

Chapter 5 – China’s Economy before the Financial Crisis

With the tumultuous restructuring of the 1990s behind it, China in the 2000s carried out a broad range of reforms throughout the economy that cleaned up, consolidated and built on the rougher and messier breakthroughs of the previous decade. Many steps were logical follow-ups to previous initiatives, but a number of unexpected shocks and external pressures also disturbed what could have been a smoother evolution of China’s economic system. From the 2001 U.S. recession that launched critiques of China’s exchange rate, to the SARS pandemic of 2003, to the credit-bubble-driven U.S. import surge at mid-decade, and finally to the global financial crisis itself, China found itself reacting to developments largely outside its control.

The most visible transformation of China’s economy was the expansion of its coastal assembly foreign trade operations and the rapid growth of surpluses from this assembly trade. With membership in the WTO giving China permanent most-favored-nation access to the United States, foreign investment expanded on a large scale, encouraged by domestic credit expansion and the U.S. consumer demand bubble that preceded the world financial crisis. In the years 2005 to 2007, the combination of outside investment and outsized foreign demand for Chinese exports of all kinds helped fuel inflation in an overheated China.

China’s typical domestic economic cycles of fast and slow inflation also continued to distinguish China’s economy in the 2000s, linked to swings in grain planting, non-grain food prices, foreign bubbles and crisis response. Out of all these domestic and international economic fluctuations, a fundamental upheaval was the movement of rural labor, migrating in the tens of millions each year, to cities and coastal zones. In the years of fastest growth, even this migration was insufficient to meet boom needs, as temporary labor shortages appeared. By the outbreak of the financial crisis, China had begun to plan for manufacturing and trade restructuring that would allow it to shift to higher-value-added products that also promised higher labor productivity and higher wages – a strategic goal that gained emphasis and momentum in post-crisis years.

A. Coastal foreign assembly trade, capital flows and exchange rates

China’s foreign trade transformation into the world’s largest coastal assembly operation began in the early 1990s, when Taiwan and Hong Kong businesses broke the post-Tiananmen foreign investment boycott to expand operations in the special export zones opened in the early years of reforms. A more dramatic expansion began, however, with China’s entry into the World Trade Organization in December 2001. Companies all over the world but especially in East Asia altered their production plans to include a stop in China for inexpensive assembly and packaging on the way to final product delivery in the United States and Europe.

Numerous studies have shown that while the whole value of the products exported from China to rich-country markets in the 2000s is reported as “made in China,” because of the assembly trade, only a small portion was value actually created in China. Asian economies that had been exporting directly to the United States could now reduce costs by sending the high-value components and design instructions to China for finishing. For many years, as U.S. imports from China expanded, imports from other Asian economies shrank, so the total volume of imports from Asia grew only slowly.

An important point to emphasize, therefore, is that the bilateral, two-way, trade balance between the United States and China reported by the U.S. Commerce Department is not an accurate picture of China's overall trade balance with the world. In some periods, China has even had a surplus with the United States but an overall trade deficit with the world. China's surplus with the United States is matched by large deficits with other trading partners, especially Asian trading partners in China's international supply chain. Because of the assembly trade, therefore, among other factors, statistics on the U.S.-China trade balance exaggerate the frequent American impression that China's trade imbalances reflect "unfair" domestic and international policies.

Chinese statistics show that China's assembly trade has come to have a life of its own, and Chinese trade statistics distinguish between "assembly" trade and "ordinary" trade, which is produced from domestic materials rather than imported parts and kits. China's "ordinary," non-assembly, trade surpluses expand and contract with the combined strength of foreign and domestic demand. Table 5.1 shows that in the latter 1990s, during the combined U.S. dot-com boom and China's domestic growth slump, China's ordinary trade surplus was quite large; export demand was strong but import demand was weak. With both U.S. and Chinese growth strengthening in the early 2000s, ordinary trade was fairly well balanced. In 2005 to 2008, at the peak of the pre-crisis demand bubble but when China tried to cool off its economy and hence weakened import demand, ordinary surpluses soared, only to shrink and disappear in 2009, when rich-country demand collapsed after the crisis.

Assembly trade surpluses, however, didn't follow ordinary trade patterns. They began to increase in the late 1990s, just as the U.S.-China WTO negotiations reached their final stages. After that and until the pre-crisis bubble and crisis, assembly trade surpluses were much less influenced by foreign and domestic demand fluctuations. Assembly surpluses expanded dramatically in the pre-crisis years, riding the U.S. credit and consumption bubble. With the financial crisis, however, even though normal trade's surpluses disappeared, assembly trade surpluses remained large (Table 5.1) This makes sense, because assembly trade import orders

Table 5.1 – Trade* Balances by Customs Regime

Export-Import Trade Balances (% of GDP)			
	Ordinary Trade	Assembly Trade	Total Trade
1996	2.5	-1.1	1.4
1997	3.8	0.4	4.2
1998	2.8	1.5	4.3
1999	0.8	1.9	2.7
2000	0.2	1.8	2.0
2001	-0.4	2.1	1.7
2002	0.3	1.8	2.1
2003	-0.4	2.0	1.6
2004	-0.3	2.0	1.7
2005	1.6	2.9	4.5
2006	3.1	3.5	6.5
2007	3.3	4.2	7.5
2008	2.5	4.1	6.6
2009	0.4	3.5	3.9
2010	-0.4	3.4	3.1
2011	-0.8	2.9	2.1
2012	0.0	2.7	2.7
2013	0.2	2.7	3.0
2014	1.5	2.2	3.7
2015	3.4	2.1	5.4
2016	3.0	1.7	4.7
2017	2.1	1.4	3.6

*Trade in goods only. Note: sums may differ because of rounding. Sources: Chinese Customs Statistics on trade by customs regime (Customs 1997-2017), with author calculations. Assembly trade, both exports and imports, includes goods involved in assembly of parts, processing for export with imported materials, and warehouse and bonded zone trade. All other trade is treated as ordinary. Table 5.1

and imports were directly linked to export orders and exports. Assembly trade exports generate their own assembly trade imports, with Chinese value added being the difference. Chinese value added in the assembly trade business is thus largely equivalent to China's assembly trade surplus. Import values for a particular export operation cannot be more than export values. This is a contractual certainty. Assembly trade surpluses therefore generated surpluses regardless of foreign and domestic demand shifts, and because the exchange rate operates on both imports and exports equally, shifts in the exchange rate didn't affect demand for assembly trade exports much at all either.

The intrinsic nature of China's assembly trade surpluses raises doubts about the notion that China's overall trade surpluses are the result of a mercantilist trade strategy. The investments in the assembly trade are overwhelmingly planned and carried out by foreign firms with local partners, and as mentioned above, the exchange rate plays almost no role at all – its effect on parts coming in is canceled by its effect on finished products going out. Despite these characteristics of Chinese trade surpluses, criticisms of China's exchange rate became a major element in China's international commercial relations in the 2000s and after.

B. China's exchange rate controversy and U.S.-China economic dialogue

China in the 2000s encountered criticism from the United States and Europe that its trade surpluses were due to a misaligned exchange rate. Purposely paying no attention to the strength of outsized U.S. credit-funded consumer demand and the expanded influence of China's guaranteed-surplus assembly trade, U.S. financial and industrial lobbyists argued strongly that China had an unfair competitive advantage because its exchange rate made exports too cheap abroad and imports too expensive at home. For the financial industry, an RMB appreciation would mean higher profits from RMB-denominated investments. Under the influence of these lobby industry arguments, U.S. and European politicians began pressuring China to revalue the RMB. With U.S. and European control of the selection process for World Bank and IMF leadership, one criterion for successful application was clearly criticism of China's exchange rate, and, not surprisingly, new leadership in these institutions led both bodies to disparage China's exchange rate as well. Several years later, the IMF's own internal Independent Evaluation Group censured the IMF's analysis of China's exchange rate as unpersuasive and unduly yielding to pressure from the United States (Schneider 2012).

The exchange rate controversy was the most publicized international commercial issue facing China, but many others occupied foreign trade and commerce authorities. Shortly before the global financial crisis, United States strengthened its bilateral mechanisms for working through these many issues in a set of strategic dialogues with China's top leadership level, the State Council. Other countries followed suit, and despite vocal public controversies such as the exchange rate issue, practical progress in a wide range of issues – economic and non-economic – benefited as a result.

1. The Exchange rate controversy

The exchange rate controversy had its start not with trade but with international financial flows during the U.S. 2001 recession. In the midst of the U.S. recession, interest rates on low-risk borrowings in the United States fell below similar quality lending rates in China, and

international investors began engaging in what is called “the carriage trade.” Borrowing money in the United States and lending it in China yielded a modest return. The carriage trade with China had to go through back-door channels, for which Hong Kong is well-known, because China’s capital-account policies didn’t allow such open international transactions. The illicit flow of capital into China was a new problem, in fact, because virtually all of China’s capital-control regulations and efforts at the time were designed to restrict outflows. It took some time for China to improve its procedures for keeping out unwanted, speculative short-term capital inflows.

Although returns on the carry trade were modest, investors realized that if China revalued its currency, the profits from their carry trade would be much higher. Financial-sector lobbying in Washington began to demand U.S. diplomatic pressure on China to revalue. Other U.S. industries competing with Chinese imports joined the lobbying effort. It didn’t matter what the facts were. The large U.S. trade deficit at that time was due to U.S.-led credit creation and buying power expansion channeled heavily through expanded consumer credit, but the China exchange-rate story was both popular and professionally promoted. China gradually adjusted its currency beginning in 2005, not only because of U.S. pressure but mainly because of appreciation of the world’s second most important currency, the European euro.

China had traditionally linked its currency to the U.S. dollar, with periodic adjustments, because it was the leading global currency and the United States was the largest global market for Asian exporters. By the 2000s, however, Europe as a trade partner was becoming as important to China as the United States. At the same time, Europe had launched the euro in the late 1990s at a relatively weak level versus the U.S. dollar. By the early 2000s the euro had begun rapidly strengthening, but China’s RMB was still linked tightly to the dollar, meaning both the dollar and the RMB were devaluing against the euro.

Eurozone countries complained and began backing the U.S. demand that China revalue against the dollar. Beginning in 2005 China did just that. China’s guide for revaluation became a weighted average of currencies, primarily the dollar, euro, and Japanese yen, but American common parlance and U.S. business media focused only on revaluation against the dollar. At first the RMB revaluation expressed some catching up with earlier euro strengthening, but it quickly became recognizable as following an average of the euro and the dollar, a pattern that lasted until the euro’s collapse at the financial crisis’ start in 2008. Chapter 10 treats the exchange rate controversy more fully, because it came to dominate U.S.-China commercial relations into the financial crisis and remained a bilateral subject of controversy into the new decade and again beginning again in 2017 with the U.S. administration of President Trump.

With the financial crisis, the China’s exchange-rate controversy became more complex as China’s trade surpluses subsequently shrank. Beginning in 2008 and continuing after the crisis, China’s exchange rate and exchange rate policies reflected the international political sensitivities of China’s economic strength over many post-crisis years in the United States and Europe when unemployment was high, and in some cases extremely high. Domestic politically driven U.S. complaints remained at the most visible forefront of U.S. economic relations with China – both bilaterally and at international meetings of major countries working to resolve the consequences of the global financial crisis. Politicians in the United States even blamed the

crisis on China's exchange rate, but as explained in Chapter 11, the causes of the global financial crisis had nothing to do with China.

2. Strategic dialogues with China

Although exchange rate and other issues, such as intellectual property rights and U.S. free-wheeling dollar liquidity expansion, were the most visible aspects of U.S.-China commercial relations, a wide range of other equally if not more important issues became the regular focus of attention at high level meetings that greatly expanded in the middle 2000s. Called the Strategic Economic Dialogue (SED) at first and then the Strategic and Economic Dialogue (S&ED) with broader participation, these meetings solved several difficulties in bilateral communication and cooperation. Before, during and after the financial crisis, regularly scheduled strategic dialogues made possible an effective high-level set of working relationships that received little attention compared to political and media-headline big stories best known to the public.

Before the inception of the strategic dialogues, bilateral commercial relations suffered two serious problems. The first was the mismatch in authority levels between senior leaders. Two of the most powerful members of the U.S. cabinet, the Secretaries of State and Treasury, had official counterpart relations with China's Minister of Foreign Affairs and Minister of Finance, respectively. But these two Chinese positions were not China's most powerful in these fields. Each reported up to the member of China's State Council responsible for his or her field. The State Council is China's real cabinet – in terms of what is equivalent to the top members of the U.S. cabinet. Various agencies in the U.S. government had been working to solve this mismatch for most of the early 2000s.

In 2006, the SED finally established a regular working-level relationship between the U.S. Treasury Secretary and the Chinese vice premier in the State Council responsible for international commercial issues. This arrangement quickly became a reliable channel for quick communication between top leadership in both countries. In 2008 the dialogue was expanded to include the U.S. Secretary of State and China's state councilor responsible for foreign affairs. Following the American lead, other developed countries began establishing dialogues between their top cabinet officials and members of China's State Council.

The second traditional difficulty in U.S.-China official commercial communications was the frequent difference in scope for agencies that were officially designated as counterparts. Each major agency in one government was officially linked to one counterpart agency in the other country. But many issues needing discussion and joint action were the responsibility of non-counterpart agencies or of more than one agency on both sides. For example, the U.S. Treasury Department's official working-level counterpart was China's Ministry of Finance, but many strategic economic and financial policies in China were principally vetted by China's planning commission, the National Development and Reform Commission (NDRC). NDRC, in turn, was the official counterpart of the U.S. President's Council of Economic Advisers. Communication and collaboration between non-official-counterpart agencies could be difficult. The strategic dialogues' top-down umbrella approach resolved this counterpart scope mismatch by reviewing major issues in full session and officially assigning tasks to appropriate agencies or groups of agencies on both sides, regardless of whether they were official counterparts or not.

With the global financial crisis and its aftermath, reliable and practical communication and cooperation between the United States and China only increased in consequence. Politicians and the media, with each new S&ED session, might insist on breakthroughs on exchange rates or state subsidies or intellectual property disputes. But S&ED work continued more quietly on other equally if not more important topics, such as food and toy safety, global energy sustainability, trafficking in persons, terrorist money laundering, financial sector access, Chinese investment in the United States, or factory working conditions. Indeed, this contrast might illustrate an essential pattern for successful bilateral commercial relations – each side’s leadership needs to air symbolic complaints loudly in order to maintain domestic legitimacy for promoting more quietly a wide range of essential collaborative activities.

C. Early stimulus, pandemic, coastal export boom and macroeconomic cycles

China’s international economy naturally drew the greatest attention from China’s major trading partners. Most observers assumed that China relied on exports as its major engine of growth and were perplexed when the crisis’ collapse in world trade didn’t cause economic collapse in China. Careful attention to China’s record, however, shows that the overwhelmingly more important aspect of China’s economic performance in the 2000s was domestic – both domestic investment and domestic demand.

China started the 2000s with growth improvements from its poor domestic showing in the latter 1990s. Premier Zhu Rongji’s 3-year infrastructure stimulus program had ended in 2000, but in early 2001 he extended it another two years. As a consequence, growth continued to recover gradually through 2002, as enterprises felt more comfortable restocking depleted inventories. GDP growth statistics show that the net-export contribution to growth in 2001-02 was small (Table 5.1), while domestic consumption and investment each contributed more than 4 percentage points to the 9.1 percent growth rate in 2002.

The Investment for this 2002 expansion was overwhelmingly domestic. Foreign investment in 2002 had fallen to less than 5 percent of total investment spending that year, down from 12 percent in 1996. FDI remained dwarfed by domestic funding. Budget and bank loan funding, more than a quarter of the total, accelerated in 2001-2002, and corporate self-raised funds, composed of retained earnings and newly raised enterprise capital, at more than half the total by 2002, increased 20 percent, in line with the other funding sources (see Table 4.1 in Chapter 4). China’s economy in 2002 was emerging from its severe late 1990s slump with strong investment inputs and final demand, both overwhelmingly from domestic sources. Even in the three years, 2005-07, when a major U.S. and European credit bubble’s demand for Chinese consumer products caused overheated GDP growth of more than 14 percent, exports’ contribution never reached 3 percentage points of GDP growth (Table 5.1). What is more, these 3 percentage points of export-driven GDP growth were an over-stimulus and arguably harmed China’s efforts at sustaining a reasonably stable growth path.

1. SARS epidemic and its economic impact

The year 2003, however, brought China a deadly surprise. A highly communicable disease, SARS (Severe Acute Respiratory Syndrome), swept from south China north to Beijing and then worldwide in the first half of the year, infecting more than 8,000 and killing over 900 by August,

with over 800 of the dead in China's mainland, Hong Kong and Taiwan (WHO 2003). By the end of the summer, global quarantine policies had largely contained the disease, but the impact on transportation, commerce and productivity was significant in two ways – causing damage at first and then later over-stimulus in response.

SARS' economic repercussions were complex. SARS at first slowed economic activity and created the fear that the economy would contract. In response, the government implemented an expansion of bank credit that stimulated real investment growth of 27 percent, a level not seen since the overheated year of 1993 (Table 4.1 in Chapter 4). With SARS contained more quickly than anticipated, this investment stimulus resulted in a new high-growth-rate plateau in 2003-04 at 10 percent each year. Inflation peaked in 2004, both because of the SARS economic stimulus and unrelated grain and pork price increases that year.

Because of the SARS stimulus and higher farm prices, the economy appeared moderately overheated in 2004, with the CPI up 4 percent and food prices up 10 percent. In response, China instituted a mild credit-tightened effort to reduce inflation in 2005-06, mainly by discouraging bank loans.

However, external forces building up to the global financial crisis – foreign investment and a global consumption bubble – made it difficult for domestic policies to slow the economy. Enterprise investment remained strong, and growth accelerated to 11 and 13 percent in 2005 and 2006 respectively. National accounts show that domestic demand slowed in 2005, but was overpowered by the surge in net exports (Table 3.1 in Chapter 3 and Table 5.1).

With an open current account, China could not control the impact of European capital flows into the United States (Chapter 10) which by that time were adding to America's domestically leveraged credit bubble and consequent overheated U.S. demand for consumer imports. China had lost a measure of domestic policy influence over the pace of

Table 5.1 – Trade contributions to GDP growth, 1978-2017

(Percentage points and total GDP growth in percent)								
	Domestic	Trade	GDP		Domestic	Trade	GDP	
1978	12.3	-0.6	11.7	1998	7.4	0.4	7.8	
1979	7.8	-0.2	7.6	1999	8.4	-0.7	7.7	
1980	7.7	0.1	7.8	2000	8.5	0.0	8.5	
1981	4.5	0.6	5.1	2001	9.4	-1.1	8.3	
1982	7.2	1.8	9.0	2002	8.7	0.4	9.1	
1983	11.6	-0.8	10.8	2003	10.6	-0.6	10.0	
1984	16.8	-1.6	15.2	2004	10.5	-0.4	10.1	
1985	20.2	-6.8	13.4	2005	10.0	1.4	11.4	
1986	5.9	3.0	8.9	2006	10.8	1.9	12.7	
1987	7.9	3.8	11.7	2007	12.7	1.5	14.2	
1988	11.2	0.0	11.2	2008	9.4	0.3	9.7	
1989	3.3	0.9	4.2	2009	13.4	-4.0	9.4	
1990	0.7	3.2	3.9	2010	11.9	-1.3	10.6	
1991	9.1	0.2	9.3	2011	10.3	-0.8	9.5	
1992	15.5	-1.3	14.2	2012	7.7	0.2	7.9	
1993	15.7	-1.8	13.9	2013	7.9	-0.1	7.8	
1994	9.0	4.0	13.0	2014	7.0	0.3	7.3	
1995	10.2	0.8	11.0	2015	7.0	-0.1	6.9	
1996	9.5	0.4	9.9	2016	7.1	-0.4	6.7	
1997	5.3	3.9	9.2	2017	7.1	-0.3	6.8	

Note: Domestic and foreign trade contributions to growth in percentage points add up to total GDP growth in percent. A component's additive contribution (b) is calculated as $b=g \cdot h$, where g is the component's growth rate and h is the component's share in GDP in the previous year. Data source: NBS (2017), Customs (1997-2017) and author calculations Table 5.1

growth and inflation that would last until the especially strong effort to fight inflation at the end of 2007 and into 2008, just as the global financial crisis coiled itself to strike.

2. Cyclical Imbalances in 2006-07

China's macroeconomic record in the run-up to 2008's financial crisis showed the domestic impact of both the global credit bubble based in the United States and China's own investment instability following the SARS epidemic crisis. China's inability to control investment's domestic funding surge in 2005-06 (Table 4.1 in Chapter 4) and the sudden 2005-07 explosion in foreign export demand (Table 5.1) led China's premier Wen Jiabao to warn of economic "concerns they did not anticipate" (不测之忧).

Outside analysts misinterpreted the thrust of the premier's warning however. He described the economy's situation in early 2007 as "unstable, in disequilibrium, uncoordinated and unsustainable." He gave reasons. The economy was "unstable" because investment growth was too fast, credit expansion too large, money supply too liquid, and international payments out of balance. There was "disequilibrium" because of distorted links between urban and rural economies, between China's various regional economies, and between economic and social development. The economy was "uncoordinated" because of poor harmonization between agriculture, industry and services, the bad match between investment and consumption, and growth's over-reliance on investment and exports. The economic situation was "unsustainable" because of inadequate reductions in energy intensity and environmental pollution (Wen 2007a, 2007b). The urban-rural, regional, energy and environmental problems would challenge policy makers for decades. But the short-term excesses in investment and exports, driven by extremes of financial deregulation in America and Europe, required quick action, even though they would shortly sort themselves out through the financial turmoil to come.

As the Premier described China's immediate difficulties in early 2007, he could not have known just how soon China and the world would face "concerns they did not anticipate." July's crisis eruption was only a few months away, and global collapse would come in only a year and a half. He already knew and was signaling to the press, however, that the immediate challenge China faced was yet another overheated phase in its economic cycle. After the premier's remarks, China began tightening credit to head off worse inflation, and GDP growth slowed almost immediately. In less than a year, during the first quarter of 2008, the United States would sink into a recession that began unwinding China's export boom as well.

Despite the immediacy of economic challenges raised by Premier Wen's 2007 remarks, his words quickly took on a distorted international life of their own, as foreign commentators and analysts misinterpreted them as a dire warning that China needed drastic structural reform if it was to continue to grow at a respectable speed. Even years later, business and economic writers still referred to the premier's 2007 statement to suggest that China was "backsliding" that it had never really acted on his own warning, or that if and when China did act, its growth would surely slow sharply (IMF 2007, 2017, Rabinovitch 2011, 2012, Pettis 2014). While many of such analyses may have been conscientious, repetitions of this misinterpretation also fit a pattern of soft-power paid speech (Chapter 1) – a convenient but unfounded criticism of

China's economic strategy and policies couched in what to the layman audience would sound like a plausible story.

These and similar comments appear to have confused the degree of "consumption-led growth" in China with the size of consumption's share in GDP, rather than seeing it as dependent on the speed of consumption's expansion – arguably inversely related to its GDP share (Chapter 7). This confusion seems to stem in part from thinking that China's trade surplus results from excess domestic savings (i.e., not enough consumption), when in fact China's surplus has always been heavily influenced by the U.S. annual large surpluses in newly created U.S. domestic credit spent on imports from abroad (Chapter 11).

Overall, China's economy in the years from the late 1990s growth slump up through the 2008 financial crisis showed continued cyclical periods of fast and slow domestic demand. These cycles were disrupted and amplified by shock events, in particular the SARS epidemic and the global trade bubble, which reflected uncontrolled liquidity expansion in the developed industrial world. China's domestic demand cycles would resume once the worst of the global financial storm had passed.

D. Fiscal reforms – national and local

With China's economy poised to restore more rapid growth, China's tax and budget systems were overdue for reform and improvement in the 2000s. The major task for the coming decade was overhauling rural taxes and expenditures, but China also made improvements in the national fiscal system. A decade later in the years following the global financial crisis, much more still needed to be done, especially in taxation related to the real estate sector, but reforms in the 2000s made significant progress toward reliable tax support for public services provision at all levels of government.

1. Single treasury expenditure reforms and tax system adjustments

In middle 1999, China's State Auditor General issued a searing report documenting misuse of funds by the Ministry of Finance (MOF). An underlying government-wide problem was that each ministry and agency had its own bank accounts, and after budget funds were allocated to those bank accounts, control over the use of funds was weak. In 2001, however, the Ministry of Finance began pilot implementation of single-account treasury reforms for six national ministries.

This single-treasury reform in China was part of an international effort at that time promoting single-treasury-account expenditure systems. Instead of allocating budgeted funds to ministry bank accounts, ministries had to submit requests for payment to managers of MOF's treasury account, which checked the request for payment against legitimacy criteria in the budget and other documents. After validating the payment request, the treasury account made a direct payment to the payee; funds never went through ministry accounts. With this system, ministries were no longer able to use their budgeted funds as liquidity to put into the stock market, real estate ventures or other potentially wasteful schemes. During the rest of the 2000s, single-treasury-account fiscal reforms spread to other ministries and agencies, to provincial-level fiscal operations, and ultimately to local governments. The new system reduced corruption and represented a major improvement in government spending efficiency.

Throughout the decade, other fiscal reforms made steady improvements to the national tax and expenditure system. For example, in 2003, Beijing adjusted the sharing of personal income tax revenues from an even 50-50 sharing scheme to one in which the central government took 60 percent of revenues. It also began shifting the value-added tax (VAT) in the direction of a consumption-based VAT by first conducting experiments that exempted firms in northeastern provinces from paying the VAT on fixed asset investments (Cai 2007), in part as a way of encouraging innovation and modernization. The system spread nationwide by the end of the decade. China had had a tax on those using farmland for non-farm purposes since the 1980s, and in 2007 it increased the tax rate five-fold and eliminated exemptions for foreign funded projects (Madera 2007). Other initiatives in the decade sought to improve the way resources were shared between rich and poor regions or simplify the many layers of taxation at the local level. But success was limited, in part because effective reforms undermined local revenue needs. This difficulty quickly became apparent in rural areas.

2. Rural fiscal reforms

In rural areas, fiscal reforms were more dramatic, and the budgetary reorganizations resulted in reduction of rural government staffing as well. Rural fiscal reforms in the 2000s were halting and tentative at first but finally resulted in a leaner government administration, elimination of fees, and a lighter tax burden for farmers.

In addition to farm prices and tight credit, the most obvious problem inherited from the 1990s was the burden on rural families of paying local government fees needed to supplement weak county, township and village-based revenues. In 2000, local governments implemented a pilot reform in Anhui Province and in several counties in neighboring provinces by which all fees were eliminated and replaced with a fixed tax obligation. This first “tax-for-fee” reform (税费改革) effort was not successful because the sharp reduction in fees and other local government revenues resulted in the closing of many local health clinics and other basic government service centers. The reform’s extension to other regions was postponed for a year.

In 2002, the revised version of rural tax-for-fee reforms began in 16 provinces, and while the revenue reforms were central, almost as important were “matching reforms” (配套改革) that restructured rural administrative relations. To reduce local expenditure burdens, Beijing ordered the consolidation of rural fiscal expenditures at the county level, taking away budget outlay privileges from the sub-county township administrative units. The reforms merged villages and townships based on criteria linked to geographical area and population, and in so doing reduced township and village government staffing by from one-third to one-half. The shift of expenditure responsibilities to the county level also eliminated previous payment abuses at the township level, by which teachers and other professionals paid in cash by township officials often suffered delayed or missing pay. In the new system, counties used electronic transfers to deliver pay directly to recipients’ bank accounts. This consolidation also facilitated central government transfers of funds from rich to poor regions by creating a unified county-level budget platform.

This early tax-for-fee reform eliminated all fees and redesigned agricultural taxes so that farmers paid a flat rate tax on calculations of what their land could product if planted to the

major staple crop for that region. This configuration, rather than taxing actual output or farm profits, generated incentives to plant more profitable crops, since the tax payment would be unaffected by farm profit levels. Farmers accelerated their shift away from planting grain into planting vegetables, fruits and other high-return products. Even with these reforms, however, prospects for rapid improvement in rural standards of living were not strong. Indeed, even the tax-for-fee reform increased the fiscal burden for farmers relative to non-farmer rural households, since the eliminated fees had been paid by all rural citizens, not just by farmers (Lu 2005).

In 2004 the Party Central Committee and State Council moved to the next phase of this reform and together issued a broad policy document focused on improving rural income, with one goal being to completely eliminate the tax on agricultural products. This policy went one step further than merely establishing a uniform tax to replace fees. The agricultural tax was completely eliminated later in the decade, ahead of schedule.

E. Rural Output, Investment and Worker Migration

Chinese rural policies in the years before the financial crisis continued their difficult balance from the previous century. They faced the tradeoff between grain planting and higher farmer incomes, agriculture's low productivity by global standards, the importance of non-farm work for improving rural welfare, and pressures to manage large-scale rural-to-urban migration, which was the ultimate solution to rural poverty. Nevertheless, the policy effort to modernize the rural economy received both significant funding and strong government encouragement, leading in some cases to grumbling by urban residents (heard by this author) about the need for similar special development programs for the cities.

1. Grain, pork and poultry price crises

Although Beijing worked to lighten farmers' tax burden in the 2000s, grain planted area and output had fallen every year from 1998 to 2003. In late 2003 authorities decided that the decline in land planted to grain had gone too far. A policy shift to promote grain planting and increased output took hold in 2004. It included a return to "responsibility systems" under which local officials had to promote grain planting in their jurisdictions. The elimination of the agricultural tax in the middle 2000s was one important component in this encouragement program. At the same time, subsidies for planting grain and certain other crops in some regions began in 2004 (Gale 2005). These and other economic and administrative incentives and requirements begun in 2004 were successful. Except for 2016, grain planted area and output expanded continually from 2004 through 2017. Although they met their objectives, these higher-price policies also spawned crises in other agricultural products, especially for animal husbandry, which relied on affordable staple crops for feed.

Animal product difficulties reflected an additional component of grain-planting encouragement, higher government purchasing prices for grain, which rose roughly 30 percent in 2004. These increases helped renew urban-rural food price inflation difficulties that continued throughout the decade and after. The upswing in grain planting and higher grain prices were just one more repetition of China's grain cycle, in which grain prices, planted area and output regularly fluctuate over periods of several years – see-sawing from one extreme of shortage and high

prices to the opposite extreme of output glut, waste and price collapse. China's grain cycle receives fuller treatment in Chapters 6 and 8 on the cyclical nature of China's economic progress and on China's urban-rural economic nexus after the global financial crisis.

Beginning in 2004, China's so-called hog cycle joined the grain cycle and other forces to cause significant food price inflation by late 2007, on the eve of the global financial crisis. The grain price cycle, the impact of SARS on China's hog cycle and unexpected hog disease in 2006-07 foiled government price stability policies, in particular for pork, but also for poultry meat and eggs. When combined with the 2005-07 foreign demand bubble, inflation difficulties in 2007 were unavoidable.

China's hog cycle was a nettlesome part of China's inflation difficulties. Most Chinese initially thought that SARS was another bird-flu epidemic, and in 2003 consumers had switched from chicken to pork, causing high pork prices in 2004. With higher prices, a classic "cobweb" farm price cycle began, as farmers rapidly expanded their hog herds in anticipation of continued high prices. When these expanded herds matured a year and a half later, in late 2005 and early 2006, the hog population was so productive that prices crashed, making hog production no longer profitable and causing farmers to slaughter their female pigs. This slaughter, however, by another year-and-a-half later in the middle of 2007, had led to hog and pork shortages once again (Gale 2012). Just then, in early 2007, "blue ear disease" struck China's hog population, further reducing the availability of pork. The price of pork rose dramatically. Figure 2.1 in Chapter 2 shows the overall nearly 20 percent rise in 2007 farm output prices; the price of pork rose 46 percent that year. Chicken and egg prices rose 17 percent.

With food prices leading an overall consumer price increase in late 2007, the government began a domestic credit and investment contraction that carried through most of 2008, leaving China's economy slow-growing and already in need of stimulus when the Lehman Brothers collapse in September 2008 triggered worldwide financial crisis.

2. Rural investment – the New Village Construction Program

While China was reforming its rural tax and budget spending systems in the middle 2000s, it had also launched reforms in rural poverty programs and a major initiative to modernize China's rural economy. The goals were to pull rural areas out of their late 1990s' stagnation and raise rural family incomes. The anti-poverty programs followed a 2001 White Paper on Poverty Reduction and a companion 2001-2010 Poverty Reduction Outline (农村扶贫开发纲要). The rural economy modernization movement was called the New Village Construction (新农村建设). It was announced in 2004 as part of preparations for the next five-year plan (2006-to-2010), and it continued as part of the subsequent five-year plan (2011-2015).

The 2002 Party Congress had, for the first time ever, proposed "integrating urban and rural economic and social development." Such an integrated effort was a dramatic shift from earlier national development strategies, which had always treated rural and urban development separately. The New Village Movement provided concrete activities to further this new and more general national development strategy. With the launch of the five-year plan in 2005, China's President Hu called an extraordinary week-long meeting at the Central Party School in Beijing of all provincial governors and ministerial leaders. Day after day he and other national

leaders emphasized every aspect of the program (Hu 2008). It was clear that this movement was a signature policy initiative of the second two-thirds of President Hu's tenure in office.

Anticipated by academics in the 1990s, this new village movement also reflected the influence of a similar South Korean movement (the *saemaul undong*) in Korea's early and middle 1970s, a program which this author witnessed during his 1976 dissertation research living in South Korea. China in the early 2000s had in fact dispatched study teams to South Korea, at which point China seemed to be about thirty years behind South Korean development. The program was officially translated as "Construction of a new socialist countryside." It was an investment and reform response continuing what had been known for nearly two decades as the "three-agricultures" or *san nong* (三农) challenges: agriculture itself, agricultural villages, and agricultural households.

The New Village Construction program covered all three *san nong* areas. Its five general goals were initially summarized by official sources as emphasizing: (1) more and better rural output, mainly by increasing farming's scale and degree of commercialization, (2) higher rural incomes, (3) major improvements in rural education, health, and related so-called cultural dimensions, (4) rearrangement of village layouts to improve housing and the environment, and (5) strengthened rural political power as a step to improving villagers control over their own affairs (Xinhua 2006). All of these program goals required ongoing infrastructure investments, public goods provision, subsidies, organizational changes and central government transfer payments into rural areas.

In 2005 and 2006, this author, while doing field research on China's cyclical economy (Keidel 2008), witnessed many New Village projects in China's central provinces of Hunan and Henan. Villages were rearranging land to move living quarters to new structures in the town center so that removal of old farm buildings could make way for more farmland. The program included efforts to increase grain planting and output – a trend that continued right through the financial crisis and into the Xi-Li government years after 2012. It became instrumental in expanding and modernizing Chinese farmers' hog production. Major investments in large-scale hog production centers included subsidies for better quality breeds and artificial insemination capabilities to maintain them. County towns had training centers for local workers preparing to seek work in larger cities. It was just the beginning, but given the author's at that time twenty-five years' experience in rural China, the energy and momentum were palpable.

The complete set of New Village components formed a major element in the 11th five-year plan (2006-2010). In the 12th five-year plan (2011-15), the same New Village Construction program was expanded under the rubric of Urban-rural Comprehensive Integrated Development (城乡统筹发展 or *tongchou* for short). Up through the completion of this current writing, this comprehensive program arguably remained China's most critical development challenge.

3. Labor migration and household registration reform

A central challenge for China's new integrated rural and urban development strategy in the 2000s was what Chinese called its two-class (二元) labor force. The two-class label reflected a clear status and privileges gap between rural migrant workers in cities and urban workers who still enjoyed subsidies inherited by all registered urban citizens. The decade saw significantly

increased rural-to-urban migration, along with efforts to reform the hukou system to give rural workers and their families better access to urban amenities. In larger cities, however, progress was not easy.

China's rural-to-urban migration over more than 30 years of reforms was a national transformation that still continued in the years after the global financial crisis. Nationally consistent information shows that by 2012 over 450 million urban residents, two thirds of the total urban population, were in families that had come from rural areas. The pace of migration picked up in the late 1990s, as a result of rural hardships at that time. With a few exceptions and noting that annual statistics reflect smoothed official estimates, since 1995, the number of urban residents with rural roots increased by roughly 20 million every year (see Table 5.2 and its methodological footnote).

The job of integrating such a rush of rural persons into what had been a privileged urban environment had already begun in the early 1990s, when Shanghai started issuing rural migrants temporary identification cards (known as "blue cards"). While doing field research in 1993, this author reviewed lists of fees and requirements for peasant families who wanted to obtain urban residence in the southwestern provincial capital of Xining. Basically, if a rural person had no criminal record, had a job in the city and a permanent place of residence, he or she could gain permission to live in the city for the payment of fees set on a sliding scale according to various criteria. The process was even easier in smaller towns if farmers could make significant financial contributions for the construction of infrastructure and schools. But residence in a small town wasn't transferable and didn't allow residence in other, larger, towns where benefits were more substantial. These early systems represented progress, but they also maintained barriers to how fast the urban registered population could grow. Many programs provided little more than temporary permission to live and work in an urban jurisdiction.

Table 5.2 – Number of persons from rural families living in urban areas, 1978-2016

% Share of million all Urban			% Share of million all Urban			% Share of million all Urban		
1978	4	2.0	1991	109	34.9	2004	315	58.0
1979	14	7.4	1992	116	36.1	2005	333	59.2
1980	18	9.5	1993	124	37.3	2006	352	60.4
1981	26	12.9	1994	131	38.4	2007	374	61.8
1982	36	16.9	1995	139	39.6	2008	391	62.6
1983	42	18.8	1996	158	42.4	2009	411	63.7
1984	57	23.7	1997	178	45.0	2010	434	64.9
1985	65	26.0	1998	197	47.4	2011	454	65.8
1986	75	28.4	1999	217	49.5	2012	474	66.6
1987	85	30.7	2000	237	51.5	2013	492	67.3
1988	92	32.0	2001	257	53.4	2014	509	68.0
1989	98	33.0	2002	277	55.1	2015	530	68.7
1990	101	33.5	2003	297	56.7	2016	550	69.4

Sources and methods: Initial data are national official total, rural and urban population statistics. The method assumes conservatively that without migration China's rural population would have grown at the national population growth rate. Comparing this hypothetical "natural" rural population figure with the officially reported rural population yields an estimate

(almost certainly low) of how many migrants, persons who would have been reported as rural in the absence of migration, were in fact now reported as urban. The result's accuracy is no better than the accuracy of officially reported annual urban and rural population figures, which show certain regularities suggesting that official statistics for many years between censuses are mechanical estimates. Most dramatically, the 1995 mid-decade partial tabulation discovered many more migrants than had been thought to exist. Table 5.2

Efforts to go beyond these early programs were not successful at first. Pilot experiments with comprehensive hukou reform began in the early 2000s in a number of provincial capitals, such as Zhengzhou, Nanjing and Shijiazhuang. The capital of Henan Province, Zhengzhou, started in 2001 by relaxing the requirements for attracting “higher quality” new residents based on education, investments and purchased residence. A few years later, with different approaches, these early pilot cities all basically eliminated the formal personal identification differences between urban and rural persons. Zhengzhou in 2003 did away with all its differentiated hukou categories – registered rural, temporary, small town, and urban citizens. The number of registered urban persons increased quickly, by over 150,000. A year later, the pressures on public services like schools and free transportation caused the city to call for an end to the year-long experiment (Li 2011).

Table 5.3 – National Employment by Status of Employer, 1985-2016

Table 515 National Employment by Status of Employer, 1985-2016					
Percent	State-	Share-	Urban Labor Force		Rural Labor Force ^e
	owned & Collective ^a	holding & LLC ^b	Private ^c	Informal ^d	
Share of National Labor Force					
1985	24.8		0.9	0.0	74.3
1990	21.9		1.2	3.0	74.0
1995	21.2	0.5	3.8	2.5	72.0
2000	13.4	1.6	5.8	11.3	67.9
2005	9.8	3.3	10.3	14.6	62.0
2010	9.4	4.8	16.4	15.0	54.4
2013	9.0	10.1	22.7	7.8	50.3
2016	8.5	10.6	30.1	4.2	46.6
Share of Urban Labor Force					
2016	16.0	19.8	56.4	7.8	

^a State-owned does not include state-controlled share-holding corporations;

^b Shareholding and limited liability companies have a variety of mixed ownership patterns difficult to disentangle from readily available statistics

^c Private includes private firms, sole proprietorships, shareholding cooperatives, and overseas-funded firms (29.2, 20.8, negligible, and 6.4 percent of urban total respectively).

^d Informal is based on the residual of urban employment not assigned to other categories.

^e The rural labor includes significant numbers of TVE, private firm and other non-farm employees.

Sources: NBS (2013f) and author calculations; interpretation of residuals from Cai (2009). Table 5.3

According to commentary at the time, these early hukou pilot programs all failed because even though cities might issue unified identity cards, the differences in benefits for urban and rural

persons remained large. The problem wasn't merely changing where one was allowed to live, it was providing new migrant citizens with all the subsidized social benefits that urban residents still enjoyed. If rural persons were included, large cities simply couldn't afford to meet the demand (Ren 2005).

The experiments and pilot programs nevertheless continued through the global financial crisis years and after. Henan was one of the pioneering locations and eventually became a province-wide pilot area. It is a good example of what would be similar efforts in other locations later in the decade and under the new Xi Jinping government in 2013.

After early difficulties in its capital, Zhengzhou, Henan shifted hukou reforms to smaller urban areas. At the end of 2005, Henan's government recommended 38 localities for pilot reforms. This time, the ultimate goal was more comprehensive – to have newly admitted urban residents receive all urban public benefits in that locality. A year later, in 2006, Henan designated seven medium-sized cities to work toward similar comprehensive urban-rural integration pilot programs. In these seven cities, everybody would ideally eventually have the same "citizen" status, whether living in a rural village or in the city. For administrative purposes, citizens were to be registered according to place of established residence rather than family birth background. All were eventually to enjoy the same access to social benefits available in their locality, such as education, health care, and legal assistance (Li 2011).

F. Privatization, labor restructuring and sun-setting older factories

While the country struggled to find its way with hukou reform in the 2000s, other developments promised more employment opportunities, better working conditions and more productive jobs with better pay. A labor contract law passed in 2007 updated China's 1995 labor law, required worker contracts in writing for urban workers and rural migrants alike and made broad provisions for union organizing. Implementation was poor for rural migrant workers, especially in construction (Chapter 9), but the direction presaged future resolve in the late 2010s to undertake contentious reforms seeking merger of urban and rural labor markets. With the privatization of virtually all small and medium-sized state enterprises by 2005, growth of the private-sector labor force reflected expansion of new urban job openings for all workers. Finally, pilot programs to phase out low-productivity technologies and small-scale polluting factories began in southern China in 2007 with goals of raising worker productivity, improving working conditions and reducing pollution. All of these steps were natural extensions of reforms in the 1990s and their consequences, and their influence continued to evolve both during and after the global financial crisis.

1. Rise of the private sector – employment and sales

The significant privatization of China's economy and its urban labor force was one of China's most remarkable transformations in the first decade of this century. From 2000 to 2012 the state enterprise and collective share of all urban employment dropped from 42 to 20 percent. If we include overseas-invested firms, private-sector employment went from 18 to 42 percent of all urban workers during the same period. Informal employment accounted for another 24 percent of urban employment in 2012, bringing the effectively private urban labor force in 2012 to 66 percent of the total (Table 5.3). Early in the decade, most informal labor had been

recently laid-off state workers, but by the decade's end the large majority were rural migrants working in cities (Cai 2009). A good share of the remaining urban workers in Table 5.3 were also employed by privately controlled LLCs and stock-share companies. Hence, well more than two-thirds of China's urban labor force was effectively under private employment. In addition, the rural labor force either worked in family farms and enterprises or in rural enterprises which, if they were not formally private, operated as if they were.

Table 5.4 – Ownership of Industrial Enterprises by Number of and Sales, 1998-2016

	Number of Enterprises (thousands)					Share of Total Sales (percent)			
	State-owned & Controlled ^b	Private ^c	Other Domestic Firms ^d	Off-shore Firms	All Firms	State-owned & Controlled ^b	Private ^c	Other Domestic Firms ^d	Offshore-funded Firms
1998	65	20	54	26	165	52.3	6.1	17.3	24.3
1998	65	20	54	26	165	52.3	6.1	17.3	24.3
1999	61	25	49	27	162	51.5	7.5	15.3	25.7
2000	53	33	48	28	163	50.2	9.1	13.9	26.8
2001	47	47	46	31	171	47.4	11.7	13.1	27.8
2002	41	59	47	34	182	43.7	13.9	14.0	28.5
2003	34	77	46	39	196	40.5	15.9	13.1	30.5
2004	36	128	56	57	276	35.9	18.1	13.3	32.7
2005	27	131	57	56	272	34.4	19.6	14.4	31.6
2006	25	156	60	61	302	32.3	21.6	14.5	31.5
2007	21	183	66	67	337	30.7	23.4	14.5	31.4
2008	21	251	75	78	426	29.5	26.9	14.2	29.3
2009	21	261	77	75	434	28.0	29.5	14.8	27.7
2010	20	278	81	74	453	27.9	30.3	14.8	27.0
2011	17	183	68	57	326	27.2	29.8	17.3	25.7
2012	18	192	77	57	344	26.4	31.2	18.6	23.9
2013	18	197	80	57	353	25.1	32.5	19.0	23.5
2014	19	215	89	55	378	23.7	33.8	19.7	22.8
2015	23	218	90	24	383	25.8	35.0	17.1	22.1
2016	21	215	92	50	379	24.1	35.5	18.8	21.6
% Share	5.2	55.8	22.5	16.6	100.0				

^a Data are for firms larger than a minimum scale of 5 million yuan in sales through 2010 and 20 million yuan starting in 2011; note that this shift in 2011 eliminated many smaller firms from the reporting.

^b Public and State-controlled includes state-owned, state-controlled shareholding, collective and joint government-run forms of enterprises.

^c Private includes registered private firms and shareholding cooperatives.

^d Other Domestic Firms includes limited liability, shareholding cooperative, and non-state-controlled stock share enterprises. Note that the ownership status of firms in this category is uncertain; many are government controlled and many are private, but separating out which is which requires more statistics and resources than were available.

Note: The economic census in 2004 discovered a large number of industrial firms previously not reported, which explains the significant increase in firms reported beginning that year. For 2004, the census reported 1.38 million industrial firms of all sizes, of which 903 thousand were registered as private (NBS 2006, p. 505).

Sources: individual *China Statistical Yearbooks*, such as NBS (2013), for years 1999 to 2013; *中国经济年鉴 (Almanac of China's Economy)*, such as Ma (2006), for years 1999, 2000 and 2006, with author calculations

Table 5.4

The major policy shift behind this remarkable employment transformation had come in the late 1990s enterprise reform movement, as described in Chapter 4, as well as with the large-scale privatization of rural township and village enterprises in the same period (Huang 2010). But the continued working out of those reforms and the transfer of labor to private jobs continued throughout the financial crisis decade and after. As the informal workforce shrank from 34 percent to 24 percent after 2000, private employment increased from 5 percent to 14 percent. This relatively peaceful adjustment was a notable accomplishment of the Hu-Wen government's tenure through 2012. It strained the expectations of subsidized urban workers but brought gains in equity and productivity. What mattered more for private firms' hiring decisions were education, skills and experience. Good jobs in China's cities were no longer dominated by government-owned firms. Employment opportunities for city and rural workers alike had become substantially more diversified and flexible.

Privatization of much of China's urban economy in the 2000s also contributed to China's response to the global financial crisis. Private-sector industrial output grew at double-digit rates during China's successful 2009 stimulus, while the state-owned sector barely grew at all.

2. Return of the state?

The private-sector employment and output expansion described above contradict a popular view following the financial crisis that the state-owned economy was making a comeback against privatization. In China this view was termed "the return of the state," or more literally "the state advances and the people retreat" (国进民退). Significant merger and acquisition activity by which state enterprises bought up or merged with smaller private firms – in steel and automobiles, for example – supported this sentiment. But the overall statistical record, including the labor force trends documented above, doesn't support the "return of the state" narrative.

The best test of the return-of-the-state idea is industrial output, the mainstream of China's economic success. By 2012 well more than half of reported industrial firms were private, and almost three-fourths were private if we include overseas-funded firms (Table 5.4). It is true that most such firms were small; on average, a state-controlled industrial firm was roughly six times as large as its private counterpart. Nevertheless, for volume terms such as sales, by 2012 the private industry was also larger than state-controlled industrial sales. From 2000 to 2012 the state-owned and state-controlled industrial sales dropped from 50 percent to 26 percent of all industrial sales. Domestically owned private and privately controlled output's share rose from 9 percent to 31 percent (Table 5.4). That is a table-turning reversal, especially when we note that private overseas invested firms accounted for an additional 28 and 24 percent of output in those two years respectively. All told, private sales accounted for 55 percent of all Chinese industrial sales in 2012. It is not possible to call this a "retreat" of China's private sector.

Stories of how large state firms in this period took over smaller private firms in certain sectors sound ominous, but we can remember that the enterprise reforms of the late 1990s never meant to privatize all state firms. On the contrary, the dictum was to "let go the small and seize the large." China's industrial strategy in the 2000s included consolidation and upgrading of large key facilities in what it called "pillar industries." It meant to seize the large. In a strategy of

rapid growth based on necessarily high shares of investment in GDP, a pillar-industry approach to help avoid inflation-generating bottlenecks had important advantages over privatization, if managed well. It is also easy to mistake stories about this aspect of China's industrial development as characteristic of all industry or the whole economy. The comprehensive statistical record shows such not to be the case. The private sector advanced.

Despite this privatization success, a great deal of China's privatization work remained unfinished in 2013. Privatization of industry had left the largest firms in a wide range of strategic sectors still state-controlled. State-owned and state-controlled shares of output and sales in retail, wholesale, finance and other services industries were also very large. The Xi-Li government's major Party plenum in late 2013 made economic policy announcements targeting continued privatization across the board, albeit in the context of maintaining a significant role for government-controlled firms. These announcements emphasized that privatization of the economy would advance – most likely at a continued steady pace.

3. The 2008 labor contract law

As China's labor market grew more complex in the new decade, shortcomings of its 1995 labor law became increasingly apparent. Many workers still labored without the protection of written employment contracts specifying pay, benefits, working conditions and related agreements. In addition, workers had few if any advocates supporting job safety and a humane workplace environment or regimen. The legislative process leading to 2007 passage of the 2008 labor contract law showed reform progress by itself. China's congress invited in-depth comments on earlier drafts of the law, seeking input from affected parties of all kinds. It received thousands of comments and adjusted subsequent drafts significantly as a result.

The resulting law didn't replace the 1995 labor law; it extended and reinforced it. Most directly it had much stricter requirements for written labor contracts, and it gave legal backing to the possibility of stronger labor unions and group negotiations over working conditions. It also clarified and strengthened employers' rights to fire workers, especially in what was called a "mass firing" on occasion of commercial difficulty or impending bankruptcy. In coastal areas affected by global trade contraction in the financial crisis, these clarifications found unexpected significance. More importantly, both before and after the crisis, the labor contract law helped create a more equitable employment environment as rural migrants and private firms became increasingly important in China's urban economy.

Subsequent research showed that improvements in migrant worker employment conditions in southern China followed passage of the labor contract law. Over a two-year period, from 2006 to 2008, migrant worker surveys also highlighted how much more still had to be done. Written contract coverage increased substantially, to 86-percent coverage in 2009. Medical and injury insurance coverage rose as well, but only to 72 percent. Access to unions rose less and only to 37 percent. Survey results made it clear that conditions and coverage mandated by the law were better in larger firms than smaller firms (Li 2009b). The southern location for this particular survey likely implied a downward bias on the results, because southern China firms, especially firms funded by Hong Kong and Taiwan businesses, had a poor reputation for

working conditions. If southern China was making improvements, northern China was likely to be doing as well, if not better.

4. Rising wages, labor shortage worries and labor disputes

The boom in coastal assembly and re-export manufacturing relied on large migrant supplies of literate and numerate rural workers, most with at least middle-school education levels. As the 2000s got under way and efforts to revive the rural economy showed some success, however, it began to seem that the flow of rural workers to the coast might not be large enough. Concerns arose that China had reached a critical economic turning point, the point at which its era of surplus rural labor was over. Subsequent patterns of rural migrant labor movement and cost revealed that rather than a turning “point,” however, the process was a slowly bending and fluctuating long-term process of adjustments to several aspects of migrant employment and manufacturing competitiveness (Chapter 10).

Indicators of a tight coastal labor market appeared first in 2003 and peaked during the export demand bubble years of 2004-2007. In 2005 the whole province of Guangdong had a shortage of 10 percent of its labor force (Xinhua 2005). Labor shortages then disappeared during the domestic growth slump and export difficulties in 2008 and early 2009. Jobs, not workers, were hard to find. Unemployed migrants in 2009 reportedly numbered 30 million (Wang 2011). Migrant labor shortages reappeared in the 2010 post-crisis domestic stimulus boom, affecting major export regions like Guangdong and Shanghai. The Pearl River delta of Guangdong reported a shortage of 900 thousand migrant workers in 2010 (Wang 2011). The shortages didn’t last long. With the subsequent domestic anti-inflation cooling off and slowing in 2011-12, reports of migrant labor shortages virtually disappeared, and migrant wage increases slowed dramatically in 2012 (NBS 2013c). Between 2011 and 2012, one survey reported that migrant unemployment rose from 3 to 6 percent (Fung 2012).

Alternating periods of migrant shortage, migrant unemployment and migrant shortage again provide the best description of migrant labor supply both in the 2000s and after the financial crisis. Fluctuating demand, both domestic and international, is the most obvious source of variation in shortages or surpluses of migrant labor. But three slower-moving long-term trends were also important.

First was a rapid increase in average labor productivity. Productivity gains came in part because of layoffs from overstaffed state enterprises (Cai 2010), but also because of technical change that improved individual worker output. Second was a rise in wages. Long-term wage increases (Table 5.5) resulted from higher productivity but also from the response to periodic labor shortages, from the spread of labor contracts and union activity and, just as importantly, from government programs dramatically raising the minimum wage in most cities and extending minimum wage coverage to migrant workers. Third, both private sector decisions and government programs began encouraging excessively low-productivity labor-intensive manufacturing facilities on the coast to close their doors altogether. Some moved to interior locations while others moved overseas.

The rise in wages associated with labor shortages prompted concerns at the time that China would lose its export competitiveness and have to slow its overall growth rate. The three slow-

acting trends mentioned above, productivity gains, higher pay and structural closings, explain how China in the long run avoided both absolute shortages of labor and losses in competitiveness. These slow-moving trends could not, however, accelerate or slow their progress perfectly in sync with short-term shifts in overall demand. Periodic labor shortages or surpluses were therefore inevitable. At the same time, causal forces worked in both directions. Shorter-term shifts in overall demand, both booms and slowdowns, contributed to pressures for wage increases, plant closings and average worker productivity gains.

Indeed, Chinese real wages, corrected for inflation, had been increasing rapidly for a long time. If we ignore the cyclical slumps in 1981-83, 1987-89 and 1995-97, annual rates of change since 1978 were always in high single-digit or double-digit ranges (NBS 2013c). Rapid wage increases in the 2000s were nothing new. Table 5.5 shows that average wages began growing rapidly after the 1995-97 slump. This early phase of average wage increases mainly reflected 1990s xiangang layoffs of excess state-sector workers. A second phase of rapid wage increases began in 2001, correlated with renewed domestic demand stimulus and WTO membership. The pace of real improvement slowed with SARS in 2003 and 2004 inflation but resumed into the boom years preceding China's 2008 domestic tightening and the impact of global financial crisis. Quite quickly after the crisis, in 2009, China's domestic stimulus and recovery in some exports, sped wage increases again, until inflation and domestic tightening in 2010-12 slowed them once more.

The reason these nationwide wage increases didn't hurt profits or competitiveness is that per-worker productivity gains were even faster than wage increases in the eight years leading up to the financial crisis. Migrant wage levels were lower than other manufacturing wages, but they increased largely in pace with the national average, reaching national average wage levels with a lag of about three years (Cai 2010). On average, therefore, output per migrant worker more than kept up with rising labor costs. For some low-end sectors with inflexible labor-intensive technologies, rising labor costs brought financial difficulties, but for the economy as a whole, with increases in labor productivity outstripping labor cost increases, labor shortages did not represent a threat to overall profits or Chinese competitiveness. Table 5.5 also shows that despite China's rapid increases in wages, they were still roughly at a par with average wage

Table 5.5 – China Hourly Compensation in Manufacturing Compared, 2005-16
(Percent real growth and Nominal U.S. dollars per hour)

	Wage - U.S. Dollars		(U.S. Dollars)	2012
	China	India		
2005	0.83	0.91	Norway	63.36
2006	0.95	0.95	Germany	45.79
2007	1.21	1.17	United States	35.67
2008	1.59	1.26	Japan	35.34
2009	1.74	1.24	Spain	26.83
2010	2.03	1.46	Singapore	24.16
2011	2.52		South Korea	20.72
2012	2.93		Brazil	11.20
2013	3.33		Taiwan Prov.	9.46
2014	3.72		Mexico	6.36
2015	3.95		China	2.93
2016	3.98		Philippines	2.10

Sources: U.S. Bureau of Labor Statistics (BLS 2013 – the last year BLS published this report) for China years 2005-09, India in 2005-10, and for 2012 international comparisons. For years other than 2005-2009 the BLS series for China is extended using Chinese data and nominal exchange rates. This methodology tracks closely with BLS's series before 2005. Note: Wage refers to average compensation in manufacturing. China and India data are not definitionally compatible with each other or other countries and represent approximations (BLS 2013). Table 5.5

levels in India and the Philippines and significantly lower than average wage levels in Mexico or Brazil.

In sum, while it seemed to many observers at the time that China was permanently running out of rural labor, the better explanation is that in periods of extreme excess demand – such as the 14-percent GDP growth surge in 2007 – the flow rate of still-plentiful rural labor naturally couldn't keep up. When shortages did occur, pressure for higher wages acted as a prod for healthy structural and technological adjustments. Longer-term productivity gains ensured adequate labor supplies, profits, and competitiveness for the foreseeable future.

G. Finance, real estate, property price bubbles and the “financial waterbed” effect

A distinctive feature of China's economy in the 2000s, and a major factor in assessing China's economic performance, was its development of a for-profit real estate industry after the nationwide privatization of urban housing in the late 1990s. The policy focus both before and after the crisis was to promote rapid increases in the supply of better-quality housing without inducing severe increases in the price of new homes. The fundamental difficulty was finding a way for ordinary households to afford purchase of such lumpy, costly consumer durables. Growing diversification and sophistication in finance generated a mortgage industry, but given the scarcity of land, private and other for-profit lenders and builders naturally encouraged building larger, more expensive residences, a major market for which was with speculators. Housing price stability became a growing policy concern both before and after the global financial crisis.

Housing investment and prices fluctuated moderately until the pre-crisis overheating of 2007-08, but even as investment growth collapsed, new home prices rode a speculative bubble up to the global crash in the second half of 2008. After cooling off from the crisis, investment and prices started up again with fiscal stimulus in 2009. Two cycles of rapid housing price increases even before the crisis – after the SARS stimulus and in the 2007 overheated pre-crisis trade environment – raised periodic concerns that property price bubbles could threaten financial and economic stability. The prospect of real estate investments as a source of high investment returns for firms and better-off families invited periodic housing market speculation and consequent overbuilding of luxury housing unaffordable for most home buyers. The lure of quick profits in real estate challenged government regulators trying to prevent financial and bank loan losses serious enough to require official intervention. Consequently, economic and financial policies responded to signs of overheating in the housing market as much as to concerns about politically sensitive cost-of-living and food-price increases. This relatively short-term counter-cyclical sensitivity in asset markets as well as product markets was one contributor to China's longer-term growth stability both before and after the 2007-09 crisis.

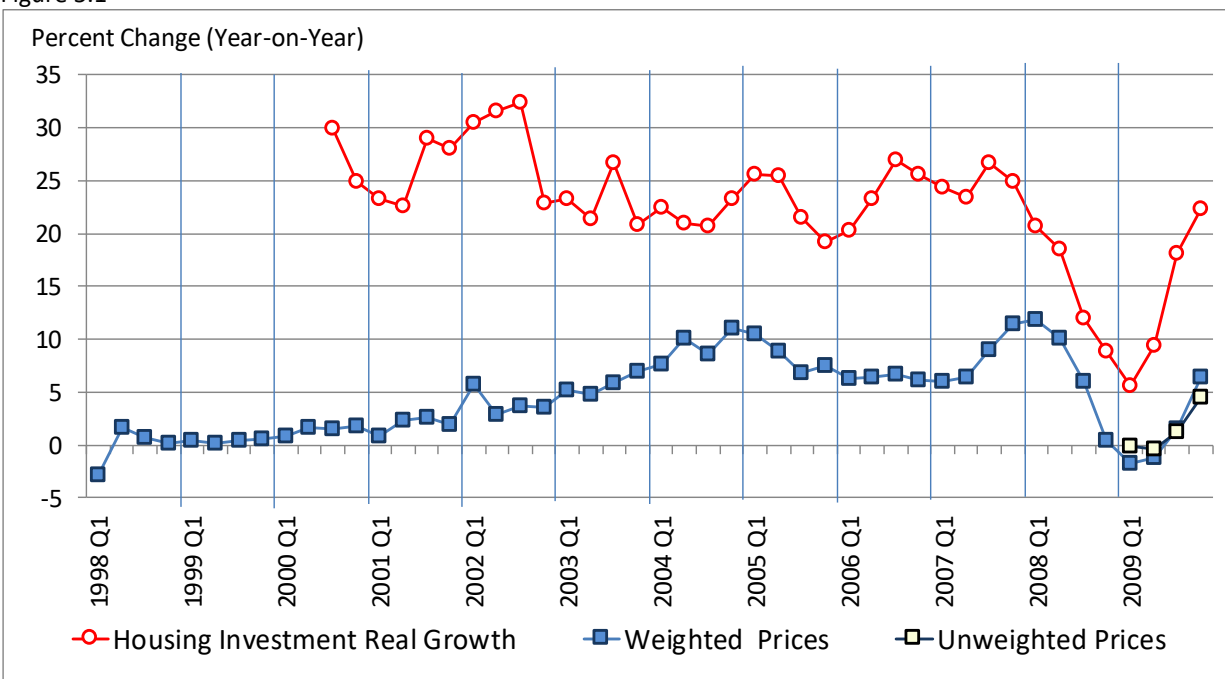
The longer-term record of investment in housing and price changes for new houses shows a cyclical pattern that generally follows the macroeconomic periods of boom and slowdowns, both in the 2000s and after the financial crisis (Figure 5.1 and Figure 6.## in Chapter 6). In a period of economic stimulus, stimulus funds and loosened credit intended for infrastructure, corporate capacity expansion and new jobs easily found its way into the real estate market as well. The increasing role for financial market forces made it difficult to stimulate output and jobs without also feeding a housing price surge. When, in response, a period of relative

austerity sought to control both consumer inflation and housing price rises, the growing share of private and other for-profit financial activity meant that an overall tightening of investment credit and consumer price measures had a more immediate effect on infrastructure and commercial capacity investments than on housing. The lure of improving real estate returns became even stronger as tightening measures raised the market cost of capital.

Figure 5.1 – Quarterly housing investment growth and prices for new houses, 1998-2009

Source: NBS Monthly Statistical Bulletins 2000-2013, New China News Agency, China National Bureau of Statistics and China National Development Planning Commission monthly price data releases, 2009-13, e.g., Xinhua (2009), NBS (2010) and NDRC (2009), with author calculations. Total housing investment data are corrected for inflation using the construction component of the fixed asset investment price index; the series is a 3-quarters moving average. Note: The National Bureau of Statistics stopped publishing a weighted average of 70 cities' real estate prices in 2011. Unweighted averages of the same 70 cities' prices show somewhat less volatility in both directions than the weighted average series for 2009-10, when the two series overlap.

Figure 5.1



China's difficulty separating financial policy influences on real economic trends and financial sector trends illustrated a financial "waterbed" effect. During an overheating episode, with credit flowing to both output and durables markets, restrictions on investment in productive capacity not only slowed growth in sectors like manufacturing, they also hurt the financial sector. Interest-rate and quantitative austerity measures in the real economy reduced related demand for finance. In response, the for-profit investment community shifted and looked elsewhere, to private real estate construction, for more attractive alternatives. In real estate, a herd-driven speculative surge could offer expanding demand for loans and promises of higher rates of return – but only until the bubble burst.

It was as if suppressing productive investment pushed financial liquidity in the direction of less directly regulated private-sector housing investments. Squeezing down on investments in one

set of sectors caused investment-seeking resources to pop up elsewhere, especially in real estate. This effect reminds one of a waterbed: if you sit down on it in one place, the bed's surface pushes up in another. Without institutional barriers between different parts of the national financial "waterbed," monetary policy initiatives could have unexpected short-term consequences. After the 2007-09 crisis, as the growing importance of stock markets and foreign exchange markets increasing the waterbed's size, this "financial waterbed" effect became more pronounced, but it was also a factor before the crisis.

Beginning with almost no price changes in 1999, price rises in new housing were gradual until the anti-SARS stimulus in 2003-04, when government spending and financial loosening to counter the disease's impact resulted in credit spilling over into real estate markets. This was an early example of the "financial waterbed" effect, whereby financial liquidity provided for one sector found its way to other unintended markets. The price rises and accelerated investment levels in 2004 coincided with the impact of the overall anti-SARS stimulus and its resulting overall inflation spike that year (Figure 4.1 in Chapter 4).

The government effort in late 2004 and early 2005 to tighten credit and cool off the economy affected housing investment and prices as well, including a short-lived "waterbed" effect (Figure 5.1). As 2004 austerity monetary policies pushed financing to seek investment opportunities in housing, both housing prices and investment surged. However, continuation of tightening in 2005 included administrative steps to discourage speculative home buying purely for investment purposes. These policies succeeded in lowering new home price increases from 12 percent at end 2004 to the 6-to-7-percent range by 2006, significantly below the long-term rise of nominal urban incomes (Table 5.6). Keeping home price increases at moderate levels, real housing investment growth picked up again in late 2005 and 2006, as steps to suppress speculation continued to keep home price rises subdued. With relaxation of credit and housing investment regulations in 2007, however, the general increase in credit found its way into the real estate market, and speculation with rapid price increases returned. The consequent extended credit tightening in late 2007 and early 2008 caused a housing investment slump that significantly slowed China's economy well before the financial crisis crash in September 2008. With the psychological effect of the crisis and the enormous increase in credit-based liquidity used to stimulate growth in 2009, housing investment and market price gyrations became more severe during and after the crisis than they had been before (Chapter 6).

Operating behind the superficial record of housing output, sales and prices was a broad set of housing reform institutions. China's housing reform challenge in the 2000s and beyond was to establish institutions and instruments with which urban households could afford to purchase a home when the cost of building a home was many multiples of average household income. Mortgage payment systems for small low-cost dwellings were the obvious answer. However, with high costs for the better-quality houses that developers preferred to build, even down payments could be out of reach for ordinary households. This was especially so when speculative purchases of homes for investment purposes occasionally drove new housing prices even higher than a reasonable cost of construction. Speculation also encouraged overbuilding of larger and more luxurious dwellings (called "villas" in China) as a way for developers to maximize profits from improvements to a given piece of land. Under these circumstances,

Chinese authorities early on began recurrent use of a range of regulations tightening and improving the functions of the various original housing funding institutions, institutions which dated from initial reforms in the 1990s.

For urban households seeking to buy a home, the main sources of funds were family savings and bank mortgage loans. State banks provided virtually all housing mortgages, and the central government set mortgage policies, including its floating interest rate component. Government also created a housing provident fund in the 1990s, managed by local governments with significant variation from location to location. Most urban employees were required to contribute to their local provident fund out of their monthly pay. They then, in principle, could borrow for a home purchase. Most families combined a bank mortgage with a provident fund loan (Deng 2009).

A third implicit source of funds for some families was the government subsidy supporting the “Economic Housing Program,” which invested in smaller dwelling units for sale to lower and lower-middle income families. Government regulations encouraged building a significant share of new homes on a scale below 90 square meters (950 square feet) of floor space per home. By the time of the crisis, these smaller homes accounted for 30 percent of housing investment (NBS 2000-2017).

Finally, a large number of lower-income households were renters and lived in much smaller units than moderate-income families. A central government program to subsidize small rental housing units for low income families was part of the original 1998 reforms, and in 2004 Beijing called on local governments to increase financial support for low-income rentals, which eventually came to mean units of no more than 50 square meters (530 square feet). In addition to financing challenges, a local-government difficulty was the political unpopularity of low-cost housing projects near more middle-class neighborhoods (Deng 2009). For most Chinese, the goal seems to be home ownership rather than rental housing, but high house-price-to-rental ratios continued to frustrate lower-income families in the market to buy.

Table 5.6 – Comparing Percentage Changes in Housing Prices and Nominal Urban Incomes, 2002-2017

Over 5 years, urban incomes increased faster than home prices by good margins, even though in several individual years, price increases were faster .

Percent by End-year	Five-year averages		Current-year data	
	Home Prices	Family Income	Home Prices	Family Income
2002	1.6	9.6	3.6	19.2
2003	3.0	10.8	7.0	10.8
2004	5.0	11.6	11.1	11.8
2005	6.2	12.5	7.5	11.8
2006	7.1	13.1	6.2	12.4
2007	8.6	11.0	11.4	8.4
2008	7.2	11.7	0.4	14.5
2009	6.3	11.1	6.4	8.8
2010	6.7	11.0	9.2	11.3
2011	5.9	11.4	2.3	14.1
2012	3.5	12.2	-0.6	12.6
2013	5.2	10.9	9.0	7.7
2014	3.3	10.9	-3.0	9.0
2015	1.4	10.3	-0.4	8.2
2016	2.8	9.0	9.8	7.8
2017	4.1	8.2	5.6	8.3

Sources: NBS (1981-2017), NBS (2000-2017), NBS (2018a), NBS(2018c) and author calculations Table 5.6

As China's market forces gained strength in the 2000s, the real estate sector illustrated how the dark side of market forces could distort more optimal outcomes. One Chinese Academy of Social Sciences scholar divided China's housing market experience before the financial crisis into three periods: (1) from 1998 to 2003, when the sudden end of employer-provided housing caused heavy rental demand with rents rising rapidly, (2) from 2002 to 2004, when housing prices grew faster than rents because of easier credit for real estate development during the post-SARS stimulus, and (3) after 2004, when speculative investment demand for housing began to stimulate both higher new house selling prices and expanded construction of more expensive units (Zuo 2008).

The conflict between providing adequate and affordable housing for China's rapidly increasing urban population and the speculative pressures from investors and accommodating developers defined China's housing challenge both before and after the financial crisis. The problem was naturally most acute for the poorest households, and China's housing problem became increasingly linked to urban poverty (Deng 2009). The inherent malfunctioning of markets for transactions over time involving expensive and long-lived durables like housing forced China's government to optimize the operations of both financial and real estate markets. This necessity became even more acute in the years following the financial crisis.

The government's response to speculative disturbances in orderly market operations included such steps as direct intervention into real estate transactions, regulation of real estate developers' finance, adjustment of mortgage terms, restrictions on re-sales, and targeted taxation. China had already known localized but financially damaging real estate bubbles in the 1990s. The bubble that burst on Hainan Island in the early 1990s was especially serious, and when anti-inflation credit tightening in 1996-97 ruined the resort development bubble in the southern city of Beihai, it left large swathes of abandoned partially completed structures.

Beijing made its first precautionary moves to prevent a bubble in 2004-05, after the SARS stimulus. It increased mortgage interest rates and down payments, raised developer equity requirements, restricted land supplies, stiffened mortgage requirements for second home purchases and required construction to stay within affordable quality and size limits (Deng 2009). It repeated these and other steps to stop a potential bubble in 2007, including a "double-limit" (两限) requirement for subsidized housing – with limits on both the housing unit

Table 5.7 – Land Sales Revenue, 2000-2012

	Land Sales	Increase Rate	Compared to Local On-budget Revenue
	Billion Yuan	Percent	Percent*
2000	60		9.3
2001	130	117.6	16.6
2002	242	86.6	28.4
2003	542	124.4	55.0
2004	589	8.7	49.6
2005	551	-6.6	36.5
2006	768	39.5	41.9
2007	1300	69.3	55.1
2008	960	-26.2	33.5
2009	1,424	48.3	43.7
2010	2,700	89.6	66.5
2011	3,317	22.8	63.1
2012	2,842	-14.3	46.5
2013	4,127	45.2	59.8
2014	4,294	4.1	56.6
2015	3,255	-24.2	39.2
2016	3,746	15.1	42.9
2017	5,206	39.0	56.9

Sources: Local budget from NBS 1981-2017, Land sales from Yin 2011, Meng 2012, and Guan 2013, with author calculations. Table 5.7 *Note: Land sales income is not part of nationally reported revenues.

price and size a developer could offer. Beijing city’s double-limit regulation in November 2007 also required that the buyer’s old home be less than 10 square meters (100 square feet) in size with annual household income no more than 88 thousand yuan – about 12 thousand U.S.

dollars (Gu 2008). The goal was to shape market activity around the fundamentals of adequate small-home supply and real demand from families in actual need of a place to live.

By 2008, real estate had become a critical part of China’s overall economy. Its sheer size made it a central concern for macroeconomic policy makers. At the end of 2008 it was 21 percent of all urban fixed asset investment (NBS 2013c). Nationwide, its overall investment level was second only to manufacturing. For China’s general system of macroeconomic stimulus and tightening, real estate prices had come to rival food prices as a signal for anti-inflation tightening or growth recovery stimulus. Housing development programs in particular moved to the center of activities to resolve urban poverty problems, since China’s expanding “housing security” (住房保障) policies had become critical for poverty reduction – both by providing dwellings for the needy and by providing construction jobs for rural migrant workers.

In a new development, real estate also transformed local government finance because of the rapid rise in importance of local government land sales for off-budget revenues. One aspect of the commune breakup in the early 1980s was that all rural land remained owned collectively, so local governments could sell rights to its use, mostly for housing development. Not all sales income in Table 5.7 was pure income, however, because relocating displaced persons and clearing the land took roughly 60 percent of the sale proceeds in some years (Meng 2012), and even more after the financial crisis (Table 5.8). Nevertheless, the supplement to local on-budget taxes and other revenue was substantial. Fluctuations in these sales mirrored the fast and slow economic periods in the 2000s; In 2007 land sales added another 55 percent to local government gross income nationwide (Table 5.7).

In a related financial dimension, real estate had also become one of the most pressing reminders of the need for better financial sector regulation across the board, especially as the financial sector had increased its capabilities and complexity in the 2000s. Both before and after the crisis, inadequate regulatory coverage meant that efforts to use fiscal and policy-loan methods to stimulate general economic activity could quickly succumb to the “waterbed” effect and leak into speculative activity in real estate, threatening housing price inflation, undermining

Table 5.8 – Appropriated Land and Related Revenue Uses, 2015

Total Revenue Collected	3,255
Total Spending (Billion Yuan)	3,373
(Billion US\$ in 2015)	542
Total Spending (Percent)	100.0
Occupant compensations	53.2
Pre-sale preparations	19.4
Fired worker compensation	7.0
Total Land Acquisition Costs	79.6
Urban construction	10.5
Farming and farm villages	7.5
of which: education	1.3
Affordable housing	2.4
of which: shantytown renewal	0.9
Total final uses	20.4
Uses of Appropriated Land	
(Percent)	100.0
Infrastructure	54.2
Factories and Warehouses	23.4
Real Estate Development	22.4

Note: Revenue and Spending differ due to annual carryover. Owner compensation includes payment for land and subsidies to relocate rural households; pre-sale preparations are for opening up and preparing land before it is acquired; displaced worker compensation is for businesses closed because of land appropriation. Source: MOF (2016)

Table 5.8

programs for affordable housing, and inducing potentially damaging real estate investment bubbles.

1. Financial sector modernization

Of all the various aspects of China's economy going through reforms, the financial sector before and after the financial crisis was arguably the most complex, the most controversial and the most likely to disrupt economic progress if managed badly. Money and financial transactions can be convoluted in almost any economy, and in China's case financial intricacies in this period were compounded by the parallel presence of different systems and practices, many new but some also inherited from earlier decades.

The financial sector was China's best example of a strategy used throughout the reform period. Rather than eliminating old institutions and ways of doing business first in order to introduce a new set of agencies, companies and practices, China kept the older systems operating while gradually introducing more modern organizations and methods alongside the old. In some cases, original institutions were carefully modernized, and in other areas wholly new institutions were launched but only gradually given authority and significance. Older systems continued to operate and serve stability, while newer systems matured and took increasingly functional responsibilities. In a way this approach reversed the architectural maxim that form should follow function. In China's modernization, the form of new institutions came first, and real-world functionality, often in safer and more isolated pilot areas, followed later.

Controversy over financial sector reforms and policies abounded, mostly over the pace of liberalization and the proper role of government in the whole financial and fiscal system. Heavily profit-oriented firms and private companies argued for more rapid liberalization and retreat of government interference in financial matters. Foreign companies, developed country governments and international financial agencies with leadership vetted by developed country governments also pressed for reforms to move in a more liberalized and open direction, both domestically within China and internationally in terms of relaxation of restrictions on international transactions and regarding participation of foreign firms in China's home financial markets. On the other side, the State Council and major government agencies responsible for practical management of financial affairs argued, by word and action, for a slower pace of liberalization. In some cases they followed suggestions of some academics in questioning the benefits of a fully open and liberalized system – especially after witnessing the havoc of the global financial crisis.

China's financial sector in the 2000s focused heavily on modernizing institutions already in place, especially banks, broadening the scope of others, such as corporate bonds, and introducing new institutions such as futures markets, a high-tech company stock market and an RMB currency in Hong Kong allowing non-mainland RMB transactions. Monetary and financial flows either followed or contributed to economy-wide cyclical fluctuations – the most serious of which reflected unexpected shocks – the SARS epidemic and the global financial crisis.

2. Institutional development

In 2003 to 2005, as Chinese finance rode the wave of anti-SARS stimulus liquidity expansion in the first years of the new Hu Jintao and Wen Jiabao government, Chinese finance witnessed a

broad range of advances and reforms. In financial volume terms, most of the improvements were in the banking sector. But many others create or activated numerous non-bank financial institutions, especially bonds, trust companies, bankers' acceptances and heavy use of inter-bank money markets.

Like several other rapidly developing Asian economies at earlier stages in their modernization, China's financial system in this period remained heavily bank-oriented. After the dramatic enterprise and banking reforms of the late 1990s, China's banks had significantly reduced their heavy load of non-performing loans and were ready for long-term conversion to modern for-profit operation. In the years leading up to the financial crisis, China strengthened and clarified rules for bank operations and put reform pressure on their internal operations by preparing the four dominant commercial banks to list shares on domestic and foreign stock markets – a process requiring scrutiny of their financial health and proper operating procedures.

Early on, in 2003, the State Council took bank regulatory responsibilities away from the central bank and gave them to the newly created China Bank Regulatory Commission (CBRC). The CBRC joined securities and insurance regulatory bodies set up in the 1990s to form a three-part financial regulatory framework coordinated by the central bank. In the same year China consolidated its ownership in the four major state banks by transferring ownership to a new state-owned company, Central Huijin Investment Company. Central Huijin would later invest in other banks, in effect providing them with needed new capital.

Listing three of the four largest state-owned banks on Chinese and Hong Kong stock markets came in 2004, 2005 and 2006. In each case, the same three asset management companies (AMCs) that had warehoused large portions of their bad loans in 1999 stepped forward again and bought additional poorly performing loans at face value. The fourth large bank, the Agricultural Bank of China, needed much more work and only finally listed on stock exchanges in 2010.

How did this all get paid for? Financing for AMC recapitalizations started in the 1990s with token AMC funding from the state budget. But in the end, AMCs raised virtually all their money from credit extended to the AMCs by the central bank, by commercial banks themselves and later to a lesser extent from their major shareholder, Central Huijin investments.

The whole process sounds circular, with the banks offloading their bad assets to AMCs in return for AMC IOU bills and AMCs then backing up their IOU bill obligations by selling bonds to banks for cash. But it was a formula which allowed the banks an increase in their legal capital base, made up of the initial government-backed AMC IOU bills. By subsequently lending money to AMCs, banks didn't have to be out much cash, because they could sell their AMC loan papers to an accommodating central bank at a discount. Simply borrowing money from the central bank wouldn't have worked as a recapitalization, because instead of an asset on their balance sheets, the banks would have had a liability – the loan from the central bank. Using AMCs as intermediaries, banks could exchange their bad assets for AMC "good" ones at full face value – presto!

As time went on, other smaller banks around the country were also able to offload much smaller sums of bad loans in similar ways. By the time of the financial crisis, the legal financial foundation of China's banking system was much stronger than it had ever been, strong enough for major listings on Hong Kong's stock exchange. Ten years earlier, when banks were completely swamped in inherited *bogaidai* and other bad state enterprise loans, such a banking system turnaround would have been almost impossible to believe. By the time of the financial crisis, banks' much healthier balance sheets gave them a chance to do much of their work the way private commercial banks did.

Early in the 2000s both the central bank and then the China Bank Regulatory Commission (CBRC) began clarifying what kinds of services and instruments these newly revived banks could provide their customers. At the same time they ordered that banks could not participate in investment banking or brokerage businesses, moving in the opposite reform direction from the United States, which had eliminated such restrictions in its 1999 banking law. In 2004 regulators did permit banks to provide wealth management services, managing client portfolios. Other financial firms – trust companies, brokerages, fund management companies and even insurance companies began doing the same. Banks could even use wealth management services to invest indirectly, through the purchase of trust companies products, in many forbidden instruments, such as stocks, bonds and managed funds (Pang 2010). By the time of the financial crisis, China's banks had a wide range of capabilities potentially available.

With their new capacities, banks were in a good position to continue their dominance of China's financial system, but regulators also began strengthening alternative means for bank fundraising and corporate credit, especially bonds. In April 2005, the central bank clarified procedures for banks to issue bonds. Before that time, the large majority of bonds outstanding were government treasury bills and notes. By the time of the financial crisis, bank bond issuance, including by the central bank, had expanded rapidly; most bonds outstanding were either treasury bonds, central bank bills or commercial bank bonds (Huang 2007).

Corporate bonds were a tiny share of bonds outstanding in the middle 2000s because in the state-owned enterprise era of the early 1990s, experiments with corporate bonds experienced high default rates and scandals. When regulators allowed corporate bonds again in the 2000s, they set strict qualifications for corporations seeking to issue, and most corporate bonds had to be very short term. Nevertheless, these changes, including the large pool of government paper in circulation useful as benchmarks, put bonds and bond transactions on a firm footing for the future. It also later turned out that, when combined with reforms in other dimensions of the financial system, this middle-2000s expansion of bond transactions gave regulators and macroeconomic policy makers a new set of challenges in overseeing both macroeconomic credit flows and preventing speculative bubbles.

A special Chinese feature of marketing these different kinds of bonds in the 2000s was the use of the interbank market for most transactions. This made sense, because banks, including the central bank, were issuing most of the new bonds. But the form for future more mature bond market expansion was also present with the small share of bonds traded over-the-counter and on stock exchanges (Huang 2007). Two additional bond and interbank market developments were later consequential for efforts to manage the economy and control real estate bubbles.

These were the expansion of trust companies and the rapidly increased use of bankers' acceptances, a basic link to inter-bank market operations.

Trust companies appeared in China very early in the reforms, but in the middle 2000s they began proliferating in numbers and expanding their operations, attracting investors with different risk and payout combinations for a particular product and then using the proceeds to invest in enterprises, real estate projects, the stock market and other ventures. Bankers' acceptances further opened interbank money markets to the non-bank commercial world. They allowed a business in need of credit to sell a short-term bond to a bank at a discount of the face value. The bank could then resell the bond to another bank on the interbank market, again at a discount, using any of a number of interbank transaction modes. The central bank had clarified rules for bankers' acceptances and interbank discounted sales in the late 1990s, but only in the middle of the decade did they start to become more significant.

Taken together with short-term corporate bonds, the broadening of the interbank market and new wealth management tools, trust companies and bankers' acceptances created flexible channels for a wide range of financial flows and transactions. After the crisis, for example, these channels facilitated a rapid increase in funding for stimulus projects. In the first six months of 2009 non-financial corporate bankers' acceptances surged to over 600 billion yuan a month and then were mostly unwound in the second half of the year when it was clear the stimulus was working (Li 2010). However, in 2010, these same channels became vehicles allowing funds to evade government credit-tightening efforts to cool down real estate markets and the overall economy (Table 5.9).

Finally, other more marginal financial markets and instruments received attention in the 2000s, but they remained either poorly functioning or immature compared to their potential roles in the economy's proper operation. China's stock markets, which were almost entirely patronized by individual retail investors and which suffered from high volatility, worked out some difficult structural problems by the time of the crisis but still suffered from a number of shortcomings involving both the limited scope of listed companies, questionable pricing of initial issues for insider short-term gain, and the participation of large institutional investors who might bring more stability to the market. Despite its scale and media attention, China's stock markets, even by the time of the new Xi-Li government in 2013, were in need of an ambitious reform program before they could reach their potential. Even more immature pre-crisis institutions, like futures markets, financial derivatives, and collateralized mortgages, received attention and encouragement in this period through small-scale or pilot operations, but they remained far from playing the roles they enjoy in the financial systems of more developed economies.

Overall, by the time of the financial crisis, and in important ways afterwards as well, although China's domestic financial industry had established virtually all the forms of a modern financial system, it still suffered from serious inherent insufficiencies. Holding back a fuller expression of these financial forms' potential was a basic shortage of personnel and experience, unavoidable at this stage of China's development. Whether within government regulatory bodies, financial institutions, non-financial firms or the public in general, China's moderate per-capita income status and its short history of market-based commercial operations contributed to

shortcomings in information availability, behavioral standards, internal controls, and oversight feasibility.

In this regard, frequent comparisons of China's financial system with those of the United States, Europe and Japan were not always helpful. It is doubtful rich countries' full-blown systems were appropriate for an economy at China's level of development. Instead, China in the 2000s presented an alternative financial development model versus a more sudden conversion to fully industrialized countries' liberalized systems. This may have been all the more significant when, in the post-financial-crisis world, the optimal degree of rich countries' financial liberalization itself was open to dispute.

3. Cyclical trends in funding from the financial sector

Regardless of a country's financial sector sophistication, variations in financial flows can either stimulate or constrain economic activity. In China, with numerous original causes of faster and slower activity, financial sector flows are always an important part of the pattern of change. Data on the pace of new funding injected into China's economy by various financial channels show consistency with the same cyclical fast and slow periods in China's development that are apparent in data for fluctuations in consumer prices, farm prices, GDP prices and real estate prices (Keidel 2007, Figures 2.1 in Chapter 2, Figure 4.1 in Chapter 4 and Figure 5.1).

An example of how new channels contributed to China's economic cycles came in the year 2003. In the first column of Table 5.9, total financial sector funding as a share of the economy in 2003 increased by an extraordinary 50 percent. This rise correlates with the government's stimulus that year meant to counter a feared SARS downturn, a stimulus that ended up contributing to an overheated economy and high real estate prices in 2004. Most of the stimulus entered the economy as loans, but a large share, 12 percentage points of the 50 percent increase, channeled through bankers' acceptances.

Bankers' acceptances grew so fast in 2003 mainly because, with the government's relaxed credit posture, both banks and their non-financial clients were eager to increase the flow of funds while avoiding tedious loan procedures. Bankers' acceptances that year became a substitute for regular bank lending, but without the same oversight. Observers at the time described it as a kind of bubble in bankers' acceptances, resulting from weak government and internal bank regulation (Yu 2004). When a pair of large rediscounted bills lost all their value because of a bank official's fraudulent signature and chop, banks themselves realized they didn't have the internal oversight needed to manage the business, and they contracted its scope quickly across the country (Xiao 2004). Sudden widespread use of this alternative funding channel had generated new liquidity for the economy in excess of what financial officials could have expected from their stimulus policy.

In subsequent years, bank lending continued to dominate increases in funding, and the cooling off from 2004 was undisturbed by unexpected shifts in alternative funding flows – making the 2005 tightening especially effective. It returned funding to below its 2002 scale as a share of GDP. The success of the 2005 tightening had implications for international trade as well. China's sudden 2005 trade surpluses resulted from a slowing in the growth of China's domestic demand

for investment-goods imports, just when U.S. credit-based demand for China's assembly-style consumer exports was exploding.

With inflation under control by the end of 2005, financial sector's new funding for the economy as a share of GDP increased significantly in 2006 and 2007 (share increases of 22 percent and 14 percent, respectively). Concurrently, GDP growth accelerated dramatically in both years and inflation became serious in 2007, when GDP growth reached an unsustainable 14 percent (Figure 3.1 in Chapter 3). It is difficult to separate out the causes of growth and inflation overheating in 2007 because of the many cross currents that year, including the bubble-like boom in U.S. demand for Chinese exports, food price spikes, and domestic funding for local investment projects. But it is interesting that bankers' acceptances in 2007 increased substantially, just when the government reduced local currency bank loans. These combinations give the impression that bankers' acceptances in 2007 once again contributed to overheating by providing a channel through which banks could frustrate official efforts to cool off the economy.

This same pattern, of alternative channels frustrating official efforts to manage the macro economy, appeared after the financial crisis as well. As the stimulus expansion in the first half of 2009 became stronger, loan growth again dominated, and, except for (non-financial) corporate bonds and IPO, other financial channels showed only modest increases.

However, when government tried to cool off the economy in 2010, using a sharp reduction in bank lending, funding through bankers' acceptances once again ran counter to the national trend,

recording a large increase in new financial flows to clients. With overall funding thus remaining quite high in 2010, it is not surprising that China's economy in 2010 became overheated; real estate prices showed an especially strong increase (Figure 5.1). The fact that real estate prices declined so sharply in 2011 and early 2012, when the overall economy's financial inputs remained at such high levels of GDP, may have something to do with the lower levels of bankers' acceptances in those years.

Given the major reforms in Chinese banking during the 2000s and the emergence of other funding channels, the new Xi-Li government in 2013 inherited a serious challenge. Financial regulators had to find mechanisms that would give them policy influence over GDP growth and

Table 5.9 – Economy's Annual Funding from the Financial Sector

Percent of GDP	Total	Shadow Corporate				
		Bank Loans	Foreign Loans	Banking Credit*	ate Bonds	Equity IPOs
2002	16.5	15.2	0.6	-0.4	0.3	0.5
2003	24.8	20.1	1.7	1.9	0.4	0.4
2004	17.7	14.0	0.9	1.7	0.3	0.4
2005	16.0	12.6	0.8	1.1	1.1	0.2
2006	19.5	14.4	0.7	2.3	1.1	0.7
2007	22.1	13.4	1.4	4.4	0.8	1.6
2008	21.8	15.3	0.6	2.7	1.7	1.0
2009	39.8	27.5	2.7	4.5	3.5	1.0
2010	34.1	19.3	1.2	8.7	2.7	1.4
2011	26.2	15.3	1.2	5.2	2.8	0.9
2012	29.2	15.2	1.7	6.7	4.2	0.5
2013	29.1	14.9	1.0	8.7	3.0	0.4
2014	24.7	15.1	0.2	4.0	3.8	0.7
2015	22.4	16.4	-0.9	0.8	4.3	1.1
2016	23.9	16.7	-0.8	1.5	4.0	1.7
2017	23.5	16.7	0.0	4.3	0.5	1.1

*Note: Shadow banking credit includes entrusted loans, bankers' acceptances and trust loans; Sources: NBS 1981-2017, Xinhua 2013a and author calculations Table 5.9

general inflation while preventing alternative financial institutions and instruments from undermining the goal of rapid expansion in low-cost housing for the rapidly expanding urban population. In the first quarters of the Xi-Li government, various forms of 2013 first-quarter funding, including bank loans, trust loans and bankers' acceptances, recorded large increases over the same quarters in 2012 (Figure 5.1). If Beijing were to try to limit this funding surge, it would have had to do so effectively for both loan and non-loan channels.

4. Monetary Policy

China's challenges enabling non-bank financial transactions and instruments both before and after the crisis were in part a result of China's system of administratively managed interest rates. Because of government guidelines for interest rates that financial institutions could offer or charge their clients. Chinese monetary policy – the use of interest rates, reserve requirements and other policy tools to influence overall economic performance – remained heavily reliant on quantitative measures.

Throughout the reform period, rates of return on many competently executed projects were high enough to return investors capital in several years, and analysis of real rates of return on capital, before the financial crisis turmoil, estimate it ranged from 25 percent in 1993 to 17.5 percent in 2001 and finally 21 percent in 2005 (Bai 2006). Administratively guided bank interest rates were much lower than this. The benchmark nominal interest rates for bank loans only ranged between 5.25 and 6.93 percent for the years 2000 to 2012 (NBS 2013c). Benchmark one-year savings deposit rates were never higher than 4.14 or lower than 1.98 percent for the same period. With such low rates, if one could acquire a loan for a decent ordinary venture, the profit could be handsome. However, not everybody could get a bank loan. As we have already seen, bank loans have traditionally made up a small share of investment funding, as low as 13 percent (Table 4.1 in Chapter 4). Instead, most investment funding came from internal self-raised funds rather than government budgets or bank loans, where official interest rates play no role. Low administered interest rates made their biggest contribution to the economy by making a wide range of public-purpose funding more affordable than it otherwise would have been.

In addition to their low levels, officially guided interest rates didn't change very much or very fast. For example, during the effort to cool off the economy after the 2003 anti-SARS stimulus, benchmark bank loan interest rates didn't change at all until late 2004, and even then only rose by a quarter of a percentage point. A similar pattern appeared during the effort to cool off the economy from post-crisis overheating in 2010. Benchmark lending rates only rose one half of a percentage point through early 2011 and only another three-quarters of a percentage point into 2012. Both these periods witnessed significant drops in bank lending – but not because of interest rate shifts.

Instead of interest rates, policy makers' main tool for managing financial flows was bank lending credit quotas, usually set for a year but adjusted as inflation, growth rates and other circumstances warranted. Quantitative restrictions not only limited total credit volumes, they frequently indicated which kinds of projects could be funded and which not. The discipline of credit quotas and guidelines explains why even though bonds, trusts and bankers' advances

could expand their scope, as long as most of the transactions remained on the interbank market, where banks were the primary source of funds, the credit quota system still had dominant influence over credit availability throughout the system.

Not only did interest rates give policy makers little with which to manage economic cycles, the small changes in deposit rates over time frequently functioned in a pro-cyclical fashion, adding demand pressure when the economy was heating up and restricting demand pressure when the economy had slumped. This came about because policy makers never adjusted deposit rates adjusted quickly or far enough in response to consumer inflation. When the consumer price index surged, deposit rates typically changed very little if at all for quite some time. As consumers saw inflation eating away the value of their deposits, they tended to withdraw cash and spend it. So when inflation heated up, consumers had incentives to spend even more. Conversely, when a credit tightening slowed the economy and dropped inflation close to zero, deposit rates, which by that time had risen somewhat from their rather stable norm, stayed higher for quite some time, so that inflation adjusted deposit rates were more attractive. Consumers had less incentive to withdraw funds for major purchases and hence didn't stimulate the economy as much as they might have if deposit rates had dropped when inflation levels did. Just when the economy needed some consumer spending, the combination of higher deposit rates and low inflation made saving money instead of spending it more attractive.

Overall, China's system of relying more on quantitative, quota- and target-based, monetary policy gave China flexible tools for the financial crisis years. When confronted with the combination of its own domestic economic slump in 2007-2008 and the panic and trade disruptions from the global financial crisis, China was able to move quickly to push money from banks into productive investments and other projects. Chapter 8 presents a fuller analysis of how China's financial mechanisms, rather than being an example of government interference in otherwise healthy market operations, is really an example of government optimization of financial market systems which, left to themselves, have dysfunctional aspects for poorer countries seeking to raise living standards quickly.

5. International financial developments

Just as China's domestic finance faced shocks and complex new dimensions in the 2000s, so did China's international finance. The major shocks were speculative capital inflows triggered by low U.S. recession interest rates and the subsequent rapid expansion of U.S. demand for Chinese assembled exports, driven by a U.S. consumer credit bubble that paralleled the U.S. housing market bubble. Both brought significant increases to China's foreign exchange reserves and underpinned U.S. attacks on China's exchange rate, claiming it was severely undervalued. The most important new institutional dimension was China's entry into the World Trade Organization (WTO), which brought a rapid increase in foreign investment, especially in assembly trade, as already mentioned.

An unexpected benefit from two shocks, the Asian financial crisis and the U.S. recession of 2001, was China's establishment in 2004 of a special supportive relationship with the economy of Hong Kong that eventually allowed Hong Kong citizens to hold RMB and establish RMB deposits in Hong Kong banks. Known as CEPA (Closer Economic Partnership Arrangement), the

new arrangement was also a follow-on to the 1997 conversion of Hong Kong from a British colony to a special administrative region (SAR) of China. The mainland concluded a similar agreement with a second SAR in what had been the Portuguese colony of Macao. CEPA gave Hong Kong tariff preferences over time in addition to those under the WTO, to which the Hong Kong SAR had acceded when the China mainland did. CEPA also expanded the number of Hong Kong banks that could operate on the mainland, and it significantly increased the allowable flow of mainland tourists to Hong Kong and Hong Kong tourists to the mainland. CEPA initially benefitted Hong Kong's economy in numerous ways, but it also later laid the foundation for dramatic international RMB reforms in the financial crisis aftermath.

In this period Hong Kong also played a growing role in the exchange rate controversy. The exchange rate controversy brought speculative pressures on China's capital account financial flows through Hong Kong, which affected the mainland's monetary policy. Related RMB appreciation expectations encouraged Hong Kong RMB holdings and brought significant business to Hong Kong's RMB non-deliverable forward market. China's capital controls were designed to prevent speculative and other disruptive flows from interfering with the orderly management of China's domestic economy. For example, one aspect of China's foreign exchange controls before the financial crisis was that foreigners could not invest directly in China's stock markets; they had to use the foreign-currency-denominated B-shares market rather than the purely domestic A-shares market. But with improved banking and other relations through CEPA, mainland company listings on Hong Kong's stock market provided an alternative channel for foreign funding to invest in the mainland's economic expansion.

Complications from Hong Kong's closer economic relationship with the mainland induced longer-term benefits for China. Because the rapid improvement of commercial links with Hong Kong made it increasingly difficult to control unauthorized capital flows in both directions, China strengthened its monitoring and management of financial flows with Hong Kong. The success of these efforts paid off in largely insulating China from the overextended international investments and credit positions that made so many other countries vulnerable to 2008-09 financial crisis damage. In this way China became an example for countries after the financial crisis which, in light of the crisis' damage, worked to establish capital controls as an optimal form of foreign financial flow management. This post-crisis movement in favor of capital controls used China's successful experience to support criticism of traditional pressures for capital account convertibility – a policy of unhindered free international financial flows recommended by developed countries and the international financial bodies they led.

Adequate capital controls also provided a significant degree of freedom for China's domestic monetary policy, because without free in and out financial flows, China's interest rates and credit policies stayed basically independent from the influence of financial conditions in large developed countries. The standard formula for maintaining monetary policy independence without capital controls was to recommend flexible exchange rates. The negative consequence of such combination for China in an environment when the United States was generating a globally significant credit bubble would have been not balanced flexibility but a distorted one-way exchange-rate shift potentially harmful for Chinese employment growth – a kind of “Dutch disease” (Chapter 11). By keeping its capital controls adequate in this period and preserving its

ability to set its own monetary policy, China remained prepared to respond to both its own domestic fluctuations and the shock of global financial collapse.

CEPA reforms also helped prepare the way for China's innovative relaxation of controls on the international movement of the RMB. Under CEPA, China eventually began allowing Hong Kong citizens to return to Hong Kong with limited amounts of RMB on each trip, a privilege that eventually became the right to convert a small amount of Hong Kong dollars to RMB on a regular basis. The middle-2000s exchange rate controversy created a climate of expectancy for long-term RMB appreciation; with appreciation, Hong Kong residents holding RMB would see their holdings increase in value over time. In such a climate, RMB holdings by Hong Kong citizens increased faster than they would have merely to facilitate tourism. These limited RMB accounts became the starting point for China's post-crisis program of RMB internationalization.

With expectations high for RMB appreciation in the middle and latter 2000s, businesses trading with and operating in China were interested not only in the direction of RMB exchange rate adjustments, but in how far and how fast it would increase in value. Hong Kong, with its dollar pegged to the U.S. dollar, was especially sensitive to the possibility of RMB-U.S. dollar fluctuations, and as a result of RMB revaluation concerns, Hong Kong already had a well-functioning non-deliverable forward market, since the RMB funds needed for an actual forward market were unavailable outside the mainland.

China, in anticipation of abandoning the RMB's peg to the dollar, established foreign exchange trading on the interbank market in May 2005 through an arm of the central bank, the China Foreign Exchange Trading System (CFETS). In July China ended the peg, allowing RMB-U.S. dollar rates to change, and in August the central bank issued new regulations enabling a broadening of foreign exchange forward markets, which had already existed in limited form through several banks. These derivative markets were strictly regulated to avoid currency speculation and were a significant step in the development of China's international financial system (Peng 2006).

China's trade surpluses and foreign exchange reserves were naturally an important part of the exchange rate controversy, even though at its beginning in 2002 the reserves weren't large and China's global current account surplus was a small part, only 8 percent, of the U.S. trade deficit. But from 2002 to 2008, China's trade surplus increased dramatically, and foreign reserves went from 300 billion to nearly 2 trillion U.S. dollars. By the end of 2013 reserves were over 3 trillion dollars. While that sounds like a lot, by one important measure it was not. China's large economy naturally had a large money supply, which was potentially the source of demand for Chinese purchases of foreign currencies, if permitted. In international currency crises, other countries had lost large sums of foreign exchange when counted as a share of their money supply. In the 1977-78 Asian financial crisis, Singapore lost foreign exchange worth more than 30 percent of its money supply. In 2012 China's foreign reserves were 22 percent of its money supply, about the same as for India and South Korea and significantly less than for Malaysia, Indonesia, Thailand, Philippines and especially Singapore, which in 2013 held foreign reserves equivalent to 67 percent of its money supply (World Bank 2013). It is therefore worth analyzing China's foreign exchange reserves not as an absolute value, but as a stock of resources relative to the potential needs of such a large country. Reserve comparisons with the United States or

euro-zone countries are especially misleading, because those countries' domestic currencies were also global reserve currencies and, in principle, in unlimited supply for them.

All in all, as a consequence of WTO accession, assembly-trade foreign investment inflows, exchange rate attacks, trade surpluses and a large reserve buildup, China's decade leading up to the financial crisis was full of both reform and controversy. Not only did this experience help prepare China's economy to perform well during the global financial crisis, but it showed a possible alternative path for poor countries trying to grow fast. The standard theoretical idea at the time was that rich countries should run surpluses and poor countries should run deficits, as capital flowed from rich countries, where returns were lower, to poor countries where investments brought higher profits. This thinking's drawback for poor countries was that it left them in debt, with significant foreign ownership of assets, and with shortages of foreign exchange. The U.S. consumer credit bubble leading up to the financial crisis resulted in a rapid accumulation of Chinese foreign reserves, and China's overall approach, including controls on international capital flows and a managed exchange rate, illustrated an attractive alternative to theories which, although promoted by leading industrialized countries, had questionable long-term benefits for poorer countries and their overall economic modernization.

H. China's economy before the global crisis – on the eve of the 2008 Olympics

One overarching conclusion from China's economic development coming into 2008 was that it was cyclical in nature, with periods of faster and slower growth and higher and lower rates of inflation, especially in real estate. The cycles resulted from domestic factors, often in a rhythm by which stimulus resulted in over-stimulus, triggering a tightening overreaction that caused slower growth requiring stimulus again.

In the middle of 2007, with the economy growing at an overheated rate of 15 percent at midyear, China introduced a round of tightening intended to dampen food price inflation and cool off a threatening real-estate bubble. As a result of credit tightening policies, GDP growth measured quarter-to-quarter began slowing in the second quarter of 2007, and by the third quarter of 2008 had dropped to 7.5 percent on an annualized basis (Figure 5.1 in Chapter 5). Real estate investment data show that in August of 2008, the month China hosted the Olympics, investment in all real estate was 14 percent below where it had been a year earlier (Keidel 2009). Monthly price changes for new home sales (Figure 6.4 in Chapter 6) also show that the 2007-08 credit tightening had worked quickly – the rate of month-on-month price increases (annualized) in two months dropped from 25 percent to less than 5 percent. The supply of housing ready for sale in 2008 was 14 percent less than in 2007 (Table 6.3 in Chapter 6). By the time the global dimensions of the U.S. financial crisis erupted with the bankruptcy of Lehman Brothers in mid-September 2008, China's economy was already in a significant domestically induced growth slowdown.

These and other data make it clear that China's domestic economy on the eve of the financial crisis needed stimulus with or without an external shock from the collapse of trade credit systems and the shrinking of export markets. Hence, when the crisis struck, China had a double challenge – to re-stimulate its domestic economy and provide enough growth to counter the expected impact of slower world trade and domestic consumer demand's psychological

reaction to the prospect of a severe global downturn. However, given its domestic reforms over the previous ten years and having achieved a healthy international financial situation, China was in a good position to respond to the crisis.