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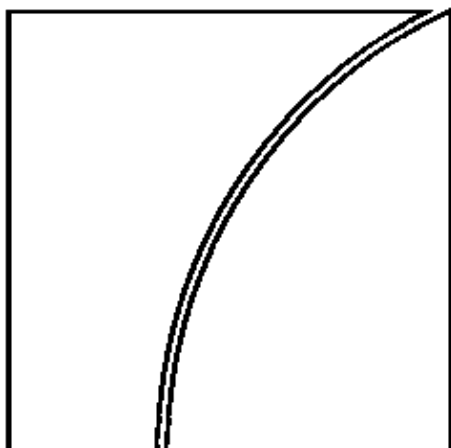
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China's evolving external wealth and rising creditor position

Guonan Ma and Zhou Haiwen¹

Abstract

China's emergence as a major player in world trade is well known, but its rising role in global finance is perhaps underappreciated. China is the second largest creditor in the world today, with a net creditor position of exceeding 30% of GDP in 2007. In this paper, we test the importance of growth differential, demographics, government debt, financial depth and the exchange rate in shaping China's net foreign asset position. Our findings highlight the sharp fall in youth dependency as one key driver behind China's puzzlingly large net lender position and also confirm the neoclassical prediction that faster growth attracts more capital inflows. Looking ahead, our findings also suggest that China is unlikely to turn into a meaningful net debtor nation over the next two decades. Moreover, we project that, as China engages in increased cross-border asset trade, its gross foreign assets and liabilities could triple in 10 years. While adjustments in China's net foreign asset position are expected to be gradual and may thus facilitate its capital account opening, increasing exposure to external shocks and growing interactions with the rest of the world may present challenges both to China and to the global financial system.

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1. Introduction

While the balance of payments (BoP) statistics reflect cross-border flows over a period of time, the international investment position (IIP) records an economy's external financial assets and liabilities or 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, with an additional category of foreign reserves on the asset side. The IIP data indicate that China has become more financially interactive with the outside world; the sum of its external assets and liabilities has expanded by 90 times in the past two decades. Moreover, in less than 10 years, China's net foreign asset (NFA) position – the difference between external assets and liabilities – has swung from a net debtor of around 9% of GDP in 1999 to a net creditor of more than 30% of GDP at current cost.² By 2007, China's NFA position, in absolute terms, ranked as the second largest in the world, after Japan. Given China's growing role in the global financial system, the stakes are high, not only for China but for the rest of the world.

In this paper, we examine the following questions concerning China's IIP. How has China's IIP been evolving over time? Why has China become such a large creditor at an early stage of development? Will its NFA position be maintained over 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?

This paper builds on the numerous related research efforts. Lane and Milesi-Ferretti (1999, 2007 and 2008) have covered much ground in the field of IIPs: they developed an impressive IIP dataset for more than 100 countries, including China, when few were officially compiling IIP data and have since explored many themes related to IIP. Nevertheless, systematic research into China's external balance sheet and international financial integration has been limited. Lane and Schmukler (2007) compare the net position, size and structure of China's and India's external balance sheet mainly on the basis of their constructed dataset prior to the first official publication of the Chinese IIP data. McCauley and Chan (2008) predict China's external banking position in the coming years based on a cross-sectional study of the OECD economies.

In particular, there have been very different explanations for China's puzzlingly large NFA position, given that its capital/labour ratio is still quite low. According to the neoclassical growth model, higher returns to capital should attract capital inflows so that, in principle, a low-income, catching-up economy should be a net debtor borrowing foreign savings. Dollar and Kraay (2006) conjecture that domestic distortions in China lead to a large current account surplus and net capital outflows. They calibrate a theoretical model to predict a net debtor position of 17% of wealth for China in the mid-2000s and use non-structural regressions to predict China's NFA position to be a negative 5–10% of GDP. In contrast, McKibbin (2005) and Peng (2008) highlight the macroeconomic consequences of a demographic transition and project, also on the basis of a neoclassical assumption, that over the coming decades, China is likely to run a current account surplus and thus maintain a large NFA position.

The purpose of this paper is to shed some light on the empirical importance of some of these medium-term economic and demographic factors influencing both China's net and gross IIPs. Based on an analysis of the time series data, we examine factors such as relative

² There are three basic measures of IIP: historical cost; current cost; and market value. According to the official Chinese IIP statistics, which are principally based on the historical cost approach, China's NFA position exceeded 30% 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 measure in this paper, unless otherwise specified.

income growth, demographic shifts, government debt, domestic financial development and the real effective exchange rate (REER) in shaping China's NFA position. We also explore determinants of China's gross IIP – the sum of foreign assets and liabilities in a cross-sectional regression.

Three main findings of the paper are previewed. First, while a marked growth differential and huge income gap vis-à-vis the OECD attract capital inflows, China's growing creditor position can be largely attributed to its rapid demographic transition over the past two decades. If our estimation results hold and the economic and demographic trends continue in future years, China is likely to remain a net lender in the next two decades. This conclusion stands in contrast to the predictions of Dollar and Kraay (2006), which suggest that China will within two decades turn into a large debtor, and are broadly consistent with the medium- and long-term predictions of McKibbin (2005) and Peng (2008). Second, China's 2007 NFA position, measured at market value, is less than 7% of GDP, just one quarter of the current cost benchmark, due to its large liability position of direct investment and high equity market valuations at the time. Third, on all three conventional measures, the scale of China's international balance sheet has expanded substantially over the past two decades and is likely to continue to do so in the coming decade, suggesting growing interaction between China and the global financial market.

This paper is organised as follows. The next section highlights the key medium-term trends in China's IIP. Section 3 explores the question of why China's positive NFA position is so large when its income level remains low and Section 4 presents empirical results regarding the key determinants of China's growing NFA position. Section 5 examines the medium-term outlook for the size of China's international balance sheet on the basis of a cross-sectional regression of the OECD economies and our conclusions are presented in Section 6.

2. China's evolving international balance sheet

China started officially publishing IIP data in 2004, too short a period of time to allow for a meaningful analysis of the historical trends. In order to construct a longer and consistent time series, we have adopted an approach similar to Lane and Milesi-Ferretti (1999) for estimating the historical IIP for the period 1985–2003. It exploits available stock variables and derives the direct investment position using the BoP flow data. The Appendix details our methodology. Our approach, however, differs from the previous methodology in two aspects. We take the first year of the official IIP data (2004) as the starting point of our estimation to ensure that our estimated series can be integrated with official statistics,³ then we estimate the breakdown of the inward direct investment position between equity and intercompany loans (ICLs) so that we can estimate the Chinese IIP on three alternative bases: historical cost; current cost; and market value. Unless otherwise specified, this paper uses the current cost estimate as the benchmark measure.

Our new estimates of China's IIP for the period 1985–2007 reveal a number of interesting features of its external balance sheet (Table 1 and Graphs 1–3). One notable feature is that China's NFA position has surged during the 2000s (Table 1 and Graph 2). Before 2004, China was predominantly a small debtor. In 1999, its NFA position was at a trough of negative \$100 billion or approximately –9% of GDP. The turning point came in 2004, when China's creditor position started growing substantially. By 2007, its NFA position in dollar

³ The 2004 IIP statistics were the first officially published Chinese data collected on the basis of the best information available to the government. For instance, data on direct investment liabilities, which are the most difficult to collate, are collected through a joint annual inspection by seven government agencies, covering over 90% of the foreign-funded companies operating in China. It represents the most reliable data source available, as the data were also carefully reconciled with the IIP statistics from the 2005 annual inspection.

terms was the second largest globally, exceeding \$1 trillion, or more than 30% 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. However, when marked to market, it may not be that much of a puzzle at all, given that China's NFA position in 2007 shrinks to 9% of GDP, or just one quarter of the NFA measured at current cost (see Box 1).

Second, the gross size of China's international balance sheet – the sum of foreign assets and liabilities – has expanded considerably over the past two decades. The dollar value of China's total foreign assets and liabilities combined (the gross position) rose by 88 times during 1985–2007 (Graph 1). By 2007, China's gross position had reached \$3.8 trillion, ranking third in Asia, after Japan and Hong Kong SAR (Table 2). Measured as a ratio to GDP, however, China's gross position only slightly exceeds 110% and remains well below the East Asian average of around 250% in 2007. Since the gross position of foreign assets and liabilities serves as an indicator of an economy's international financial integration, we will also examine whether China's financial integration and interaction with the rest of the world will continue expanding over the medium term.

Box 1

China's IIP at market value

IIPs should ideally reflect current market prices. In practice, three conventional measures of IIP are employed: historical cost; current cost; and market value. The historical cost approach reflects the initial cost of investment, the current cost method produces the current cost replacement value of the position, while the market value approach marks the historical cost position to equity market valuation. Typically, the current cost estimate is taken as the benchmark IIP measure.

While the positions of portfolio investment and other investment can be directly measured at the current and readily observable market prices, this is not the case for direct investment, since a significant portion of the direct investment position involves illiquid ownership interests. To estimate the market value of the direct investment position, we can mark to market both the inward and outward positions of equity capital to some broad-based equity market indices (Landefeld and Lawson (1991)). Thus, differences among the three IIP measures are entirely due to either replacement cost revaluation or to mark to market of the direct investment positions. Our methodology is detailed in the Appendix.

Table 1 and Graph 2 reveal sizeable mark to market effects in the case of China. In 2007, for example, compared to the current cost measure, China's inward direct investment position (on the liability side) at market value nearly doubles to \$1.7 trillion. As a consequence, China's 2007 NFA position shrinks to a mere \$308 billion or 9% of GDP once measured at market value, compared to the current cost value of \$1 trillion or 30.4% of GDP. In other words, when marked to market, China's NFA position is only one quarter of its current cost measure and therefore much less puzzling.

There are two main reasons for the large market to market valuation impact. First, China's external balance sheet structure is highly skewed. In 2007, the current cost inward direct investment position accounts for nearly two thirds of its total foreign liabilities while the outward direct investment position represents only 7% of the foreign assets. Therefore, even at reasonable equity market valuations, given the large negative net position of direct investment, the market value of China's NFA position would be much smaller than its current cost counterpart. Second, equity market prices experienced a sizeable boom in 2006–07. Thus, marking a large and negative net position of direct investment to an inflated valuation drastically alters China's NFA position. Since the equity market lost 20% of its value between end-2007 and June 2008, China's net external position measured at market value may well recover from 9% to 19.7% of GDP in a matter of six months. Therefore, because of swings in risk appetite, the net external position measured at market value can sometimes be quite noisy.

Finally, the structure of China's external balance sheet has been evolving and has become increasingly asymmetric over time. First, China's "long debt, short equity" asymmetry has become more pronounced, as the absolute sizes of both its net negative equity position and positive net fixed income instrument position have been growing (Graph 3). Second, 70% of China's foreign liabilities now take the form of equity instruments (including equity portfolio investment and mainly direct investment), in contrast to the mid-1980s when 80% of its total foreign liabilities were owed by the public sector in the form of multilateral and bilateral borrowings. This mostly reflects a long-held policy of encouraging inflows of foreign direct investment and restricting external borrowing. Third, reserves increasingly dominate China's foreign assets, representing two thirds of its total today, in comparison to 15% 20 years ago. In other words, the official sector has become the largest holder of Chinese foreign assets (Graph 1). This could in part be the outcome of a capital control regime discriminating against private capital outflows (overseas investment by the Chinese private sector) as well as heavy interventions in the foreign exchange market in recent years.

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

A salient feature of China's external balance sheet is its rapidly growing net creditor position since 2004. Its NFA position exceeded 30% of GDP by 2007 when its per capita GDP was only \$2,500, less than one tenth of the OECD average. According to the neoclassical model this is puzzling, given China's relatively low level of income and capital/labour ratio as well as its exceptional growth momentum (Dollar and Kraay (2006)). By conventional wisdom, China should instead be a significant importer of foreign savings.⁴

China's rapidly growing NFA position since the early 2000s appears to have been chiefly driven by its concurrently surging current account surplus (Graph 4), which rose from below 3% of GDP in 2003 to almost 11% in 2007. Between 2004 and 2007, China's cumulative account surplus reached \$850 billion, similar to the change in its NFA position during the same period. Underpinning these large rises have 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% of GDP in 2000 to a high of nearly 50% in 2007, widening the saving-investment gap from 2% of GDP to approximately 7%. Hence, factors shaping China's saving-investment gap and current account balance are also likely to be a central part of the puzzle.

In the literature, three sets of explanations for China's unusually high gross domestic saving rate have been proposed.⁵ The first set interprets high household saving as 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. However, the Chinese household saving rate mostly trended lower during the most painful economic transition period of 1992–2003 before

⁴ This can be viewed as a particular example of the "Lucas Paradox". Lucas (1990) argues that the level of capital flows from rich and capital abundant economies to poor and capital scarce economies has been too low, according to the neoclassical growth models. Gourinchas and Jeanne (2007) and Prasad et al (2006) both 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 current account balance and growth among developing markets.

⁵ Most of the literature focuses on the Chinese saving rate instead of its 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), McKibbin (2005), Kuijs (2005 and 2006), Dollar and Kraay (2006), Eichengreen (2006), Li and Yin (2007), Chamon and Prasad (2008) and Horioka and Wan (2008). For empirical studies on medium-term factors behind the current account, see also Debelle and Faruqee (1996) and Chinn and Prasad (2003).

a sudden rebound in 2004–05, and remains below that of Indian households, for example. Moreover, for most of the 1990s and 2000s, social welfare coverage and consumer credit expanded significantly, far outstripping economic growth. Second, a high corporate saving rate owing to strong corporate profits and a policy of no dividend payments is proposed as another explanation. Nevertheless, it is far from certain and clear why corporate profits have been strong and how a redistribution of corporate earnings may reduce the gross domestic saving rate. Finally, high government saving may in part help to explain China's high saving rate due to enhanced revenues and low government consumption, but this contrasts with the apparent funding stress of many local governments in China.

While some of these explanations are relevant, they mostly address the saving effects and appear insufficient in explaining the large saving-investment surplus that has driven China's growing creditor position. This paper follows Lane and Milesi-Ferretti (2001) and gauges the plausible empirical magnitudes of those factors thought to directly shape China's NFA position, by estimating a parsimonious reduced-form model. The five determinants considered in our analysis are: relative income growth; demographics; government debt; domestic financial depth; and the exchange rate. In particular, one of this paper's main contributions is to highlight and compare the potentially important roles of the demographic trends and relative growth in shaping China's NFA position during 1985-2007.

The first factor we will examine is relative income level or income growth differential. We prefer relative income growth over relative income level in our time series analysis for several reasons. First, the relationship between income level and net external position is ambiguous and non-linear (Lane and Milesi-Ferretti (2001)).⁶ For instance, it tells us little about the differences between the NFA positions of the United States and Germany. Second, relative income level may be a good development-stage variable in cross-country studies but would be less useful in a time series analysis. For instance, China's per capita income rose more than sixfold during 1985–2007, while the OECD average less than doubled. At first sight, this change in relative income level seems to explain why China's NFA position improves. However, even after an advancement of relative income by a factor of three, China's per capita income level as of 2007 remains less than one tenth of the OECD average, suggesting that China should be a significant net importer of capital.

On the other hand, according to the standard neoclassical growth model, relatively high growth at home can be viewed as catching up by a low-income economy and may indicate a higher marginal product of capital which should attract foreign capital inflows and discourage overseas investment. Faster growth reflects higher marginal product of capital due to a low capital/labour ratio and avoids the potential problem of risk premium arising from institutional quality discussed by Lucas (1990). In other words, higher returns on capital at home should facilitate foreign liability expansion and dampen foreign asset acquisition. Thus, we expect a negative relationship between relative income growth and the NFA position. Interestingly, as China developed into a large 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 ratio. For many economies, this demographic window lasts more than five decades (Lee and Mason (2006)), but in China the transition took only half that time – China's overall dependency ratio fell from 55% in 1985 to 38% in 2007 (Graph 5). According to the life cycle hypothesis, a

⁶ On the one hand, high per capita income could imply relatively low domestic marginal product of capital and thus greater incentives to accumulate foreign assets, suggesting a positive relationship between income level and NFA position. On the other hand, higher income could also imply a more developed financial market and less credit constraint, thus facilitating the accumulation of international liabilities, pointing to a negative relationship.

falling dependency burden helps to lift the saving rate of households and thus encourages investment, leading to higher per capita income growth (Williamson and Higgins (2001)), which in turn increases saving further, according to the permanent income hypothesis.⁷ Moreover, a falling overall dependency rate indicates an additional labour supply, which boosts both corporate profits and saving by restraining wage increases. This has been consistent with many Chinese surveys reporting limited real wage rises over the past two decades. Finally, a lower dependency ratio may also suggest reduced government consumption in healthcare and pensions and thus potentially higher government saving.

While the saving story of a lower dependency ratio is well understood, the potential asymmetric demographic effects of youth and old-age dependency on domestic investment and thus on the domestic saving-investment gap are less well known. In particular, a reduced youth dependency should boost savings but not necessarily investment, thereby causing a current account surplus and net capital outflow, all else being equal (Higgins and Williamson (1997)). This is because a lower youth dependency could lead to reduced investment in housing, schools and hospitals. Thus, falling youth dependence tends to boost saving-investment surplus, thus favourably impacting on the current account balance.

In contrast, the effect of a higher old-age dependency on the current account is ambiguous in theory, depending on the relative demographic effects on saving and investment. A rising elderly dependence rate could dampen investment more than saving, also leading to a current account surplus or net capital outflow (see, for example, Lueth (2008) and Peng (2008)). This is because ageing tends to diminish labour supply and lift the capital/labour ratio, thus discouraging domestic investment. Or it may worsen 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 old-age dependency increased only slightly, leaving the overall dependence unchanged (Graph 5).⁸ It remains to be empirically tested how this demographic pattern may affect China's saving-investment gap and consequently current account surpluses. In sum, the markedly different patterns of the youth and old-age dependencies during the period 1985–2007 and their asymmetric effects on the saving-investment balance may offer useful clues to explain the evolution of China's NFA position.

The third factor is government debt stock. This factor has been identified as negatively affecting the 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% of GDP in 1985 to a peak of 30% in 2002 but has since trended lower (Graph 6). This appears to be consistent with the argument that high government saving has also supported China's high domestic saving rate in recent years (Li and Yin (2007)). Hence, moderating government debts outstanding in the mid-2000s could be one of the possible contributing factors in China's swing from a debtor to a creditor during the 2000s.⁹

The fourth variable we consider is domestic financial development, which can affect both savings and investment through multiple channels, with ambiguous effects on the current

⁷ The significance of demographic factors varies across different studies. Generally, microeconomic evidence based on household level data tends to find relatively small demographic effects on saving, while macroeconomic evidence based on aggregate data shows a much larger demographic impact (Bosworth et al (2004), McKibbin (2005), Horioka and Wan (2008), Chamon and Prasad (2008) and Peng (2008)).

⁸ The significant decline in youth dependency started in the early 1980s and was partly attributable to the baby boom during the 1950s and 1960s and the sudden fall in the birth rate due to the one-child policy, which was vigorously implemented from the late 1970s.

⁹ However, care is warranted, since many government-affiliated companies in China often fund their investment projects by borrowing from banks.

account and thus on the NFA position. A number of theories have been advanced to explore the role of financial development in an emerging economy. One theory suggests that financial underdevelopment often results in over-saving (failure of consumption smoothing) and excessive financing constraints on domestic investment spending, both contributing to a rise in the saving-investment gap (Mendoza et al (2007) and Chamon and Prasad (2008)). Moreover, domestic financial underdevelopment may spur overseas diversification (thus facilitating foreign asset accumulation) and discourage foreign investors (thereby limiting foreign liability accumulation), with positive effects on the NFA position of the home economy. Financial underdevelopment therefore limits the ability of an emerging economy to absorb foreign capital. Conversely, advances in the domestic financial sector in an emerging economy should negatively relate to its net external position.

Finally, a fifth and more controversial determinant is the exchange rate, the effects of which on the NFA position may work through both 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) and Goldstein and Lardy (2008)). Thus, a stronger renminbi should trim China's current account surplus and negatively affect its NFA position (Graph 6). But this theory needs to be tested, as Chinn and Wei (2008) find limited empirical support for the role of the exchange rate in current account adjustment.

4. 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:

$$nfat = \alpha_0 + \beta_1 GROWTH_t + \beta_2 YOUNG_{t-1} + \beta_3 OLD_{t-1} + \beta_4 DEBT_t + \beta_5 FINANCE_t + \beta_6 REER_t + \varepsilon_t \quad (1)$$

where *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 youth (old-age) dependency ratio, *DEBT* is the ratio of (domestic and external) government debt 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.

Both the youth and old-age dependency ratios are lagged one period on the ground that demographic forces affect savings and investment and thus the NFA position only with a lag.¹⁰ For lack of a better proxy for domestic financial development, we construct two alternative measures of domestic financial depth: capital market depth (the sum of bonds outstanding and stock market capitalisation) and overall financial depth (the sum of capital market and domestic credit), both as a ratio to GDP. Although the renminbi exchange rate was tightly managed vis-à-vis the US dollar in some of the years under investigation, its *REER* can still be variable.

To address the concerns of non-stationarity in the time series data, we also estimate the first difference form of equation (1):

$$\Delta nfat = \alpha_0 + \alpha_1 \Delta GROWTH_t + \alpha_2 \Delta YOUNG_{t-1} + \alpha_3 \Delta OLD_{t-1} + \alpha_4 \Delta DEBT_t + \alpha_5 \Delta FINANCE_t + \alpha_6 \Delta REER_t + \pi_t \quad (2)$$

Results for equations (1) and (2) are presented in Tables 3 and 4.¹¹ Most of the coefficients are consistent with our priors. Our findings confirm both predictions that higher growth tends to attract more capital inflows into China, turning it into a net borrower. Our empirical results

¹⁰ Following Debelle and Faruqee (1996) and Chinn and Prasad (2003), we will not model the entire 15 age cohorts, as in Higgins and Williamson (1997) and Lane and Milesi-Ferretti (2001).

¹¹ To allow for the possibility that *REER* is not trending, we also replace $\Delta REER$ in equation (2) with *REER* while keeping all other variables in first difference. The estimation results under this mix of level and first difference are similar to those for equations (1) and (2).

suggest that the falling youth dependency tends to contribute to current account surplus, thereby turning China into a net lender. There is also some evidence suggesting that, in China's case, outstanding government debt negatively affects its NFA position. However, our findings seem to suggest limited roles for financial depth and the REER. Since the first difference equation appears to yield more stable coefficients and suggests more plausible quantity impacts 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.

The estimated coefficient of relative income growth has the expected negative sign and is statistically significant in the level equation but loses some of its significance in the first difference equation.¹² The estimated coefficient suggests that for each 1 percentage point growth differential vis-à-vis the OECD, China's NFA/GDP ratio would decline by around 0.25 percentage points per annum. This is consistent with the neoclassical growth model where a faster growing economy tends to attract more capital inflows. Since the China/OECD growth differential averaged 7% per annum during 1985–2007, the relative growth factor alone should have cumulatively pushed China into a net debtor position of nearly 40% of 2007 GDP, *ceteris paribus*.

According to our estimation, the sharply falling youth dependency ratio appears to be a major determinant of China's NFA position, overwhelming the effect of growth differentials for this particular period. Negative and statistically significant across all regressions, the estimated coefficient suggests that China's NFA position has improved by 4.5 percentage points on average for each 1 percentage point decline in its youth dependency. In just two decades, China's youth dependency ratio dropped by nearly 20 percentage points, enough to boost China's NFA position by 90% of 2007 GDP cumulatively, other things being equal.

The estimated coefficient for the old-age dependency has the expected positive sign but is significant only for the level equation. This mixed result is consistent with findings on household saving by Horioka and Wan (2008). The positive coefficient suggests that ageing may lead to increased capital outflows, given limited international mobility of labour and capital-labour substitutability (Lueth (2008)) but is at variance of the findings by Kim and Lee (2007) and IMF (2008). Nevertheless, we find the magnitude of the estimated coefficient implausibly large within our specification.

The coefficient for government debt also has the expected negative sign. Our results support the view of Kuijs (2006) and Li and Yin (2007) regarding the role of fiscal policy in China's high saving rate. Our estimates are also consistent with the findings by Lane and Milesi-Ferretti (2001) but exceed the absolute values of their estimates, on average suggesting that a rise of 1 percentage point in the government 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% to 26% between 1985 and 2007, cumulatively contributing to a debtor position of about 8% 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% of GDP.

The sign of the financial development coefficient varies for both indicators and is statistically insignificant across all cases. Thus, our regression exercise does not seem to provide strong evidence to back up 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 may be less than ideal measures of institutional quality of domestic financial markets. Nevertheless, no matter how this institutional quality is measured, a more fundamental and puzzling question would be why the apparent financial underdevelopment has not yet slowed China's economic growth in the first place. Moreover, this could still be a

¹² We have also used the relative growth rate on the basis of per capita income and obtained very similar estimation results.

contributing factor in understanding the size of China's international balance sheet (see Section 5).

Finally, the estimated coefficient for the renminbi's REER 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.¹³ This is consistent with the findings by Cheung et al (2009) and raises questions concerning the view that an undervalued renminbi adds to corporate profits and thus lifts the saving rate and current account surplus in China (Eichengreen (2006)). In theory, the role of the exchange rate should be ambiguous. 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. In our view, the declining youth dependency is more consistent with China's high corporate saving (Kuijs (2006) and Li and Yin (2007)), since, in a standard Lewis model, ample labour supply tends to restrain wage growth, thereby boosting corporate profits and thus retained earnings.

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

Much of the uncertainty in the medium-term outlook for China's NFA position comes from the demographic impacts. We obtain fairly robust and consistent estimates for the impact of youth dependency, but according to the projection of the United Nations (2006), China's youth dependency is to change little between 2007 and 2025 (Graph 5) and may thus 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%. However, our estimated coefficient for the old-age dependency is positive but implausibly large, suggesting that it is risky for us to assess its quantitative impact. Since existing empirical findings on East Asia are divided over the effect of ageing on the saving-investment balance (Higgins and Williamson (1997), Bosworth et al (2004), Kim and Lee (2007), IMF (2008) and Lueth (2008)), the predicted rise in old-age dependency could support or weaken China's current account balance. Moreover, this effect on the current account may be tempered by a concomitant rise in China's overall dependency rate.

These results together, taken at face value, suggest that China could remain a net creditor over the next generation, although its NFA position as a ratio to GDP may well shrink noticeably. In any case, China is unlikely to become a sizeable debtor over the next two decades. This projection is broadly in line with the findings by McKibbin (2005), Kuijs (2006) and Eichengreen (2006) 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% of GDP in 10 or so years' time. Our findings are also broadly consistent with, but more modest than, the very strong projection of Peng (2008) that China's NFA position will continue to rise into 2080.

¹³ One may consider replacing the REER level with the deviation from its equilibrium value. The challenge to this approach is the difficulty in measuring the equilibrium value and in quantifying the statistical uncertainty in their point estimates (Cheung et al (2007 and 2009)). Moreover, it is still debatable whether there exists a unique equilibrium real exchange rate. Finally, to address the possible complication of two-tier exchange rates before 1994, we re-estimated equations (1) and (2) for 1995–2007 and confirm the findings of unstable signs and statistical insignificance for REER in all cases.

Caution, however, is called for in interpreting these results, partly because both the estimation method and the data sample and quality have limitations. For instance, the IIP and BoP statistics themselves are obviously subject to measurement errors (Zhang (2008)). Moreover, this is a partial model that may omit 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 also on the accommodation of the rest of world. For instance, global rebalancing may interact with domestic factors to shrink China's NFA position going forward. Also, our medium-term outlook for China's NFA position is conditioned on the implicit assumption that successive cohorts continue to save like current cohorts. Finally, we have not controlled for some of the potentially important policy and institutional factors, such as withdrawal of public service provision and protection of property rights, partly because measuring such factors is challenging. For instance, reduced provision of public housing is often accompanied by itemised cash compensation in China. Thus, higher personal saving rates and less public housing together tell us little about "precautionary saving" and the saving-investment balance.

5. China's expanding international balance sheet

This section explores the medium-term outlook for the size of China's international balance sheet or its gross IIP. An economy's gross position – the sum of its international assets and liabilities as a ratio to GDP – serves as a useful indicator of its financial integration and interactions with the rest of the world (Lane and Milesi-Ferretti (2003 and 2007)). Moreover, rapid adjustments in external positions could themselves entail large, volatile cross-border flows, overwhelming the domestic financial system and thus posing challenges to policymakers. A bigger international balance sheet could affect monetary policy and financial stability, as the impact of a particular shock could be magnified.

China's gross position has expanded considerably over the past two decades but remains relatively small. Scaled by GDP, China's international balance sheet has increased steadily over time, from 14% of GDP in 1985 to 113% by 2007 and has even reached 135% if measured by market value (Graph 7). Nevertheless, this is still below the average 350% reached by OECD countries or 250% for Asian economies, implying that China's external assets and liabilities have room to expand substantially over the coming decade. However, when scaled by trade flows and domestic financial wealth, China's gross position has exhibited markedly different dynamics. The gross position relative to trade flows has not been monotonic, first peaking around 1998 but having trended lower since then. Thus, China's financial integration seems to have trailed its trade integration since the Asian financial crisis.¹⁴ 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.

What would be the likely size of China's international balance sheet in 10 years, should it choose to open up its capital account and maintain 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. Then we apply the estimated parameters from the cross-country estimation

¹⁴ This is perhaps due to a combination of large-scale withdrawals of international capital from Asia in the Asian financial crisis, a policy response of fortified capital controls to support the official pledge of no renminbi devaluation, and accelerated trade flows following China's WTO entry.

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.

The cross-sectional regression specification is given in equation (3):

$$Giip_i = \theta_0 + \theta_1 SIZE_i + \theta_2 OPEN_i + \theta_3 INCOME_i + \theta_4 FINANCE_i + \theta_5 EURO_i + \theta_6 CENTRE_i + \lambda_i \quad (3)$$

where 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). $SIZE$ is country size as measured by total GDP (in nominal terms). Empirically, large economies tend to hold fewer external assets and liabilities relative to their size, because of greater room for domestic diversification. We therefore expect a negative coefficient for country size. $OPEN$ is trade openness measured by the sum of exports and imports of goods and services as a ratio of GDP. Since trade openness and financial openness are generally considered to complement each other, we expect a positive correlation. $INCOME$ is level of economic development measured by per capita GDP and is expected to be positively related to the gross position, as higher levels of income and wealth facilitate international diversification and enhance risk tolerance, hence an expected positive correlation. $FINANCE$ is domestic financial development to be proxied by the two indicators discussed in Section 4. Its relation with the gross position is ambiguous in theory but generally thought of as being complementary (Lane and Milesi-Ferretti (2008)). We also introduce two dummies: $EURO$ for the euro area and $CENTRE$ for financial centre. Detailed data sources are provided in the Appendix.

This is a cross-sectional regression of the OECD sample. All of the above variables are the 2001–05 averages to help smooth the trend and limit the influence of possible outliers, unusual movements and measurement errors. To further mitigate possible heteroskedasticity in our cross-sectional regressions we: (i) take logs of all the variables except the two dummies; (ii) introduce White heteroskedasticity-consistent covariances; and (iii) regress the samples with and without Ireland and Luxembourg (the two main outliers).

Table 5 summarises the regression results. As expected, we find that the estimated coefficients for trade openness, economic development and the two dummies are all positive and statistically significant. Also, our regressions indicate that the dummies for the euro area 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 use column (3) in Table 5 as the basis to project the likely size of China's gross position in 2015. To ensure that our projections are reasonable, we first conduct an informal model-consistency simulation on the actual Chinese data for the years 2004–07. We find that, on the basis of the estimated coefficients from the cross-sectional regression, the actual Chinese data fall nicely between our two fitted values based on the full sample and excluding Ireland and Luxembourg.¹⁵ We shall take these two fitted values of the gross position as the upper and lower bounds of the band for our projection (Table 6).

To obtain the projected values of China's gross IIP 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%, respectively, compared to their historical averages of 13% and 21% 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. Scaled by GDP, China's gross position would rise to

¹⁵ This is a surprising result, since China seems to have behaved as if it was an average OECD economy, despite its continuing extensive capital controls (Ma and McCauley (2008)).

around 150%. 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 is thus conditioned on both China's domestic financial market development as well as on the accommodation of the global financial system. For instance, the latest global financial crisis generally, and deleveraging in particular, 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 much more liberalised capital regime, China's external balance sheet is likely to expand, indicating China's growing role in, and increased exposure to, global finance in the years to come.

6. Conclusions

This paper investigates the medium-term trends of, and outlooks for, China's net and gross IIPs. We find that the pronounced decline in youth dependency has been a major determinant of China's large net creditor position. Faster growth and higher government debt only partially offset this demographic effect. Moreover, the roles of exchange rate and financial depth in shaping China's NFA position appear mixed. In contrast to other projections of China becoming a large net debtor in the coming decades, our findings are more consistent with the medium-term predictions of McKibbin (2005), Kuijs (2006), Eichengreen (2006) and Peng (2008) and, if accepted, suggest that China is likely to remain a creditor into 2025. The probability of a significant swing into a meaningful debtor position in the coming decades is low. When measured at market value, however, China's NFA position is only one quarter of its current cost position for 2007, due to a large inward investment position and high equity valuation at the time. Finally, our empirical findings also indicate that the gross size of China's international balance sheet could triple within the next 10 years. China is therefore likely to become a bigger player in the global financial system while also becoming more exposed to external shocks.

A number of implications could 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 during the transition. Second, if China's NFA position is unlikely to reverse sharply into a net debtor, pressure of large 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 convertibility. Third, a bigger international balance sheet indicates growing interactions between China and the global financial system and highlights the need for strengthened risk management and financial market development to complement capital account opening.

There is ample room for further research in this area. First, the demographic factor could be modelled by considering the entire set of age cohorts. Second, we have not yet explored the short-term dynamics of valuation effects. Third, there may be a need to consider explicitly some of the potentially important policy factors such as capital controls and an enhanced social safety net. Finally, additional factors can be taken into consideration, such as the potential interactions between age structure and other domestic factors (such as financial market development) and external factors (globalisation) in shaping China's domestic saving-investment balance.

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Appendix

One of the main difficulties in accurately assessing China's IIP is the unavailability of a consistent historical IIP time series data, as China's official IIP data first became available only from 2004. This paper takes a hybrid approach similar to Lane and Milesi-Ferretti (1999) for estimating China's historical IIP series for 1985–2003. It exploits existing stock variables whenever possible but also derives part of the direct investment position using the BoP flow data.

We estimate in turn the IIP components by instrument in the order of: direct investment; portfolio investment; other investment; and reserve assets. For each instrument, we estimate the liability position first, then the asset position. All positions are in US dollar terms, unless specified otherwise. We begin by estimating the historical cost measure for the direct investment position and then derive its current cost and market value measures. Portfolio investment and other investment positions are both assumed to reflect their current cost replacement values and market values.

1. *Direct investment (FDI)*

From China's point of view, direct investment liabilities are the stock of FDI from non-residents into China, and the FDI assets are the stock of Chinese residents' overseas direct investment. They are also referred to as inward and outward positions, respectively. Before 2004, only the BoP flow data on FDI are available so we derive the historical FDI positions backwards.

(1) *Liabilities.* Inward direct investment is the most important and yet problematic component, with a sizeable inconsistency between the implied stock from the BoP flow data and IIP-estimated stock. For instance, the cumulative sum of the net inward direct investment flows from 1985 far exceeds the inward position as suggested by the 2004–07 official IIP statistics, on average by 24%. We attribute the observed gap mainly to two factors: ICL repayments and attrition of foreign-funded companies. Both appear to have the effect of systematically overstating the net inflow of inward direct investment.

First, the treatment of ICL repayments in China has not been properly addressed in the literature so far. Direct investment consists of equity capital (and reinvested earnings) and ICLs (IMF (1993)). We take the ICL breakdown of the official external debt statistics as our estimate of the ICL position. However, the Chinese data on the FDI inflows cover both equity capital and fresh ICLs extended to new foreign-funded companies, but not the breakdown between the two. To adjust the gross FDI inflow, we assume that the split between equity and ICLs within the total FDI inflow is 80%/20% throughout 1985–2003, as the resultant ICL estimates are most consistent with the ICL flow and stock data in the Chinese external debt statistics for the period considered. This assumed split allows us to estimate both the equity capital and ICL inflows within the total FDI inflow.¹⁶

A second important factor is attrition: in China, many of the defunct foreign-funded companies have not gone through proper closure procedures, potentially resulting in significant underreporting of divestment. We assume a 4% attrition rate on the beginning of period stock of the inward equity capital position during the period 1985–2003, which is the

¹⁶ We assume that the divestment does not include ICL repayments and thus represents only equity capital withdrawal. When such ICLs are paid back to the foreign shareholders, there is no procedural requirement to report such repayments to the Ministry of Commerce. A sensitivity analysis for a 15% and 25% split for ICLs gives rise to ICL estimates which are inconsistent with the Chinese external debt data.

same as that of the United States in the 1990s. Our backwards derivation using the net equity inflow series thus gives us the inward equity capital position adjusted for the attrition.

After taking these two factors into consideration, we obtain both the inward ICL position and the equity capital position for 1985–2007. By summing them up, we arrive at the inward FDI position at historical cost for 1985–2007 and current cost measure after allowing for changes in replacement costs. This breakdown of the equity capital and ICL positions also allows us to estimate the inward position at market value (see below).

(2) *Assets*. Similar to the method used to estimate the inward position, we start by taking the 2004 official statistics on the outward position and then work backwards using the flows of outward FDI flows from the BoP data. Due to a capital control regime biased against capital outflows, residents had an incentive to circumvent regulations, which would tend to understate actual outward FDI flows in the official BoP statistics. Thus, the estimation of the outward position differs from that of the inward position. First, we adjust for the 4% attrition factor but not for the ICL repayments because of the lack of information. Second, we assume that the official outward FDI flow for the 1985–2003 period understates the actual flow by 80%. This is in part based on the findings that estimated capital flight in this period far exceeds the official outward FDI flow on average and might have funded many overseas “window companies” of Chinese local governments (Niu and Jiang (2005)). This adjusted net outward FDI flow series is used in the backwards derivation of the asset stock.

2. Portfolio investment

Portfolio investment assets and liabilities, their respective sums of debt portfolio and equity portfolio instruments, are estimated using the existing stock statistics from various sources: (i) the PBC (2008) and SAFE (2008a and 2008b); (ii) the BIS locational banking statistics; and (iii) the equity market data from the Hong Kong Stock Exchange and CSRC.

(1) *Liabilities*. The debt portfolio position is based on the SAFE external debt statistics database, while the equity portfolio position is composed of three parts: (i) foreign currency denominated shares of domestic companies listed and traded onshore (“B-shares”) and held by non-residents; (ii) the shares of domestic Chinese companies listed and traded offshore (“H-shares”) and held by non-residents; and (iii) portfolio investment under the qualified foreign institutional investor scheme. We have made minor modifications to these statistics in light of the institutional evolution during 1985–2003.

(2) *Assets*. Before 2006, when the qualified domestic institutional investor scheme was officially introduced, only designated Chinese financial institutions were allowed to make portfolio investment abroad, mainly in fixed income products.

3. Other investment

The position of other investment is the sum of the following four non-tradable debt instruments: trade credits; loans; currency and deposits; and others. The data sources for estimating the other investment position are the PBC (2008), SAFE (2008b) and BIS (2008).

(1) *Liabilities*. We use the Chinese external debt statistics as our main data sources because the Chinese statistics include China’s liabilities not only to international banks but also to the non-banking sector. Since China updated its external debt coverage in 2001, we make necessary adjustments to reconcile the data before and after 2001. Moreover, we exclude ICLs and bonds from the Chinese external debt statistics in estimating the other investment liability position and place them under the FDI or portfolio positions.

(2) *Assets*. The BIS statistics are superior in estimating China’s asset position of other investment because the PBC banking statistics may not capture all the claims of the Chinese non-banking sector on international banks. Excluding the latter may exacerbate the well known problem of understating foreign assets.

4. Current cost measure of inward/outward FDI positions

We revalue the historical cost positions of inward and outward FDI to reflect the current period prices. The current cost method produces the current cost replacement value of the position in US dollar terms through valuation adjustment due to changes in the capital goods price and exchange rate. Specifically, we follow Lane and Milesi-Ferretti (1999) in adjusting for asset price changes in US dollars.

For the outward position,

$$K_t = K_{t-1} \left(\frac{P_t}{P_{t-1}} \right) + \Delta K_t \quad (A1)$$

where K_t is the current cost value of the outward position at the end of year t , P_t is the US gross private domestic investment price deflator as a proxy for the global capital goods price revaluation, and ΔK_t is the net outflow of outward direct investment in year t .

For the inward position,

$$K_t = K_{t-1} \left(\frac{P_t/E_t}{P_{t-1}/E_{t-1}} \right) + \Delta K_t \quad (A2)$$

where K_t is the current cost value of the inward position at the end of year t , P_t is the RMB deflator for China's domestic capital formation (Perkins and Rawski (2008)), E_t is the bilateral RMB/USD exchange rate, and ΔK_t is the net inflow of inward direct investment in year t .

5. Market value measure of inward and outward FDI positions

Inward and outward FDI positions measured by market value are derived from its historical cost value adjusted for the market value of equity capital. We follow the BEA market value model (Landefeld and Lawson (1991) and Kozlow (2002)) and mark the equity capital positions to the Hang Seng Mainland Composite Index (HSMLCI) for the inward position and the Morgan Stanley World Index for all countries (MXWD) for the outward position.

To record the inward FDI position at market value, we start with the 1985 inward position at historical cost and then benchmark it to the HSMLCI to revalue the inward position. The dollar value of the inward position on the market value basis is given by:

$$K_t = \frac{EDI_{t-1} \left(\frac{EMI_t^{last}}{EMI_{t-1}^{last}} \right) + \Delta EDI_t \left(\frac{EMI_t^{last}}{EMI_t^{ave}} \right)}{1 + RE_t \left(\frac{EMI_t^{last}}{EMI_t^{ave}} \right)} + ICL_t \quad (A3)$$

where EMI_t^{last} is the stock market index at the end of year t (proxied by the HSMLCI index), EMI_t^{ave} is the average of the EMI index in year t , EDI is the inward position of equity capital, RE_t is the year-end ratio of retained earnings/price in year t , and ICL_t is the ICL at the end of year t . We employ the index-wide price/book (P/B) and retained earnings ratios in the mark to market adjustment.

To record the outward FDI position at market value, we again start with the 1985 outward position at historical cost and then revalue it at market value by benchmarking it to the MXWD as the EMI. The index-wide P/B ratio of the MXWD is taken as the initial P/B for 1985. Since we assume no ICLs for outward investment for the period under consideration, the ICL term is dropped out. The revaluation formula of marking to market the outward position is given by:

$$K_t = \frac{K_{t-1} \left(\frac{EMI_t^{last}}{EMI_{t-1}^{last}} \right) + \Delta K_t \left(\frac{EMI_t^{last}}{EMI_t^{ave}} \right)}{1 + RE_t \left(\frac{EMI_t^{last}}{EMI_t^{ave}} \right)} \quad (A4)$$

6. Data description and sources

All of the official Chinese IIP data are from the SAFE (2008a), while those for the OECD member economies and other Asian economies are from the IMF (2008a and 2008b) and respective central banks and government statistics departments.

To derive the Chinese historical IIP series, we use the BoP, external debt statistics and QFII data from the SAFE (2008b), the banking data from the PBC (2008) and BIS (2008), and the B-share statistics from the CSRC. To estimate the market value of the Chinese IIP, we use the stock market indices, price/earnings (P/E) ratio and P/B ratio of the HSMLCI and MXWD from the CEIC and Bloomberg.

Other data needed for regressions and projections come from the following sources. Nominal and real GDP data for China and the OECD are from the CEIC and NBS (2008), and for the OECD and other Asian economies from the World Bank (2007 and 2008). Data on total population for both China and other economies come from the World Bank (2007 and 2008). As to the youth and old-age dependencies, the historical series are from the World Bank (2007 and 2008) and the projections are from the United Nations (2007). Indicators of domestic financial development are estimated using domestic credit from the IMF (2008a and 2008b), domestic debt securities from the BIS and local stock market capitalisation from the CEIC and CSRC (2007). Government debt is from Fitch Ratings and China's Ministry of Finance, while the REER is from the IMF (2008a and 2008b).

China's IIP¹

In billions of US dollars

	1985	1995	2000	2004	2005	2006	2007
NFA position²	-5.8	-38.5	-74.3	190.4	343.1	579	1,027.4
<i>(% of GDP)</i>	<i>(1.9)</i>	<i>(5.3)</i>	<i>(6.2)</i>	<i>9.9</i>	<i>15.3</i>	<i>21.8</i>	<i>30.4</i>
Assets	18.2	191.2	385.4	954.6	1,260.0	1,690.9	2,428.0
<i>(% of GDP)</i>	<i>5.9</i>	<i>26.3</i>	<i>32.2</i>	<i>49.4</i>	<i>56.3</i>	<i>63.6</i>	<i>71.8</i>
Outward direct investment	0.9	33.3	51.8	77.5	101.9	137.4	169.6
Portfolio investment	0	12.1	41.1	92.0	116.7	229.2	248.6
– Equity securities	0	0	0	0	0	1.5	19.6
– Debt securities	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	1,072.8	1,547.3
Liabilities	24.0	229.8	459.7	764.2	916.9	1,111.9	1,400.6
<i>(% of GDP)</i>	<i>7.8</i>	<i>31.6</i>	<i>38.4</i>	<i>39.6</i>	<i>41.0</i>	<i>41.8</i>	<i>41.4</i>
Inward direct investment	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	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>Outward direct investment</i>	<i>2.4</i>	<i>42.9</i>	<i>76.8</i>	<i>96.3</i>	<i>123.2</i>	<i>177.1</i>	<i>218.6</i>
<i>Inward direct investment</i>	<i>7.3</i>	<i>159.1</i>	<i>359.4</i>	<i>476.6</i>	<i>559.2</i>	<i>992.4</i>	<i>1,659.5</i>

¹ At current cost. ² NFA position is foreign assets minus foreign liabilities.

Sources: See the Appendix.

Table 1

IIPs: China and Asia¹

In billions of US dollars and per cent, 2007

	China ²	Hong Kong SAR	Japan	Singapore	Korea
(1) Gross external assets	2,428.0	2,730.6	5,355.2	879.9	587.6
(2) Gross external liabilities	1,400.6	2,208.7	3,160.3	725.2	820.1
(3) Gross position = (1) + (2) ³	3,828.5	4,939.3	8,515.5	1,605.1	1,407.7
(4) Gross position as % of GDP	113.1	2,383.8	194.4	995.1	145.1
(5) NFA = (1) – (2)	1,027.4	521.9	2,194.9	154.7	–232.5
(6) NFA as % of GDP	30.4	251.9	50.1	95.9	–24.0

¹ 2007 data. ² China at current cost. ³ Gross position is the sum of external assets and liabilities.

Sources: See the Appendix.

Table 2

Determinants of China's NFA position (in level)¹

	1	2	3	4	5	6
GROWTH	–0.73*** (–4.38) ²	–0.79*** (–4.82)	–0.67*** (–5.69)	–0.64*** (–5.84)	–0.72*** (–4.47)	–0.68*** (–6.58)
YOUNG	–2.78* ³ (–1.98)	–1.79 (–1.25)	–3.43*** (–4.67)	–3.28*** (–4.69)	–3.17*** (–2.90)	–3.50*** (–5.41)
OLD	36.67** (2.55)	44.27*** (3.01)	30.09*** (4.02)	28.99*** (4.15)	35.25** (2.57)	30.80*** (4.64)
DEBT	–1.38*** (–3.66)	–1.50*** (–4.19)	–1.23*** (–4.95)	–1.19*** (–4.86)	–1.32 (–3.82)	–1.23*** (–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)
Adj 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

¹ Equation (1). The sample period covers 1985–2007. ² t-statistics in parenthesis. ³ *** (**) (*) denotes significance at the 1% (5%) (10%) level.

Sources: Authors' calculation.

Table 3

Determinants of China's NFA position (in first difference)¹

	1	2	3	4	5	6
GROWTH	-0.20 (-0.57) ²	-0.23 (-0.58)	-0.26 (-0.88)	-0.29 (-0.89)	-0.29 (-0.82)	-0.31 (-1.03)
YOUNG	-5.52 ^{**3} (-2.71)	-4.39* (-1.75)	-5.30 ^{***} (-2.79)	-4.08* (-1.85)	-3.48 ^{**} (-2.36)	-3.43 ^{**} (-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)
Adj 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

¹ Equation (2). The sample period covers 1985–2007. ² t-statistics in parenthesis. ³ *** (**) (*) denotes significance at the 1% (5%) (10%) level.

Sources: Authors' calculation.

Table 4

Determinants of the gross IIPs of the OECD economies¹

	(1)		(2)		(3)		(4)	
	Full sample	Excluding IE & LU ²	Full sample	Excluding IE & LU	Full sample	Excluding IE & LU	Full sample	Excluding IE & LU
GDP	-0.07 (-1.50) ⁴	-0.05 (-1.29)	-0.07 (-1.49)	-0.05 (-1.30)	-0.07 (-1.65)	-0.05 (-1.38)		
Trade	0.64*** ⁵ (3.78)	0.43*** (2.82)	0.63*** (3.71)	0.43*** (2.79)	0.63*** (3.85)	0.43*** (2.86)	0.79*** (6.08)	0.54*** (6.43)
Euro dummy ³	0.62*** (4.52)	0.51*** (3.98)	0.63*** (4.47)	0.51*** (3.99)	0.62*** (4.55)	0.51*** (4.06)	0.57*** (4.78)	0.47*** (4.27)
Financial centre dummy	1.43*** (5.06)	1.18*** (8.21)	1.44*** (5.13)	1.19*** (8.32)	1.47*** (5.02)	1.19*** (8.63)	1.43*** (4.90)	1.14*** (10.31)
Nominal GDP per capita	0.61*** (5.51)	0.55*** (6.67)	0.62*** (5.71)	0.55*** (6.81)	0.63*** (6.00)	0.56*** (6.70)	0.62*** (5.81)	0.55*** (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*** (-3.07)	-2.42** (-2.19)
Adj R ²	0.90	0.89	0.90	0.86	0.90	0.86	0.90	0.86

1 Equation (3). The full sample has 30 observations. 2 IE and LU stand for Ireland and Luxembourg, respectively. 3 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. 4 t-statistics in parenthesis. 5 *** (**) (*) denotes significance at the 1% (5%) (10%) level.

Sources: Authors' calculation.

Table 5

China's projected gross IIP¹

In billions of US dollars and per cent

	2004	2006	2007	2010	2015
Fitted value of gross position from full sample	1,730.4	2,989.7	4,312.7	6,109.5	1,4894.1
Fitted value of gross position excluding IE & LU ²	1,151.4	1,916.2	2,690.0	3,838.92	9,114.62
<i>Actual gross position</i>	1,718.8	2,802.9	3,765.4	–	–
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 excluding IE & LU (%)	59.6	72.4	82.9	89.7	117.6
<i>Actual gross position/GDP (%)</i>	89.0	105.4	111.3	–	–

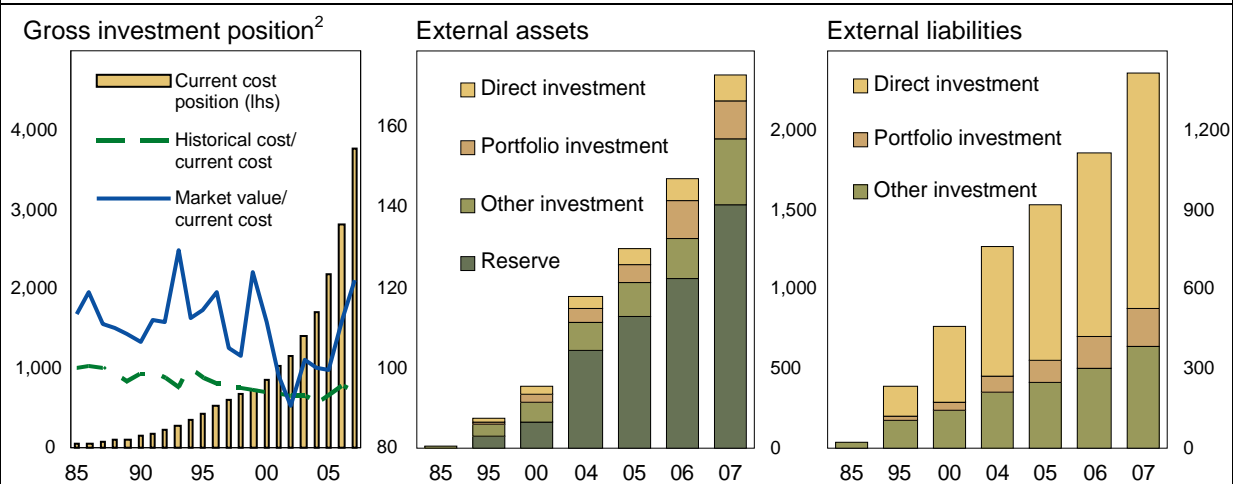
¹ At current cost. ² IE and LU stand for Ireland and Luxembourg, respectively.

Sources: See the Appendix.

Table 6

Size of China's gross external assets and liabilities¹

In billions of US dollars



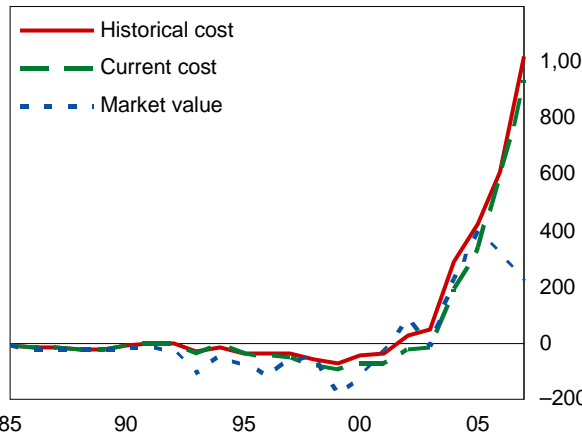
¹ At current cost. ² Gross investment position is the sum of external assets and liabilities.

Sources: See the Appendix.

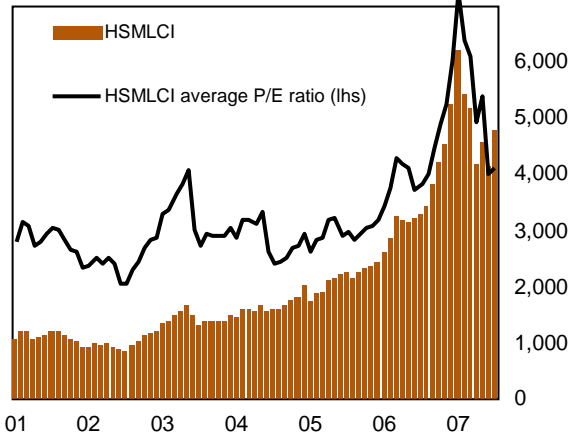
Graph 1

China's NFA position¹ and stock market index

Different measures of NFA, in billions of US dollars



HSMLCI and P/E ratio



¹ NFA position = foreign assets – foreign liabilities.

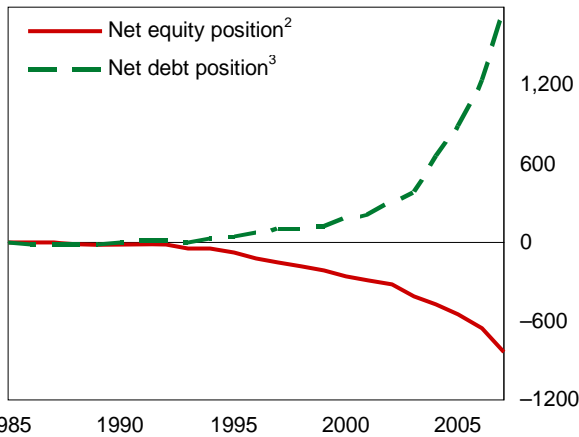
Sources: See the Appendix

Graph 2

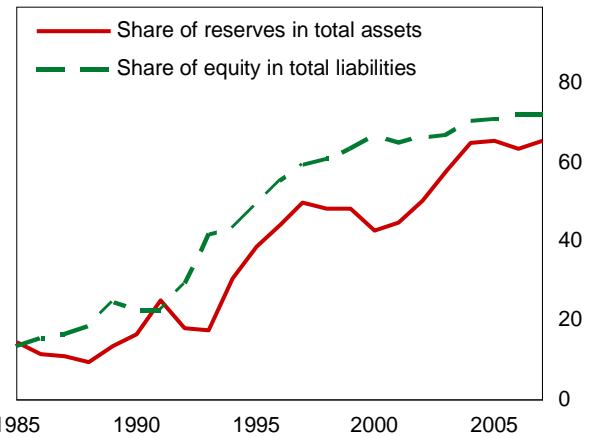
Composition of China's IIP¹

In billions of US dollars and per cent

Net position: long debt, short equity



Reserve assets vs equity liabilities



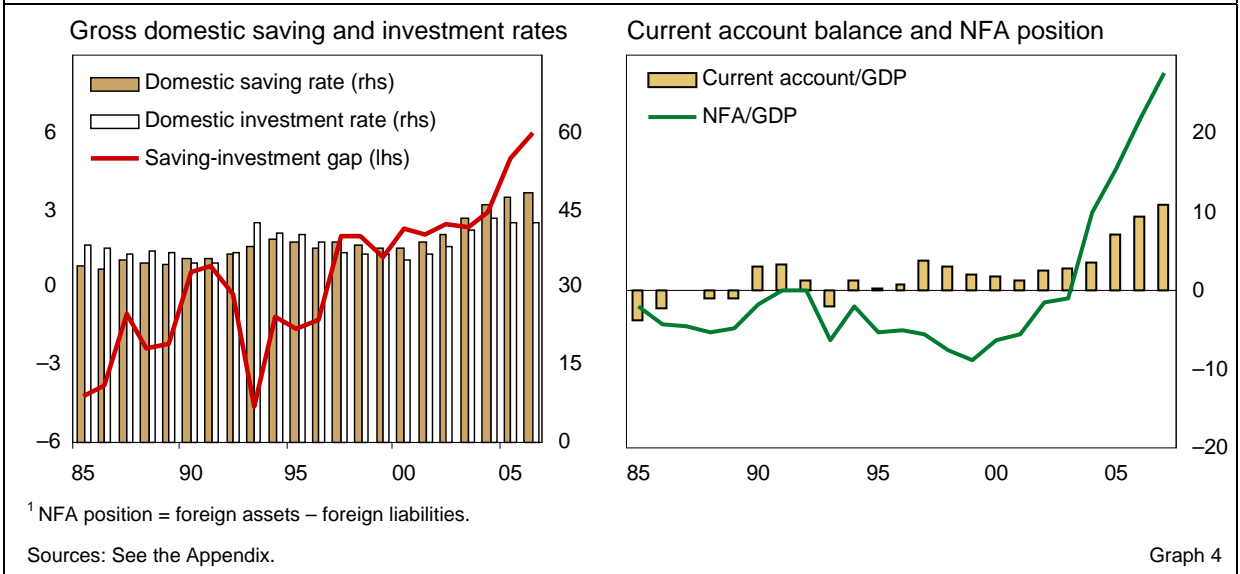
¹ At current cost. ² Net equity position is assets minus liabilities of direct investment and equity portfolio investment. ³ Net debt position is assets minus liabilities of all the other categories.

Sources: See the Appendix.

Graph 3

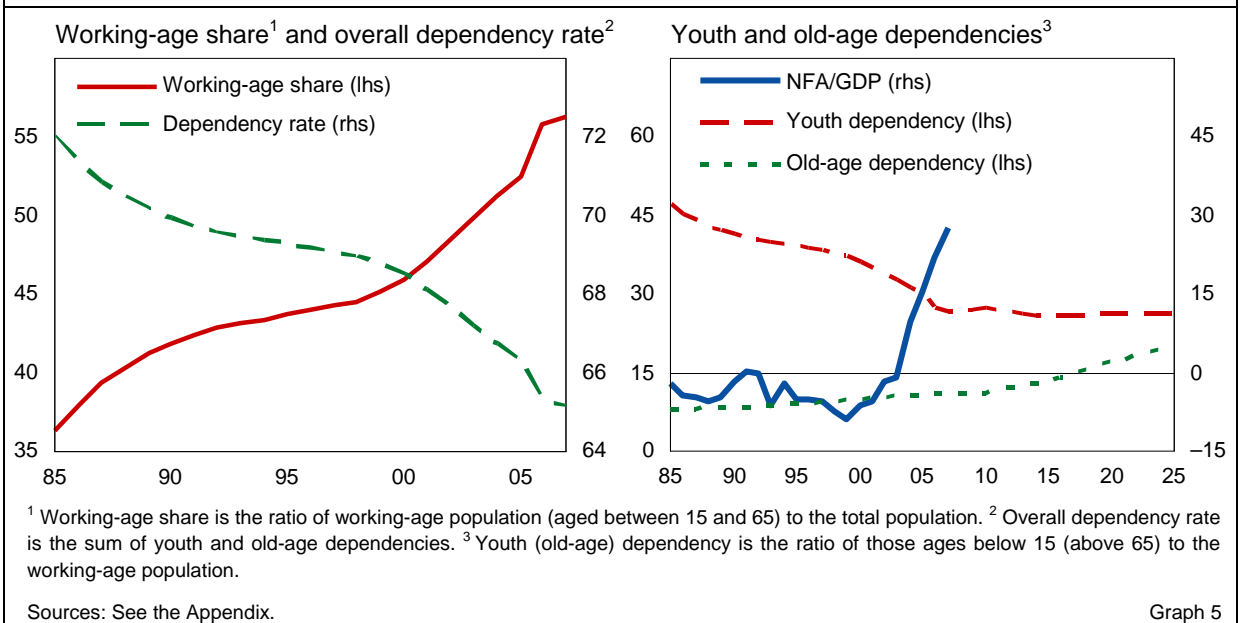
Current account balance, saving-investment gap and NFA position¹

As a percentage of GDP



China's demographic transition and NFA position

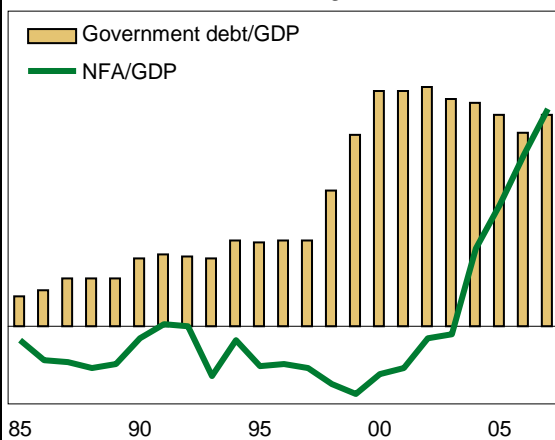
In per cent



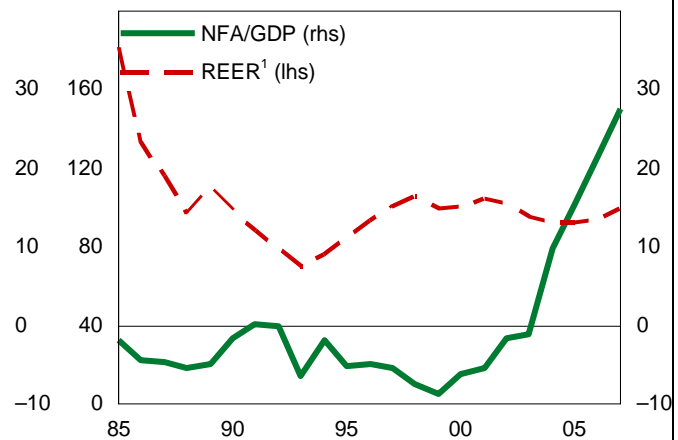
China's NFA position, government debt and REER

In per cent and index

Government debt outstanding



REER of the renminbi



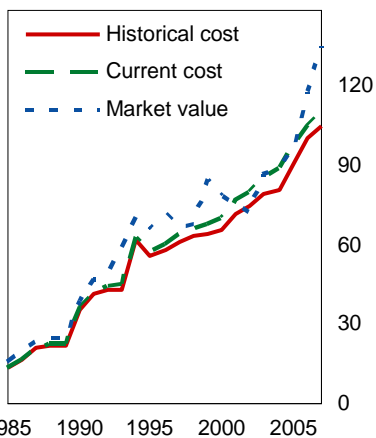
¹ REER is real effective exchange rate (2000 = 100).

Sources: See the Appendix.

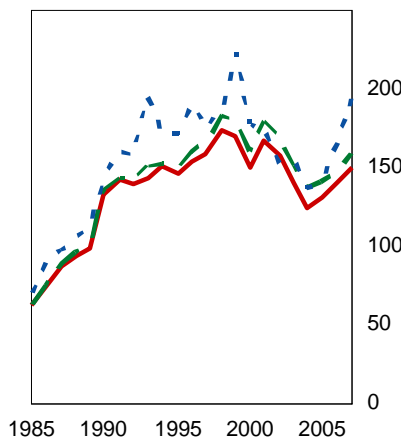
Graph 6

China's gross IIP¹

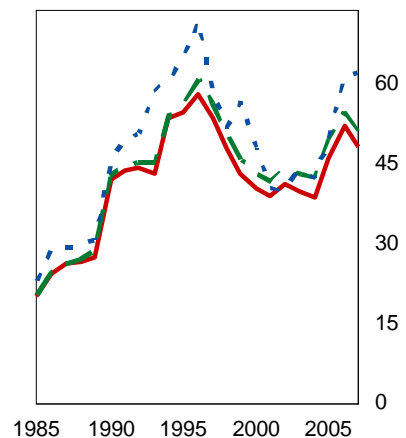
As a percentage of GDP



As a percentage of trade²



As a percentage of wealth³



¹ Gross IIP is the sum of foreign assets and liabilities. ² Trade is the gross goods and services trade flow. ³ Wealth is domestic financial wealth defined as the sum of domestic credit, domestic bonds outstanding and domestic stock market capitalisation.

Sources: See the Appendix.

Graph 7