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The risks of investment-led growth

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High rates of Chinese economic growth in recent years have been associated with exceptionally high and rising rates of investment. This has led to discussion of whether growth that is so dependent on investment is sustainable.

Rising levels of investment have been a feature of the Chinese economy since the 1950s. Leaving aside the large surge of investment in the late 1950s, the ratio of investment to national production had reached and has continued at levels that were high by international standards by the early 1970s (Figure 2.1).

In the era of central planning, before 1978, investment was applied wastefully, and its positive effects on economic growth offset by low or negative total factor productivity growth. The waste reached its height during the ‘Great Leap Forward’ of the late 1950s, in which the investment share rose suddenly from around 20 per cent to over 30 per cent, and retreated as rapidly, bringing national economic performance down with it. This episode is proof of the possibility of growth deriving from high and rapidly increasing investment levels being unsustainable, and is etched in the Chinese public memory of the dangers of excessive and wrongly directed expansionary policies.

Since the commencement of reform, investment rates have remained high, and from the early 1980s resumed their upward tendency, in recent years reaching levels that are unprecedented in China and rare internationally. On three occasions since December 1978—in the enthusiasm of the beginnings of reform in 1979–80, in the febrile reform atmosphere of the late 1980s, and in the aftermath of Deng Xiaoping’s exhortation during his famous visit to South China to accelerate reform

Figure 2.1 **Share of gross fixed capital formation in GDP in China, 1952–2004 (per cent of GDP)**

Source: National Bureau of Statistics (NBS), various issues. *China Population Statistic Yearbook*, China Statistics Press, Beijing. CEIC Database, 2005. Hong Kong. Available online at <http://www.ceicdata.com/>

after the post-Tiananmen uncertainty—investment ratios briefly rose above trend and triggered retrenchment and disruptive deceleration of growth.

The success of the retrenchment policies on each of these occasions meant that none of the investment bubbles of the reform had damaging consequences on anything like the scale of the Great Leap Forward. More generally, the main difference between the investment story in the modern and Maoist periods of Communist Party rule is that in the reform era, capital resources have been allocated in ways that generate reasonably high productivity growth, so that high investment contributes to strong growth in total product.

And yet the questions about the sustainability of investment-led growth continue to be asked. Why would high investment rates now be different from earlier spurts of Chinese investment that have come to grief? Wasn't the financial crisis in several East Asian economies in 1997–98 preceded by an investment boom? Isn't high investment leading to excess capacity, deflationary tendencies, and the threat of disruptive adjustment?

This chapter examines the phenomenon of investment-led growth in China. It analyses the risks to the sustainability of growth that have been identified by commentators on the economy, and seeks to address comprehensively the possible risks, including some that have received little attention. It examines the experience with high investment in other East Asian economies in periods of rapid growth.

The chapter concludes that high levels of investment themselves are consistent with continued rapid economic growth, but that some sources of high investment could contain seeds of instability, and some of the international structural implications of investment-led growth could be destabilising. It identifies policy adjustments that would improve the prospects for sustainably rapid growth built on high rates of investment.

Investment-led growth in China

The share of gross fixed capital formation in Chinese GDP has risen strongly through the reform era, from levels that were already relatively high levels by global standards. It moved up from an average of 29 per cent in the 1980s to 33 per cent in the 1990s. By 2004, it had risen to an historic high of 44 per cent.

Investment continues to rise more rapidly than total output, so that the ratio of investment to production will reach new highs in 2005. In the year to the June quarter, fixed asset investment increased 28.8 per cent in nominal terms, compared with the 9.4 per cent increase in real GDP or 14.2 per cent in nominal GDP.¹ Fixed investment has typically contributed around one third of the increase in domestic demand (Figure 2.2). This rose to over one half in 2003 and 2004.

All categories of business ownership have experienced strong investment growth: state-owned enterprises, collectively owned firms, direct foreign investments, and other private firms (Figure 2.3). The relative importance of each category has changed over time.

Private domestic and direct foreign investment have grown more rapidly than state and collective investment since the early 1990s. However, this general tendency was broken for a while in the aftermath of the East Asian financial crisis. The deterioration in the external environment for Chinese growth in the financial crisis coincided with a new round of structural reforms which removed large numbers of redundant workers from the payrolls of state-owned enterprises. This coincided with the establishment of market-based social welfare systems. Consumer expectations were weakened for a while, and national savings rose prodigiously, from 42 per cent of GDP in 1994–96 to 47 per cent in 2002–04. Special measures to boost consumption, including a 20 per cent tax on interest

Figure 2.2 Contribution to GDP growth by different factors, 1979–2004 (per cent)

Source: National Bureau of Statistics (NBS), various issues. *China Population Statistic Yearbook*, China Statistics Press, Beijing. CEIC, 2005. *CEIC Database*, Hong Kong. Available online at <http://www.ceicdata.com/> and authors' estimation.

Figure 2.3 Gross fixed capital formation by investor ownership, 1996–2004 (per cent of GDP)

Source: Authors' estimation using data from National Bureau of Statistics (NBS), various issues. *China Population Statistic Yearbook*, China Statistics Press, Beijing.

earnings, did not stem the tide of rising savings. To maintain growth in domestic demand, employment and output, the authorities turned to the stimulation of investment, including through direct investment by the government and increased loans from state banks to other state-owned enterprises.

The restoration of international confidence in the East Asian growth story and recovery of the fortunes of Chinese businesses in Southeast Asia, Taiwan and Hong Kong after the financial crisis, and the boost in confidence from China's accession to the WTO in 2001, contributed to larger inflows of direct foreign investment, from US\$41 billion in 2000 to US\$61 billion in 2004. But while this level and rate of expansion of direct foreign investment was extraordinarily high by international standards in any historical era, this category of investment actually became relatively less important in the total through the early years of the twenty-first century. Over recent years, the domestic private sector has been by far the most important locus of investment growth (Figure 2.3 and Garnaut et al. 2005).

Looking more closely at recent years, there was a slump in the rate of increase in investment following the Keynesian expansion in the aftermath of the financial crisis, although with overall investment levels remaining high (Figure 2.4(a)). The year-on-year growth rates accelerated rapidly from early 2000, and tended to stabilise at 25–35 per cent from early 2003, although with a spike to over 50 per cent for two months at the beginning of 2004.

Rates of investment expansion have been high in all sectors, but at the peak of the boom in 2003–04 especially in iron and steel and some other heavy industries, and more generally in construction. Monetary policy was tightened in the first half of 2004 to take some of the heat out of the boom, and especially by restricting credit expansion to state-owned firms in metals, construction and other heavy industry. This adjustment was effective (Figure 2.4(b)). At the same time, there has been an acceleration of investment growth in energy and transport.

Comparative East Asian and international experience

Sustained rapid growth in East Asia has been characterised by rates of investment that are exceptionally high by international standards (Figure 2.5). Indeed, high rates of investment can be seen as the central feature of rapid growth in the East Asian manner, that took Japan and then Hong Kong, Taiwan, Singapore and Korea from low incomes to the frontiers of world productivity and incomes within a generation. China does not stand out sharply in this context: rates of investment rose to about 40 per cent in Japan at the height of heavy industrialisation in the late 1960s and early 1970s; the Korean ratio of investment to GDP has been at or above 30 per cent for several decades and peaked at 40 per cent in the late

Figure 2.4 Growth of fixed asset investment in China (per cent year-on-year)

(a) Acceleration then stabilisation of nominal fixed asset investment growth

(b) Fixed asset investment growth in selected industries

Source: Authors' estimation using data from National Bureau of Statistics (NBS), various issues. *China Population Statistic Yearbook*, China Statistics Press, Beijing.

1980s; Singapore's ratio was above China's for almost four decades until the end of the twentieth century and reached almost 50 per cent in the first half of the 1980s; and Thailand's and Malaysia's ratios exceeded 40 per cent for much of the decade prior to the financial crisis, and did not fall below China's until the crisis. It is only since 2003 that Chinese investment rates have been above earlier East Asian experience, and even then they have been below Singapore's at their height.

But China's (and earlier East Asian) investment rates do stand out in wider international context (Table 2.1 and Figures 2.5 (d), (e) and (f)). Chinese investment rates in the early twenty-first century were twice as high as the rest of the world taken as a whole. They had risen strongly from the 1990s, when rates had fallen in all other regions and major countries excepting alone the United States.

Did high investment rates elsewhere in East Asia generate problems for the sustainability of the economic growth that they generated?

The general story is that high investment rates were integrally related to the high growth itself. They were a necessary cause of high growth, and themselves were supported by that growth.

In several episodes in late twentieth century East Asian economic development, however, a period of exceptionally high investment preceded macroeconomic instability and a serious set-back for growth. One of these was a period of high investment in heavy industry in Korea in the late 1970s, followed by inflation and external imbalances, retrenchment and several years of lower growth. A

Table 2.1 **Saving and investment shares in the world, 1994–96 and 2002–04** (per cent of GDP)

	Gross national savings			Fixed capital formation		
	1994–96	2002–04	Change	1994–96	2002–04	Change
United States	15.9	13.8	–2.1	18.7	18.8	0.1
Australia	18.2	19.2	1.0	22.5	24.3	1.8
Other industrial economies	22.8	21.8	–1.0	22.2	20.7	–1.5
Major oil exporters*	27.6	30.4	2.8	22.7	20.4	–2.3
China	41.7	46.8	5.2	35.0	43.6	8.6
Latin America	17.6	20.1	2.5	22.7	19.5	–3.2
CEEMEA ^a	17.9	15.7	–2.2	23.7	23.4	–0.3
Asia Pacific ^b	25.2	25.7	0.5	34.4	23.1	–11.2

Note: ^a Bulgaria, Czech Republic, Hungary, Poland, Romania, Russia, Slovakia, Turkey, Ukraine, Algeria, Cote d'Ivoire, Egypt, Israel, Nigeria and South Africa. ^b (excluding China) Bangladesh, Hong Kong, India, Indonesia, Korea, Philippines, Singapore, Taiwan, Thailand and Vietnam

Source: International Monetary Fund (IMF), 2005. *International Financial Statistics*, IMF, Washington, DC. Citigroup, 2005. *Global Economic Outlook and Strategy*, Citigroup, Hong Kong.

Figure 2.5 China's investment share in East Asian and international context (per cent)

(a) China, Taiwan and Korea

(b) China, Singapore and Hong Kong

(c) China, Thailand and Malaysia

(d) China, Japan and India

(e) Brazil, Mexico and Turkey

(f) The United States and Australia

Note: The shares are gross fixed capital formation in GDP are all calculated from current price GDP expenditure data.

Source: CEIC, 2005. *CEIC Database*, Hong Kong. Available online at <http://www.ceicdata.com/> and authors' estimates.

second was the expansion of investment in industries serving Japanese domestic demand in the late 1980s, followed by extended attrition of asset values and by economic stagnation. This was an extreme example of a common phenomenon: a period of exuberant expansion leading to what came to be known as a 'bubble economy'. A third was the experience of Korea and several Southeast Asian countries, notably Thailand and Indonesia, when more than ten years of high and rising investment, supporting decade-long growth at unprecedented rates for the Southeast Asian economies, was followed by financial crisis (Garnaut and McLeod 1998).

The lesson from East Asia is that high investment is a necessary but not a sufficient condition of sustained rapid growth. Pushed beyond prudent limits, high investment and growth can generate economic instability that threatens growth itself.

The question for us from the East Asian experience is whether China remains within the prudent limits of investment and growth, or whether recent increases in investment are likely to lead to retrenchment and in the worst-case instability. This is the same question that is raised by China's own history of spurts in investment leading to retrenchment and in the worst-case instability.

Finally, we should mention that some observers question the data on investment as a share of GDP, on the grounds that Chinese GDP is underestimated in the official data. This may be so, but there is no incontrovertible reason to expect much larger underestimations in the GDP than in the investment data.

Why might investment-led growth be unsustainable in China?

If we move beyond analogy with other times in China and with other East Asian countries, what does economic analysis suggest about the relationship between exceptionally high investment and the sustainability of growth? In what ways might dependence on high rates of investment make rapid economic growth unsustainable? What is the validity of these arguments in favour of the unsustainability of investment-led growth?

The first argument is a matter of arithmetic. Obviously the share of investment in domestic product cannot rise without limit. Therefore if rapid growth comes with investment rising more rapidly than GDP, sooner or later this pattern must give way to one in which other sources of final demand are growing as rapidly as investment. This statement, of course, begs the question: what is the limit to the investment share of GDP? There is no obvious reason why this limit is binding now or soon. However, the current large excess of growth in investment over growth in other sources of demand suggests that early moderation of the differential is likely.

The second is that diminishing returns to incremental investment mean that extremely high rates of investment are wasteful, giving poorer and poorer returns for the sacrifice of current consumption that supports them. For this to become the basis for an argument that investment-led growth is unsustainable, the focus must be on the political unsustainability of the policies and governments that support it. The argument would be that sooner or later such a pattern of growth would become unacceptable to the polity, leading to policy change or more fundamental political instability. The former Soviet Union and its satellites in Eastern Europe provide models of unsustainable growth based on excessive rates of investment.

In contemporary China, however, while much investment is wastefully applied and generates meagre returns, most importantly in state-owned heavy industry, there are many areas in which returns to capital are high, especially within the rapidly growing domestic and foreign private sector. Total factor productivity growth is reasonably high, despite the wasteful allocation of some capital resources. A strong argument can be made for reform to remove remaining barriers to expansion of the private sector (Garnaut et al. 2001), and for financial reform to raise efficiency in the allocation of capital between competing uses. However, the contribution of incremental investment to growth remains positive, and there are no signs of the Chinese polity insisting on a rebalancing of resource allocation away from growth and towards consumption. Indeed, one would doubt the political feasibility of alternative development strategies that were premised on higher rates of current consumption and lower rates of investment and growth.

One variation on the theme of waste of economic resources through inefficient investment, is that distortions in Chinese financial markets, and in particular the underpricing of capital, are encouraging higher levels of investment than would be generated in an undistorted market economy. It is sometimes said that interest rates in China are uneconomically low, given China's developing country condition, the generally high returns on investment and the high rates of economic growth.

To the extent that this is the case, it is not easily corrected. Restrictions on international capital movements do tend to hold domestic real interest rates below what they would be in a smoothly functioning open economy. The attempts to raise interest rates in 2004 to ease rates of investment were offset to a considerable extent by capital inflow: the growth in China's foreign exchange reserves in 2004 of US\$200 billion greatly exceeded the sum of the trade surplus and the inflow of direct foreign investment (together about US\$90 billion).

The removal of exchange controls on capital movements would lead to somewhat higher real interest rates, at the margin encouraging savings and discouraging

investment. (It would have the incidental effect of increasing China's trade and current account surpluses with the rest of the world, which is not an outcome that would be welcomed by many overseas advocates of foreign exchange liberalisation). This would only be feasible, however, in the context of more comprehensive market-oriented reforms in the financial sector. More efficient access to credit would be likely to encourage some forms of private consumption expenditure. But it would also support expansion of private business investment. The latter development would be large and beneficial for the economy, with an incidental effect of increasing investment and economic growth.

The third way in which it is argued that investment-led growth is unsustainable, is that it leads to excess productive capacity across the economy, which must be followed by deflation, financial instability and retrenchment. This argument is common in discussion of China today.

If there is truly excess capacity across the economy as a whole, however, it is evidence of inadequate rather than excessive aggregate demand. This would suggest the need for stimulation of demand in all its forms, including investment.

If, on the other hand, the excess capacity is confined to particular sectors, the problem is one of distortions in policy affecting resource allocation, or of errors in business sector decision-making. These are normal features of economic development in government-dominated as well as market economies, and not properly the concern of macroeconomic analysis or policy.

The presence in China of much excess capacity in the business sector, tendencies to deflation in many parts of the economy, and apparently huge underemployment of human resources suggests that the internal imbalance issue is one of inadequate rather than excessive final demand.

The other side of the coin of excess capacity and deflation, of course, is the presence of supply bottlenecks and inflationary pressures. Relative to historical and contemporary international experience, current inflationary tendencies are moderate (Figure 2.6). They are present most strongly in housing, but even here the nation-wide indexes suggest much lower average rates of increase in recent years than in most economies.

A fourth possible way in which growth based on high investment might be unsustainable would arise if it were generating such large deficits on the external current accounts that risks were emerging about whether the international markets would continue to finance them without destabilising increases in interest rates, or in the worst case, at any interest rates. This was the situation that triggered financial crisis in several East Asian economies in 1997–98 (Garnaut and McLeod

1998). China responded to financial crisis amongst its neighbours by expanding government expenditure and stimulating investment in a successful attempt to maintain reasonably strong growth. At this time there was some concern that China might also succumb to the doubts of international suppliers of capital.

But those times have passed. The recent experience is towards large surplus in trade and current payments. Both exports and imports have increased rapidly since China's entry into the WTO in 2001. From the beginning of 2004, however, the two growth rates began to diverge, with exports expanding twice as fast as imports. The trade surplus surged, amounting to US\$32 billion in the 2004 and US\$40 billion in the first half of 2005 (Figure 2.7). This is the analogue of the excess of savings over investment, even with current rates of investment, which was observed in Table 2.1. The growing trade and current account surpluses have generated tensions with the United States and some other Western countries. The recent textiles disputes with the United States and the European Union were special cases, as they were caused by removal of export quotas. But the protectionist responses to the expansion of Chinese trade do not depend on particular stimuli, and can be expected to survive resolution of the current textile disputes.

Any diminution of investment, domestic demand and growth could be expected to exacerbate the external imbalances.

A fifth possible way in which high rates of investment-led growth may be unsustainable is suggested by the experience of the East Asian financial crisis, by the Japanese investment boom of the late 1980s, and by the three inflationary Chinese expansions of the reform era. Growth led by high investment will not be sustained over long periods if it contains a high element of speculative activity, with investment commitments justified by expectations of continued increases in asset prices rather than by positive expectations of the present value of cash flows associated with the investment.

These are the circumstances of what in Japan became known as the 'bubble economy'. It is associated with asset price inflation, and often (although not in Japan in the late 1980s) with a combination of general inflation and deteriorating balances in external payments. It is more likely to be present and is more damaging when the financial sector of the economy is fragile.

China has weaknesses in the financial sector, but the state's capacity to support the weakest elements, the state-owned banks, limits fragility. None other of the typical symptoms of the bubble economy is prominent in contemporary China.

A sixth possible cause of unsustainability of rapid, investment-led growth is the difficulty of global economic adjustment to changes caused by the rapid growth of

Figure 2.6 Inflation rates by product groups in China, January 2001–May 2004 (per cent)

Source: CEIC, 2005. *CEIC Database*, Hong Kong. Available online at <http://www.ceicdata.com/>.

Figure 2.7 China's widening trade surplus (per cent year-on-year, US\$ billion)

Source: Ministry of Commerce, China.

China, and tensions in international relations associated with those difficulties. This is important because China now bulks so large in the international economy, in a way that was not comparable in the newly industrialised economies in their periods of rapid growth, and present to much less degree in the earlier industrialisation of Japan. The more that is invested productively in the Chinese economy, and the greater the associated economic growth, the more that firms and workers in other economies will come under pressure to change their employment and modes of operation. This spurs demands increased protection of goods and services in industries in which China has comparative advantage. It generates increase in global and therefore Chinese import prices for goods and services. It exacerbates political tensions, as established powers react anxiously to the emergence of a competitor.

While each of these problems of international reaction is exacerbated by higher growth, each would be present at any conceivable rate of growth in China in the reform era. It is not clear that they would be much easier to manage if the rate of growth were moderately lower. And China earns some protection from negative international reaction to its growth from the increase in political weight that comes with a larger economy, and from the expanded opportunities that access to its growing markets provides.

There is no doubt that more rapid growth in China turns the terms of trade against itself. Prices for China's main manufactured export products have decreased at considerable rates over the past decade, and would over the immediate future fall more rapidly at higher rates of growth. But only for a while: rapid growth accelerates the change in Chinese comparative advantage into more capital-intensive and technologically sophisticated goods and services, in which global markets are much deeper and susceptibility to falling prices with increased Chinese supply correspondingly less. Incidentally, this same factor—rapid growth accelerating the transformation of comparative advantage into capital-intensive and more technologically sophisticated goods and services—provides some inoculation against international protectionist reactions to Chinese growth, since these products are subject to lower protection in advanced economies than are the main labour-intensive products.

The effect of Chinese import expansion on global prices for a wide range of natural resource-based products is substantial, and would seem to increase more or less in line with Chinese growth. As was evident with world prices for vegetable oils in 2003 and 2004, a powerful international supply response soon substantially offsets the price effects of rapidly expanding Chinese import demand for agricultural

commodities. Metals and energy prices, on the other hand, are responsive to Chinese demand for many years, and for some energy minerals, perhaps indefinitely. The lead times are long for large increases in supply capacity. The income loss from the associated deterioration in the terms of trade, however, is small in comparison with the income gains from more rapid growth.

The future of investment-led growth in China

Doubts have been raised about the high rates of growth of investment and output in contemporary China, simply because the investment rates are beyond the range of experience in comparable countries. There are some circumstances in which such high rates of expansion might be unsustainable. But these do not seem to be present in significant degree in today's China.

Indeed, standard economic analysis suggests that rates of investment and output would rise to new heights in future, especially if commitment to productivity-raising reform remains strong, most importantly in the financial sector.

The Swan-Salter approach to macroeconomic policy analysis suggests that China—with its external payments surplus, underemployed human and in some sectors capital resources, and absence of inflation anxieties—requires upward adjustment in domestic expenditure. The efficient way to achieve this outcome would be through acceleration of financial sector reform, which would be likely to induce higher levels of consumption, but also of investment. Demand factors would lead this to generate higher rates of economic growth, as would the expansion of supply capacity with higher investment.

One theme that emerges from our discussion of investment-led growth, is that the acceleration of reform of the financial sector is pivotally important to expanding the benefits and minimising the risks of investment-led growth. One surprise about contemporary growth in China is that it is not even more rapid, given the prodigious savings and investment rates. The continuing biases, now unintended, against bank lending to the private sector, are a significant dampener to productivity improvement and investment. This is one of the several channels through which financial sector reform would contribute towards higher productivity growth—in effect, giving more growth bangs for the investment buck.

Acceleration of financial sector reform is also a promising path to moderation of external payments surpluses, through its impact on consumption and investment. This may not remove or even reduce tensions with the advanced industrial economies, because it would be associated with even more rapid rates of growth in China, with implications that pressures for structural change in the rest of the

world would be even greater. Acceleration of financial sector reform would also be good protection against financial fragility, so reducing the risks of financial crisis emerging from even higher rates of investment.

Domestic financial sector reform is also a necessary condition for the completion of the movement towards exchange rate flexibility that commenced in July 2005 (see Chapters 1 and 3). A freely floating exchange rate may be, eventually, a necessary element in the resistance to protectionist responses to China's growth. But as with the effects of banking reform on investment levels, the effects of reform may not be fully consistent with the prejudices and expectations of the reform promoters. A freely floating exchange rate accompanied by exchange control liberalisation would be helpful to stable economic growth in China, but may support higher capital outflow at least for a while, and an even stronger tendency to current account surplus.

The high rates of investment and growth in China seem to be so high that it is hard to believe that they could be sustained. In all likelihood, however, the maintenance of reform in the financial sector and elsewhere will lead to even higher rates. We are bound to be asking again and again whether the high levels to which growth rates of investment and output have risen are sustainable, as the data show these parameters rising continually to heights that would once have been beyond contemplation. And the answer for some time yet will be the conclusion of this chapter: if current high rates of Chinese investment and growth are a surprise, there are bigger surprises ahead.

Acknowledgments

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Notes

- ¹ Fixed asset investment here is a slightly different from the definition 'fixed investment' (or 'investment') used elsewhere in this chapter. In general, investment in this chapter refers to gross fixed capital formation, which is a part of the GDP by expenditure data. However, the Chinese statistics authorities only report annual data on fixed capital formation. During the year, they report fixed asset investment, which is total spending on fixed asset construction.

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