

China's increasing external wealth **4**

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Introduction

While balance of payments (BoP) statistics reflect cross-border flows over time, the international investment position (IIP) data record an economy's international financial assets and liabilities or its international balance sheet at a given point in time. Similar to BoP statistics, external assets and liabilities are classified by instrument into positions of direct investment, portfolio investment and other investment. There is an additional category of foreign reserves on the asset side. In a matter of less than 10 years, China's net foreign asset (NFA) position—the difference between international assets and liabilities—has swung from being a net debtor of about 9 per cent of GDP in 1999 to a net creditor of more than 30 per cent of GDP in 2007.² China's NFA position in absolute terms now ranks as the second largest in the world, after Japan. Moreover, the sum of China's external assets and liabilities expanded by 90 times in the past two decades. Finally, while China has accumulated a huge stock of inward direct investment on the liability of its international balance sheet, it holds the world's largest official reserves on the asset side. As China's role in the global financial system grows, the stakes are high for China and the rest of the world.

This chapter examines the following questions related to China's international investment position: why has China become such a big creditor at an early stage of development? Will its NFA position be maintained during the next 20 years? Will China continue to integrate financially with the rest of the world, as gauged by the size of its external balance sheet? What are the main features of the composition of China's international assets and liabilities?

The chapter builds on numerous related research efforts. Lane and Milesi-Ferretti (1999, 2007, 2008) have covered much ground in the field of international investment positions. They developed an IIP data set for

more than 100 countries, including China, when few people were officially compiling IIP data. Lane and Milesi-Ferretti have since explored many themes related to IIP. Nevertheless, systematic research on China's external balance sheets remains limited. Lane and Schmukler (2007) compare the net position, size and structure of the Chinese and Indian external balance sheets mostly on the basis of their data set constructed before the official publication of the Chinese IIP data. McCauley and Chan (2008) project China's external banking position in the coming years based on a cross-sectional study of the economies of the Organisation for Economic Cooperation and Development (OECD).

There have been very different perspectives on China's puzzlingly large NFA position when its capital-labour ratio is still quite low. According to the neoclassical growth model, higher returns to capital should attract capital inflows, so that a low-income, catch-up economy should be a net debtor borrowing foreign savings. Dollar and Kraay (2006) conjecture that domestic economic and financial distortions in China have led to a large current account surplus and net capital outflows. They calibrate a theoretical model to predict a net debtor position of 17 per cent of wealth for China in the mid-2000s and use non-structural regressions to predict China's NFA position to be negative 5–10 per cent of GDP in two decades. In contrast, McKibbin (2005) and Peng (2008) highlight the macroeconomic consequences of a demographic transition and project that in the coming decades, China will likely run a current account surplus and thus maintain a large positive NFA position.

The purpose of this chapter is to shed light on the empirical importance of some of these medium-term economic and demographic factors influencing China's net and gross external investment positions as well as their compositions. In particular, based on an analysis of the time-series data, we examine the roles of relative income growth, demographic shifts, government debt, domestic financial development and the real effective exchange rate in shaping China's NFA position. We also explore determinants of China's gross external investment position: the sum of foreign assets and liabilities in a cross-sectional regression. Finally, we offer an overview of the evolving structure of China's international balance sheet and explore its implications.

Three main findings are summarised. First, while a marked growth differential vis-a-vis the OECD attracts capital inflows, China's growing creditor position can be attributed largely to rapid demographic

transition. If this result holds, China might not turn into a meaningful net debtor in the coming two decades. This conclusion stands in contrast with the predictions of Dollar and Kraay (2006) that suggest China should turn into a large debtor before long, but is broadly consistent with the predictions of McKibbin (2005) and Peng (2008). Second, the scale of China's international balance sheet has expanded substantially in the past two decades and will likely continue to do so in the coming decade, suggesting growing interactions between China and the global financial market. Third, China's external assets and liabilities have become more lop-sided over time, with assets mostly in fixed-income instruments and held by the official sector and liabilities mainly taking the form of inward private direct investment.

The chapter is organised as follows. The next section highlights the key trends in China's IIP. The third section explores the question of why China's positive NFA position is so large when its income level is still low, while section four presents empirical results regarding key determinants of China's growing NFA position. Section five examines the outlook for the gross size of China's international balance sheet, and section six discusses the key features of the composition of China's international assets and liabilities. The final section concludes.

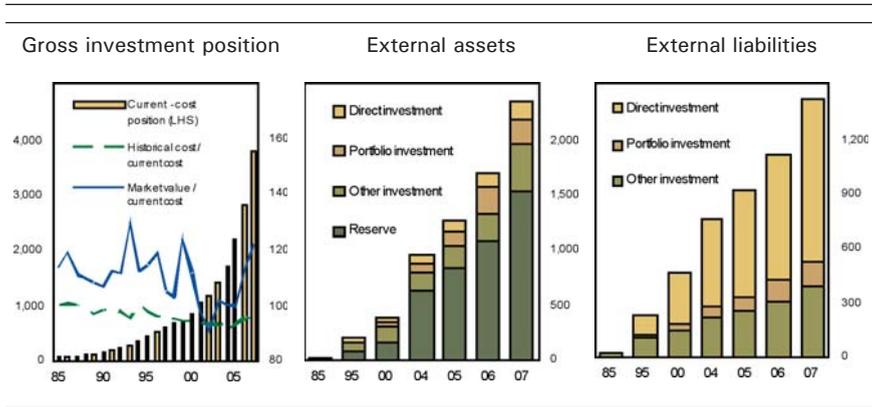
China's international balance sheet: an overview

China started officially publishing its IIP data in 2004—too recently to provide figures for a meaningful analysis of the historical trends. We have adopted an approach similar to Lane and Milesi-Ferretti (1999) and construct a longer and more consistent IIP time series for 1985–2003 (Ma and Zhou forthcoming). Our approach differs from the previous methodology in at least two aspects. First, we take the first year of the official IIP data (2004) as the starting point to ensure that our estimated series can be integrated with the official statistics. Second, we estimate the breakdown of the inward direct investment position between equity and inter-company loans so that we can estimate the Chinese IIP on three alternative bases: historical cost, current cost and market value. Unless specified, this chapter uses the current-cost estimate.

Several features of China's external balance sheet can be identified from our new estimates (Table 4.1 and Figures 4.1–3). First, China's NFA position—the difference between external assets and liabilities—has surged since the mid-2000s (Table 4.1 and Figure 4.2). Before 2004, China was mostly

a small debtor. In 1999, China's NFA position was in a trough of negative \$100 billion, or about -9 per cent of GDP. The turning point was 2004, when China's creditor position started growing substantially. By 2007, China's NFA position in dollar terms was the second-largest globally, exceeding \$1 trillion, or more than 30 per cent of GDP. In the next section, we will take a closer look at the puzzle of why China has become such a big lender when its income level is still less than one-tenth of the OECD average.

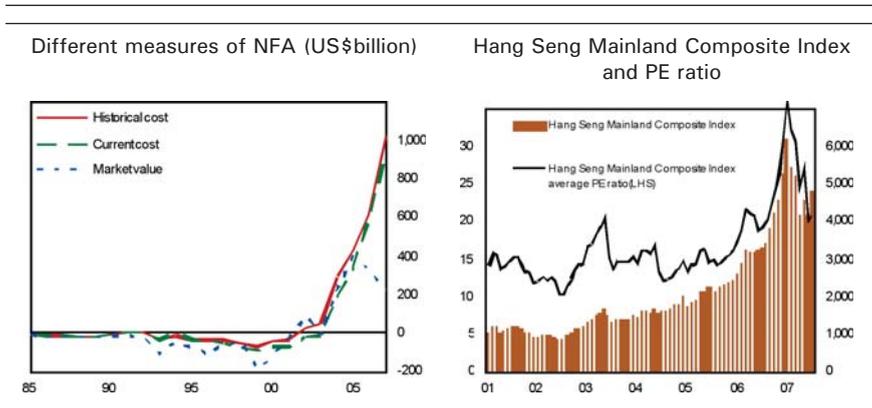
Figure 4.1 The size of China's gross foreign assets and liabilities (US\$ billion)



Notes: Calculated at current costs. Gross investment position is the sum of foreign assets and liabilities.

Sources: State Administration of Foreign Exchange and authors' own estimates.

Figure 4.2 China's net foreign asset position and stock market index



Notes: NFA is the net foreign asset position, which equals foreign assets less foreign liabilities.

Sources: State Administration of Foreign Exchange and authors' own estimates.

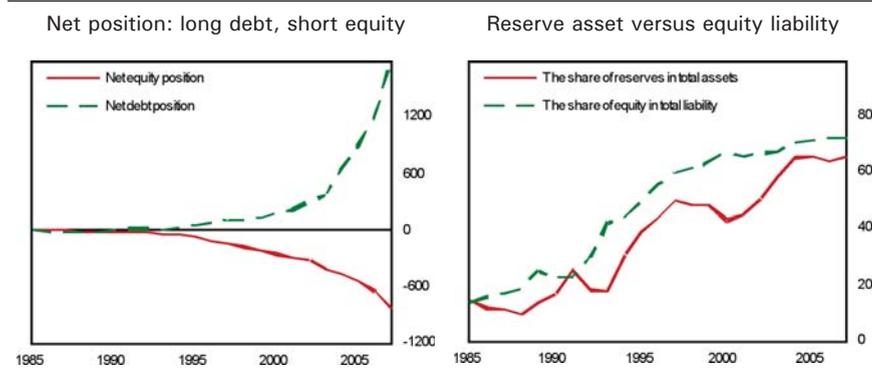
Table 4.1 China's international investment position (US\$ billion)

	1985	1995	2000	2004	2005	2006	2007
Net foreign asset position	-5.8	-38.5	-74.3	190.4	343.1	579.0	1027.4
<i>(Percentage of GDP)</i>	(1.9)	(5.3)	(6.2)	9.9	15.3	21.8	30.4
Assets	18.2	191.2	385.4	954.6	1260.0	1690.9	2428.0
<i>(Percentage of GDP)</i>	5.9	26.3	32.2	49.4	56.3	63.6	71.8
Direct investment abroad	0.9	33.3	51.8	77.5	101.9	137.4	169.6
Portfolio investment	0.0	12.1	41.1	92.0	116.7	229.2	284.6
— Equity securities	0.0	0.0	0.0	0.0	0.0	1.5	19.6
— Debt securities	0.0	12.1	41.1	92.0	116.7	227.8	265.0
Other investment	14.7	72.3	126.9	166.6	215.7	251.5	426.5
Reserve assets	2.6	73.6	165.6	618.5	825.7	1072.8	1547.3
Liabilities	24.0	229.8	459.7	764.2	916.9	1111.9	1400.6
<i>(Percentage of GDP)</i>	7.8	31.6	38.4	39.6	41.0	41.8	41.4
Direct investment inward	3.2	109.2	289.6	496.1	588.4	691.6	891.8
Portfolio investment	1.0	14.6	30.1	56.6	76.6	120.7	146.6
— Equity securities	0.0	3.9	17.8	43.3	63.6	106.5	129.0
— Debt securities	1.0	10.7	12.3	13.3	13.0	14.2	17.6
Other investment	19.8	106.0	140.0	211.5	251.9	299.6	362.2
<i>Memo: market value</i>							
<i>Direct investment abroad</i>	2.4	42.9	76.8	96.3	123.2	177.1	218.6
<i>Direct investment inward</i>	7.3	159.1	359.4	476.6	559.2	992.4	1659.5

Notes: Calculated at current costs. The 2007 data on NIIP and GIIP have been updated but the updated detailed compositions were not available at the time of the publication. The net foreign asset position is foreign assets minus foreign liabilities.

Sources: State Administration of Foreign Exchange and authors' own estimates.

Figure 4.3 Composition of China's international investment position (US\$ billion and per cent)



Notes: Calculated at current costs; net equity position is asset minus liability of direct investment and equity portfolio investment; net debt position is asset minus liability of all the other categories.

Sources: State Administration of Foreign Exchange and authors' own estimates.

Second, the size of China's international balance sheet—the sum of foreign assets and liabilities—has expanded considerably in the past two decades. China's gross external investment position rose by more than 88 times during 1985–2007 (Figure 4.1) and exceeded \$3.8 trillion by 2008, ranking third in Asia, after Japan and Hong Kong Semi-Autonomous Region (Table 4.2). Measured against GDP, however, China's gross position only slightly exceeds 110 per cent and remains well below the East Asian average of 250 per cent. Since the gross position of foreign assets and liabilities serves as an indicator of international financial integration, we will also examine whether China's financial integration and interactions with the rest of the world will continue expanding over time.

Finally, the structure of China's external balance sheet has become more asymmetric over time. China's 'long debt, short equity' asymmetry has become more pronounced, as the absolute sizes of its net negative equity position and positive net fixed-income instrument position have been growing (Figure 4.3). Moreover, 70 per cent of China's foreign liabilities today are concentrated in equity instruments (mostly direct investment), in contrast with the mid-1980s, when 80 per cent of its total foreign liabilities were owed by the public sector in the form of multilateral and bilateral borrowings. Finally, reserves increasingly dominate China's foreign assets, representing two-thirds of its total today, in comparison with 15 per cent 20 years ago. In other words, the monetary authority has become the largest holder of Chinese foreign assets (Figure 4.1).

Table 4.2 International investment positions: China and Asia, 2007
(US\$ billion and per cent)

	China	Hong Kong	Japan	Singapore	Korea
(1) Gross external assets	2428.0	2730.6	5355.2	879.9	587.6
(2) Gross external liabilities	1400.6	2208.7	3160.3	725.2	820.1
(3) Gross position = (1) + (2)	3828.5	4939.3	8515.5	1605.1	1407.7
(4) <i>Gross position as percentage of GDP</i>	<i>113.1</i>	<i>2383.8</i>	<i>194.4</i>	<i>995.1</i>	<i>145.1</i>
(5) NFA = (1) – (2)	1.027.4	521.9	2194.9	154.7	–232.5
(6) <i>NFA as percentage of GDP</i>	<i>30.4</i>	<i>251.9</i>	<i>50.1</i>	<i>95.9</i>	<i>–24.0</i>

Notes: All are in 2007 data; China calculated at current costs; gross position is the sum of foreign assets and liabilities.

Sources: State Administration of Foreign Exchange; International Monetary Fund; various governments; authors' own estimates.

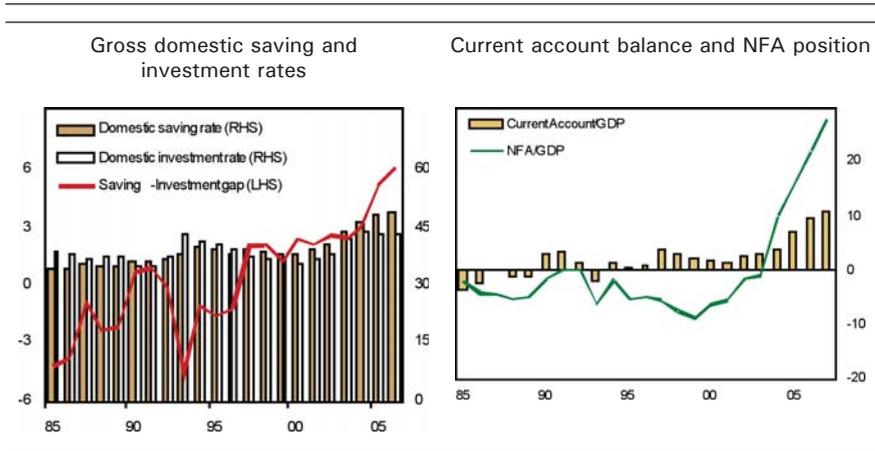
Why is China lending so early to the rest of the world?

China's net creditor position has been growing rapidly since 2004. Its NFA position exceeded \$1 trillion or 30 per cent of GDP by 2007, when Chinese per capita GDP was only \$2500—one-tenth of the OECD average. According to the neoclassical model, this is puzzling, given China's still low levels of income and capital–labour ratio as well as its exceptional growth momentum (Dollar and Kraay 2006). According to conventional wisdom, China should be importing large amounts of foreign savings rather than lending abroad. This seems to be a case of the 'Lucas paradox', 'allocation puzzle' or 'perverse capital flows'.³

China's growing NFA position in the latter half of the first decade of the 2000s appears to have been driven mostly by its concurrently surging current account surplus (Figure 4.4). The Chinese current account surplus rose from being essentially balanced in the early 2000s to some 10 per cent for 2007. Between 2004 and 2007, China's cumulative current account surplus reached \$1.3 trillion—similar to the change in its NFA position during the same period. Underpinning such large rises in the current account surplus has been the high and rising domestic saving rate relative to its already high domestic investment rate. China's gross domestic saving rate rose from 38 per cent of GDP in 2000 to a record high of nearly 50

per cent in 2007, widening the saving–investment gap from 2 per cent of GDP to about 7 per cent. Factors shaping China's saving–investment gap and current account balance are therefore also likely to be a central part of the puzzle.

Figure 4.4 Current account balance, saving–investment gap and NFA position as a percentage of GDP



Note: NFA is net foreign asset, which equals foreign assets less foreign liabilities.

Sources: State Administration of Foreign Exchange; authors' own estimates; Ma, G. and Zhou, H. (forthcoming), *China's evolving external wealth and rising creditor position*, BIS Working Papers, Bank for International Settlements, Basel.

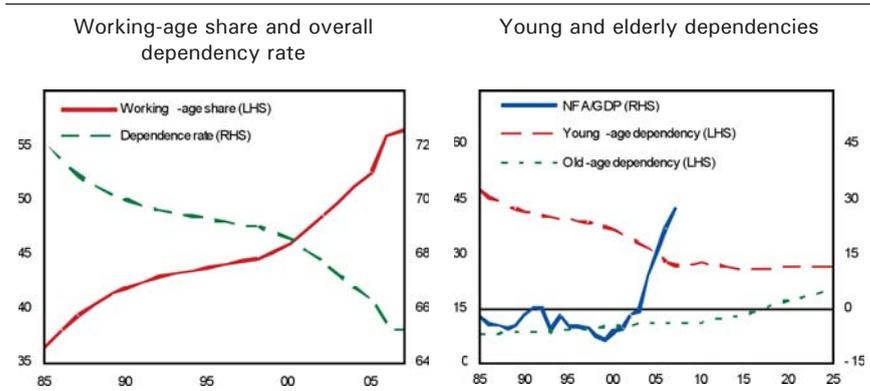
In the literature, three broad strands of explanation for China's unusually high gross domestic saving rate have been proposed.⁴ The first strand interprets high household saving as being linked to precautionary motives and/or demographic trends. Diminished provision of social services, reduced job security and limited access to consumer credit during the economic transition of the 1990s are thought to be important reasons. Less attention has been given to the fact that the working-age population has risen relative to the total population. The second explanation is a high corporate saving rate, owing to strong corporate profits and a policy of no dividend payments. Finally, high government saving could in part help explain China's high saving rate because of buoyant revenues and low government consumption.

These explanations address their effects mostly on saving only and appear insufficient in explaining the large saving–investment surplus that has driven China's creditor position. To gauge the plausible empirical magnitudes of a range of the factors thought to directly shape China's

NFA position, this chapter follows Lane and Milesi-Ferretti (2001) and estimates a parsimonious reduced-form model. The five determinants of the NFA position considered in our analysis are relative income growth, demographics, government debt, domestic financial depth and the exchange rate. In particular, one main contribution of our chapter is to compare the roles of the demographic trends with relative growth in shaping China's NFA position.

The first factor is the growth differential. According to the standard neoclassical growth model, relatively high growth at home can be viewed as a low-income economy catching up and could indicate a higher marginal product of capital, which should attract foreign capital inflows and discourage overseas investment. In other words, higher returns on capital at home should facilitate foreign liability expansion and dampen acquisition of foreign assets. We therefore expect a negative relation between the growth differential and the NFA position. As China turned itself into a big net exporter of capital, it was among the fastest-growing economies in the world.

A second factor is demographic transition—a window whereby the labour force temporarily grows faster than the population dependent on it, resulting in a falling dependency rate. For many economies, this demographic window lasts for more than five decades (Lee and Mason 2006), but it has taken China only half that time to achieve; China's overall dependency ratio fell from 55 per cent in 1985 to 38 per cent in 2007 (Figure 4.5). According to the life-cycle hypothesis, a falling dependency burden helps lift the saving rate of households and thus funds additional investment, leading to higher per capita income growth (Williamson and Higgins 2001). A falling overall dependency rate also indicates additional labour supply, which, together with more liberalised rural–urban migration (Wang and Mason 2008), boosts firms' profits and corporate saving by restraining wage increases. Finally, a lower dependency ratio could also suggest less government consumption on health care and pensions and thus higher government saving.

Figure 4.5 China's demographic transition and NFA position (per cent)

Notes: The working-age share is the ratio of the working-age population (aged between fifteen and sixty-five) to the total population. Young-age (old-age) dependency is the ratio of those aged below fifteen (above sixty-five) to the working-age population. The overall dependency rate is the sum of young and old-age dependencies.

Source: Ma, G. and Zhou, H. (forthcoming), *China's evolving external wealth and rising creditor position*, BIS Working Papers, Bank for International Settlements, Basel.

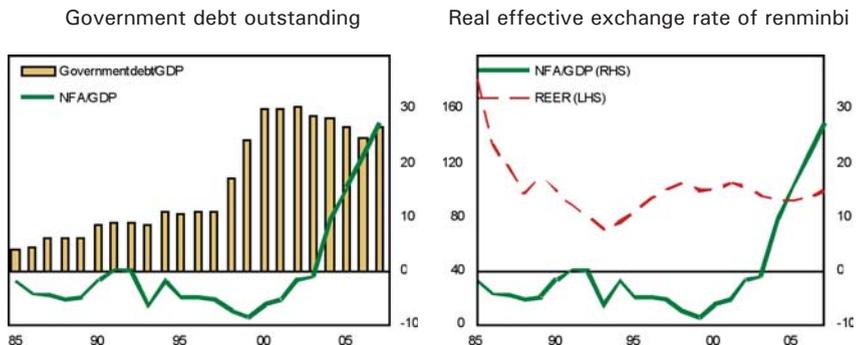
Although the saving story of lower dependency is well understood, the potential asymmetrical demographic effects of young and old-age dependencies on domestic investment and thus the domestic saving–investment gap are less well known. A lower youth dependency should boost savings but not necessarily investment, all else being equal (Higgins and Williamson 1997). This is because a lower youth dependency could reduce demand for investment in housing, schools and hospitals. Falling youth dependency therefore tends to boost the saving–investment surplus, thus impacting favourably on the current account balance.

In contrast, the effect of elderly dependency on the current account is ambiguous in theory, depending on the relative demographic effects on saving and investment. A rising elderly dependency rate can dampen investment more than saving, also leading to a current account surplus (Lueth 2008; Peng 2008), mainly because a diminishing labour supply and a rising capital–labour ratio tend to discourage domestic investment. Alternatively, it could worsen the current account balance if the saving effect outweighs the investment effect (Kim and Lee 2007; IMF 2008). One striking feature of China's demographic transition during 1985–2007 is that its youth dependency fell by half, while its elderly dependency edged up only slightly, resulting in a stable overall dependency ratio (Figure 4.5).⁵ An interesting empirical question asks what is the possible net effect of

this particular demographic transition on China's saving–investment gap and consequently its current account surpluses or increased net capital outflows.

The third factor considered in this chapter is the government debt stock. This factor is found to negatively affect an economy's NFA position, as a larger stock of government debt tends to reduce gross domestic saving and increase external borrowing (Lane and Milesi-Ferretti 2001). China's government debt level rose from 4 per cent of GDP in 1985 to a peak of 30 per cent in 2002, but has since trended lower (Figure 4.6). This appears to be consistent with the argument that high government saving could in part have supported China's high domestic saving rate in recent years (Li and Yin 2007), contributing to China's swing from being a debtor to a creditor during the early 2000s.

Figure 4.6 China's NFA position, government debt and real effective exchange rate (per cent and index)



Note: REER is the real effective exchange rate (2000 = 100).

Source: Ma, G. and Zhou, H. (forthcoming), *China's evolving external wealth and rising creditor position*, BIS Working Papers, Bank for International Settlements, Basel.

The fourth variable is domestic financial development. Its effect on the saving–investment balance and thus the NFA position is generally ambiguous. One theory suggests that financial underdevelopment results in over-saving (failure of consumption smoothing) and excessive financing constraint on domestic investment spending, both of which contribute to a rise in the saving–investment gap (Mendoza et al. 2007; Chamon and Prasad 2008). This could spur overseas diversification (thus facilitating foreign asset accumulation) and discourage foreign investors (hence limiting foreign liability accumulation), boosting the NFA position of the

home economy. Financial underdevelopment should therefore limit the ability of an economy to absorb foreign capital. Conversely, advances in the domestic financial sector in an economy should relate negatively to its net external position.

Finally, a more controversial determinant is the exchange rate, the effects of which on the NFA position could work through the trade and valuation channels. One theory is that an undervalued renminbi boosts corporate profits and savings on the one hand and depresses domestic investment by raising the prices of imported capital goods on the other (Eichengreen 2006; Goldstein and Lardy 2008). A stronger renminbi should therefore trim China's current account surplus and negatively affect its NFA position (Figure 4.6). This needs to be tested, however, as Chinn and Wei (2008) find limited empirical support for the role of the exchange rate in current account adjustment.

Specification and estimation

To test the empirical importance of these proposed determinants of the NFA position, we estimate the following regression equation on the 1985–2007 time series data.

Equation 4.1

$$\text{nfa}_t = \alpha_0 + \beta_1 \text{GROWTH}_t + \beta_2 \text{YOUNG}_{t-1} + \beta_3 \text{OLD}_{t-1} + \beta_4 \text{DEBT}_t + \beta_5 \text{FINANCE}_t + \beta_6 \text{REER}_t + \varepsilon_t$$

in which *nfa* is the ratio of the NFA position over GDP; *GROWTH* is the log of the ratio of China's real GDP over that of the OECD; *YOUNG* (*OLD*) is the young (old) age dependency ratio; *DEBT* is the ratio of (domestic and external) government debts outstanding to GDP; *FINANCE* is an indicator of domestic financial development; *REER* is the real effective exchange rate of the renminbi; and ε is the error term. We construct two alternative measures of domestic financial depth (Ma and Zhou forthcoming). Finally, to address the concerns of non-stationarity in the time-series data, we also estimate the first-difference form of Equation 4.1.

Equation 4.2

$$\Delta \text{nfa}_t = \alpha_0 + \alpha_1 \Delta \text{GROWTH}_t + \alpha_2 \Delta \text{YOUNG}_{t-1} + \alpha_3 \Delta \text{OLD}_{t-1} + \alpha_4 \Delta \text{DEBT}_t + \alpha_5 \Delta \text{FINANCE}_t + \alpha_6 \Delta \text{REER}_t + \pi_t$$

Results for Equations 4.1 and 4.2 are presented in Tables 4.3 and 4.4. Most of the coefficients are consistent with our prior expectations. Our

findings confirm both predictions that higher growth tends to attract more capital inflows into China, turning it into a net borrower. On the other hand, the falling young-age dependency tends to contribute to the current account surplus, turning China into a net lender. There is also some evidence suggesting that outstanding government debt negatively affects the NFA in China's case. Our findings, however, seem to suggest limited roles for financial depth and the real effective exchange rate. Since the first-difference equations appear to yield more stable coefficients and suggest a more plausible size of impact while avoiding the non-stationarity problem, our discussions of the medium-term outlook for the NFA position will be based on the estimates reported in Table 4.4.

Table 4.3 Determinants of China's net foreign asset position
(in level)

	1	2	3	4	5	6
GROWTH	-0.73 ^c (-4.38)	-0.79 ^c (-4.82)	-0.67 ^c (-5.69)	-0.64 ^c (-5.84)	-0.72 ^c (-4.47)	-0.68 ^c (-6.58)
YOUNG	-2.78 ^a (-1.98)	-1.79 (-1.25)	-3.43 ^c (-4.67)	-3.28 ^c (-4.69)	-3.17 ^c (-2.90)	-3.50 ^c (-5.41)
OLD	36.67 ^b (2.55)	44.27 ^c (3.01)	30.09 ^c (4.02)	28.99 ^c (4.15)	35.25 ^b (2.57)	30.80 ^c (4.64)
DEBT	-1.38 ^c (-3.66)	-1.50 ^c (-4.19)	-1.23 ^c (-4.95)	-1.19 ^c (-4.86)	-1.32 (-3.82)	-1.23 ^c (-5.11)
FINANCE	0.02 (0.46)		0.01 (0.23)			
CAPITAL		0.06 (1.43)		0.03 (0.88)		
REER	-0.07 (-0.54)	-0.16 (-1.18)			-0.04 (-0.37)	
Constant	-139.72 (-0.92)	-231.13 (-1.47)	-67.65 (-0.94)	-65.68 (-0.93)	-112.97 (-0.82)	-69.11 (-0.99)
Adjusted R ²	0.89	0.91	0.90	0.90	0.90	0.91
Durbin-Watson stat.	1.73	2.00	1.61	1.67	1.61	1.58

^a denotes significance at the 10 per cent level

^b denotes significance at the 5 per cent level

^c denotes significance at the 1 per cent level

Notes: Equation 4.1; the sample period covers 1985–2007; t-statistics are in parentheses.

Source: Ma, G. and Zhou, H. (forthcoming), *China's evolving external wealth and rising creditor position*, BIS Working Papers, Bank for International Settlements, Basel.

Table 4.4 Determinants of China's net foreign asset position
(in first difference)

	1	2	3	4	5	6
GROWTH	-0.20 (-0.57)	-0.23 (-0.58)	-0.26 (-0.88)	-0.29 (-0.89)	-0.29 (-0.82)	-0.31 (-1.03)
YOUNG	-5.52 ^b (-2.71)	-4.39 ^a (-1.75)	-5.30 ^c (-2.79)	-4.08 ^a (-1.85)	-3.48 ^b (-2.36)	-3.43 ^b (-2.47)
OLD	25.43 (1.10)	17.38 (0.73)	30.60 (1.68)	21.32 (1.12)	15.33 (0.68)	17.67 (1.10)
DEBT	-0.24 (-0.52)	-0.31 (-0.63)	-0.33 (-0.88)	-0.40 (-1.00)	-0.40 (-0.86)	-0.43 (-1.13)
FINANCE	-0.08 (-1.40)		-0.07 (-1.40)			
CAPITAL		-0.03 (-0.46)		-0.02 (-0.39)		
REER	0.05 (0.38)	0.04 (0.30)			0.02 (0.15)	
Constant	-4.53 (-1.18)	-2.73 (-0.62)	-4.63 (-1.25)	-2.60 (-0.61)	-1.39 (-0.43)	-1.49 (-0.49)
Adjusted R ²	0.19	0.09	0.23	0.14	0.13	0.19
Durbin-Watson stat.	2.50	2.50	2.53	2.54	2.50	2.53

^a denotes significance at the 10 per cent level

^b denotes significance at the 5 per cent level

^c denotes significance at the 1 per cent level

Notes: Equation 4.2; the sample period covers 1985–2007; t-statistics are in parentheses.

Source: Ma, G. and Zhou, H. (forthcoming), *China's evolving external wealth and rising creditor position*, BIS Working Papers, Bank for International Settlements, Basel.

The estimated coefficient of the growth differential suggests that for each 1 percentage point growth differential vis-a-vis the OECD, China's NFA/GDP ratio will decline by 0.25 percentage points per annum. This is consistent with the neoclassical growth model in which a faster-growing economy tends to attract more capital inflows. Since the China–OECD growth differential averaged more than 7 per cent per annum during 1985–2007, the relative growth factor would cumulatively push China into a net debtor position of 40 per cent of 2007 GDP, *ceteris paribus*.

The declining young-age dependency ratio appears to be a major determinant of China's NFA position, overwhelming the effect of the growth differential. Our estimate suggests that China's NFA position has improved by 4.5 percentage points of GDP, on average, for each 1 percentage point decline in its young-age dependency. In just two decades, China's young-age dependency ratio dropped by nearly 20 percentage points—enough

to boost China's NFA position by 90 per cent of 2007 GDP cumulatively, all other things being equal. The estimated coefficient for the old-age dependency is positive, favouring the view that ageing might lead to increased capital outflows, given limited international mobility of labour and capital–labour substitutability (Lueth 2008). Nevertheless, we find the magnitude of the estimated coefficient implausibly large.

The coefficient for government debt also has the expected negative sign. Our estimates support the views of Kuijs (2006) and Li and Yin (2007) about the role of fiscal policy for China's high saving rate and exceed the absolute values obtained by Lane and Milesi-Ferretti (2001), suggesting that a rise of 1 percentage point in the debt/GDP ratio leads to a decline of 0.35 percentage points in the NFA/GDP ratio. China's debt/GDP ratio rose from 4 per cent to 26 per cent between 1985 and 2007, cumulatively contributing to a debtor position of about 8 per cent of 2007 GDP. Nevertheless, since 2003, a lower government debt level might have contributed to the observed swing to a net lender position by an estimated 1.5 per cent of GDP.

The sign of the financial development coefficient varies and is statistically insignificant in all cases. Our evidence therefore fails to confirm the view that financial underdevelopment is a major factor behind China's large current account surplus and growing creditor position. One possibility is that both indicators might be less than ideal measures of the institutional quality of the domestic financial sector. Nevertheless, no matter how one measures this institutional quality, a more puzzling question is why the apparent financial underdevelopment has not retarded China's economic growth so far.

Finally, the estimated coefficient for the renminbi's real effective exchange rate changes sign from equation to equation and is statistically insignificant in all cases, suggesting limited empirical evidence for the exchange rate as a major determinant of China's NFA position in our specification. This is consistent with the findings by Chinn and Wei (2008) and Cheung et al. (2009) and raises questions about the view that an undervalued renminbi adds to corporate profits and thus lifts the saving rate and current account surplus in China (Eichengreen 2006). For instance, the suggested association of strong corporate profits with an undervalued currency can induce far more investment spending than additional corporate saving thus generated, potentially worsening the current account balance and NFA position.

These results provide us with useful benchmarks about the outlook for China's NFA position. Assuming that in the next two decades China grows at a pace 5 percentage points above that of the average OECD annually and that the ratio of government debt to GDP rises by 10 percentage points cumulatively, this would cause China's NFA position as a share of GDP to fall by 22.5 and 3.5 percentage points, respectively. In other words, these two factors combined could trim China's NFA position to below 5 per cent of GDP by 2025, *ceteris paribus*.

Much of the uncertainty in the outlook for China's NFA position comes from the demographic impacts. We obtain fairly robust estimates for the impact of the young-age dependency, but China's young-age dependency is projected to change little between 2007 and 2025 (UN 2006) and might therefore cease to be a major driver of China's NFA position going forward. Meanwhile, China's old-age dependency ratio is projected to double to 20 per cent. Our estimated coefficient for the old-age dependency is, however, implausibly large and positive, suggesting that it is risky for us to assess its quantitative impact. Since existing empirical findings for East Asia are divided over the effect of ageing trends on the saving–investment balance (Higgins and Williamson 1997; Bosworth et al. 2004; Kim and Lee 2007; IMF 2008; Lueth 2008), the projected rise in old-age dependency could boost or weaken China's NFA position. The net effect on the current account could also be tempered by a concomitant rise in the overall dependency rate. One possible scenario is that the combined effect of the young and old-age dependencies on China's NFA could be negligible in the coming two decades.

These results together—taken at face value—suggest that China could remain a net creditor over the next generation and at least is very unlikely to become a meaningful debtor in the next two decades. This projection is broadly in line with the findings by McKibbin (2005), Kuijs (2006), Eichengreen (2006) and Peng (2008), but contrasts with those of Dollar and Kraay (2006), who predict that, with further economic liberalisation, China will swing into a substantial debtor position of at least 5 per cent of GDP in 20 years.

Caution, however, is called for in interpreting these results, in part because the estimation method, data sample and quality have limitations. For instance, the IIP and BoP statistics themselves are obviously subject to measurement errors. Moreover, this is a partial model that could miss some of the general equilibrium effects. In the context of global imbalances,

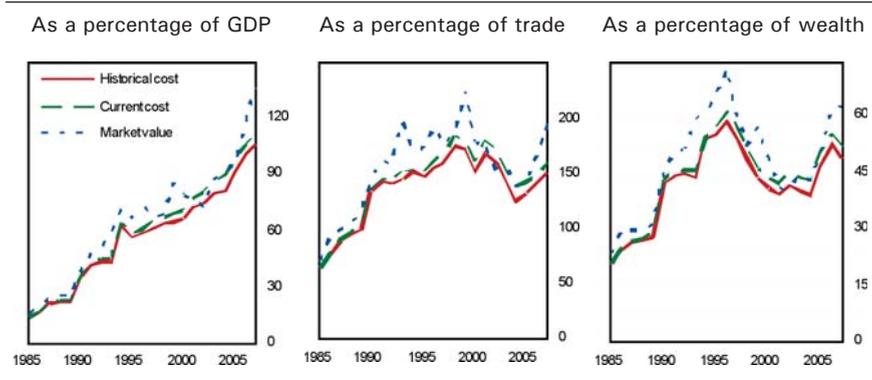
any outcome of China's current account and NFA position would depend not only on domestic developments but on the accommodation of the rest of world. Finally, we have not controlled for some of the potentially important policy and institutional factors, such as a withdrawal of public service provisions and protection of property rights—in part because measuring such factors is challenging.

China's expanding international balance sheet

China's gross external investment position—the sum of its international assets and liabilities—also matters because it can serve as an indicator of its financial integration and interactions with the rest of the world (Lane and Milesi-Ferretti 2003, 2007). Moreover, adjustments in gross positions could entail large cross-border flows, potentially overwhelming the domestic financial system and thus posing challenges to policymakers. Finally, a bigger international balance sheet could affect monetary and financial stability, as the impact of a given shock could be magnified. This section explores the medium-term outlook for China's gross position in the coming decade.

China's gross position has expanded considerably in the past two decades but remains relatively small. Scaled by GDP, China's international balance sheet has increased steadily over time, from 14 per cent of GDP in 1985 to 113 per cent by 2007 (Figure 4.7). Nevertheless, this is still below the average 350 per cent reached by OECD countries and 250 per cent for Asian economies, implying that China's external assets and liabilities have room to expand substantially in the coming decade. When scaled by trade flows and domestic financial wealth, however, China's gross position has exhibited markedly different dynamics. The gross position relative to trade flows has not been monotonic—first peaking about 1998 but trending lower since. China's financial integration seems therefore to have trailed its trade integration since the East Asian financial crisis.⁶ Alternatively, the gross position relative to domestic financial wealth displays even greater instability over time. Scaled by the sum of domestic credit, bonds outstanding and stock-market capitalisation, China's gross position peaked in 1996 but has since declined. According to this measure, China's international financial integration has stalled in recent years.

Figure 4.7 China's gross external investment position



Notes: The gross position is the sum of foreign assets and liabilities; trade is gross goods and services trade flow; wealth is domestic financial wealth defined as the sum of domestic credit, domestic bonds outstanding and domestic stock-market capitalisation.

Source: Ma, G. and Zhou, H. (forthcoming), *China's evolving external wealth and rising creditor position*, BIS Working Papers, Bank for International Settlements, Basel.

What might be the medium-term outlook for China's cross-border asset trade with the rest of the world? This question can be answered in part by examining the likely size of China's international balance sheet in 10 years if it opens up its capital account and maintains its recent path of development. We conduct this forward-looking exercise by first relating the gross position to a set of determinants across the OECD members, which by selection have achieved high degrees of capital mobility. We then apply the estimated parameters from the cross-country estimation to the assumed paths for China's growth and trade in order to project the magnitude of its gross position in a more liberalised environment in 2015.

Equation 4.3 gives the cross-sectional regression specification.

Equation 4.3

$$giip_i = \theta_0 + \theta_1 SIZE_i + \theta_2 OPEN_i + \theta_3 INCOME_i + \theta_4 FINANCE_i + \theta_5 EURO_i + \theta_6 CENTRE_i + \lambda_i$$

in which the dependent variable *giip* is the ratio of the gross position to GDP. The independent variables are standard ones examined by Lane and Milesi-Ferretti (2008) and McCauley and Chan (2008). 1) *SIZE* is country size as measured by GDP. Large economies tend to hold less external assets and liabilities relative to their size, because of greater room for domestic diversification. We therefore expect a negative coefficient for *SIZE*. 2)

OPEN is trade openness measured by the sum of exports and imports of goods and services as a ratio of GDP. Since trade and financial openness are considered to complement each other, we expect a positive correlation. 3) *INCOME* is per capita GDP, which is expected to be positively related to the gross position, as higher levels of income enhance risk tolerance and facilitate international diversification. 4) *FINANCE* is domestic financial development proxied by the two indicators discussed in section four. Its relation with the gross position is ambiguous in theory but is often thought of as being complementary. 5) We also introduce two dummies: *EURO* for the Euro area and *CENTRE* for financial centre. This is a cross-sectional regression on the OECD sample. To help smooth the trend and limit the influence of possible outliers, unusual movements and measurement errors, all of the above variables are the 2001–05 averages.⁷

Table 4.5 shows that the estimated coefficients for trade openness, economic development and the two dummies are all positive and statistically significant. Also, the dummies for the Euro zone and financial centre exert great influence on the gross position. The estimates for the coefficient of country size have the anticipated negative sign but are only marginally significant. Finally, the estimated coefficients for the two indicators of domestic financial development have the expected positive signs but are statistically insignificant.

We take the estimated parameters of Column 3 in Table 4.5 as a basis for our projections. To ensure that our projections are reasonable, we first conduct an informal model consistency simulation on the real Chinese data for the years 2004–07. We find that on the basis of the estimated coefficients from the cross-sectional regression, the real Chinese data fall nicely between our two fitted values based on the full sample and that without Luxembourg and Ireland. We shall take these two fitted values of the gross position as the upper and lower bounds of the band for our projection (Table 4.6).

Table 4.5 Determinants of the gross external investment positions of the OECD economies

	(1)		(2)		(3)		(4)	
	Full sample	Without LU & IE	Full sample	Without LU & IE	Full sample	Without LU & IE	Full sample	Without LU & IE
GDP	-0.07 (-1.50)	-0.05 (-1.29)	-0.07 (-1.49)	-0.05 (-1.30)	-0.07 (-1.65)	-0.05 (-1.38)		
Trade	0.64 ^a (3.78)	0.43 ^a (2.82)	0.63 ^a (3.71)	0.43 ^a (2.79)	0.63 ^a (3.85)	0.43 ^a (2.86)	0.79 ^a (6.08)	0.54 ^a (6.43)
Euro dummy	0.62 ^a (4.52)	0.51 ^a (3.98)	0.63 ^a (4.47)	0.51 ^a (3.99)	0.62 ^a (4.55)	0.51 ^a (4.06)	0.57 ^a (4.78)	0.47 ^a (4.27)
Financial centre dummy	1.43 ^a (5.06)	1.18 ^a (8.21)	1.44 ^a (5.13)	1.19 ^a (8.32)	1.47 ^a (5.02)	1.19 ^a (8.63)	1.43 ^a (4.90)	1.14 ^a (10.31)
Nominal GDP per capita	0.61 ^a (5.51)	0.55 ^a (6.67)	0.62 ^a (5.71)	0.55 ^a (6.81)	0.63 ^a (6.00)	0.56 ^a (6.70)	0.62 ^a (5.81)	0.55 ^a (6.34)
Finance	0.06 (0.73)	0.03 (0.70)						
Capital market			0.04 (0.52)	0.01 (0.13)				
Constant	-3.02 (-1.60)	-1.49 (0.88)	-2.91 (-1.53)	-1.39 (0.82)	-2.74 (-1.55)	-1.36 (-0.85)	-4.20 ^a (-3.07)	-2.42 ^b (-2.19)
Adjusted R ²	0.90	0.89	0.90	0.86	0.90	0.86	0.90	0.86

^a denotes significance at the 1 per cent level

^b denotes significance at the 5 per cent level

Notes: Equation 4.3, the full sample has 30 observations; LU and IE stand for Luxembourg and Ireland, respectively; the Euro dummy takes the value of 1 for Euro members and zero otherwise; for Luxembourg, Switzerland and the United Kingdom, the dummy takes the value of 1, and zero otherwise; t-statistics are in parentheses.

Source: Ma, G. and Zhou, H. (forthcoming), *China's evolving external wealth and rising creditor position*, BIS Working Papers, Bank for International Settlements, Basel.

Table 4.6 China's projected gross external investment position
(US\$ billion and per cent)

	2004	2006	2007	2010	2015
Fitted value of gross position from full sample	1730.4	2989.7	4312.7	6109.5	14 894.1
Fitted value of gross position without LU & IE	1151.4	1916.2	2690.0	3838.92	9114.62
Real gross position	1718.8	2802.9	3765.4	-	-
Fitted value of gross position/GDP from full sample (%)	89.6	113.0	133.0	142.8	192.2
Fitted value of gross position/GDP without LU & IE (%)	59.6	72.4	82.9	89.7	117.6
Real gross position/GDP (%)	89.0	105.4	111.3	-	-

- zero

Notes: Calculated at current costs; LU and IE stand for Luxembourg and Ireland, respectively.**Sources:** State Administration of Foreign Exchange and authors' own estimates.

To obtain the projected values of China's gross external international position for 2015 on the basis of the OECD experience, we assume that for the next 10 years, the annual growth rates of China's nominal GDP per capita and trade flows (both in dollar terms) average 12 per cent, respectively, compared with their historical averages of 13 per cent and 21 per cent for the past 10 years. On these assumptions, China's gross position could triple in absolute terms by 2015, as indicated by the midpoint of the two fitted values. China's gross position would rise to about 150 per cent of GDP. This forward-looking result stems from a cross-sectional regression of the OECD experience and the assumed paths of China's trade and growth, and thus is conditioned on China's domestic development as well as the accommodation of the global financial system. In particular, the current global financial crisis generally could curtail cross-border asset trade and thus slow the expansion of China's international balance sheet. The bottom line, however, is that with a more liberal capital regime, China's external balance sheet could expand, indicating China's growing role in and increased exposure to global finance in the years ahead.

The evolving structure of China's foreign assets and liabilities

The gross and net international investment positions of an economy's external balance sheet often interact with its composition to jointly shape their dynamics. This section first highlights some of the medium-term features of China's external capital structure and discusses factors shaping these trends and their implications for risk–return balance and risk–return trade-off for China. China's external capital structure exhibits three prominent features.

First, sector wise, official reserves increasingly dominate China's foreign assets, representing two-thirds of its total today, in comparison with 15 per cent 20 years ago (Figure 4.3). If the new China Investment Corporation is included, the external assets held by the Chinese official sector are estimated to top \$1700 billion in 2007—far exceeding China's NFA position of \$1 trillion. This points to a significant net foreign liability position of some \$700 billion for the Chinese non-official sector.

Second, in terms of instruments, while 70 per cent of China's foreign liabilities were concentrated in equity (mostly direct investment) in 2007, some three-quarters of its foreign assets were estimated to be in the fixed-income instruments. As a result, the absolute sizes of its net negative equity position and positive net debt instrument position have grown over time (Figure 4.3). This 'long debt, short equity' asymmetry is more pronounced than in most emerging economies (Lane and Schmukler 2007).⁸

Third, regarding currency composition, while China's foreign assets are denominated almost entirely in foreign currencies, 70 per cent of its foreign liabilities are denominated in the domestic currency—mainly because of its large inward direct investment position. Other things being equal, a 10 per cent appreciation of the renminbi is estimated to translate into a valuation loss of almost 3 per cent of 2008 GDP, given that China's gross liability position is 43 per cent of GDP.

Many factors could affect the composition of China's external balance sheet. We highlight only three in this chapter. The first is the particular sequence of China's capital account opening. The previous policy of favouring capital inflows and discriminating against outflows, for instance, could help explain the fact that compared with China's external assets, its external liabilities are more diversified among local/foreign as well as private/public players. Also, the commanding role of inward direct

investment in China's external liabilities could be attributed in part to the longstanding policy of promoting this form of inflow and restricting portfolio inflows.⁹

A second factor is changing exchange rate expectations. The Chinese renminbi has been heavily managed but market expectations swung quite sizeably over time. Typically, in time of depreciation in expectations, there is understatement of China's foreign assets due to capital flight, and in time of appreciation in expectations, there is understatement of China's foreign liabilities due to hot money inflows. Before 2002, the perceived renminbi weakness during the East Asian financial crisis encouraged Chinese households and firms to hang on to their dollar deposits and avoid dollar loans, with the government struggling to protect the official reserves (Figure 4.8). This pattern reversed considerably during 2002–07, as the Chinese private sector attempted to shift the exchange rate risk onto the public sector by selling dollars to the central bank, which resulted in a large build-up of China's official reserve assets (Goldstein and Lardy 2008).

The third factor is domestic financial development. The underdevelopment of China's domestic capital market could also have constrained foreign investors from participating in local securities markets and forced domestic firms to turn increasingly to foreign direct investment. Moreover, the small size of China's domestic capital markets relative to cross-border capital flows in turn might also give rise to apprehension on the part of the regulatory authorities, resulting in a tiny portfolio liability position in China's external balance sheet. On the other hand, China's banking sector still dominates its domestic financial system and thus helps explain why the position of other investment (mostly bank-related instruments) is more than twice the size of the portfolio investment position on both sides of the Chinese international balance sheet.

China's external capital structure raises a number of issues related to the risk–return trade-off. First, the official sector as a prominent asset holder and China's highly skewed 'long debt, short equity' position could indicate a deliberate past policy choice to place a big premium on stability, since it offers policymakers some comfort in times of distress. Reserve assets tend to be placed in liquid but low-yield fixed-income products, while equity investment on the liability side is often riskier and thus more costly. This imbalance in China's international balance sheet also suggests that China might have fared relatively better than most in the current

global financial crisis and thus is well positioned to rebalance its external portfolio on a longer-term basis in the future. Large overseas direct investment from China into the rest of the world is therefore expected only in the foreseeable future.

Second, low returns on China's net foreign assets mean that it has so far accumulated its net foreign assets principally through its trade surplus over time. One can compare an economy's NIIP with its cumulative net exports of goods and services, with the gap serving as an indicator of the cumulative total returns on its net external position. As Figure 4.9 shows, China's cumulative trade balance of goods and services exceeds its net foreign asset position, whereas Hong Kong's cumulative net exports of goods and services account for less than one-third of its NFA position (Yong and Chen 2005). In other words, Hong Kong attains its big net foreign asset position mostly by high net returns (income and valuation changes) from cross-border asset trade, whereas China achieves this principally by accumulating trade surpluses over time.

Conclusions

This chapter has investigated the medium-term trends of and outlook for China's net and gross international investment positions as well as the composition of its external balance sheet. We find that the marked decline in young-age dependency could have been a major determinant of China's position as an emerging big net creditor. Faster growth and higher government debt only partially offset this demographic effect. Moreover, the roles of the exchange rate and financial depth in shaping China's NFA position appear mixed. Our findings suggest that the probability of China swinging into a meaningful debtor position in the coming two decades is low. As the gross size of its international balance sheet could triple within the next 10 years, China is likely to be a bigger player in the global financial system while also becoming more exposed to external shocks. Finally, the composition of China's external assets and liabilities is highly skewed, reflecting past developments in policy, institutions and markets and suggesting substantial potential for portfolio rebalancing going forward.

A number of implications can be drawn from these findings. First, with a very different pattern of demographic shifts expected in the coming two decades, China's NFA position is expected to adjust gradually, facilitated by continued strong economic growth and a more flexible renminbi. This

should assist an orderly global rebalancing without creating excess stress on the rest of the world. Second, as China's NFA position is unlikely to reverse sharply into that of a net debtor, the pressure from large and sudden reversals in cross-border flows arising from big position adjustments under a more open capital account should be manageable, other things being equal. This should be positive for China's goal of greater renminbi convertibility. Third, a bigger international balance sheet indicates growing interactions between China and the global financial system and highlights the need for China to enhance risk management and financial market development, and for the rest of the world to learn to cope with a rising China. Finally, China's lopsided external balance sheet could offer room for marked portfolio rebalancing in the coming decades—increased overseas equity investment on the asset side and greater portfolio investment inflows on the liability side.

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Endnotes

1. Guonan Ma is a senior economist at the Bank for International Settlements (BIS) and Zhou Haiwen is a staff member of the State Administration of Foreign Exchange of China (SAFE). The views expressed in this chapter are those of the authors and do not necessarily reflect those of their affiliated organisations. We are grateful for the comments and suggestions by Claudio Borio, Stephen Cecchetti, Yin-Wong Cheung, Andrew Filardo, Marion Kohler, Li Jiange, Robert McCauley, Anella Munro, Frank Packer, Thomas Rawski, Eli Remolona and Wang Xin, although any errors remain ours. We also thank Eric Chan and Marek Raczko for their excellent research support.
2. There are three basic measures of the international investment position: historical cost, current cost and market value. The Chinese official IIP statistics are based principally on the historical-cost approach. On the basis of the official statistics, China's net foreign asset position exceeded 30 per cent of GDP in 2007. Following the US Bureau of Economic Analysis (Nguyen 2008), we adopt the current cost value as our featured or benchmark IIP measurement in this chapter, unless otherwise specified.
3. Lucas (1990) argues that the levels of capital flows from rich and capital-abundant economies to poor and capital-scarce economies are too low, relative to what the neoclassical growth models predict. Gourinchas and Jeanne (2007) and Prasad et al. (2006–07) go one step further: the former show developing economies with faster growth attract less capital (the 'allocation puzzle'), while the latter demonstrate a positive correlation between the current account balance and growth among emerging markets.
4. See Loayza et al. (2000) for an overview of the determinants of domestic saving in developing economies. Most of the literature also focuses on the Chinese saving rate instead of the saving–investment gap. For an overview of China's household, corporate and government saving patterns, see Zhou (2009). For further discussion, see Kraay (2000); Modigliani and Cao (2004); Fehr et al. (2005); McKibbin (2005); Kuijs (2005, 2006); Dollar and Kraay (2006); Eichengreen (2006); Li and Yin (2007); Chamon and Prasad (2008); and Horioka and Wan (2008). Also, for empirical studies on medium-term factors behind the current account, see Debelle and Faruqee (1996) and Chinn and Prasad (2003).
5. The significant decline in the young-age dependency started in the early 1980s and was attributable in part to the baby boom during the 1950s and 1960s and the sudden fall in the birth rate due to the one-child policy vigorously implemented from the late 1970s.
6. This is perhaps due to a combination of large-scale withdrawals of international capital from Asia during the East Asian financial crisis, a policy response of fortified capital controls to support the official pledge of no renminbi devaluation and accelerated trade flows after China's entry to the World Trade Organisation.
7. To further mitigate possible heteroskedasticity in our cross-sectional regressions, we: 1) take logs of all the variables except the two dummies; 2) introduce White heteroskedasticity-consistent co-variances; and 3) regress the samples with and without Luxembourg and Ireland (the two main outliers).
8. Moreover, compared with other instruments, the position of portfolio investment has been tiny on both the asset and the liability sides of China's external balance sheet.
9. In recent years, China has moved towards a more balanced management of capital inflows, with an increased emphasis on portfolio investment. China's external positions could therefore rebalance across instruments in the coming years.