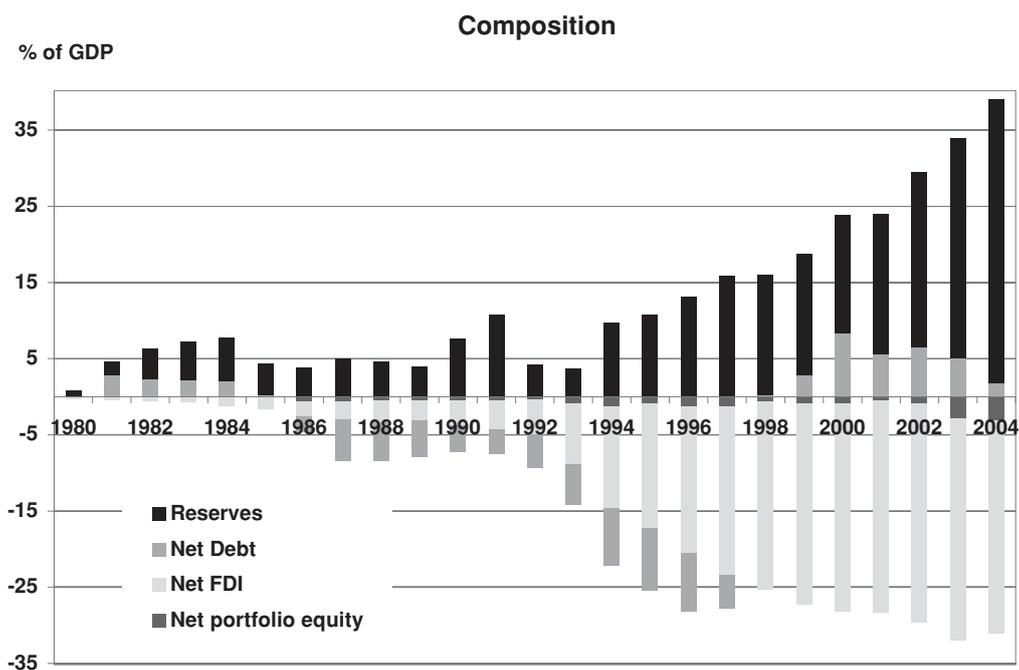
Source: Lane and Milesi-Ferretti, 2006

Figure 7. China and the Crisis



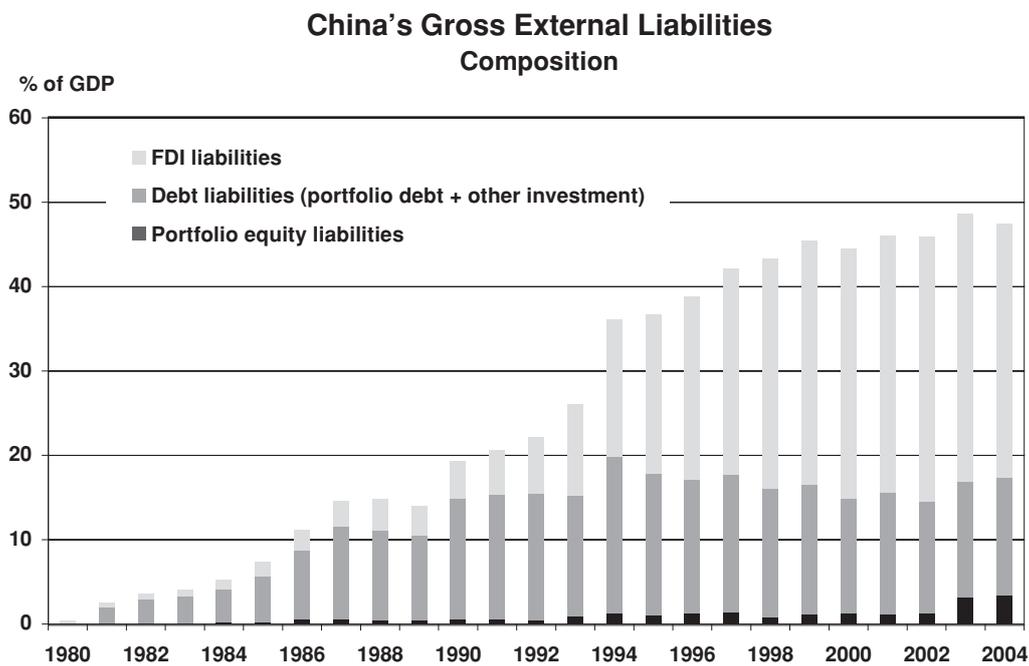
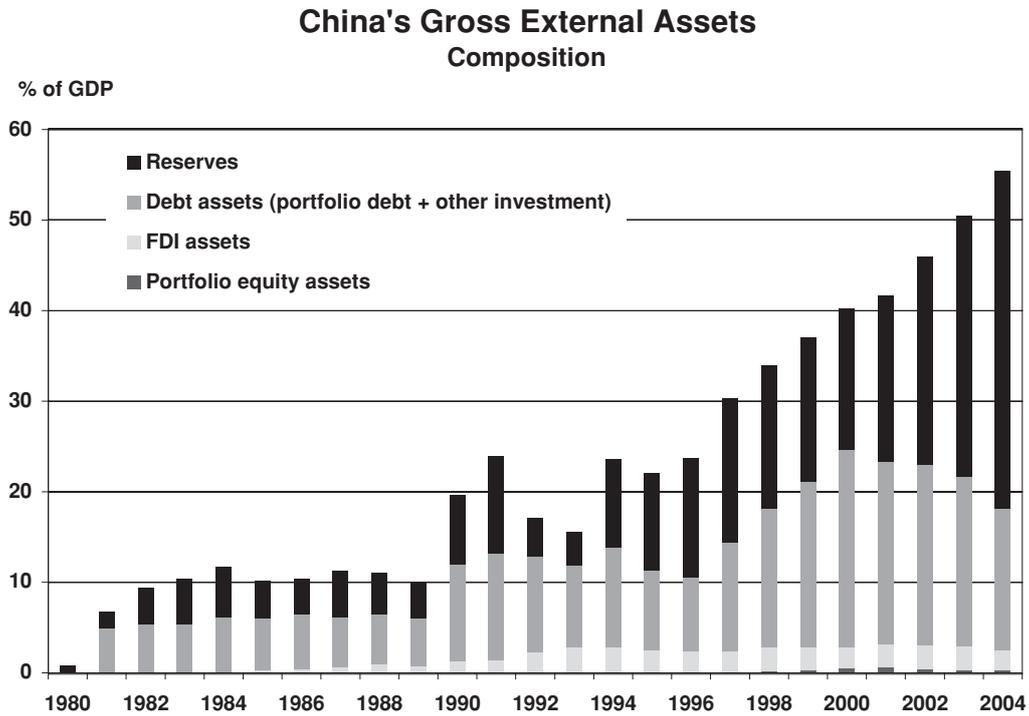
Source: Lane and Milesi-Ferretti, 2006

Figure 8. China's Net External Position



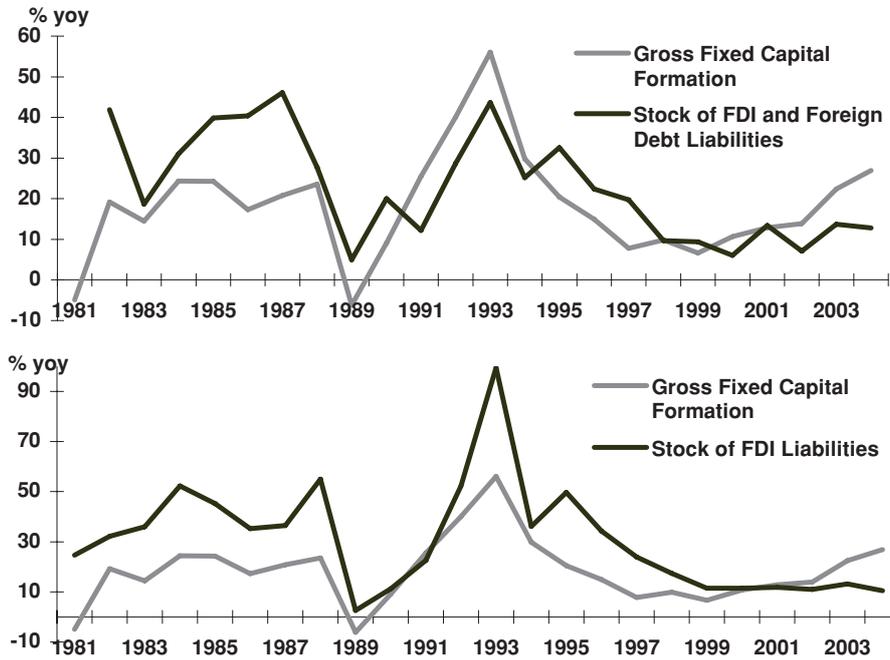
Sources: Lane and Milesi-Ferretti (2006)

Figure 9.



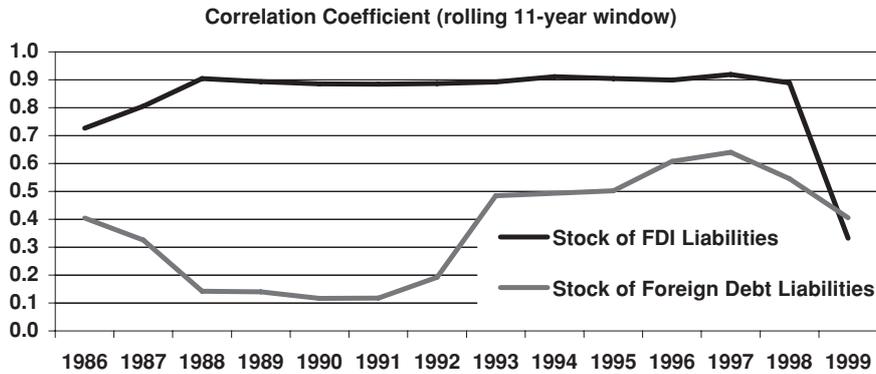
Sources: Lane and Milesi-Ferretti (2006)

Figure 10. Investment vs FDI and Debt Liabilities



Sources: Lane and Milesi-Ferretti (2006); CEIC Database

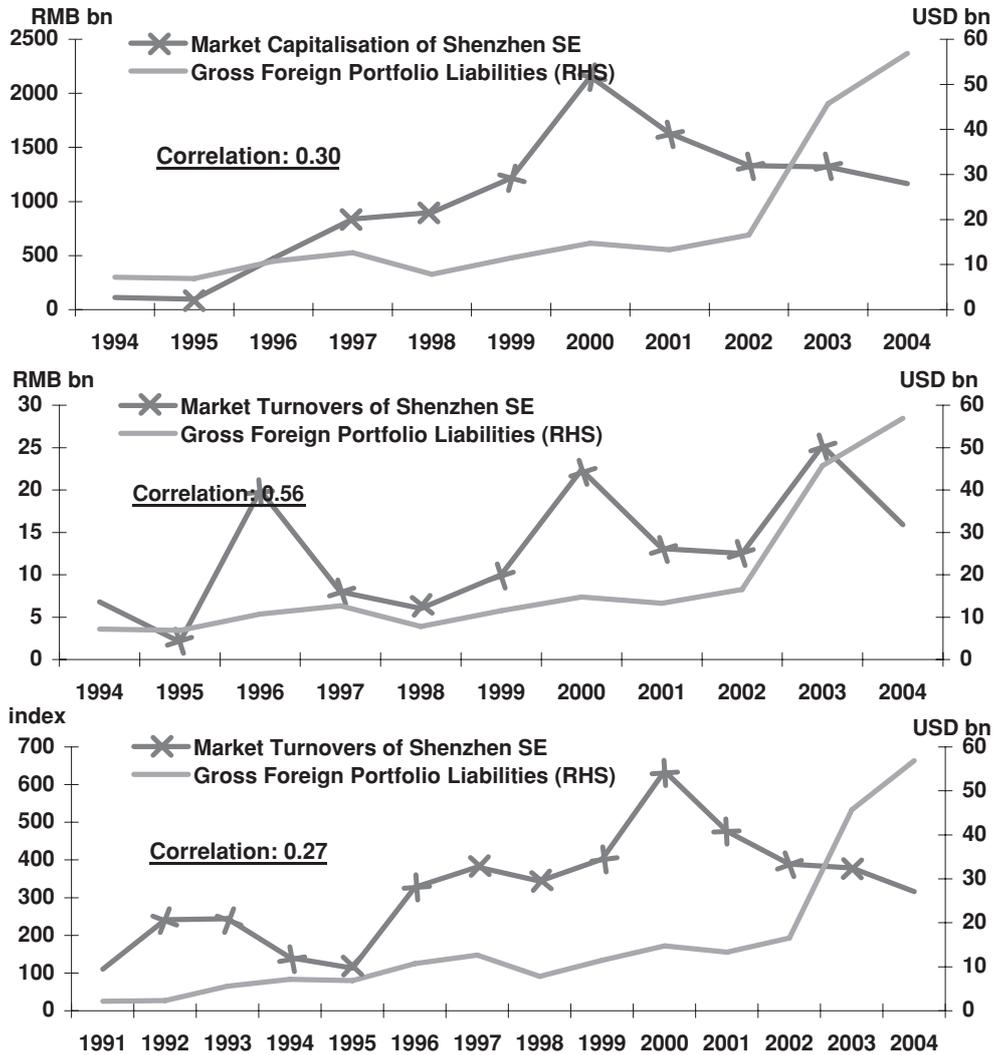
Figure 11. Total FDI and Foreign Debt Liabilities vs Gross Fixed Capital Formation



Notes:  
 Calculated as correlation between rate of change of respective nominal variables.  
 The year axis corresponds to the median year of the 11-year window.

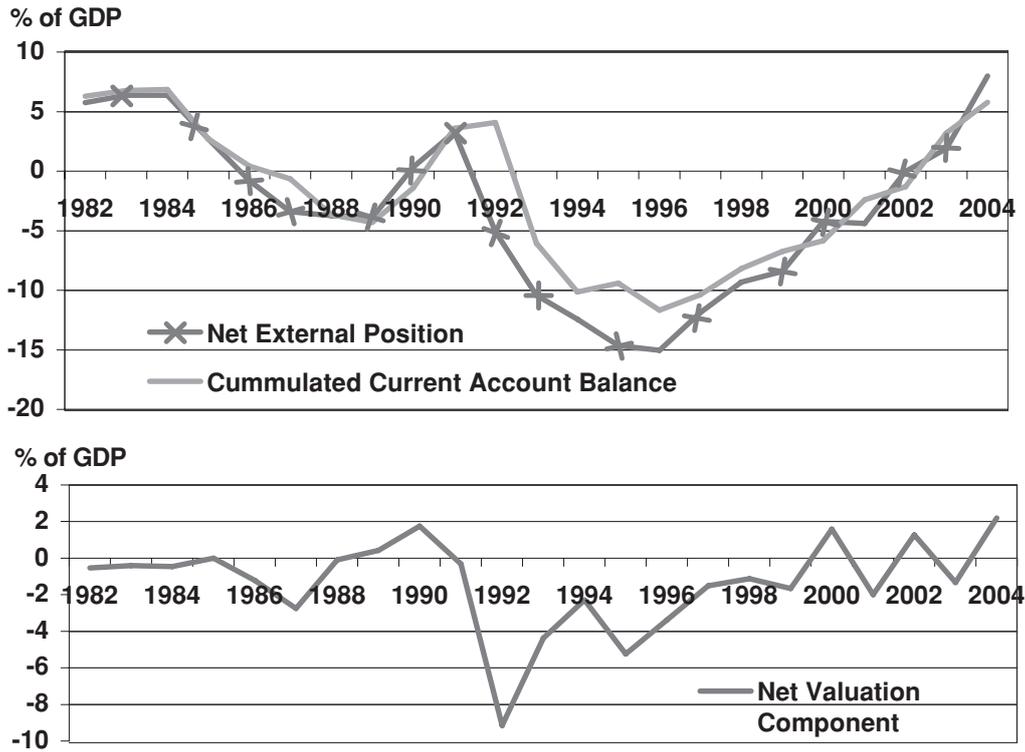
Sources: Lane and Milesi-Ferretti (2006); CEIC Database; Authors' calculations

Figure 12. Foreign Portfolio Liabilities and the Share Market



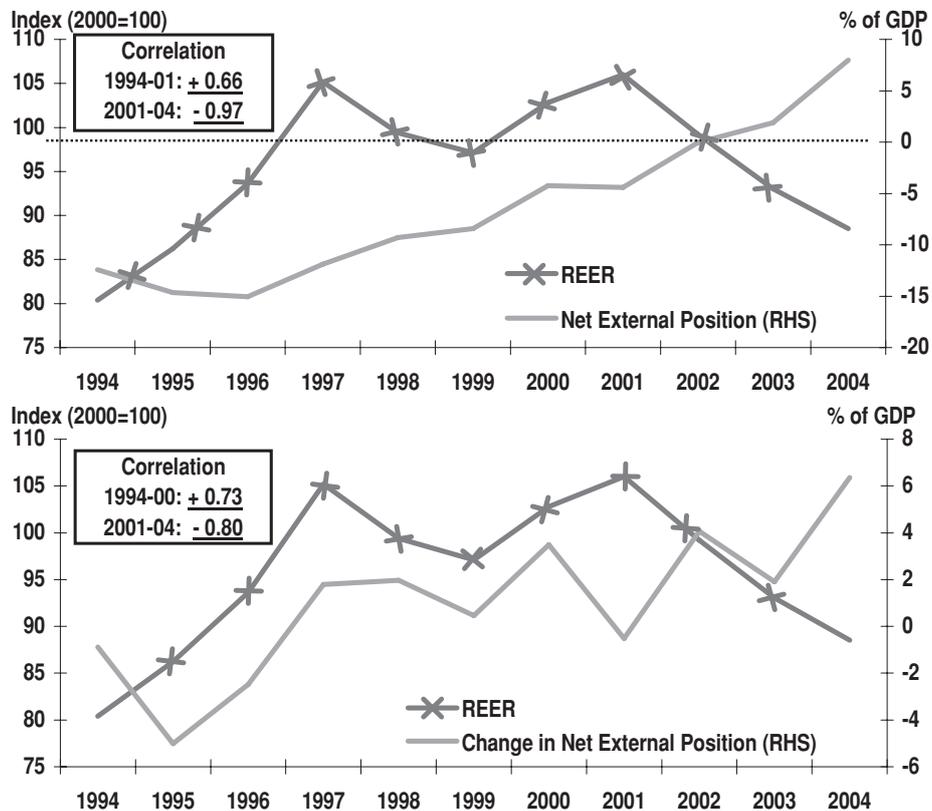
Sources: Lane and Milesi-Ferretti (2006); CEIC Database; Author's Calculations

Figure 13. Valuation Effect



Sources: Lane and Milesi-Ferretti (2006); CEIC Database; Authors' Calculations

Figure 14. Real Effective Exchange Rates vs NEP



Sources: Lane and Milesi-Ferretti (2006); BIS; Author's Calculations