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**Working Paper**

## What lessons have been learnt since the East Asian Crisis in 1997/98? CIBS, capital flows and exchange rates

WIDER Research Paper, No. 2008/73

**Provided in Cooperation with:**

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*Suggested Citation:* Pircher, Marion (2008) : What lessons have been learnt since the East Asian Crisis in 1997/98? CIBS, capital flows and exchange rates, WIDER Research Paper, No. 2008/73, ISBN 978-92-9230-127-9, The United Nations University World Institute for Development Economics Research (UNU-WIDER), Helsinki

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Research Paper No. 2008/73

## **What Lessons have been learnt since the East Asian Crisis in 1997/98?**

CIBS, Capital Flows, and Exchange Rates

Marion Pircher \*

September 2008

### **Abstract**

This paper discusses the movement of capital flows to and from the exchange rate regimes and monetary policies of China, India, Brazil, and South Africa (CIBS). Furthermore, we compare the level of financial stability, and the composition and duration of capital flows of the countries on a policy level according to the ‘‘third generation’’ crisis models’; following which the East Asian Crisis of 1997/98 linkages between the corporate and financial sectors, and foreign short-term debt are given further attention. The paper concludes by comparing all four countries and analysing possible risks in CIBS financial systems.

**Keywords:** international financial markets, financial stability, capital flows, exchange rates, China, India, Brazil, South Africa

**JEL classification:** F32, G15, N20

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This study has been prepared within the UNU-WIDER project on the Southern Engines of Global Growth, co-directed by Amelia U. Santos-Paulino and Guanghua Wan.

UNU-WIDER gratefully acknowledges the financial contributions to the research programme by the governments of Denmark (Royal Ministry of Foreign Affairs), Finland (Ministry for Foreign Affairs), Norway (Royal Ministry of Foreign Affairs), Sweden (Swedish International Development Cooperation Agency—Sida) and the United Kingdom (Department for International Development).

ISSN 1810-2611      ISBN 978-92-9230-127-9

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## Introduction

China, India, Brazil, and South Africa (CIBS) are considered to boost world economic growth as, over the past few years, they experienced and continue to experience large GDP growth rates. The source and facts leading to these high growth rates in the four emerging economies have already been the topic of various studies; hence, this will not be the main question of this paper. Instead, this paper focuses on a different approach and will try to answer the following questions: What implications does a liberalization of the capital account in CIBS have for the economy? Are there any important lessons for CIBS from the East Asian Crisis in 1997/98? Are there any remaining threats in CIBS financial systems?

The paper will show that the timing and speed of capital account liberalization has to be chosen *carefully* and with *prudence*, thereby reducing financial vulnerability. Furthermore, it is important to note that all countries have to be aware of the so-called ‘impossible trinity’ and the resulting implications. Table 1 presents an overview of the macroeconomic situation in the economies being analysed.

Table 1 Macroeconomic data

	2002	2003	2004	2005	Projected 2006
(Annual percentage changes, except otherwise indicated)					
Real GDP					
Brazil	1.9	0.5	4.9	2.3	3.5
China	9.1	10.0	10.1	9.9	10.0
India*	5.8	3.8	8.5	7.5	8.4
South Africa	3.0	4.5	4.9	4.2	4.2
Population (mid-year, in millions)					
Brazil	179.246	181.787	184.318	186.831	189.323
China	1288.4	1296.84	1304.98	1312.98	1320.86
India	1081.9	1099.49	1116.99	1134.4	1151.75
South Africa	46.580	47.088	47.540	47.938	48.282
GDP per capita (in US\$)					
Brazil	2868	3085	3654	4789	5715
China	1132	1275	1490	1742	2070
India	491	568	650	746	843
South Africa	2430	3610	4640	5130	5390
Consumer Price Index					
Brazil	8.4	14.8	6.6	6.9	4.9
China	-0.8	1.2	3.9	1.8	1.5
India	4.3	4.0	3.9	3.8	4.4
South Africa	9.2	5.8	1.4	3.4	4.7
GDP Deflator					
Brazil	10.2	15.0	8.2	7.2	4.0
China					
India	2.8	3.6	4.1	4.2	4.1
South Africa	10.5	4.4	5.6	4.7	5.8

(In per cent of GDP)					
Overall balance public finance					
Brazil	-4.6	-5.1	-2.7	-3.3	-2.4
China	-3.0	-2.4	-1.5	-1.3	-1.2
India	10.1	9.7	9.1	7.3	7.4
South Africa	-1.2	-2.0	-1.7	-0.6	-1.2
Public sector debt					
Brazil	65.5	58.7	54.2	51.7	50.6
China	18.9	19.2	18.5	17.9	17.3
India	81.4	86.1	85.9	82.7	80.8
South Africa	37.0	35.6	35.4	34.4	32.8
(End of period percentage changes)					
Broad money (M2)					
Brazil	23.2	3.7	18.6	18.9	N/A
China	16.8	19.6	10.9	13.6	N/A
India	14.1	14.7	16.7	12.3	21.2
South Africa	18.1	12.9	13.1	14.0	13.2
(In US\$ billion)					
Current account balance					
Brazil	-7.6	4.2	11.7	14.2	11.1
China	35	46	69	161	179
India	3.4	6.3	14.1	-2.5	-10.6
South Africa	0.7	-2.2	-7.4	-10.1	-12.5
Capital and financial account					
Brazil	8.0	5.1	-7.5	-9.6	5.7
China	32	53	111	63	41
India	8.6	10.8	16.7	28.0	24.7
South Africa	0.8	1.6	13.2	15.5	16.9
Outstanding external debt (in % of GDP)					
Brazil	44.9	42.1	33.3	21.1	18.1
China	12.8	12.7	12.8	12.6	12.7
India	21.1	20.4	17.8	17.3	15.8
South Africa	29.7	23.0	20.2	19.3	18.8

Note: \* For India: 2000–01, 2001–02, 2002–03, 2003–04, 2004–05, 2005–06.

Source: IMF, Article IV Consultation Staff Reports, various issues; DataStream.

## Theoretical issues

This section will discuss some theoretical issues, starting with the concept of the ‘impossible trinity’ and followed by a rough overview of the ‘third generation’ crisis model.

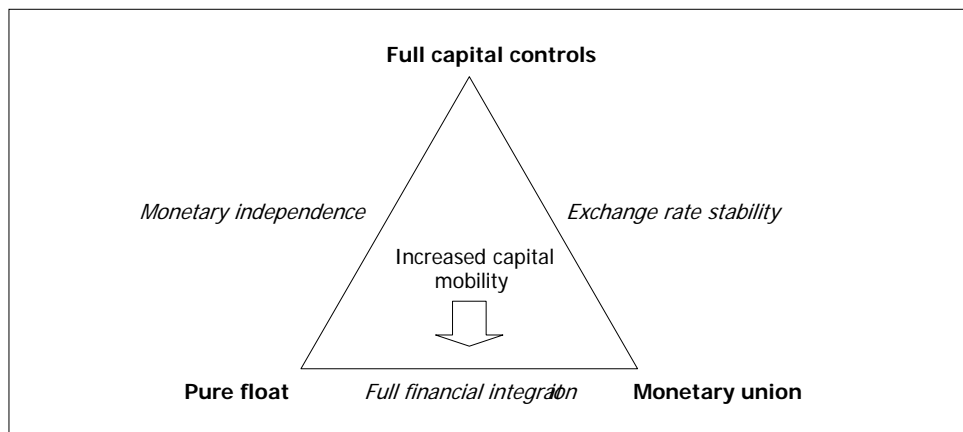
### Impossible trinity

The trilemma in open economies shows that, of the three goals that most countries share—that is, independence in monetary policy, stability of exchange rate and free movement of capital—only two can be reached simultaneously. This is the trilemma that policy-makers face as they have to decide which one to relinquish. In their empirical study, Obstfeld *et al.* (2004) show that the constraints imposed by the

trilemma—that is, the choice of exchange rate and its trade-off with monetary policy—are tight and apply in practice, which means that policy-makers should be aware of it.

A graphical representation of the choices of the trilemma and the consequences of choosing an appropriate exchange rate system can be seen in Figure 1. This figure shows the three policy instruments in an open economy (full capital controls, pure float and monetary union) on the three corners of the triangle, while three goals are listed on the three sides of the triangle (monetary independence, exchange rate stability and full financial integration). A movement from the top to the bottom of the triangle means increased capital mobility. Policy-makers can only choose to pursue two policies contemporaneously—that is, monetary independence and exchange rate stability (which lead to full capital controls), monetary independence and full financial integration (leading to a pure float) or exchange rate stability and full financial integration (which lead to a monetary union). Figure 1 shows that it is not possible to achieve any combination of all three policies at the same time without creating instability within the system.

Figure 1 The impossible trinity



Source: Frankel (1999)

As Obstfeld (2000) argues in his research summary, the trilemma is often associated with Robert A. Mundell but goes back to earlier writers such as J.M. Keynes. By starting from the Mundell–Fleming model for open economies, one has to consider its drawbacks—for example, assuming perfect capital mobility or neglecting intertemporal constraints—and, therefore, over the years the model was adjusted and extended.

The CIBS economies and their policy-makers could consider various policies in situations where advantages and disadvantages have to be weighed against each other:

- *Floating exchange rate* The governments could maintain monetary policy autonomy and free capital movements. According to theory (that is, a simple Mundell–Fleming model), monetary policy is very effective in a floating exchange rate system. With regard to monetary policy, it has been argued that emerging countries do not have the institutional requirements with which to implement effective monetary policies (Summers 2000) and, according to this opinion, countries with floating exchange rates would not be able to implement an effective and complex feedback rule in order to have an effective inflation

targeting system (Eichengreen and Masson 1998: 18–19). Additionally, another objection to floating exchange rates in emerging countries has been raised, that is, the ‘fear of floating’ (Calvo and Reinhart 2000). Calvo and Reinhart argue that, in a world of high capital mobility, incomplete information, fads, rumours and dollar denominated liabilities, the authorities are afraid to float their currency as the exchange rate will move significantly and large depreciations will have a negative impact on inflation and on corporate debt. However, as Edwards (2003: 75) argues, this criticism seems to be based on a small number of historical episodes or underestimated difficulties with super-fixed systems. Furthermore, studies of Mexico, after the collapse of 1994, and its floating exchange rate show that emerging countries could have a floating exchange rate but that the monetary authorities need to communicate their policies (Edwards and Savastano 1999).

A further question is whether capital mobility should be free. The advantage is that this policy is regarded as a positive sign in the international financial community, and that the government could use monetary policies for intervention in the economy. The costs of free capital movements could be large outflows of funds, which could hurt the private sector, leading to a credit crunch, bankruptcies in the economy and to a further drop in aggregate demand and recession of the economy. This situation applied in the case of the East Asian Crisis in 1997/98, where the private sector had dollar denominated debt and mismatches of debt in their balance sheets.

Other advantages of a flexible exchange rate include the fact that governments retain seigniorage and that the float allows smooth adjustments to real shocks, even in the presence of price frictions (Frankel 1999). The other cost that might come with a floating exchange rate is the exchange rate risk; however, this could be limited by introducing and using appropriate hedging instruments.

- *Establishing a monetary union or a currency board* The establishment of a monetary union or a currency board implies that the authorities keep stable exchange rates and free capital movements. The main advantages of a fixed exchange rate are the reduction of transaction costs and exchange rate risk, providing a credible nominal anchor for monetary policy (by pegging to a hard currency and thereby exhibiting strong monetary policy). Also, to a lesser degree, competitive depreciations or appreciations are not possible (Frankel 1999). Monetary policy under a fixed exchange rate system with free capital movements is, in some sense, not beneficial as domestic interest rates will be tied to foreign interest rates and, for example, an expansion of money supply would have no impact on the economy as the new money would flow out of the economy through a balance of payments deficit. Therefore, the drawback of this exchange rate system is that the authorities lose, in the case of necessity, one important instrument of intervention in the economy: monetary policy. They have to resort to fiscal policy in order to intervene effectively in the economy, with the disadvantage of building up government indebtedness, which is not desired in the CIBS economies.

Another disadvantage associated with this exchange rate system could be that corporations and so on will not hedge against currency risks, leaving their balance sheets with foreign currency debts and, in a period of a speculative attack—a bubble or

some similar situation that involves the abandonment of the fixed exchange rate—would end badly and drive the economy into bad equilibrium (Frankel 1999).

The discussion on free capital movement is very controversial, leading to opposing views about the pertinence of free capital movements for the countries.

- *Imposition of capital controls* The discussion on capital controls is also controversial. By imposing capital controls, governments can enjoy the benefits of autonomy of monetary policy and stable exchange rates. The benefits of autonomy of monetary policy include the opportunity to respond swiftly and effectively to sudden shocks in the economy.

The considerably more controversial discussion is about capital controls. Isard (2005: 246) argues that the main arguments against capital controls are derived from economic theory and historical experience. Theory suggests that markets allocate resources better (that is, profit incentives of firms, income allocation of households), and experience suggests that such systems are relatively efficient in encouraging technological innovation and economic growth over time. It has also been observed that leaving allocation of capital to the government could lead to corruption and the financing of unproductive activities. Additionally, capital controls provide an incentive to delay or try to avoid fiscal or monetary policy actions in order to deal with macroeconomic imbalances.

Furthermore, Isard (2005: 246–8) claims that these arguments against capital controls have to be balanced against arguments in favour of them. The arguments for capital controls are based on the theory of ‘the second best’—that is, if the market allocates the resources with distortions, the imposition of capital controls (thereby imposing a further distortion) will lead to a welfare improvement. Distortions in the market could arise in financial markets due to informational frictions (that is, costs of screening borrowers and monitoring their behaviour), resulting in incomplete and asymmetric information for lenders and to an adverse selection of borrowers, which could ultimately result in excessive volatility in financial markets (as a result of herding behaviour). Additionally, Isard (2005: 246–8) argues that capital controls might be beneficial if the government wishes to provide macroeconomic stability, which leads to an accumulation of foreign exchange reserves (thereby smoothing national consumption) and provides an explicit or implicit insurance to the domestic financial system. A further argument in favour of capital controls is that governments care about national welfare while financial markets do not (‘greed and fear’ motivation); therefore, the imposition of capital controls could give authorities breathing space in times of panic or pressure from financial markets. An alternative point of view is that long-term capital flows are beneficial for the growth of an economy and, in order to keep economic growth, economies should open themselves to free capital movement.

Overall, one problem with capital controls is that implementation and enforcement have to be ensured. Capital controls are not effective for highly developed countries; however, empirical evidence suggests that capital controls are effective in countries without highly developed financial sectors (Isard 2005: 249). The relationship between opening a capital account and growth is rather mixed, but growth and liberalization tend not to be strongly, positively correlated (Jomo 2005).



There are different types of capital controls: dealing with capital controls can be problematic, as investors might try to evade capital controls and authorities might not give incentives for the promotion of long-term capital investments, which usually are excluded from controls. There is wide agreement that market based capital controls (such as interest rate ceilings or reserve requirements) are preferred to quotas, licenses or other controls that require administration (Isard 2005: 255). The distinction on controls in inflows and outflows is usually much more controversial: while there is broad agreement that controls on inflows are effective (Edwards 2003: 49; Isard 2005: 255), the effectiveness of controls on outflows is much more controversial (for example, against effectiveness: Eichengreen *et al.* 1998; suggesting effectiveness: Kaplan and Rodrik, 2001). A theoretical approach that should discourage short-term capital flows was Tobin's (1978) proposal: the imposition of the so-called 'Tobin tax' should, in theory, limit short-term flows; in practice, it would only work if all countries agreed to adopt this measure.

As can be seen, the discussion on the imposition of capital controls is very controversial in academic debates. The international community, especially the Bretton Woods institutions, would not appreciate impositions of capital controls, although the combination of autonomy of monetary policy and a stable exchange rate might be preferable to the other two choices in some cases (for example, if the business sector had non-hedged foreign currency denominated liabilities combined with the threat of a large currency depreciation).

During the 1980s the so-called 'Washington Consensus' emerged and this led to the view that financial liberalization would contribute to economic growth, although theory leaves no unambiguous prediction of whether opening the capital account helps in the promotion of growth or not. It seems that opening the capital account has a positive influence on economic growth if the domestic financial markets are well developed and regulated, and the operation of the international financial system is smooth and stable, while it might be more negative if domestic and international financial markets are subject to crises (Eichengreen and Leblang 2002).

The discussion of the advantages and disadvantages of the options of the 'impossible trinity' leads to fundamental questions for policy-makers who have to choose between fixed or flexible exchange rates, monetary policy autonomy or stronger fiscal policy intervention, and capital account liberalization or capital controls.

While the choice between fixed or flexible exchange rates is the subject of theoretical discussions, capital account liberalization has to be considered very carefully as it could indirectly harm the economy (that is, in the case of a financial system that was not fully developed, a precipitate opening of the capital account could increase the risk of an economic slump). No general rule on capital account liberalization exists; however, as previously mentioned, it is widely recognized in economic theory that liberalization of long-term capital flows (that is, foreign direct investments (FDI)) is beneficial for economic growth. More controversial is the impact of short-term capital flows (that is, portfolio flows), which seem to be beneficial in highly developed financial markets but not in financial markets that do not have a fully developed financial infrastructure and are controlled by relatively weak regulatory bodies. Therefore, a general recommendation regarding the speed of opening the capital account cannot be given; however, a stepwise liberalization of different types of capital flows seems to be appropriate in most cases. Emerging markets, such as CIBS, are in a conflict situation as

foreign investors are attracted by the high growth rates in their economies and therefore wish to invest in different assets in the country (long- and short-term). On the other hand, the financial industries of these economies are in a transition period; that is, they have relatively good and sound financial institutions and supervision, but have not yet completed the move to a developed financial market. Furthermore, some investments from outside are usually welcome in these economies (for example, with regard to technology spillovers, or higher liquidity of capital markets). However, the policy-makers have to decide whether the market could allocate them efficiently or whether intervention is required. Policy-makers are facing a trade-off where the principle of the 'impossible trinity' should be kept in mind. The next section discusses the 'third generation' crisis model.

### **'Third generation' crisis model**

Since the breakdown of the Bretton Woods system, different types of crises occurred. Many economists tried to understand why these events happened and created some models describing the crises. The different crises models evolved over time in order to match the specific features of the crisis. According to the convention introduced by Eichengreen *et al.* (1995), they were grouped into 'first generation' and 'second generation' and, with the rise of the East Asian crisis, the 'third generation' has been added. One shortcoming of these models is that they failed to predict an upcoming crisis. The first generation crisis models help to explain the crisis in the 1970s and early 1980s, while not giving insights into speculative attacks on currencies of the European monetary system in 1992–93. For that crisis, academics developed the second generation crisis models, which, again, did not predict the rise of the crisis in East Asia. The theoretical models trying to explain the East Asian Crisis are the so-called 'third generation' crisis models.

The East Asian crisis was in contrast to the preceding crises in that it was not driven by mismanagement of economic actions by the government or by a lack of credibility of government actions. As Aghion *et al.* (2001) argue, most of the affected countries enjoyed balanced government spending and increasing foreign exchange reserves, low unemployment and a booming export sector; however, there seems to be evidence that the financial sector in these countries was not very well regulated. Furthermore, the authors argue that a lack of transparency in the financial sector was known among market participants and most of the countries recovered very quickly, not experiencing interest rates significantly higher than in the period before the crisis and without a significant overhaul of the financial sector.

According to Aghion *et al.* (2001) the third generation models, developed after the East Asian crisis, have in common the idea that a shock can be amplified by the so-called 'financial accelerator mechanism' (Bernanke *et al.* 1999). Some models (for example, Aghion *et al.* 1999a, 1999b) introduce a real shock that is amplified, while other models introduce multiple equilibria and the crisis is caused by a pure shift in expectations (for example, Chang and Velasco 1999; Krugman 1999a). As Aghion *et al.* (2001) point out, the common feature of the models is that 'a real currency depreciation can have a large effect on output if it affects the credit access of some subset of agents; moreover this effect on output may in turn affect the exchange rate, further amplifying the shock and causing it to persist.'

Main contributions to the third generation crisis models are Ahgion *et al.* (2000, 2001, 2004), Céspedes *et al.* (2000), Chang and Velasco (1998a, 1998b) and Krugman (1999a, 1999b, 2001): only the latter will be discussed, in brief, by giving an overview. Krugman (1999a, 1999b, 2001) proposed a so-called ‘cartoon version’ of a third generation crisis model (a more detailed version of this model can be found in Krugman 1999a).

According to Krugman (1999b), the Mundell–Fleming model could be used to describe the crisis; the basic model consists of the following three equations:

$$\mathbf{y} = \mathbf{D}(\mathbf{y}, \mathbf{i}) + \mathbf{NX}(\mathbf{eP}^*/\mathbf{P}, \mathbf{y}) \quad (1)$$

Aggregate demand equation relating domestic spending to real income and interest rate, and net exports that depend on the real exchange rate

$$\mathbf{M}/\mathbf{P} = \mathbf{L}(\mathbf{y}, \mathbf{i}) \quad (2)$$

Money demand equation

$$\mathbf{i} = \mathbf{i}^* \quad (3)$$

Interest arbitrage equation (with risk neutral investors and static expectations about the exchange rate).

As this model is too simple to describe the situation in East Asia in a satisfactory way, Equation (1) can be modified by adding a strong, open economy Bernanke–Gartler effect,

$$\mathbf{y} = \mathbf{D}(\mathbf{y}, \mathbf{i}, \mathbf{eP}^*/\mathbf{P}) + \mathbf{NX}(\mathbf{eP}^*/\mathbf{P}, \mathbf{y}) \quad (1')$$

where firms are highly leveraged, a substantial part of their debt is denominated in foreign currency, and their investment will be constrained by their balance sheets. In this modified equation, domestic demand also depends directly on the real exchange rate.

The modified model implies that, at favourable real exchange rates, only few firms have constrained balance sheets and the direct effect on aggregate demand would be small. However, at unfavourable real exchange rates, companies would be unable to invest and the direct effect on aggregate demand would be substantial, resulting in a corporate sector that is basically bankrupt, unable to invest and where only small firms and farmers would be benefiting from a weak currency. The middle course would outweigh the direct effect of the competitive position on exports and, as such, the depreciation would lead to a contraction rather than an expansion of the economy (Krugman 1999b). These results lead to no clear policy prescription and suggest difficulties in choosing the right policies (which was true in the real world, as there are many discussions upon the adequacy of the policies imposed by the IMF).

Summing up, the commonality of the third generation models is that they include a Bernanke–Gertler effect and are monetarist models for small, open economies. It can be seen that the financial leverage of corporations and the exposure to foreign exchange movements is important in these models. This is important for CIBS, as it shows that possible threats might arise in *corporate balance sheets*, combined with unhedged

foreign exchange stocks in the respective countries and *weak financial infrastructures* (for example, bank balance sheet mismatches, poor regulation, underdeveloped bond, and financial markets).

## **A deeper look at CIBS**

Let us now turn to some key data in CIBS: the exchange rate system and movements, government spending, balance of payments, interest rates and other relevant macroeconomic data. All data are from Thomson Financial DataStream and deal with the period 1995–2006 (or the latest available data).

### **Exchange rate**

The actual exchange rate arrangements and monetary policy framework of CIBS (as at 31 July 2006, see IMF 2006) can be summarized as follows:

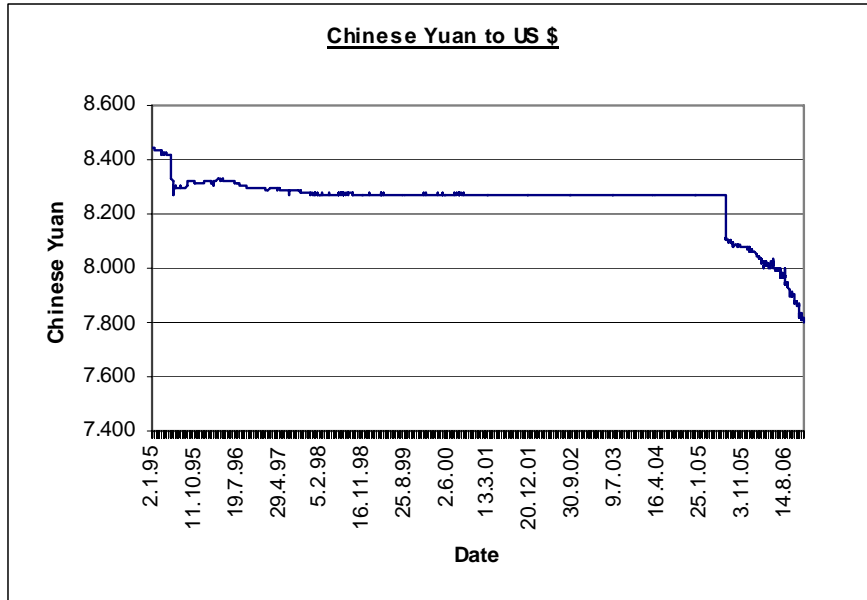
- China: ‘Other conventional fixed peg arrangements’ and the target of monetary policy framework is monetary aggregate. (On 21 July 2005 China announced the move to managed floating exchange rate based on an undisclosed basket of currencies.)
- India: ‘Managed floating with no predetermined path for the exchange rate’ and other targets of monetary policy; that is, monitoring various indicators in conducting monetary policy.
- Brazil: ‘Independently floating’ with a monetary policy framework to target inflation.
- South Africa: ‘Independently floating’ with a monetary policy framework to target inflation.

This shows that two countries have a floating exchange rate regime (Brazil and South Africa) and can therefore, according to the impossible trinity, reach the targets of monetary independence and full financial integration (that is, inflation targeting and free capital movements). The remaining two countries (China and India) experience some ‘hybrid’ exchange rate arrangements, where the Chinese exchange rate regime is closer to a fixed exchange rate regime and India’s exchange rate regime is in between the two courses of action.

China, in order to have an effective monetary policy, should therefore, according to the impossible trinity, have a lower degree of capital mobility (China is closer in this case to the ‘full capital controls’ corner in Figure 1) than Brazil or South Africa (both of which countries are close to the ‘pure float’ corner). India is facing a mid-course in exchange rate regimes. It is therefore difficult to categorize China and India in accordance with Figure 1. The commitment to more exchange rate flexibility could increase India’s integration into world financial markets. Studying Figures 2–5, it can be seen that the Indian rupee is not fixed, neither does it seem to be fully floating; it does, however, appear that the Indian exchange rate experienced some smooth movement over recent years. China experienced large changes in exchange rate policies for two years, while

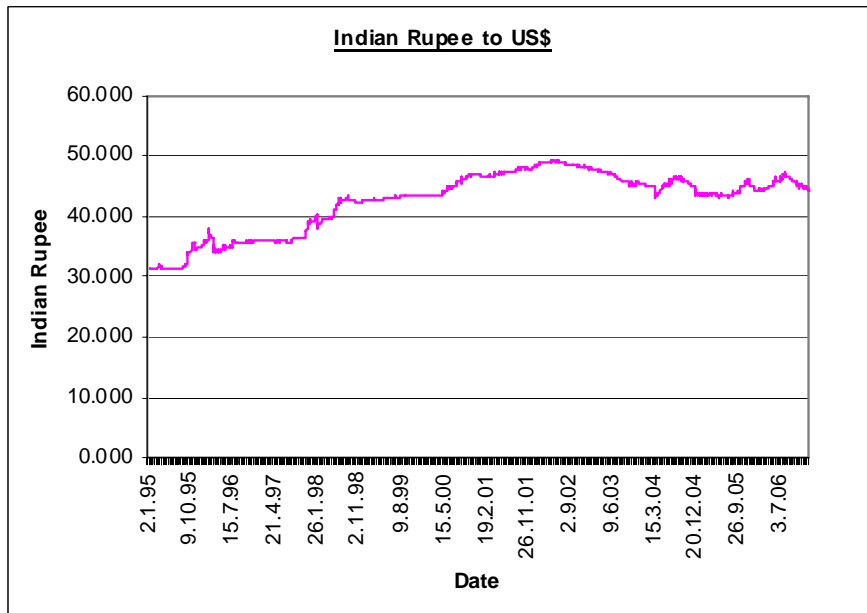
the movement of the Brazilian real and South African rand shows that these currencies are floating and few interventions might have occurred over the period showed here.

Figure 2 Chinese yuan to US\$



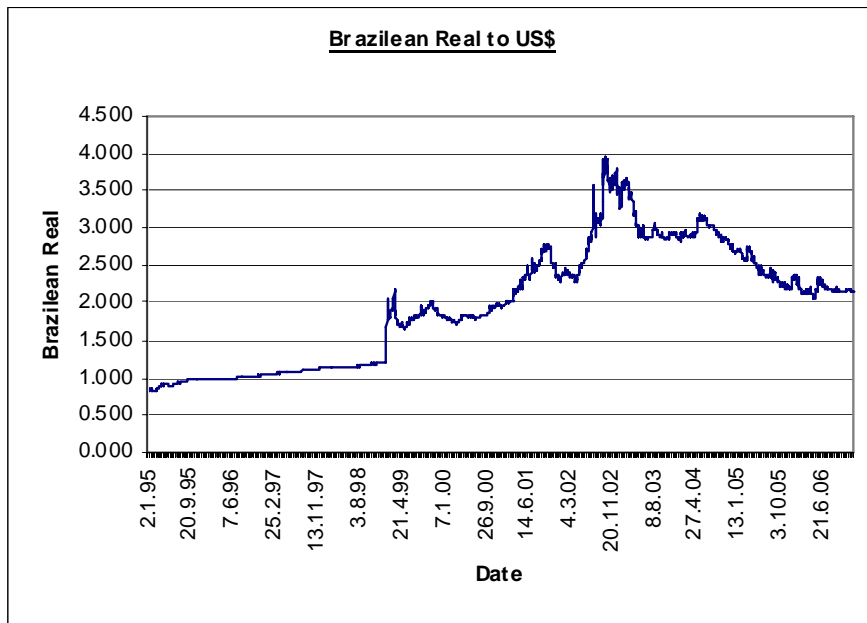
Source: DataStream

Figure 3 Indian rupee to US\$



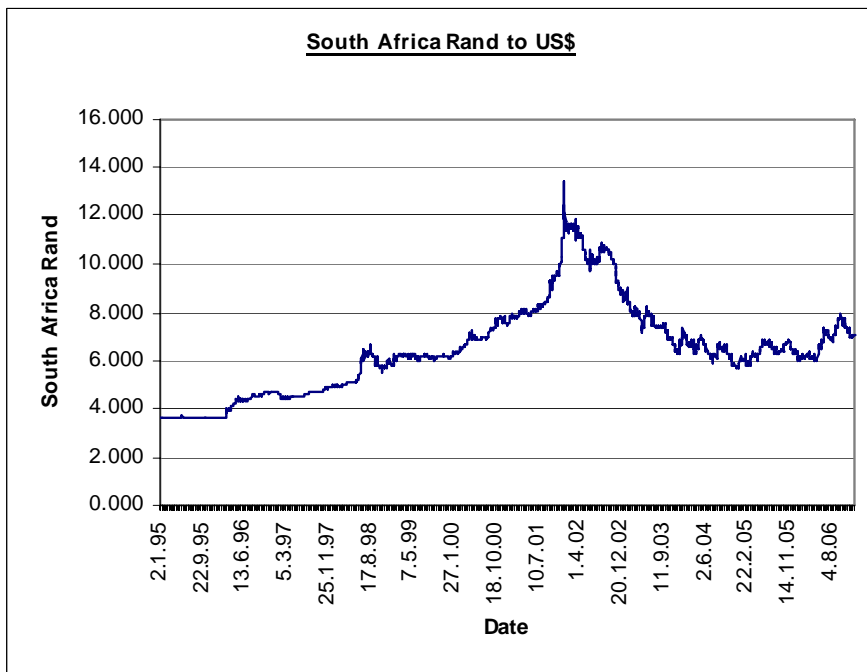
Source: DataStream

Figure 4 Brazilian real to US\$



Source: DataStream

Figure 5 South African rand to US\$



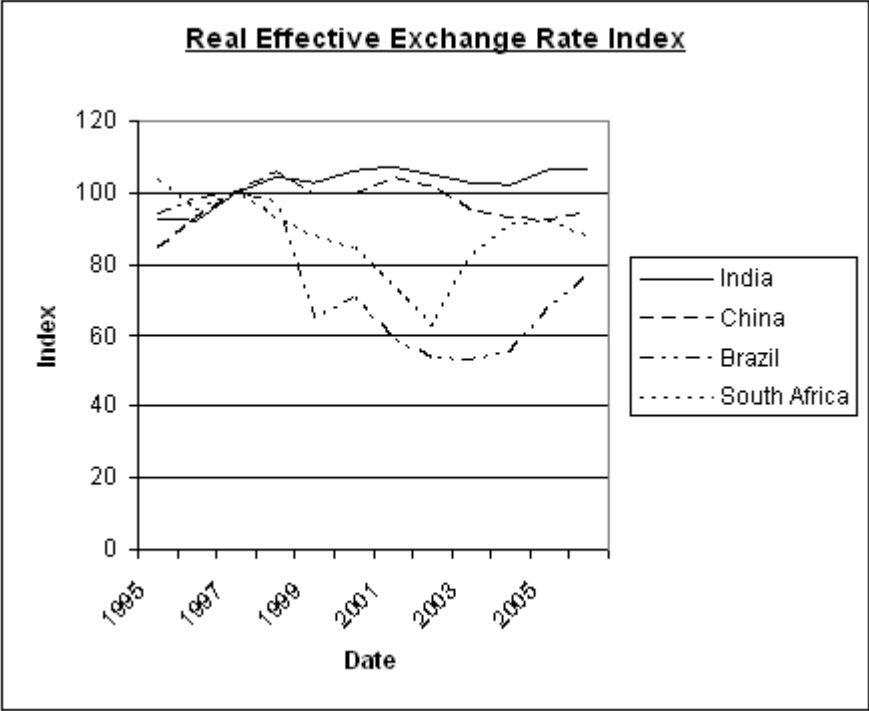
Source: DataStream

If following the concept of the impossible trinity, the current situation of exchange rate movement and system in China and India seem unclear and could, therefore, bear some risks (that is, movement to full financial integration without the accompanying change of exchange rate system is not feasible; for example, a high interest rate spread (US to local interest rates) and a fixed exchange rate could attract more portfolio flows than desired and lead to troubles in the local financial markets).

At best, all nominal exchange rates with regard to the US\$ achieved appreciation and relative stability over the period 2002–06. This means that, in nominal terms, the countries’ competitive positions worsened slightly.

Studying the real effective exchange rate index, which is a better approximation for international competitiveness, shows that since 2003 CIBS experienced an increase of the index with regard to stability. This means that the fixed or relatively fixed nominal exchange rate (as is true for China and India) has increased the strength of the domestic economies over the period analysed here, which would imply an appreciation of the nominal exchange rate. The current level of the nominal exchange rate seems to be relatively costly (due to its under-valuation) and the so-called shadow exchange rate might become significantly different from the nominal exchange rates. Furthermore, Figure 6 shows that international CIBS competitiveness worsened slightly for Brazil and India (an increase of the index), while it remained relatively stable for China and South Africa over recent years.

Figure 6 Real effective exchange rate index



Source: DataStream

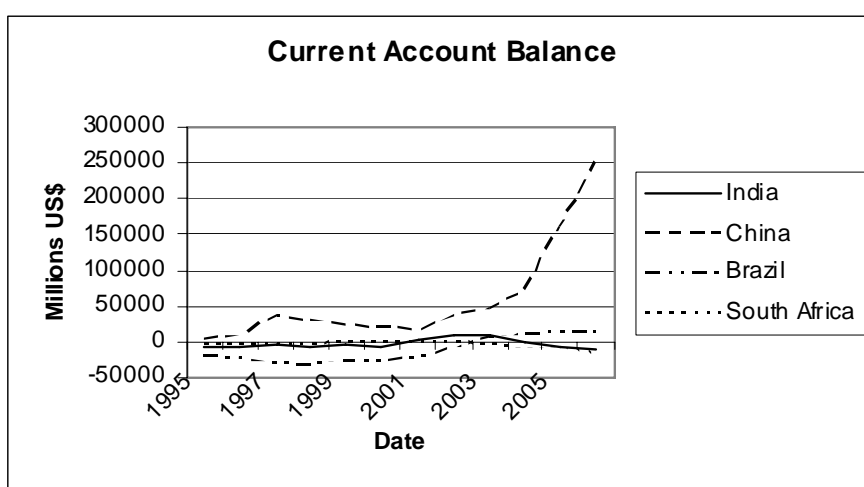
**Government spending and balance of payments movements**

Table 1 shows that, between 2002 and 2006, CIBS reduced public sector debt (as a percentage of GDP). This implies that the governments are aware of government indebtedness and that the threat of a first or second generation crisis is very low. Turning to different parts of the balance of payments, two datasets are of main interest: the direction of the current account (comprising the flows of goods and services) and the composition of the capital account (comprising flows of capital to and from a country).

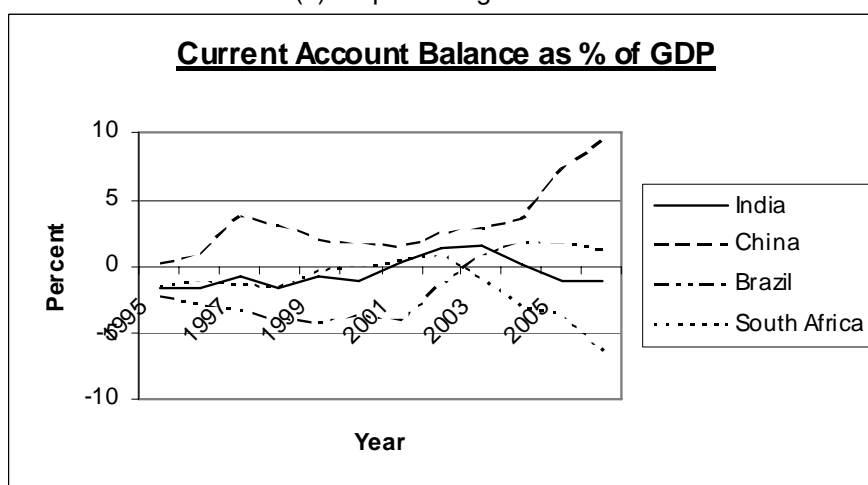
From Figure 7a it can be seen that the direction of the current account balance differs in CIBS. While India and South Africa experience a negative current account balance, Brazil experienced a slight increase, and China a sharp increase and strong positive current account balance (the same results can be drawn from Figure 7b). The causes of this different direction of current account movements can be found for three countries by the directions of trade. China and Brazil are net exporters, while India is a net importer of goods and services (Figure 8). For South Africa, the situation is slightly different, as the trade balance is almost balanced (slightly negative); therefore the remaining items (services, income, and transfers) are the contributing elements to the negative current account balance.

Figure 7 Current account balance

(a) In US\$ (millions)



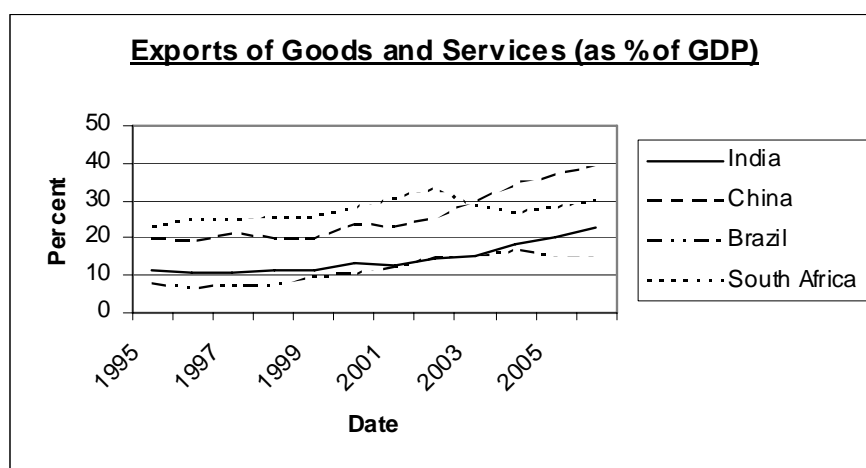
(b) As percentage of GDP



Source: DataStream



Figure 8 Exports of goods and services (as percentage of GDP)



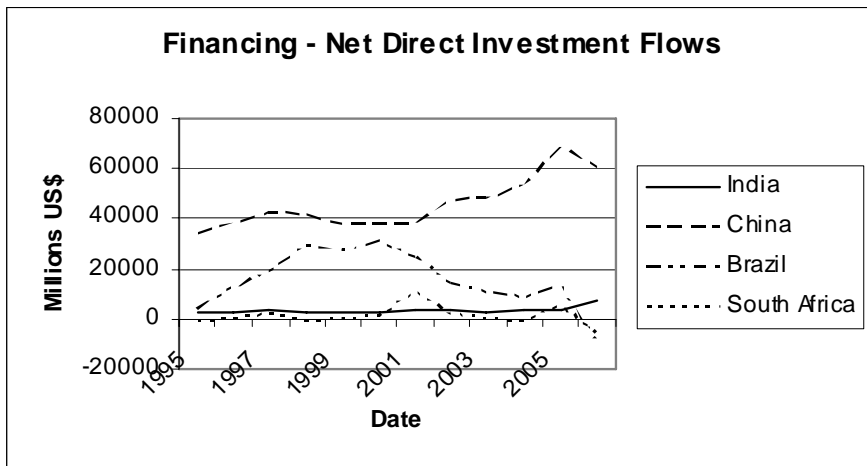
Source: DataStream

Next, the flows of the capital account should be considered. It can be seen from Figure 9 that net direct investment flows are positive for China and India, which means that these economies experience long-term and stable capital inflows, which should contribute to economic growth. It can be seen that India still has capital account controls, as the flows are stable and relatively small over the whole period analysed, while China has experienced capital account liberalization in recent years. Net direct investment flows for South Africa and Brazil became negative in 2005 and 2006. For South Africa, this reversal of long-term capital flows could be explained by the increasing investments of South African corporations in neighbouring economies. Brazil experienced a decline in long-term inward flows, which seems to be a result of the last major financial market crisis in 1997/98, which also affected Brazil (Figures 10 and 11).

Now let us turn to an analysis of portfolio flows. Inward portfolio investment (Figure 12) increased for all economies in recent years. While outflows (Figure 13) remained stable for India, Brazil, and South Africa, they increased for China (that is, short-term portfolio investments abroad—a negative sign means an outflow). Short-term inflows remained stable for India but increased for the remaining countries (in China, to a higher degree in absolute values than in the other countries). China experienced the largest outflow of portfolio flows, which can be explained by the cross-border activities of Chinese citizens and onshore foreign currency deposits (BIS 2002) as well as the recent changing of rules for domestic financial institutions, which allow portfolio investments overseas and, therefore, the opening of specific actions and capital account movements.

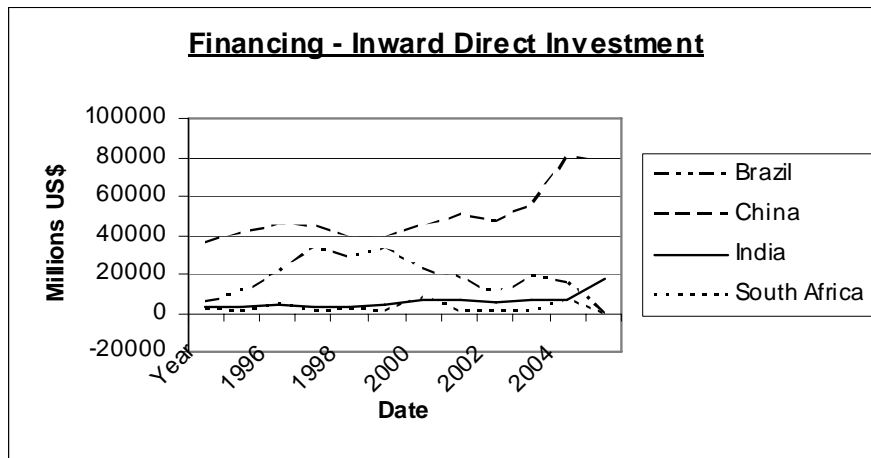
The risk with increasing portfolio investment, as mentioned, is that these could be very harmful in the case of liberalization of capital accounts. However, even if officially capital accounts are not fully liberalized (as in the case of China), some cross-border activities and onshore foreign currency deposits are a risk for the Chinese economy if the principles of the impossible trinity are not respected. Allowing a relatively high interest rate spread combined with a relatively fixed (effectively pegged exchange rate) is dangerous and could lead to a higher than desired level of capital inflows, as this spread attracts foreign investors and gives an illusory assurance to domestic corporations who borrow in foreign currency without appropriate hedging.

Figure 9 Financing: net direct investment flows



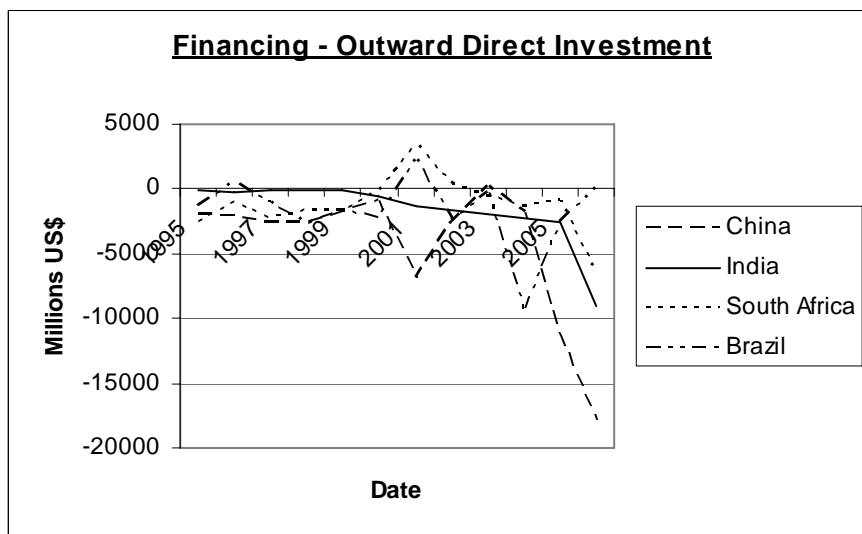
Source: DataStream

Figure 10 Financing: inward direct investment



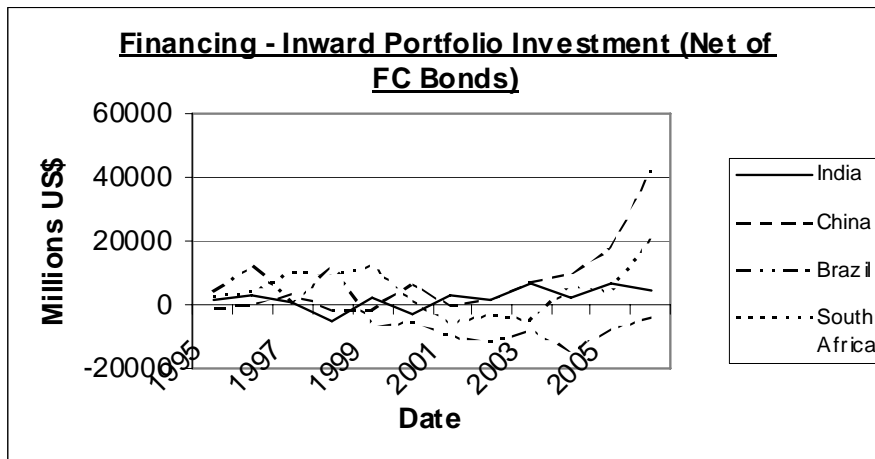
Source: DataStream

Figure 11 Financing: outward direct investment



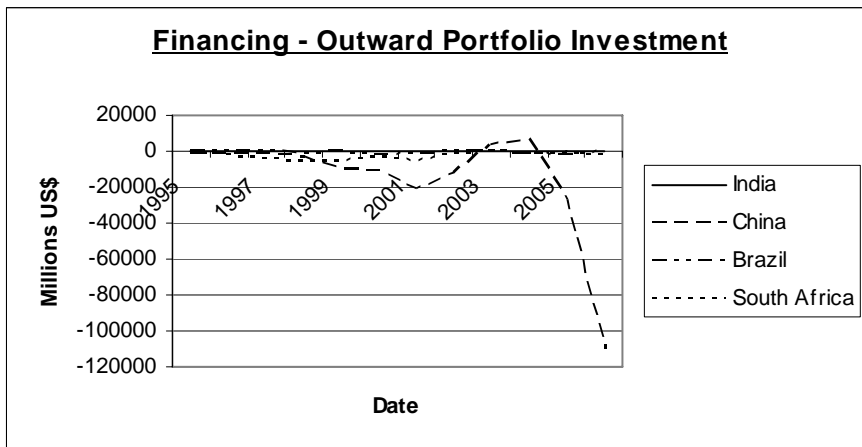
Source: DataStream

Figure 12 Financing: inward portfolio investment (net of FC bonds)



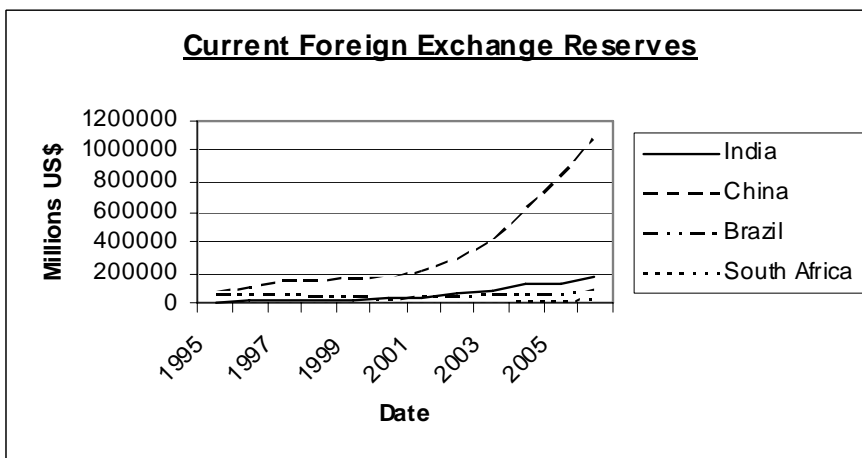
Source: DataStream

Figure 13 Financing: outward portfolio investment



Source: DataStream

Figure 14 Current foreign exchange reserves



Source: DataStream

The last figure of this section, Figure 14, shows the current foreign exchange reserves of the four countries over the past ten years. It can be seen that all countries tended to build up stocks of foreign exchange reserves. Most impressive is the increase of foreign exchange reserves in China, almost quintupling between 2002 and 2006. One cause of this huge increase in Chinese foreign exchange reserves is China's increasing share of exports of goods and services, and the current account surplus. Furthermore, Asian central banks are well known to build up foreign exchange reserves for 'bad' times; that is, for intervention in the foreign exchange market and in order to be less dependent for assistance on international organizations (for example, IMF).

It is interesting that India has built up the second-highest current foreign exchange reserves in the group analysed here, although not experiencing large current account surpluses in recent years. This could be a sign of the intention of Asian central banks to have sufficiently large reserves for intervention in the foreign exchange market. The other two economies, Brazil and South Africa, experienced a very small increase of their foreign exchange reserves when compared with China.

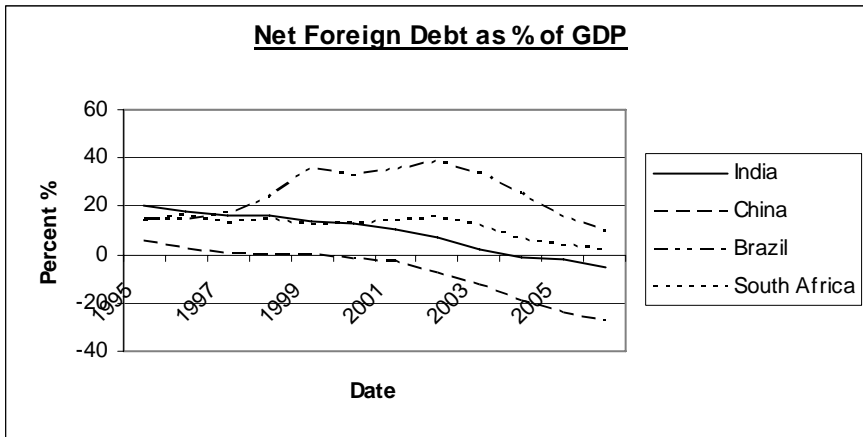
## **Debt**

This section will look at CIBS debt structure. It can be seen from Figure 15 that net foreign debt as a percentage of GDP decreased in all countries over recent years, becoming negative even for China and India, and moving towards zero for Brazil and South Africa. (Net foreign debt is defined as claims owned by foreigners in the domestic economy minus claims by domestic holders owned in foreign economies.) China and India are, therefore, net creditors to the world, while Brazil and South Africa are net debtors. Brazil records a very impressive turnaround of net foreign debt: from almost 40 per cent in 1999–2002 (that is, the period when Brazil experienced economic problems after the East Asian crisis 1997/1998) to an almost single digit figure in 2002–06 (since 2003, Brazil experienced a current account surplus). Brazil's position as a net creditor to the world, and especially to the USA, is discussed almost daily in the press. Even more impressive is the large share of net debt to GDP, which is in double digits. The rule that developed economies should be creditors to emerging economies seems not to apply for India and China—in fact, the reverse seems to be true. The same pattern can be seen from Figure 16, which shows the same pattern as net foreign debt as a percentage of GDP.

Figure 17 shows foreign debt per capita, which is highest for Brazil and South Africa and lowest for India and China. While Brazil has decreased its foreign debt per capita since the late 1990s, South Africa and China have experienced a slight increase in foreign debt per capita. In sum, China is a net creditor and South Africa and Brazil have been decreasing their share of net foreign debt over the past few years.

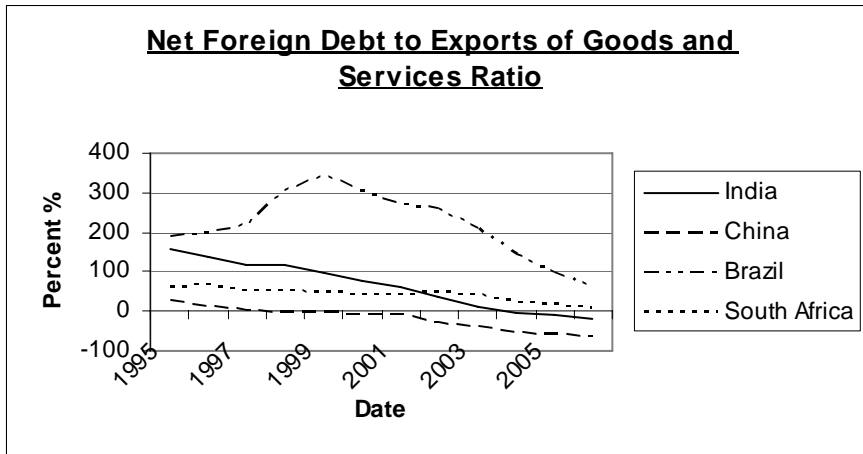
Looking at the ratio of international reserves to total debt, it can be seen that this ratio is increasing for CIBS (Figure 18). This might be explained by the increase of international reserves (especially for China and India). Furthermore, it shows that foreign debt is backed in China and India by at least the same amount of international reserves, thereby providing insurance against bad times. Brazil and South Africa have a double-digit ratio, which is increasing over time and showing that both countries are experiencing a decrease in risk of foreign indebtedness.

Figure 15 Net foreign debt (as percentage of GDP)



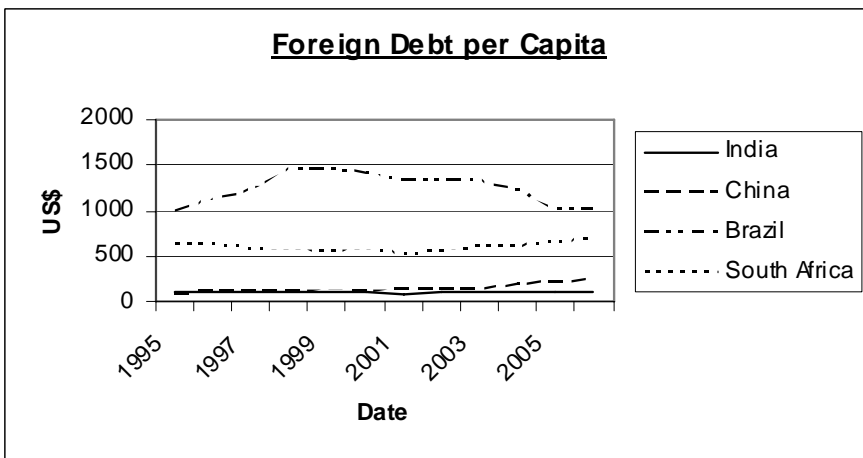
Source: DataStream

Figure 16 Net foreign debt to exports of goods and services ratio



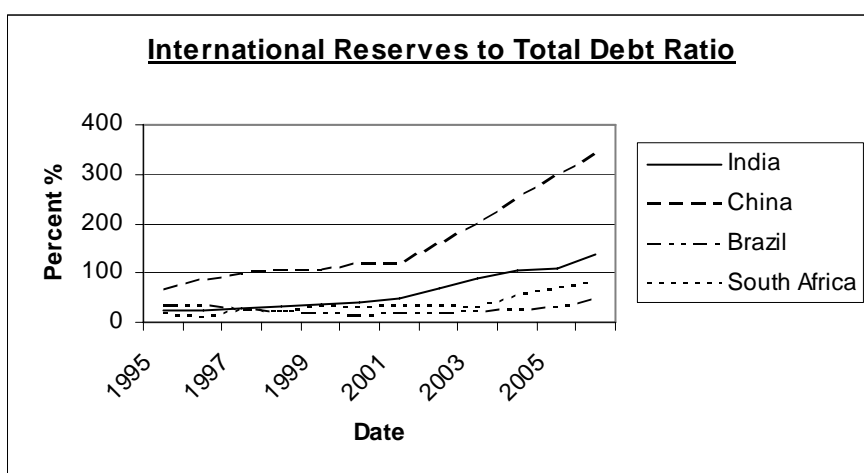
Source: DataStream

Figure 17 Foreign debt per capita



Source: DataStream

Figure 18 International reserves to total debt ratio

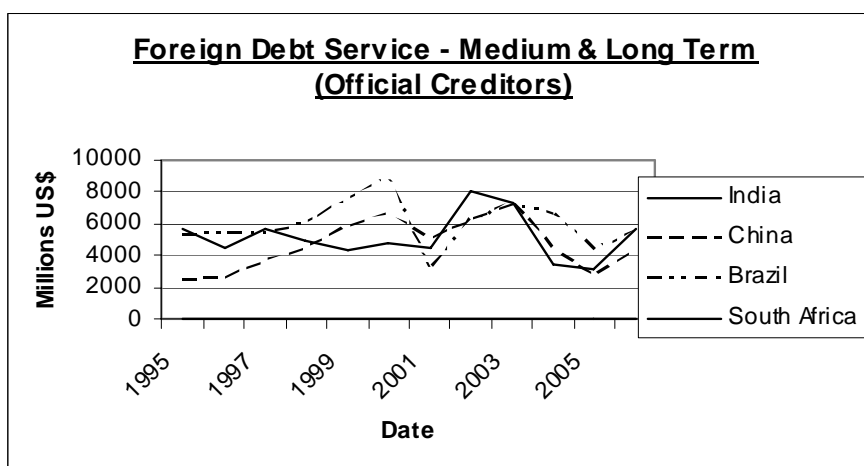


Source: DataStream

The last part of this section is dedicated to the composition of debt. Figures 19–21 show different pictures for CIBS. While medium- and long-term debt is mostly owed to private creditors and decreasingly stable over time, short-term debt is stable for India, Brazil, and South Africa while sharply increasing for China.

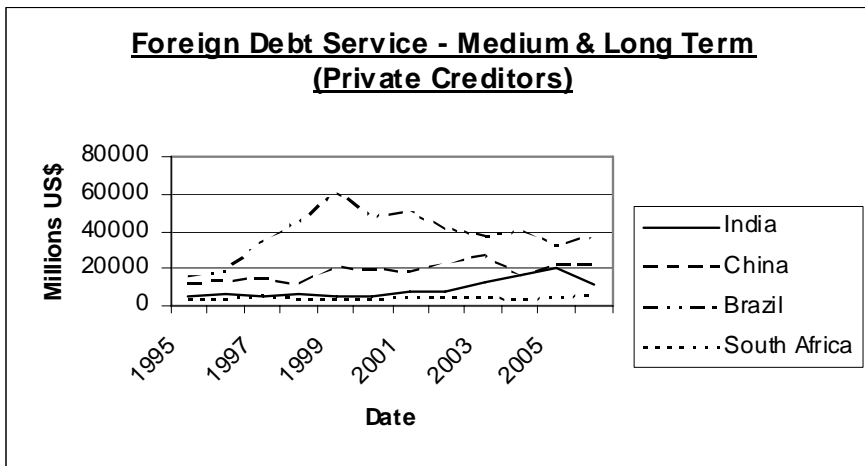
Before looking at the share of non-performing loans in CIBS, there are some BIS figures to study. Figure 22 shows BIS’s undisbursed credit commitments, which decreased sharply for CIBS in 2004 and might indicate that corporations resort to the credit lines as short-term debt increased in CIBS over recent years, too. (According to the OECD Glossary of Statistical Terms ‘credit commitments’ are ‘Funds committed by the creditor but not yet utilized by the borrower. In BIS terminology, this refers to open lines of credit that are legally binding on lending banks. A transaction in the balance of payments or a position in the international investment position (IIP) is only recorded when an actual disbursement takes place.’)

Figure 19 Foreign debt service: medium- and long-term (official creditors)



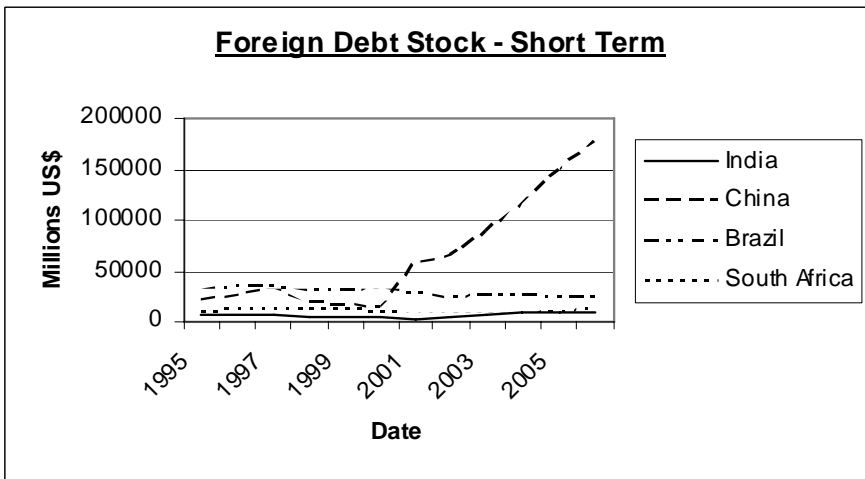
Source: DataStream

Figure 20 Foreign debt service: medium- and long-term (private creditors)



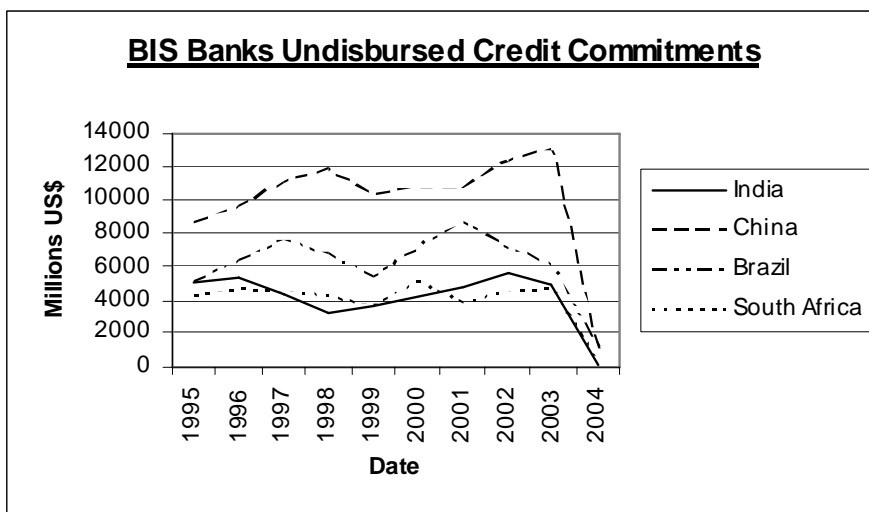
Source: DataStream

Figure 21 Foreign debt stock: short term



Source: DataStream

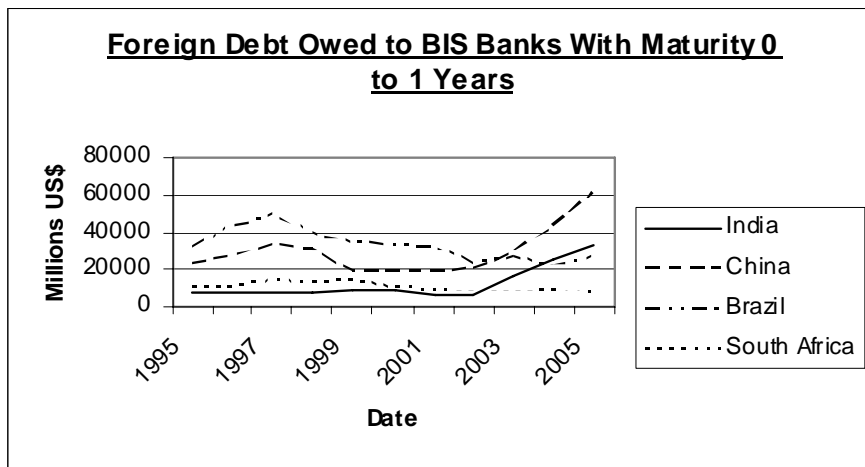
Figure 22 BIS banks undisbursed credit commitments



Source: DataStream

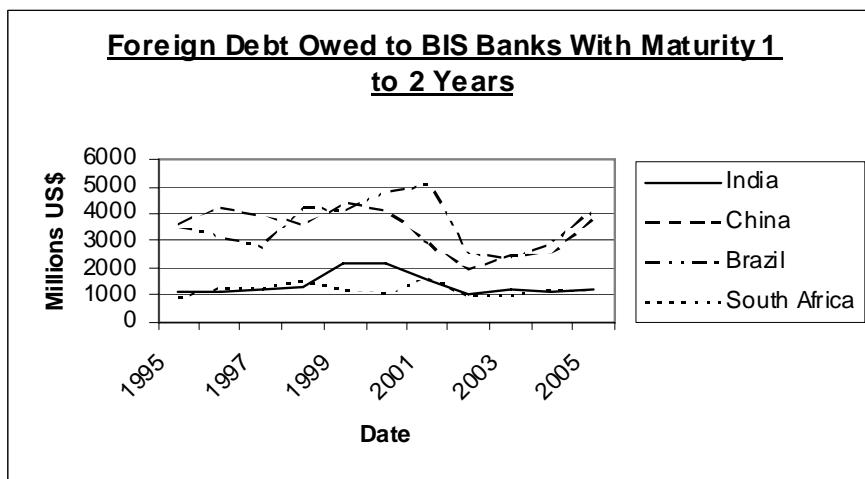
Looking at the time structure of foreign debt owed to BIS Banks (Figures 23–25), it can be seen that debt with maturity below one year have increased sharply in China and India since 2003, while staying constant in Brazil and South Africa. The volume of foreign debt with maturity of one to two years is small when compared with the other two categories (below one year and above two years). This kind of debt increased for China and Brazil while staying constant for India and South Africa. Compared with China, India, and South Africa, Brazil relied most on foreign debt with a maturity of more than two years, and all four countries experienced an increase of this type of debt over recent years.

Figure 23 Foreign debt owed to BIS banks with maturity 0 to 1 years



Source: DataStream

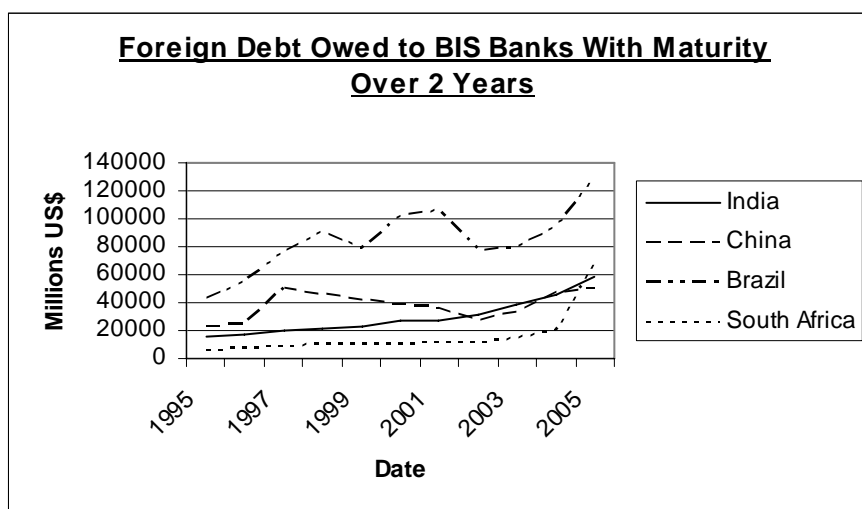
Figure 24 Foreign debt owed to BIS banks with maturity 1 to 2 years



Source: DataStream



Figure 25 Foreign debt owed to BIS banks with maturity over 2 years



Source: DataStream

Finally, it is important to look at the non-performing loans (or bad loans) in the four economies in order to see whether the share of outstanding debt might become harmful to the economies in the future. An increasing share of non-performing loans indicates problems in the corporate sector and a higher risk for banking institutions (which have to write off these loans in their balance sheets and might, therefore, experience problems in specific capital adequacy ratios; for example, Basel II tier capital adequacy ratios). Unfortunately, it is difficult to find any specific numbers showing the behaviour of domestic bank institutions that could indicate mismatches in lending (mismatches, in this context, means time mismatches; that is, foreign short-term debt will be lent to domestic corporations as medium- to long-term debt). The high share of foreign short-term debt in China indicates some vulnerability, although it is, by itself, not a sign of financial crisis. In the case of China, the build up of international reserves is positive: these might buffer smaller shocks but, again, they are no guarantee in times of crisis. More interesting and controversial is the fact that India and China are net foreign creditors: assets owned overseas could be considered as a type of insurance and risk diversification for domestic corporations. However, on the other hand, these are flows that are not invested in the domestic economy (and, therefore, not used for domestic investment opportunities) and are exposed to foreign market risk (for example, the mortgage market of the United States). There are difficulties in analysing these opaque financial flows. The new and various forms of financial flows, and indirect linkages between the domestic and overseas economies, make any attempt at analysis of possible threats in this section almost impossible. Additionally, available data is very limited, which increases the problems of interpretation, too.

Looking at non-performing loans (Table 2), it can be seen that, in CIBS, the ratio decreased over the period of 2001 to 2005 in respective of 2006. South Africa's very low ratio is impressive, which might indicate a sounder financial industry, while the ratio for China is high (these are official numbers and some other sources; for example, US Department of States, <http://www.state.gov/e/eeb/ifd/2007/82189.htm>, report even higher numbers). The combination of an increasing reliance on short-term debt and a relatively high share of non-performing loans could be an indicator of financial vulnerability in China and should be analysed in greater detail. However, as mentioned, this might be difficult due to a lack of data. The average bank non-performing loans to

total loans ratio in developed financial markets is between 1 and 2 per cent. Therefore, based on these official figures, three countries (China, India, and Brazil) can be considered as being relatively more risky and exposed to financial instability when compared with South Africa. Lastly, China seems to be exposed more than the other countries due to its relatively larger share of short-term debt in comparison with the other three countries.

Table 2 Non-performing bank loans to total loans (%)

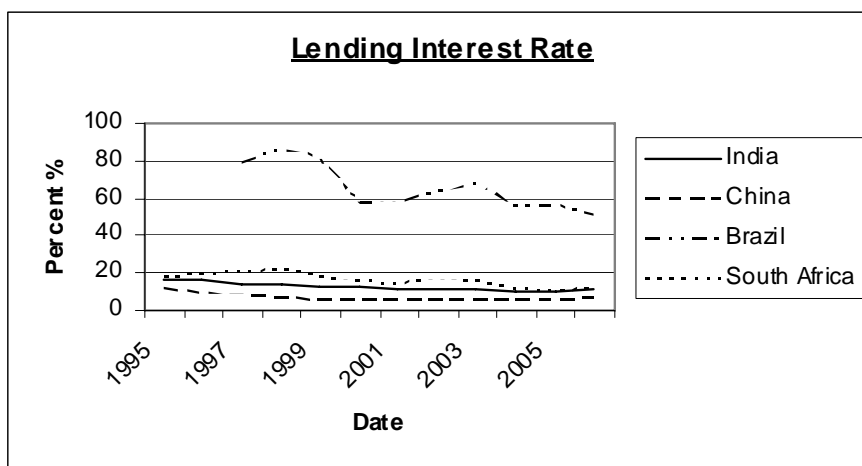
	2001	2002	2003	2004	2005	2006
China	29.8	26.0	20.4	12.8	9.8	7.5
India	11.4	10.4	8.8	7.2	5.2	3.3 (March)
Brazil	5.6	4.8	4.8	3.8	4.4	N/A
South Africa	3.1	2.8	2.4	1.8	1.5	1.2 (June)

Source: IMF (2007)

### Interest rates and equity markets

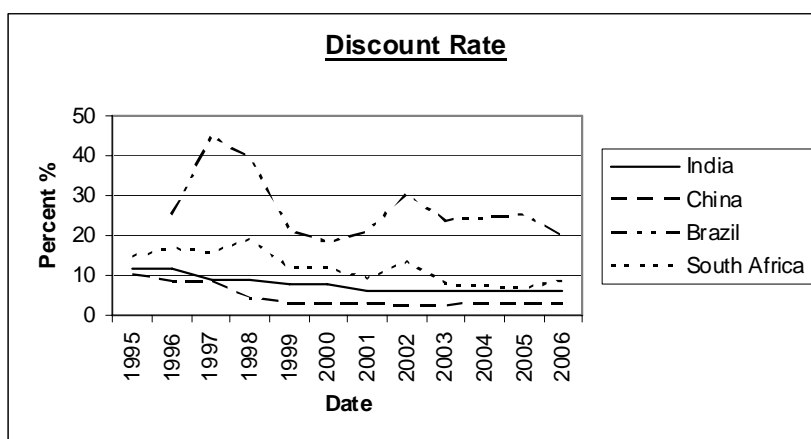
This last section deals with interest rate and equity market developments in CIBS. It can be seen from Figures 26 and 27 that, between 2001 and 2005, the lending interest rate and discount rate in China, India, and South Africa were below 10 per cent. In contrast, Brazil experienced very high lending interest rates (reaching even more than 80 per cent) and a discount rate above 20 per cent. Both indicators are decreasing for Brazil over the period, which shows that the problems after the economic shock in the late 1990s seem to be resolved.

Figure 26 Lending interest rate



Source: DataStream

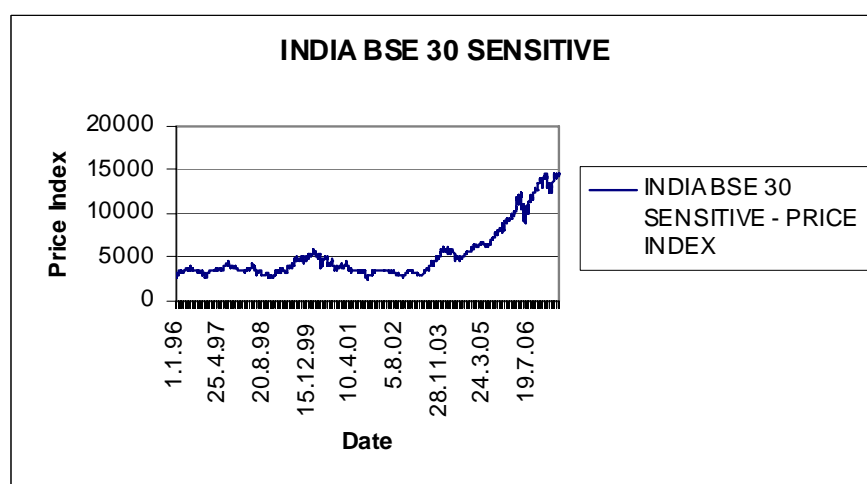
Figure 27 Discount rate



Source: DataStream

Since 2004, stock market indices (Figures 28–31) for CIBS increased sharply (in China’s case, since 2005), which could be a sign of economic growth. This is also a sign of attractiveness to foreign investors. This upward trend can be seen from major developed market indices (for example, Dow Jones, S&P500, FTSE). An increasing and unsustainable level of stock market growth leading to a ‘bubble’ that could burst in the event of a crisis could become problematic; for example, in the proprietary market (as happened in Thailand in 1997). A well-regulated equity market with independent supervision could limit the risk of harmful bubbles and the spread of crisis among different economic branches.

Figure 28 Stock market index: India



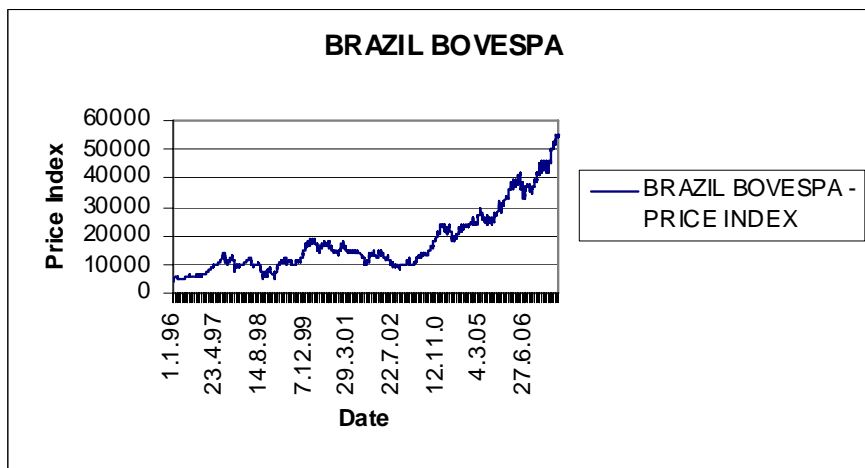
Source: DataStream

Figure 29 Stock market index: China



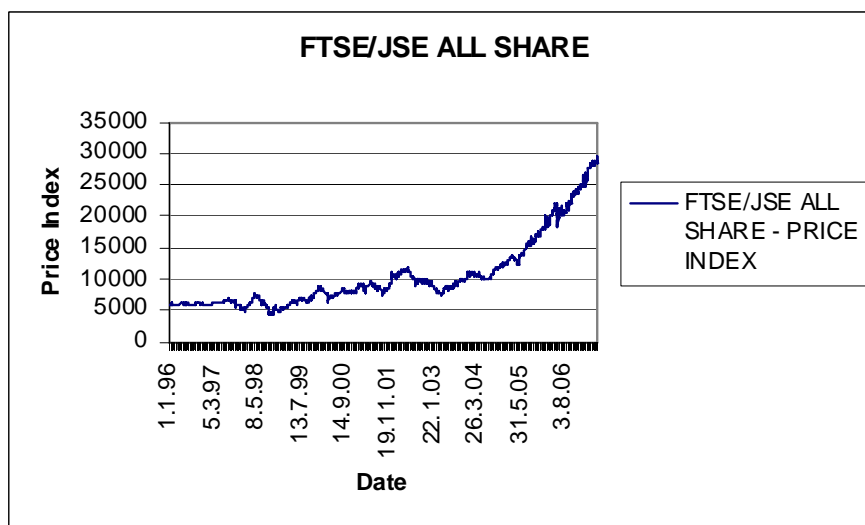
Source: DataStream

Figure 30 Stock market index: Brazil



Source: DataStream

Figure 31 Stock market index: South Africa



Source: DataStream

## **Summary**

Looking at the individual findings presented in this paper, it can be seen that the results are mixed and interpretation is not straightforward. In some countries, exchange rate regimes are flexible; in others they are 'hybrid'. Short-term debt is higher in one country than another; however, if combined with high international reserves, this should be less problematic. Some countries are net creditors while others are net debtors, and so on.

CIBS have in common the fact that they all experienced a high growth rate; however, considering the capital flows, exchange rates, and debt structure, four different stories emerge. Commonalities are the high real GDP growth rates, stock market and export growth, some improvements in the financial industry and stable macroeconomic indicators (for example, interest rates, inflation rate). On the other hand, differences can be observed.

China is a net creditor to the world and has built up huge international reserves, a strong current account surplus, and gains from FDI inflows. At the same time, however, China has a relatively high share of short-term debt and non-performing loans (NPLs), as well as a high level of stock in short-term capital flows.

India is also a net creditor, has lower international reserves and a current account surplus such as China's but is, however, exposed to less short-term debt and fewer NPLs. Also, its capital account is relatively closed.

Brazil and South Africa have had different experiences, as both countries are not building up a high share of debt and international reserves. They do, however, have to deal with other situations and experience a lower share of short-term debt and NPLs. For example, South Africa is experiencing some capital outflow, seemingly due to investments in neighbouring countries; Brazil still has a level of burden resulting from economic troubles in the late 1990s. Both, Brazil and South Africa experience a relative high share of foreign debt per capita when compared with India and China, and a current account deficit (South Africa) and a relatively small surplus (Brazil).

## **Lessons from the East Asian Crisis 1997/98 and concluding remarks**

The East Asian Crisis in 1997/98 has shown that even economies with seeming sound macroeconomic fundamentals and high growth rates are not safe from a sudden financial economic crisis. Lessons from the East Asian Crisis are that:

- The economies and policy-makers have to be aware of the concept of the 'impossible trinity'. This is difficult for situations in which economies shift from one exchange rate regime to another (for example, fixed to flexible) and when, indirectly, all three goals might be reached. The result would be an increasing risk in the economy. As discussed, it seems that China, due to its exchange rate system and the large share of capital flows (short- and long term), is exposed to a higher degree to a third generation crisis. The other three countries seem to have chosen policies that are in line with the impossible trinity: Brazil and South Africa are using a floating exchange rate system, combined with free capital flows and monetary independence; India has chosen a hybrid exchange rate system but has very low

capital mobility. Furthermore, the high rate of NPLs in China, combined with macroeconomic policy (a seemingly fixed exchange rate, portfolio capital inflows, sharp increase of the stock market indices and other policies as discussed), could increase the risk of a third generation crisis. Remember: in East Asia, high NPLs and the sharp reversal of short-term capital inflows were some of the factors leading to the crisis. Although these factors are present in China, this does not necessarily guarantee such a crisis. India, Brazil, and South Africa, according to the ‘impossible trinity’, do not seem to be affected by the threat of a third generation crisis.

- The introduction of prudent regulations in the financial industry benefits the whole economy. Regulations that increase the health of the corporate and the banking sector (for example, international accounting standards, independent supervisory agencies) indirectly improve the strength of the economies and lower the risk of crisis related to problems in corporations’ and banks’ balance sheets (for example, third generation crisis models).
- The timing of the liberalization of the capital account has to be chosen carefully. As discussed, studies show that the liberalization of capital accounts is not as beneficial for economic growth as the opening of the current account, although long-term capital inflows are considered to benefit the economy. Short-term capital flows are considered to be more risky because of their time structure (for example, the problem of sudden reversals) and are therefore sometimes referred to as ‘hot money’. Furthermore, timing of the liberalization of the capital account has to be accompanied by improvements in the domestic financial industry (for example, improvement of regulations). Policy-makers have to be aware of the sudden reversals and other problems that can occur in financial markets (for example, herding behaviour) by opening up domestic finance markets for foreign investors.

Policy-makers in CIBS should be aware of these possible threats. As with all crisis models, this might not predict a third generation crisis; however, it might give a hint of some problems and help to identify new ones. Unfortunately, it is not possible to predict the emergence of any new type of crisis model or their form. Therefore, policy-makers should be aware of potential known risks and invest some effort in crisis prevention.

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