China's Current Account and International Financial Integration*

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Why should we care about China's net foreign asset position?

- China have grown rapidly in the last decade at an annual growth rate of 8.5% (compared with 3.1% for the world economy). The projected shares of world GDP for China is 8.2% in 2020.

- Its exports and imports have also grown substantially in recent years. Over 1985-2004, its trade/GDP ratio increased from 24.1% to 79.4%, accounting for 6.3% of global trade.

*These notes are largely based on "The international Financial Integration of China and India" by Philip Lane and Sergio Schmukler and "Neither a borrower or a lender: Does China's zero net foreign asset position make economic sense" by David Dollar and Aart Kraay.

- China has also become increasing prominent in the international financial system. It is the world's largest holder of foreign reserves, reach 853 billion US dollars at the end of Feb 2006.

Road Map

- Background: intertemporal approach to current account

- Stylized facts: the current account and NFAs in China

- The domestic financial sector and the international financial integration

- Impact on global financial system

1 Background

A two-period economy

- Consider a small-open economy that consumes a single good and lasts for two periods, labeled 1 and 2.

- Assume that all individuals in the economy are identical and that population size is 1.

- For simplicity, assume no productive investment (we will relax this assumption later on).

Budget Constraints

$$C_1 + A_2 = Y_1 + (1 + r) A_1$$
$$C_2 = Y_2 + (1 + r) A_1$$

where A_1 is the initial stock of net foreign assets for the representative consumer. A_2 is the new stock at the end of period 1. Y_1 and Y_2 are given constants, r is the world interest rate, at which the economy may borrow or lend freely.

Definitions in National Accounts

- GDP: Y_1

- GNP: $Y_1 + rA_1$, where rA_1 is net factor payment.

- Trade Surplus: $TA_1 = Y_1 - C_1$

- Current Account Surplus:

$$CA_1 = TA_1 + rA_1 = Y_1 - C_1 + rA_1 = A_2 - A_1$$

- Current Account + Capital Account = 0

$$CA_1 + A_1 - A_2 = 0$$

Not that since $CA_1 = A_2 - A_1$, the current account surplus is equal to the change in the stock of foreign assets. But note that in this model without investment, it is just saving.

- Equivalence of different views of the current account

$$CA_1 = Y_1 - C_1 + rA_1 = saving_1 = \text{net exports of Goods}$$

Introducing Investment

- Motivation: much of the movement in the current account is driven by borrowing or lending that finance investment.

- New assumptions – output is not fixed but produced from capital with decreasing return to scale production function. Labor is still kept fixed.

$$
\begin{aligned}
Y_1 &= F(K_1) \\
K_2 &= K_1 + I_1
\end{aligned}
$$

Note that the rate of depreciation in the capital stock is zero.

New Budget Constraints

$$C_1 + A_2 + I_1 = Y_1 + (1 + r) A_1$$
$$C_2 + I_2 = Y_2 + (1 + r) A_2$$

Two ways to transform present consumption into future consumption: Internally through domestic investment, or externally through purchasing international bond.

- Thus the current account is

$$CA_1 = A_2 - A_1 = Y_1 - C_1 + rA_1 - (K_2 - K_1)$$
$$= S_1 - I_1$$

  The current account is equal to savings less investment. This implies any factor that affects saving or investment must affect current account balance.

- Note saving can flow into capital or foreign asset

$$\begin{aligned} S_1 &= A_2 - A_1 + K_2 - K_1 \\ &= A_2 + K_2 - (A_1 + K_1) \end{aligned}$$

- Total domestic private wealth at the end of period 1 is $A_2 + K_2$, the sum of net foreign asset and the stock of domestic capital.

- Similarly, domestic investment can be financed by either domestic saving or foreign capital.

$$I_1 = S_1 - CA_1 = S_1 + A_1 - A_2$$

Optimal Consumption and Investment

- Assume consumer's preference is

$$U\left(C_1\right) + \beta U\left(C_2\right)$$

- We may combine the two period budget constraints into one intertemporal budget constraint and solve for the optimal consumption and investment by Lagrangian method.

- Optimal investment is characterized by

$$F'(K_2) = r$$

- Investment is only determined by domestic productivity and world interest rate. It is not affected directly by the savings behavior of the domestic country at all.

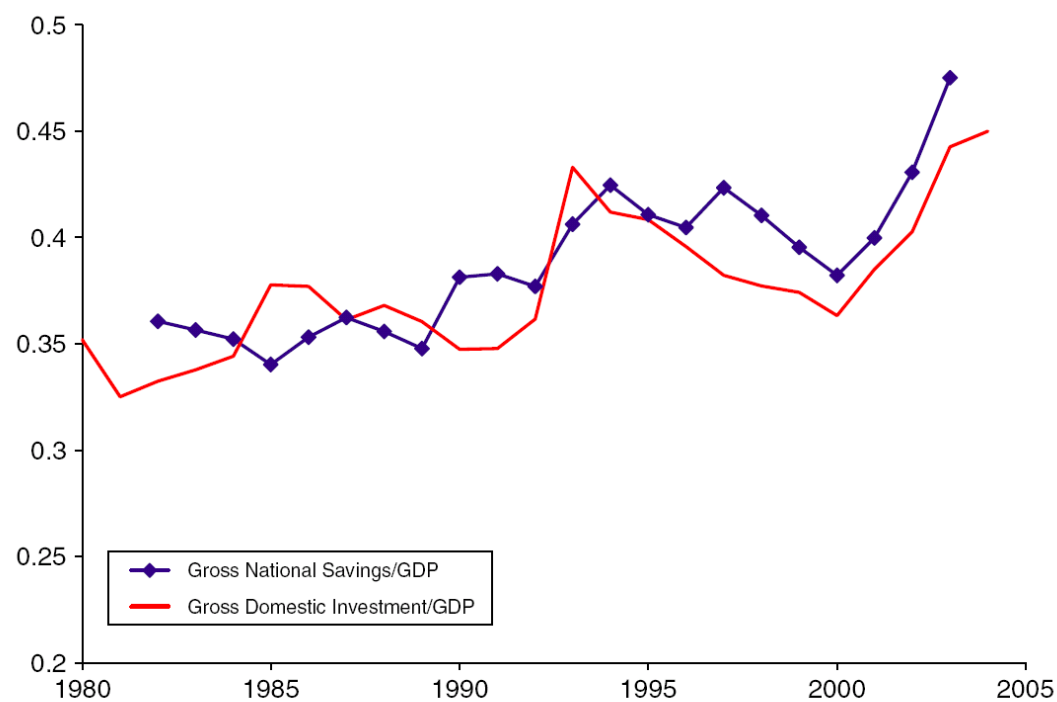# 2   Stylized Facts

Gross Saving and Investment

Fig. 1. Saving and investment in China (fraction of GDP at market prices).

Figure 1: Saving and Investment (Source: Dollar and Kraay, 2006)
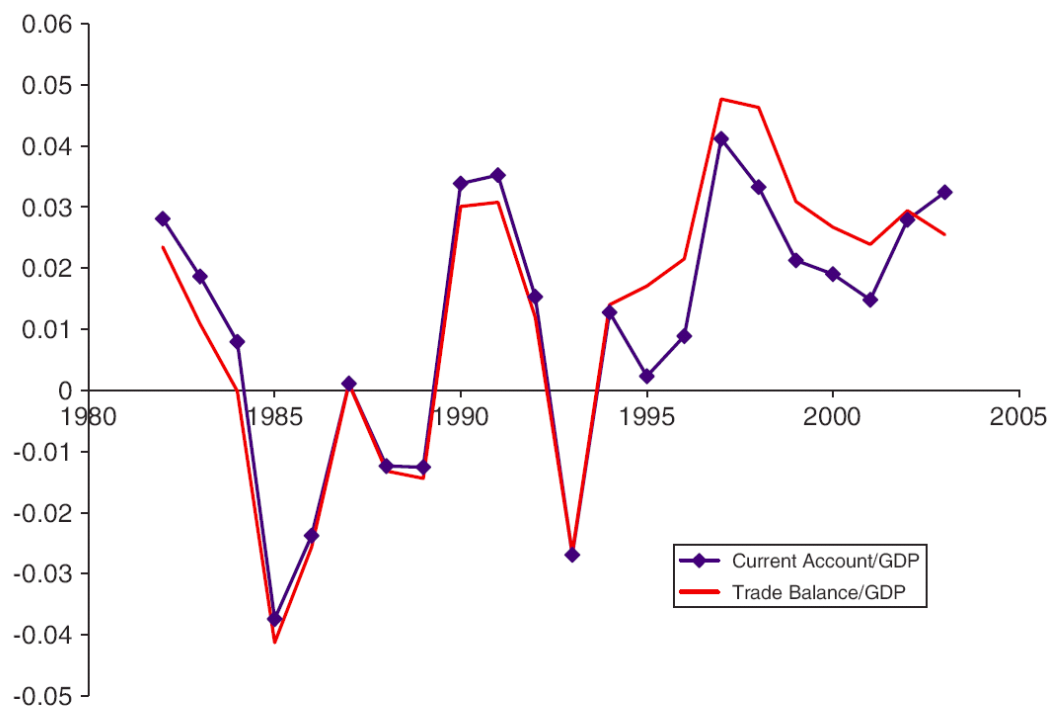
Trade Balance and Net Factor Payment

Fig. 2. China's current account and trade balance (fraction of GDP at market prices).

Figure 2: Trade Balance and Current Account (Source: Dollar and Kraay, 2006)
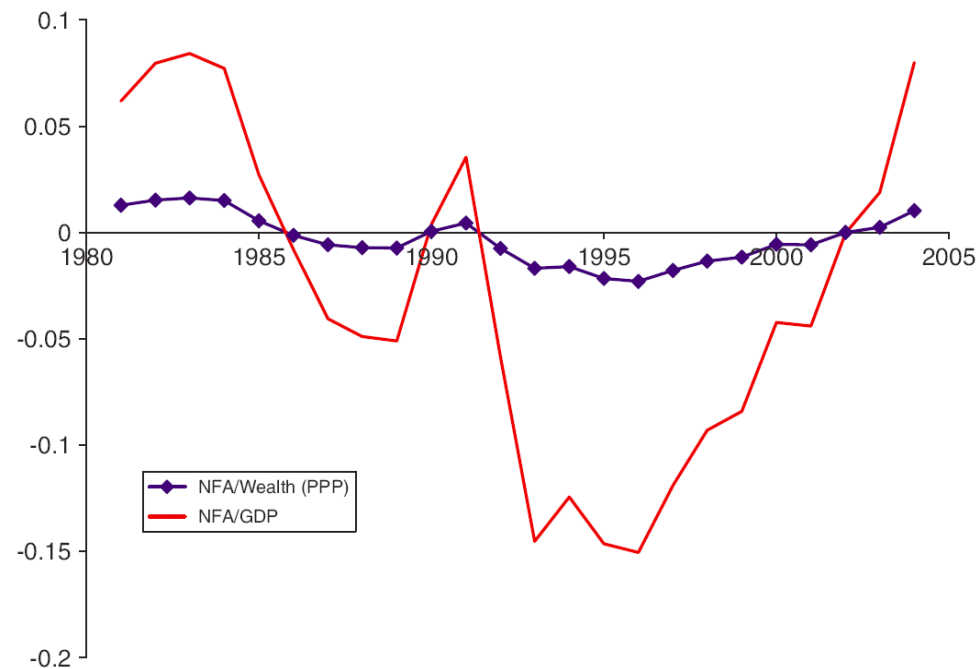
Net Foreign Asset Position

Fig. 3. China's net foreign asset position (fraction of GDP at market prices and of wealth at international prices).

Figure 3: Net Foreign Asset Position (Source: Dollar and Kraay, 2006)
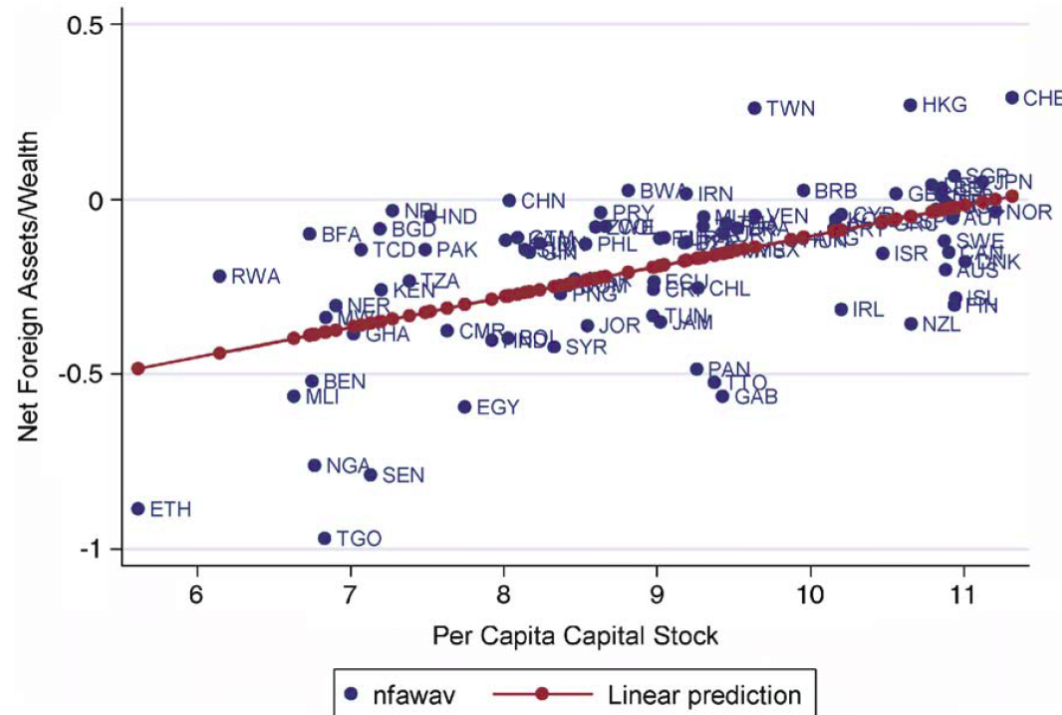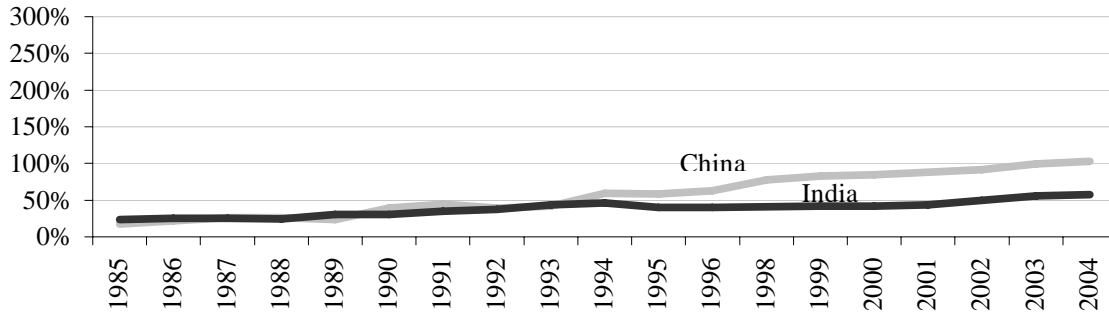
Cross-Country Comparison

Fig. 5. Foreign assets and capital stocks per capita (averages 1980–2004, 92 countries).
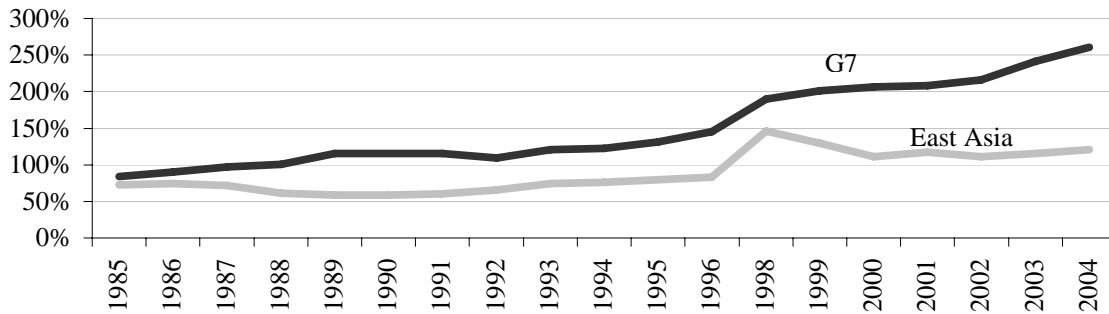
Figure 4: Correlation of Net Foreign Asset Position and Capital Per Capita (Source: Dollar and Kraay, 2006)

Gross Foreign Asset and Liability

Figure 3
International Financial Integration
China and India

East Asia and G7

Eastern Europe and Latin America
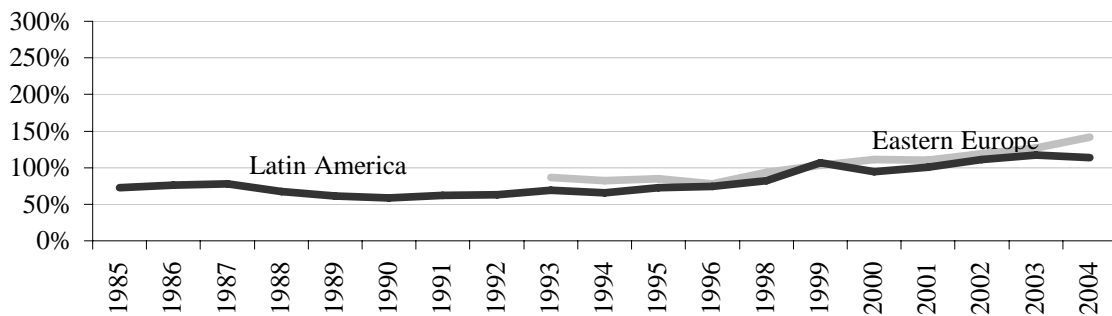
Sum of foreign assets and liabilities expressed as a ratio to GDP. East Asia is the average of Indonesia, Korea, Malaysia, and Thailand. G7 is the average of Canada, France, Germany, Italy, Japan, United Kingdom, and United States. Latin America is the average of Argentina, Brazil, Chile, and Mexico. Eastern Europe is the average of Czech Republic, Hungary, and Poland. The series for the regions are weighted averages where the weights are the countries' GDPs as a fraction of the region's GDP. Source: Authors' calculations drawing on the dataset constructed by Lane and Milesi-Ferretti (2006).

International Financial Integration

World Shares of GDP, Trade, and International Financial Integration
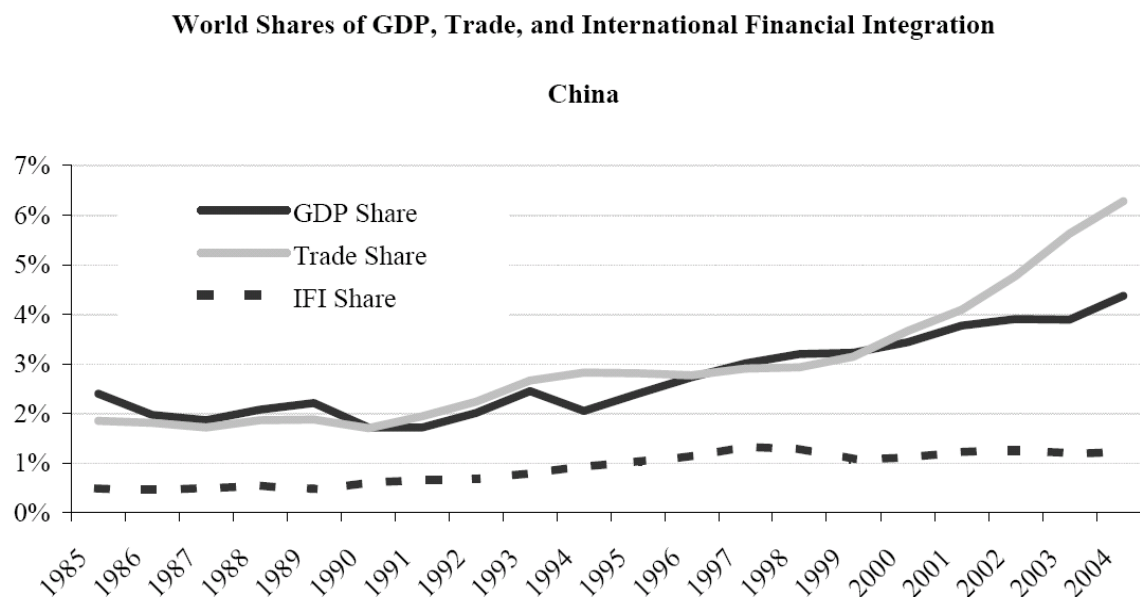
China

Figure 5: World Share of GDP, Trade and International Financial Integration (Source: Lane and Schmukler, 2006)

Decomposition of China's Foreign Asset and Liability

	China	
	Assets	Liabilities
Portfolio Equity	0.3	3.4
FDI	2.2	30.1
Private Debt	15.6	13.9
Reserves	37.3	
Total	**55.4**	**47.4**

Variables are expressed as a percentage of GDP. Source: constructed by Lane and Milesi-Ferretti (2006).

Figure 6: Asset and Liability Decomposition (Source: Lane and Schmukler 2006)

Asymmetry in the International Balanced Sheet (long debt, short equity)

	China
Net Portfolio Equity	-3.1
Net FDI	-27.9
Net Equity	**-31.0**
Net Private Debt	1.8
Reserves	37.3
Net Debt	**39.0**

Figure 7: Variables as percentage of GDP in 2004 (Source: Lane and Schmukler, 2006)

Cross-Country Comparison

Figure 3
Top Foreign Asset and Liability Holders, 2004

Top Reserve Asset Holders

1 Japan	21.7%
2 China	16.0%
3 Taiwan (China)	6.0%
4 Korea	
5 India	3.3%
6 Hong Kong (China)	
7 Russia	
8 Singapore	
9 US	
10 Malaysia	
Others	34.9%

0% 10% 20% 30% 40%

Top Non-Reserve Asset Holders

1 US	18.5%
2 UK	14.3%
3 Germany	8.6%
4 France	
5 Japan	
6 Luxembourg	
7 Netherlands	
8 Switzerland	
9 Italy	
10 Ireland	
23 China	0.6%
49 India	0.1%
Others	22.7%

0% 5% 10% 15% 20% 25%

Top Portfolio Equity Liability Holders

1 US	20.6%
2	14.3%
3 UK	
4 Japan	
5 Ireland	
6 France	
7 Switzerland	
8 Germany	
9 Netherlands	
10 Canada	
22 India	0.6%
24 China	0.6%
Others	20.1%

0% 5% 10% 15% 20% 25%

Top FDI Liablity Holders

1 US	22.0%
2 Luxembourg	7.8%
3 France	
4 UK	
5 Germany	
6 Netherlands	
7 China	4.1%
8 Belgium	
9 Hong Kong (China)	
10 Spain	
36 India	0.4%
Others	31.7%

0% 10% 20% 30%

Top Debt Liability Holders

1 US	21.5%
2 UK	17.0%
3 Germany	
4 France	
5 Italy	
6 Japan	
7 Netherlands	
8 Spain	
9 Ireland	
10 Belgium	
22 China	0.6%
32 India	0.3%
Others	23.7%

0% 5% 10% 15% 20% 25%

Share of World GDP

1 US	28.8%
2 Japan	11.5%
3 Germany	6.7%
4 UK	
5 France	
6 Italy	
7 China	4.1%
8 Canada	
9 Spain	
10 Korea	
12 India	1.6%
Others	26.3%

0% 10% 20% 30% 40%

The figures show the holdings of foreign assets and liabilities, by type of asset and liability, of the ten largest holders, China, India, and the sum of all the other countries, as a percentage of total holdings of that type of asset or liability. It also shows the share of world GDP of the ten largest economies and India. Holdings are expressed as a percentage of the sum of the holdings of all the countries in the dataset. Numbers next to holdings show position in world ranking. Source: Authors' calculations drawing on the dataset constructed by Lane and Milesi-Ferretti (2006).

Summary of Facts

- China has recently shifted to being a net creditor to the rest of the world, and that position is more positive than might be expected for countries at their level of development.

- China's international balanced sheets are highly asymmetric - with official reserves dominating the asset side, while FDI (as equity liability) is highly important for China.

- The absolute level of non-reserve foreign assets is very low. Global holding of foreign assets and liabilities are relatively small, with important exception of the official reserves.

Costs and Benefits of Current Strategy

- Reserve accumulation has provided insurance against risk of international financial crisis, helping maintaining stable exchange rate.

- FDI inflows have contributed to technology transfer.

- However, the benefit of reserve accumulation come with a cost due to the return differential: pay more on liability than they earn on assets.

3 The Domestic Financial Sector

- Financial Liberalization

- The evolution of the domestic financial sector

- The patterns in savings and investment

Financial Liberalization - a gradualist approach

- During the 1980s and 1990s, the main focus was on promoting inward FDI, which led to a surge of direct investment in the 1990s.

- Investment by foreigners in China's stock markets has been permitted since 1992 with multiple share classes, but access is still restricted and a heavy overhang of state-owned shares limits its attractiveness.

- Debt inflows have been especially restricted, with foreign borrowing divided into planned and non-planned borrowing (The central bank and SAFE supervise and have to approve all bonds issued abroad).

- Private capital outflow was heavily restricted until recently, reflected in low FDI in Chinese foreign asset holdings and security holdings.

- Capital account restrictions have encouraged significant round-tripping of investment.

	China
World	100.0
Hong Kong SAR	45.0
United States	8.9
Japan	8.7
Taiwan POC	7.4
British Virgin Islands	6.9
Korea	4.8
Singapore	4.8
United Kingdom	2.3
Germany	1.8
France	1.3
Other	8.2

Figure 8: Source of FDI Liabilities (Source: Lane and Schmukler, 2006)

Foreign Exchange Reserves to GDP
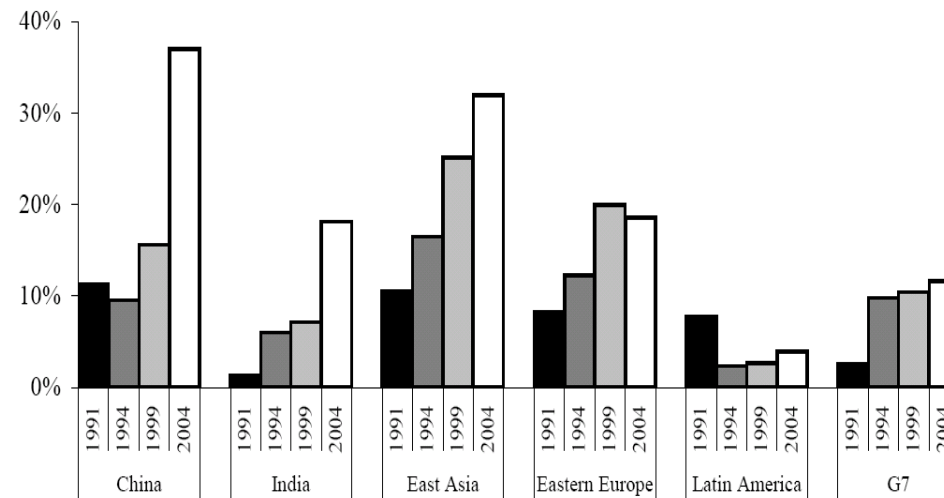
- The pegging of Chinese currency (Renminbi) to US dollar since 1995 leads to $rapid$ accumulation of external reserves.

The Domestic Financial Sector

- Bank sector:

  - bank credit to GDP increased almost twofold and deposit to GDP rose almost threefold between 1991 and 2004.

  - Size of credit is as high as in the G7 economies, while deposits are substantially larger than all other comparator.

  - The banking sector remains excessively focused on lending to state-owned enterprise and does not appear to be adequate provider of credit to private enterprises and households.

  - Non-performing loan represents a significant part of assets of Chinese bank.

Figure 8
Banking Sector

Credit to GDP
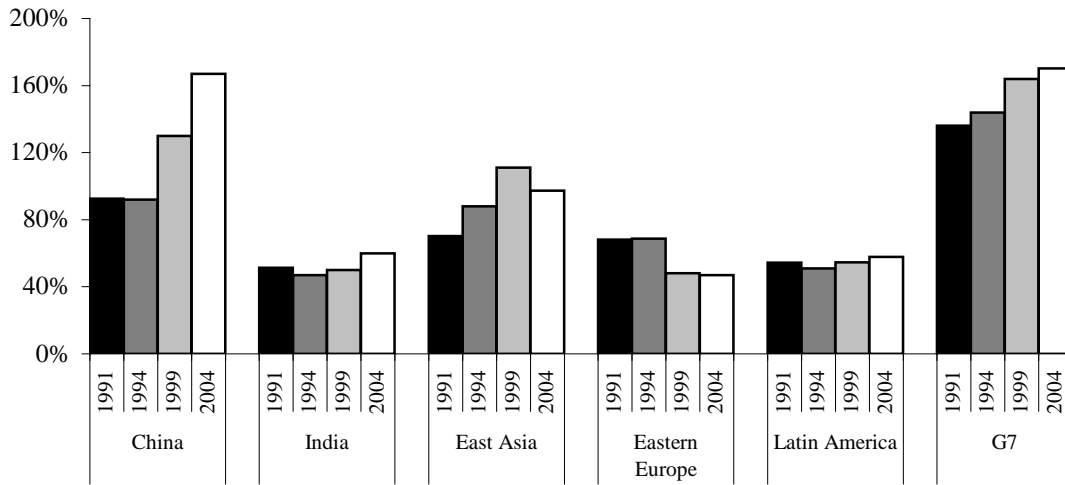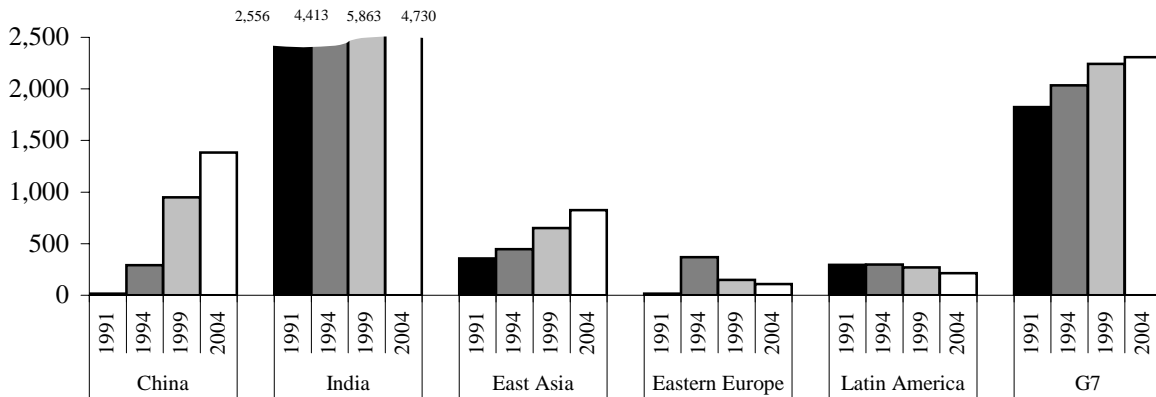

Deposits to GDP
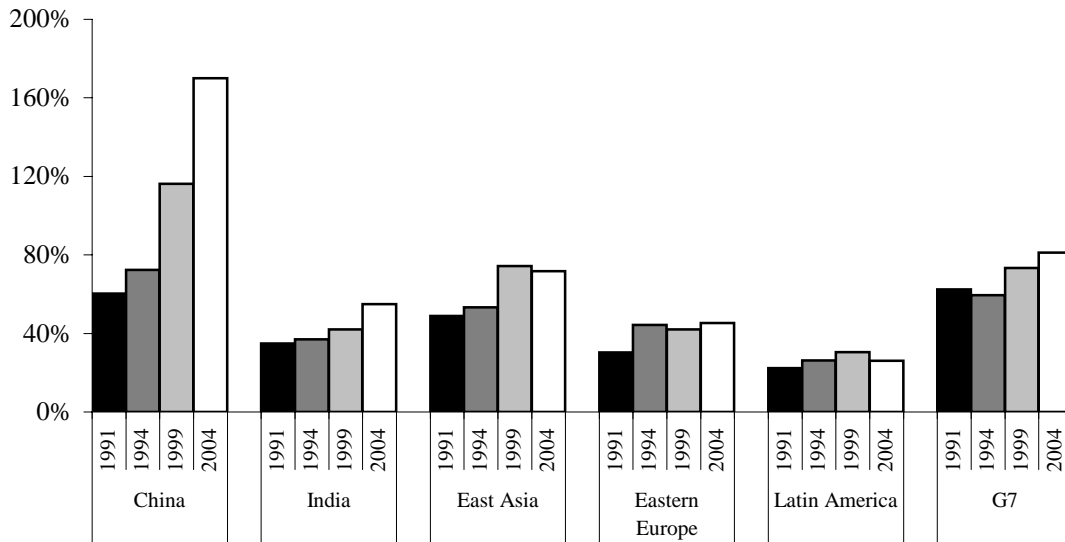
East Asia is the average of Indonesia, Korea, Malaysia, and Thailand. G7 is the average of Canada, France, Germany, Italy, Japan, United Kingdom, and United States. Latin America is the average of Argentina, Brazil, Chile, and Mexico. Eastern Europe is the average of Czech Republic, Hungary, and Poland. Source: World Bank World Development Indicators. The data source for Chinese deposits is Beck, Demirgüç-Kunt, and Levine (2006) for the years 1991, 1994, and 1999, and International Financial Statistics for 2004.

- **Domestic Capital Market**

  – The large overhang of government-owned shares implies that tradable shares are only about one-third of total stock market capital capitalization.

  – Equity pricing is open to manipulation, with the government regularly intervenes in the market.

  – The bond market is dominated by the issuance of government bond. Corporate bond market expands in recent years, but remains underdeveloped.

  – Except in the case of turnover, all the indicators of capital market depth are lower than those in G7 countries. High turnover rate has been linked to high speculation in small capitalization stocks.
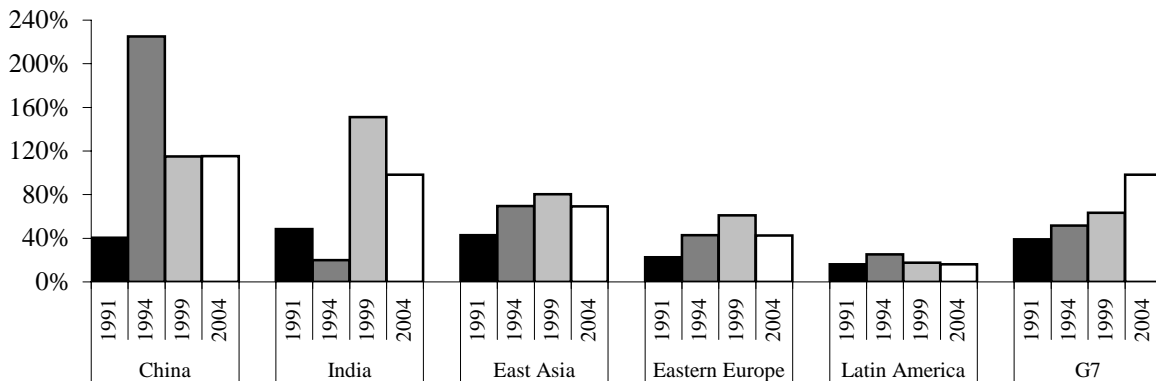
Figure 9
Stock Markets

Number of Firms Listed
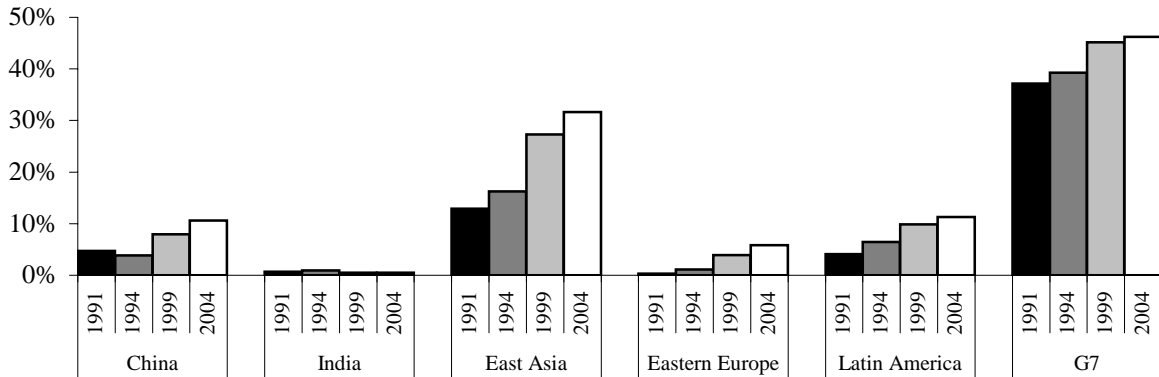

Market Capitalization to GDP
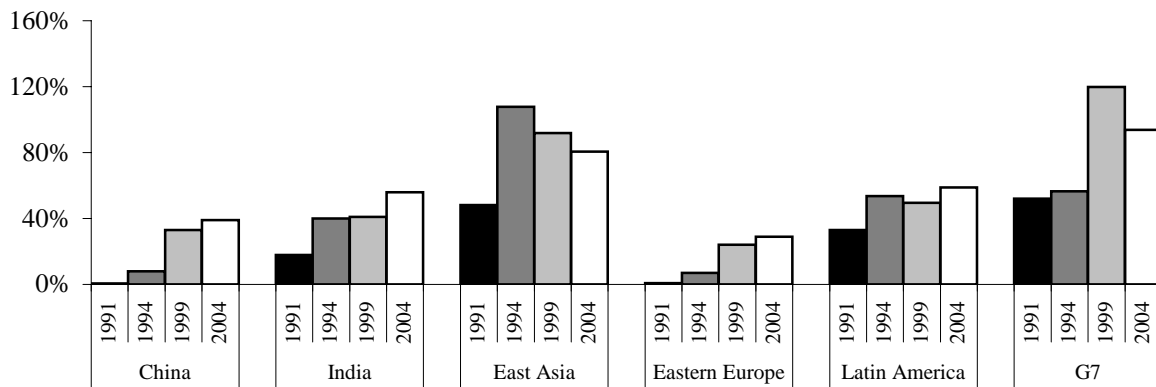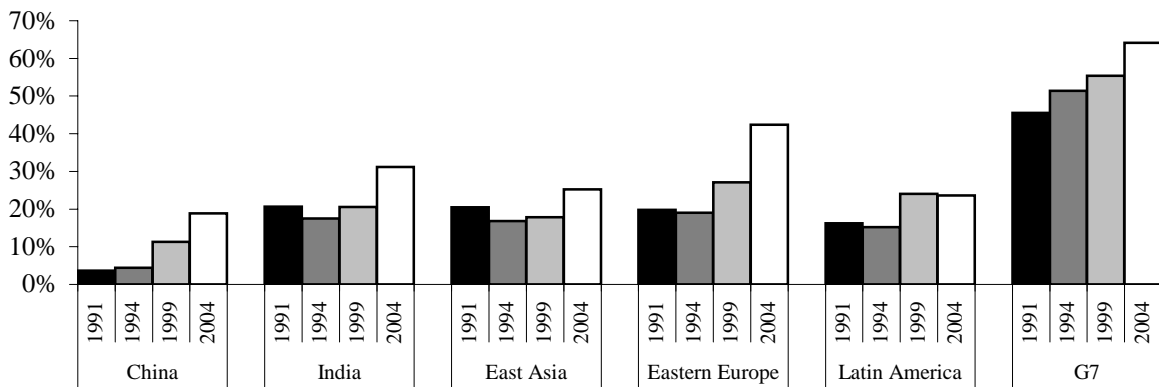

Turnover Ratio to GDP

East Asia is the average of Indonesia, Korea, Malaysia, and Thailand. G7 is the average of Canada, France, Germany, Italy, Japan, United Kingdom, and United States. Latin America is the average of Argentina, Brazil, Chile, and Mexico. Eastern Europe is the average of Czech Republic, Hungary, and Poland. Source: Standard and Poor's Global Stock Markets Factbook and World Bank World Development Indicators.
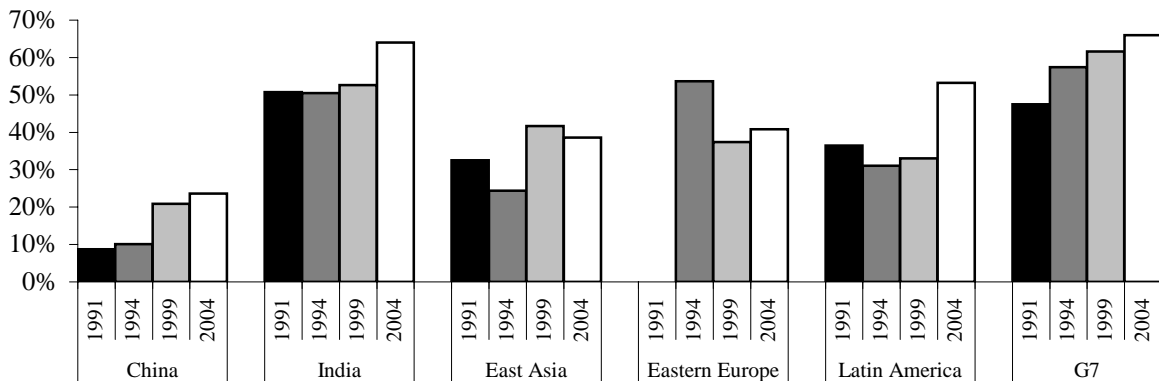
Figure 10
Debt Markets

Private Bond Market Capitalization to GDP

Public Bond Market Capitalization to GDP

Central Government Debt to GDP

East Asia is the average of Indonesia, Korea, Malaysia, and Thailand. G7 is the average of Canada, France, Germany, Italy, Japan, United Kingdom, and United States. Latin America is the average of Argentina, Brazil, Chile, and Mexico. Eastern Europe is the average of Czech Republic, Hungary, and Poland. Source: Beck, Demirgüç-Kunt and Levine (2006), and Jaimovich and Panizza (2006).

- The problem of the banking system have limited the willingness of the authorities to allow Chinese banks to raise external funds or act as the broker for the acquisition of foreign assets by domestic entities.

- The distorted nature of the Chinese stock market means portfolio equity inflows would have been limited.

- The domestic bond market is also at a very primitive stage of development.

- Some recent policy moves to promote greater outward portfolio investment

    – Domestic insurance companies have been permitted to use their own foreign currency to invest in international market since 2004.

    – In 2006, the government launched a qualified domestic institutional investor program: (i) qualified banks may invest fund in fixed income products in international markets. (ii) qualified security firms may invest fund in international capital market. (iii) insurance company may invest in foreign fixed income and monetary instruments.

Saving and Investment

- High corporate saving

    – low dividend policy, resulting from uncertainty about ownership structure and weak corporate governance.

    – high share of industry in GDP and rising profit of Chinese enterprises.

- High household savings, as a result of self insurance with underdeveloped credit market (Mendoza, Quadrini and Rios-Rull, 2006)

- High investment, resulting from

    - reliance of self-financing

    - lack of accountability to shareholders.

    - restriction on capital outflows means enterprise investment has largely been restricted to domestic projects.

4 Impacts on Global Financial System

As destination for external capital

- China's FDI liabilities accounts for 4.1% of global FDI liabilities.

- Overseas entities may prefer to build portfolio equity stakes in proxy stock markets that are expected to positively co-move with Chinese economy (say the Hong Kong stock market.)

As International Investor

- The rapid accumulation of reserves and the undervalued nominal exchange rate leads to a reduction in relative prices and helps to moderate global inflation.

- For suppliers of input to China, the increase in export activity has generated an increase in demand.

- The high level of reserves acts as a subsidy that lower the cost of external finance for the issuers of the reserve assets - primarily the U.S. This keeps interest rate lower than otherwise in these economies and feeds into higher asset and real estate prices and a domestic saving rate, helping to explain the large US current account deficit.

Impacts on Global Imbalance

- The current net foreign asset position of China is small in global terms.

Country	NFA / World GDP
1 Japan	4.34
2 Switzerland	1.25
3 Taiwan (China)	1.06
4 Hong Kong (China)	1.05
5 United Arab Emirates	0.54
6 Germany	0.54
7 Singapore	0.46
8 Norway	0.40
9 Saudi Arabia	0.39
10 China	**0.32**
11 Kuwait	0.31
12 France	0.27
13 Belgium	0.27
14 Libya	0.16
15 Qatar	0.15
16 Iran, Islamic Republic	0.12
17 Luxembourg	0.09

Figure 9: Net Foreign Asset as Percentage of World GDP (Source: Lane and Schmukler, 2006)

- Further domestic financial development will induce a downward adjustment in the saving rate (reduce the precautionary need for saving)

- Capital account liberalization will provide greater competition in the domestic financial sector and improved opportunities for risk diversification, with consequent more lending and less saving.